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SITUATION AND OUTLOOK WITH REGARD TO REGIONAL ACCOUNTS IN THE COMMUNITY

Documents of the seminar held in Luxembourg from 30.11. to 3.12.1982

1984

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The papers in this publication were presented at a seminar held under the auspices of EUROSTAT in Luxembourg at the end of 1982. Methodologies regarding the preparation of regional accounts for six European Community Member States were also presented and have already been published separately. It is hoped that this document will prove a useful source of reflection for those interested in regional affairs and the various problems encountered in translating them into statistical terms.

List of documents

01. Statistical needs for Community regional policy
Directorate General for regional policy, Commission of the European Communities, Brussels, Belgium

02. The use of regional accounts in competition policy - Mr. Scott LARSEN
Directorate General IV - Competition - Brussels, Belgium

03. Regionalizing the common agricultural policy: Statistical information required
Directorate General for agriculture, Commission of the European Communities, Brussels, Belgium

04. The European Investment Bank (EIB) as a user of statistics and regional accounts
European Investment Bank, Grand Duchy of Luxembourg

05. The Community system of regional accounts
Statistical Office of the European Communities, Grand Duchy of Luxembourg

06. Demand and supply for regional statistics in the Netherlands
Mr. BROUWER, Centraal Bureau voor de Statistiek, The Hague, Netherlands

07. Some specific aspects of regional planning
Mr. GUARINI, University of Rome, Italy

08. Statistical requirements for regional development programmes in Greece
Mr. ATHANASSIOU, Center of planning and economic research, Athens, Greece

09. Statistical information and problems concerning the breakdown of aggregates by region in Italy
Mr. QUIRINO, Istituto Centrale di Statistica, Rome, Italy

10. Application of the ESA to UK's regional accounts
Mr. RAMPRAKASH, Central Statistical Office, London, United Kingdom

11. Reliability and precision of the regional accounts' results in France
Mr. SICHERMAN, Institut National de la Statistique et des Etudes Economiques, Paris, France

12. The "nonterritorial" region ('extra-regio') in the regional accounts system
Mr. ALTHUIZEN, Centraal Bureau voor de Statistiek, The Hague, Netherlands

13. The provision of economic aggregates at subregional level in the Federal Republic of Germany
Statistisches Bundesamt, Arbeitskreis VGR der Länder, Wiesbaden, FR of Germany

14. The provision of economic aggregates at subregional level in the Federal Republic of Germany
Statistisches Bundesamt, Arbeitskreis VGR der Länder, Wiesbaden, FR of Germany

15. Regional and "departemental" accounts of agriculture in France
Mr. GREINER, Ministry of Agriculture, Paris, France

16. Possibilities for developing regional accounts of agriculture at Community level
Mr. HENRY, S.E.D.E.S., Paris, France

17. Inter-City comparisons of consumer prices and consumers' purchasing power parities
Mr. GUCKES, Statistisches Bundesamt, Wiesbaden, FR of Germany

18. Administrative regions or functional regions ?
Mr. KLEMMER, Ruhr University Bochum, Bochum, FR of Germany

19. Regional equilibrium of goods and services: balanced account or input-output table ? Statistical and methodological problems
Mr. COURBIS, University Paris X, Nanterre, France

20. Developments in interregional input-output analysis; the European perspective of recent Dutch experiences
Mr. OOSTERHAVEN, University Groningen, Groningen, Netherlands

21. Possibilities for regionalising public receipts and expenditures
Mr. BIEHL, J.W. Goethe University, Frankfurt am Main, FR of Germany

22. Financial flows in the regional context: the experience of the United Kingdom
Mr. SHORT, University of Durham, United Kingdom

23. Regional accounts in Spain: Past experience, current situation and future work programme
Mr. MARTINEZ-LOPEZ, Instituto Nacional de Estadistica, Madrid, Spain

24. Situation and perspectives for the work on the regional accounts in Portugal
Mr. CATARINO, Instituto Nacional de Estatistica, Lisbon, Portugal

Document N° 01

STATISTICAL NEEDS FOR COMMUNITY REGIONAL POLICY

Presented by:

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Commission of the European
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Brussels, Belgium.

Statistical needs for Community regional policy

1. The development and strengthening of Community regional policy since the mid seventies has created a considerable demand for regional statistics. The purpose of this paper is to show the uses to which these statistics are put in the various policy areas.

2. The Directorate General for Regional Policy has a number of distinct functions. The most obvious of these is the management of the European Regional Development Fund - both the quota and non-quota sections. It also has responsibilities in relation to other financial instruments - ECSC and EIB funds - as well as participation in the work of coordination of all Community structural financial instruments for which the Task Force, which reports directly to Mr. Giolitti, is responsible.

3. Linked to Fund management but covering the wider regional planning functions is the development of the regional development programmes by the Member States. These programmes and the back up statistical data which accompany them provide the framework and reference points against which the grant of Community regional aid can be assessed and also how national regional aid policies are monitored.

4. A further area of Community regional policy is the assessment of the impact on the regions of particular Community policies. These assessments provide the basis both for attempting to modulate the appropriate Community policies to take account of regional priorities and to show in what way the specific Community actions financed from the non-quota section of the Regional Fund might contribute to the smooth development of the relevant Community policies (e.g. enlargement policy) or might mitigate the worst effects on the regions of those policies (for example in the case of restructuring of crisis sectors).

5. From the point of view of demand for regional statistics, the most important analytic task of the Directorate General for Regional Policy is the preparation of the Periodic Report on the social and economic situation of the regions of the Community. This Report was called for in Council Resolution of 6 February 1979* and the first Periodic Report 'The Regions of Europe' was sent to the Council in December 1980; the next report is due to be completed for mid-1983.

6. On the basis of the Periodic Report, the Commission prepares Guidelines on the priorities for Community regional policy and any necessary draft legislation to implement those priorities. The New Guidelines of July 1981** and the draft revision of the Regional Fund Regulation*** represent the results of the review of Community regional policy which followed the completion of the First Report.

7. In developing Community regional policy, DG XVI is concerned to answer a number of questions, for which availability of regional statistics can help find answers. Some of these are :

   - to what extent do regional disparities exist in the Community ?
   - what is the nature of the economic and social problem existing in the weaker regions ?
   - what are the likely prospects of regional economic and social development in the coming years ?
   - how are regional disparities affected by
     . economic developments generally,
     . national and Community policies ?

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* OJ No. C 36 of 9.2.1979
** COM(81) 152 final of 24.7.1981
*** COM(81) 589 final of 26.10.1981

8. In treating these questions, the overall orientation of Community regional policy is based on the assessment of the extent of adaptability of regions to changing economic circumstances. As we said in the first Periodic Report,

> "The emphasis in the analysis is therefore on assessing the capability of regions to adapt their economies to changing circumstances and to develop their indigenous resources to the fullest extent possible. Improvement of social conditions in the regions is considered to be a consequence of economic development as well as resulting from the policies with social priorities. The Commission takes the view that howsoever policy measures may attempt to solve regional problems by social income transfers from stronger to weaker regions, such policies can have no more than a temporary effect on the income-generating capacity of the weaker regions of the Community."

9. This "economic development" approach affects strongly our demand for regional statistics. The main indicators of regional adaptability are those drawn from production statistics - regional accounts (SEC-REG) as well as agricultural and industrial production data - and manpower statistics (employment and unemployment data). Because regional policy is principally concerned with structural rather than conjunctural factors - although, of course, the two are to a large degree interrelated - we require statistics which show the underlying structure of population, of the labour market and of sectors of production. We also need data which will enable us to assess the likely prospects for the regions in the future, in particular as respects future supply of and demand for labour. A new area of demand is the development of regional statistics for Spain and Portugal in order to assess the implications of their entry into an enlarged Community.

10. At this stage, it is well to mention 2 particular problems in relation to regional statistics. The first is the need to have sufficiently harmonised data at Community level and the second the problem of the definition of regions for statistical and policy purposes. As regards harmonisation, if Community wide analysis is to be meaningful from a policy viewpoint, all efforts must be directed at producing comparable Community statistics.

Eurostat has been endeavouring in consultation with the appropriate Working Group representatives of national statistical offices to achieve this objective, notably in the development of SEC-REG accounts. As you are well aware, however, a great deal more needs to be done in this area. This is even more so for employment and unemployment statistics where comparability between countries leaves much to be desired.

11. Turning to regional definition, the emphasis in Eurostat regional statistics has up to now been on presenting data at level II - the basic administrative units. More recently they have made a start, in cooperation with Member States, at collection of data at level III for Gross Value Added, employment, unemployment and population. This new approach follows the demand from the Commission to have data at finer levels of regional analysis than level II. It is based on the recognition in the First Periodic Report that statistics at level II may often conceal intra regional problems. This criticism was also levelled in the discussions on the Report in the European Parliament and in the Economic and Social Committee. It will, however, be necessary to work towards improvement and development of statistics at level III, both to improve their quality and to develop the range of data. A further problem is the need to review the size of regions in order to establish a basis of analysis which is sufficiently homogeneous to present Community problems in a comparable way. As between countries and even inside Member States, differences exist as regards the geographical size of level II regions and again at level III there are wide variations in regional size. Two particular problems should be mentioned. The first is the definition of level III regions for the Federal Republic of Germany which should correspond more closely with the general scale of regional size in other large Member States; of all 740 level III regions in the Community, 327 are in Germany. This large number adds greatly to the problems of data treatment and may present considerable analytic difficulties. The second problem is that up to now there is no level II regional breakdown for the U.K. The level I regions - standard regions in England plus Scotland, Wales and Northern Ireland - are very large and on that account regional variations in key indicators do not show up as sharply as might

be expected. This is true also for Ireland which is treated as a single Community region.

12. The key areas of analysis of regional disparities are production, employment and unemployment. The GDP and structural unemployment indicators are particularly important. The development of the SEC REG account discussed in Mr. Salvat's paper has greatly improved the statistics of regional value added. We would wish to see further improvement of these statistics, notably as regards harmonisation of presentation of Gross Value Added (e.g. resolution of the problem of treatment of value added taxes) and the more rapid preparation of estimates of GDP. One of the criticisms levelled against us is that the data on production used in the Periodic Report is rather old. I recognise the difficulty of providing GDP figures quickly but it is important at a time of rapidly changing economic circumstances that our analyses should as far as possible be relevant to the conditions in which we live. This is particularly true of regional sector and branch accounts, employment and unemployment statistics. Here I should mention in particular the necessity to have more speedily the results of the Labour Force Survey which is the best source of Community wide labour market data. We also welcome the prospect of the conduct of the Survey on an annual basis.

13. Perhaps the most significant point in the First Periodic Report was the development of a synthetic index which combined GDP per head and structural unemployment (as represented by unemployment having a duration of over 6 months) and which served to assess the gravity of regional problems in the Community. The choice of these indicators followed a detailed factor analysis using all the quantifiable indicators studied in the Report. On examination of the results of that analysis, it was considered that the two key indicators referred to above best represented the factors which largely explained regional disparities. The index was further developed subsequent to the preparation of the Report in order to provide analytic support for the political decision of the Commission in its proposals for the regions in which aid from the Regional Fund should be concentrated. It has also served to assist the Commission in providing - together with other indicators - a Community frame of reference against which to decide on allocation of

aid from the European Social Fund. The updating and development of this index will demand the refinement of the relevant statistics used. I will return to this theme in a moment in the context of looking at possible future statistical requirements.

14. I mentioned earlier the need for data to assess the regional impact of Community policies and to prepare non-quota actions. This work demands studies, often of an ad hoc kind, which frequently go beyond the levels of regional analysis so far discussed. The problem is to identify at a regional level of disaggregation which will show where Community actions are necessary. We must try to develop small area data which will enable us to monitor the development of Community policies so far as the regions are affected. As a minimum, it is necessary to develop sectoral employment data at level III. While, in respect of non-quota actions carried out so far, adequate data have been available for areas affected by restructuring of the steel industry, the same is not true for shipbuilding, textile and clothing and we have had perforce to resort to nationally produced data which was not always comparable from country to country. We consider it important therefore to have adequate sectoral statistics at level III for all industries but especially so for crisis industries.

15. Before concluding, it might be useful if I put before you some further ideas for future development of regional statistics. First it will be necessary to refine the data on level III now being collected to ensure its quality and comparability across the regions of the Community. We should also try to extend the range of data at level III and to ensure regular updating. I think too, when we descend to such a disaggregated level of analysis, we must face up to the statistical problems involved. One particular one is the dilemma posed by people who live in one region and work in another. This is a problem which exists at all regional levels (e.g. the problem of evaluating GDP per head for German city level I regions) but it is likely to be more acute the greater the degree of disaggregation of regional analysis.

16. A number of suggestions have been made from time to time for improving the regional statistical base (e.g. use of labour market travel to work areas as statistical units). The problem is to find regions on a Community wide basis which have sufficient homogeneity for policy analysis. Solution of the problem is not easy. Moreover, any appreciable change in statistical regions raises the difficulty of breaks in time series data.

17. Another suggestion is the preparation on a Community wide basis of statistical profiles of the regions. A number of Member States already prepare such profiles but the type of analysis carried out is not consistent from country to country. Such profiles could capture the essential characteristics of regions which are of interest to the regional policy makers - whether at national or Community levels. They could also serve to present relevant intra regional data as well as those qualitative elements about regions which are not capable of statistical assessment.

18. One of the criticisms levelled at regional accounts is that they do not adequately capture the flow of resources as between regions. One way of meeting this criticism is to develop a suitable system of public sector accounts on which work is at present being carried out. This does not, however, cover flows of private resources. Consideration might be given to developing statistics on both public and private flows of funds. What we are seeking is a set of tables covering

- regional expenditure broken down into consumption and investment elements
- personal income and expenditure.

To this might be added a regional inventory of the labour force. Some work on this approach has already been done for Italian and U.K. regions and it is worth considering how far this might be extended to other Community regions.

19. I return to the development of the synthetic index. In order to identify the factors which combine to explain regional disparities, we will need to carry out a factor analysis which will use all the quantifiable indicators relevant to analysis of the regional problems in the Community. The analysis carried out in drawing up the index presented in the first Periodic Report used 13 indicators. This time round we would hope to use a good deal more. Looking further into the future, the sort of indicators we might a priori think about in constructing our "ideal index" might cover the following :

- net domestic product at factor cost for a recent year calculated at current prices and exchange rates per worker hour
- GDP per unit of investment (private and public capital)
- infrastructure stock
- professional education level of those of working age
- total unemployment for the last three years on the basis of the extended definition of unemployment used in the Labour Force Survey
- expected unemployment in 1990
- a synthetic indicator of quality of life.

I mention these as the types of data we could expect to see emerging in an ideal index to give you an appreciation of the focus for regional statistics that we might look towards in the future. Because the ideal is not of this world, and subject to whatever our next factor analysis shows, we will of course have to make do this time with whatever indicators of those at present available can most nearly represent the concepts I have mentioned.

Document N° 02

THE USE OF REGIONAL ACCOUNTS IN COMPETITION POLICY

Presented by:

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The use of regional accounts in competition policy.

A. The policies behind the Assessment of Regional Aids.

1. The Commission is concerned with the problems of aids given to companie in order to attract them to certain regions in two different policy are On the one hand it has the rules of competition to follow based on EEC Articles 92-94 when examining national regional aid schemes. On the other hand the Community has developed its own regional policy and awar aids through the European Regional Development Fund.

2. Whereas the Community's regional policy will be described in another presentation the aim of the competition policy is to control aid which distorts or threatens to distort competition is so far as it affects trade between Member States. Such aid is incompatible with the common market. According to the derogations provided for in Articles 92(3)(a) and (c) the Member States are allowed, however, to grant regional aid where it can be established that without this aid, market forces alone would be insufficient to guide the recipients towards patterns of behavi that would serve one of the aims of the derogations.

3. The derogations are the following:
   - the aid must be designed to promote the economic development of areas where the standard of living is abnormally low or where there is seri underemployment or
   - the aid is given to facilitate the development of certain economic ac vities or of certain economic areas, where such aid does not adversel affect trading conditions to an extent contrary to the common interest.

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B. Regional accounts and the delimitation of national assisted areas.

4. When the Commission examines national aid schemes under Article 92 et seq. it is confronted with a choice of areas which has already been made. The methods and criteria used to make that choice are the ones which for economic and political reasons have been applied by the national governments. In adopting principles of coordination of regional aids valid for the whole Community in 1975 the Commission confirmed that it takes account of the fact that the Member States have the best knowledge at the national level of all the significant facts required to assess the needs of their regions. Since the characteristics of regional problems and indeed of the political considerations - such as budget and philosophy - differ from one Member State to another the methods and criteria retained by the Governments also vary.

5. To grant one of the two derogations mentioned above one must evaluate the standard of living as well as the level of underemployment of regions. This means that the Commission must satisfy itself that the regions concerned are experiencing difficulties which are serious enough, not only in a national context but also in a Community context, to warrant the grant of aid at the level proposed. In other words the aid must be necessary and the intensity of it must correspond to the gravity of the regional problem to ensure attainment of the objectives set out in Article 92(3)(a) or (c).

6. While there exist already several problems in undertaking a socio-economic analysis on a national level hereby detecting the national disparities, the problems multiply when it comes to the Community comparison. Here the lack of harmonized statistics is apparent for the reasons mentioned under points (a)-(c) below.

The harmonized statistics necessary when examining regional aids under Article 92 et seq. are the ones covering:

. the standard of living and economic development
. the structure of the economy
. the employment situation
. the demographic changes.

all given at an appropriate regional level in an appropriate form and at regular intervals.

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With regard to the first indicator it is usually GDP at market prices and current exchange rate which is used despite the problems involved i.e.

(a) The regional level

The harmonized statistics which are produced by SOEC- and the natic nal statistical offices concerns exclusively the level I and II re- gions of the Nomenclature of Territorial Statistical Units. The obtaining of the statistics at these levels is of course essential the appreciation of the overall regional problems. However, they are not sufficient since the areas which the Member States operate with in their national regional aid schemes correspond to a level much closer to level III and for some even below level III . The Cc mission therefore in its socio-economic analysis under Articles 92 and 93 uses level III regions as well since it can not a priori exclude a region from aid just because it is smaller than level I and II.

As harmonized figures for income do not exist on level III for all Member States attempts are made to calculate the indicators for level III on the basis of the level II value. If the national GDP figure does not exist on this level then other income indicators are used. However, this method assumes that the income indicator one uses for the level III region has the same distribution as the GDP indicator would have had if such an indicator existed on level III Furthermore, the income concept used in this way is not the same fc all Member States. In one Member State it is taxable net income while in others it may be either gross value-added at market prices or gross value-added at factor cost. This of course can lead to erroneous conclusions.

(b) The flow of data

A further complication arises when recent data is not available either from SOEC or from the national statistical offices. For the user who has to deal with the problems of today it is not satisfact ry to be using data which are several years old. Although income in general does not change very much from one year to the other (unlik for example unemployment) one must here consider the small geogra- phical level we are dealing with where the numerical differences ca be greater and hereby of importance to the individual region. E.g.,

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the closure of one plant in a small region may not only have a dramatic effect on unemployment in the region but also on income

Furthermore, what is left of the comparability between the European regions when taking into account the estimated GDP figures for level III is weakened when not only the data fall behind but different base years have to be used from one Member State to the other. What is needed is therefore a more constant up-to-date flow of income data.

(c) GDP at market price and current exchange rate.

It can be questioned whether the statistical series used actually measure the desired phenomenon (standard of living and the economic potential of a region). This is so since the smaller the region, the less appropriate this indicator may become. Taxes on local production or profit flows in and out of the region and can for certain regions become more important than at the national level. Take for example a small region dominated by a cigarette factory (high taxes), or a large very profitable capital intensive industry (large profit out flows), or one dominated by wealthty retired people (large profit inflows). GDP at market price would in these circumstances not be an adequate indicator, and would even lead to a grossly distorted picture. Only a wider reaching less automatic appreciation would bring to light such problems.

7. Having said that it must be added that in appreciating the socio-economic situation of a region in the context of the examination under Articles 92 et seq. the Commission does take into account a wide range of other indicators in order to throw proper light on the region. However, the use of regional accounts in this analysis is an important one which plays a major role. It should therefore be stressed that the Commission needs a constant flow of comparable income figures which can give a proper illustration of the standard of living and the conomic potentials in the regions of the EEC.

Document N° 03

REGIONALIZING THE COMMON AGRICULTURAL POLICY
STATISTICAL INFORMATION REQUIRED

Presented by:

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REGIONALIZING THE COMMON AGRICULTURAL POLICY - STATISTICAL INFORMATION

REQUIRED

1. During the 60s when the Common Agricultural Policy was gradually being implemented, the main concern was initially to establish a common market in agricultural products. Common organization of the markets in various products, common price policy and common trade policy were the principal instruments for the realization of a common market and the establishment of links between it and the rest of the world. Consequently, the development of these instruments clearly stood in the forefront of policymaking during this phase. However, the problems of European agriculture are still far from having been solved.

2. Right from the outset, structural diversity in every respect has been a central characteristic of European agriculture : differences in the natural conditions for production (soil, climate), differences in the size of holdings, specialization, production methods and differences in the ages and levels of education of the farmers have always been accompanied by differing developments outside agriculture, i. e. in the economic and social context. All these differences developed, intensified and became entrenched over the centuries in the hermetic atmosphere of the individual states and, obviously, they did not simply disappear with the introduction of the Common Agricultural Policy. For the most part they continue to exist even today and have even been intensified as a result of the enlargements of the Community in 1973 and 1981.

3 It is virtually impossible to cope entirely with this diversity by means of the common marketing and price policies alone. Indeed, if one and the same policy is applied in the same way in different situations, this will by no means necessarily lead to equally good results in all cases. There is even the danger that it can aggravate existing differences still further.

A good example of this is the regional differential between agricultural incomes in the Community. There can be no doubt that the various regions of the Community have different natural resources and there have always been structural inequalities between them. Even before the establishment of the Community and the introduction of the Common Agricultural Policy, these differences were reflected in considerable variations in productivity and incomes. However, despite the fact that certain parts of Ireland and North-eastern Italy would appear to be catching up, the differences nevertheless increased during the 70s.

4. At regional level, a clear link can be seen between developments in incomes and the economic infrastructure outside farming, on the one hand, and agricultural incomes on the other. It clearly shows the great extent to which developments in agricultural structures and incomes in a particular region are influenced by general developments in the economic situation. However, price and marketing policy have also played a part in this intensification of regional disparities. Two major reasons for this might be mentioned. Firstly, in view of the nature of their produce (cereals, milk and sugar), the more prosperous regions of the Community receive greater support than the less favoured regions, particularly in the Mediterranean area, which produce mainly fruit, vegetables and wine. Secondly, the common organizations of the markets generally tend to give preferential treatment to large holdings with efficient production structures and correspondingly high incomes. However, these holdings are also typically found in the more prosperous regions. In fact, according to the Commission in its communication to the Council of December 1980 concerning the Common Agricultural Policy, it is only in recent years that increased attention has been paid to products typical of the Mediterranean area or economically or naturally less favoured areas in general.

5. Thus the durum wheat premium granted exclusively in certain southern regions of the Community and the tiered system for the milk co-responsability levy based on regional characteristics are the first signs of a change of policy stemming from the wish to help certain regions by means of the price instrument. A further example of the account which is beginning to be taken of regional considerations is the diversification of table wine prices on the basis of the sorts typical of certain regions. Similarly, in the case of the types of tobacco covered by the common organization of the market in tobacco, account is taken of the strains which are characteristic of quite specific regions of the Community. Finally, in 1978 the political will embodied in a programme aimed at benefiting certain regions through the price instrument became apparent at the discussion of the Mediterranean package, which principally involved the introduction of a special system within the common organization of the market for certain processed fruit and vegetable products.

6. Overall, however, marketing and price policies can have only a very limited influence on special regional problems. The same is true of structural measures such as aids to modernization which apply throughout the Community. The granting of such aids is of necessity subject to certain conditions which are only rarely fulfilled in special problem areas.

On the other hand, structural policy has a considerable advantage over marketing and price policy in that, when necessary, it can be adapted to different regional , local and even, in extreme cases, individual circumstances. The Community has made use of this flexibility and, in recent years, has developed the regional aspects of structural policy more and more.

7. In an initial phase, special aid measures were developed for agricultural areas at a particular disadvantage because of natural conditions, such as climate or altitude. In these areas, agriculture often fulfils important functions which go far beyond agricultural production pure and simple. For example, it plays a great part in maintaining and preserving the landscape. Thus, if entire areas of the Community are not to become uninhabited waste land, it is vital that a minimum of agricultural activity is maintained in the problem areas and, with this end in view, provision has been made for subsidies and preferential terms for loans and reduced interest rates. These aids lie at the intersection of social, agricultural and environmental policy. They apply to a good 20 % of the total area of the Community and are laid down in Directive No 75/268/EEC of April 1975, which was adapted and amplified in April 1980 on the basis of experience.

8. In certain agricultural regions of the Community, particularly the Mediterranean, but also in Ireland, a variety of unfavourable conditions together conspire to impede almost totally the development of the agricultural sector which is so vital to these regions since it employs a large proportion of the population.

The majority of holdings are small, in many cases too small, family holdings and it is not uncommon for production to be dangerously one-sided. In many cases the agricultural sector is overmanned and agricultural workers are in fact chronically underoccupied. This results in low productivity and low incomes. The scale of further processing and marketing of the products is limited and, often for this reason, inadequate advantage is taken of available sources of revenue. Attractive jobs outside agriculture are hard to come by and unemployment has reached disturbing levels, particularly since the onset of the economic recession in the 70s. Furthermore, in many cases the rural infrastructure is inadequate and there is a lack of public services.

With a view to eliminating at least the major obstacles to development, the Comunity has adopted, since the end of the 70s, a series of special measures for these regions, in particular, the Mediterranean regions, Ireland, Northern Ireland and Greenland. Depending on the specific situation, they involve schemes for the restructuring of production, irrigation and drainage projects, specific improvements in the processing and marketing of agricultural products and various infrastructure measures to improve the public services.

9. In agricultural regions with major problems, sectoral programmes alone are often not enough to set a lasting development process in motion. For this reason, programmes should be developed from the outset with a view to fully integrating agriculture into the overall economic and social context of the region.

In other words, cohesive multi-sectoral development strategies must be devised. Integrated programmes of this kind should also permit the resources available from the various financial instruments (EAGGF, Regional Fund, Social Fund, loans from the European Investment Bank, etc.) to be used primarily and specifically for the development of the least-favoured regions. Integrated regional development programmes were adopted for several regions in 1981 and are currently being implemented.

10. The planning and execution of regional development projects must take place on a decentralized basis, i. e. at regional level, which is where awareness of the problems that exist is greatest. Moreover, only solutions which have the support of the regional population are really likely to prove convincing and produce long-term results.

However, projects in the individual problem regions must also be coordinated with developments and plans in other regions of the Community with a view to avoiding the promotion of certain types of product leading to production outpacing the anticipated developments in the market for the products, or progress in a particular region being exclusively at the expense of neighbouring regions. Thus, account should be taken of comparative regional cost advantages in the Community and, insofar as this is possible and useful, at international level also, in the planning of regional development measures. This necessitates central coordination of the individual projects, i. e. there should be constant feedback between the central coordinating body - in this case the Community - and activities at regional level.

11. The framing of regional development measures and their coordination and monitoring at super-regional level call for a great deal of detailed information on the regions in question and, what is more, if various projects have to be coordinated, their overall economic effects assessed and their success and consequences monitored, comparable quantitative and qualitative information is also required, at least in principle. In many cases, this information is only available in the region itself and must therefore be collected on the spot and prepared for further use. Other information - mostly of a quantitative nature - is contained in national or Community statistics, but must occasionally be amplified, in the interests of improved interpretation, by qualitative background information which again tends to be available only in the region itself. In a number of cases, however, the requisite statistical information is completely lacking and other data based to a greater or lesser extent on guesswork have to be used instead.

12. In connection with its Mediterranean programme and the integrated regional development programmes, the Directorate-General for Agriculture has had a number of regional studies carried out in less-favoured regions, primarily with a view to obtaining information. In each case, the studies were designed first and foremost :

- i) to obtain an overview of the current economic and social situation and recent developments in the region ;

ii) to obtain a picture of relations between economic sectors in the region ;

iii) to obtain a picture of relations with other regions (interregional flows of goods, labour and capital).

13. The following information sources were usually used :

i) official statistics published by the Community, the Member States or the regions themselves ;

ii) statistics compiled by public or private institutions, such as research centres, universities, labour offices, chambers of commerce and industry, banks, professional organizations ;

iii) a very limited number of own surveys conducted on a sample basis.

14. During the analysis of the statistical material, a number of difficulties were encountered, particularly in problem regions, which could not always be completely overcome.

a) there were frequently substantial discrepancies between Community, national and regional statistics on, for example, the employment situation which were not readily explicable ;

b) in a number of cases, persons familiar with the regional situation described the available statistical information as very unreliable or even misleading ;

c) when national and regional statistics were used, the scope for comparison at Community level was often severely limited ;

d) certain information was available only for one particular year, with the result that it was impossible to analyse trends. This continuity problem is less pronounced, but not unknown, in official statistics.

e) it was very difficult in a number of cases to analyse the intersectoral links within a particular region and the relations with other regions which are of such vital significance for understanding of regional problems and the planning of development projects.

Thus, the compilation of regional input-output tables, which are vital for integrated regional development planning, as a rule required great efforts and substantial investment.

Document N° 04

THE EUROPEAN INVESTMENT BANK (EIB) AS A USER OF STATISTICS AND REGIONAL ACCOUNTS

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The European Investment Bank (EIB)

as a user of statistics and regional accounts

1. The European Investment Bank's essential task, in accordance with Article 130 of the Treaty of Rome (to which the EIB's Statute forms an annex) is to grant loans and give guarantees for investment projects in all sectors of the economy. This finance comes from the EIB's own funds (capital payments and reserves) and resources which it borrows on the main national and international capital markets.

The Bank's activity and the resources it provides fall within the sphere of banking. Nevertheless, it does not operate on a profit-making basis and the tasks which it is assigned are Community objectives of general interest, i. e. the financing of investment projects such as :

a) projects for developing less developed regions ;

b) projects for modernizing or converting undertakings or for developing fresh activities made necessary by structural difficulties ;

c) projects of common interest to several Member States or to the Community as a whole, which contribute to either the economic integration of Europe or the achievement of Community objectives such as environmental protection, introduction of advanced technology and more especially reduction of the Community's dependence on oil.

A considerable number of the analyses carried out by the Bank are therefore on the micro-economic level and are designed to ascertain the technical, commercial, economic and financial feasibility of the projects submitted.

Since its aim is to serve the common interest, the European Investment Bank is also required to carry out a certain number of analyses, some of which are more especially macro-economic, to answer the following questions in the case of regional development projects :

a) Is the region concerned facing development or conversion problems which justify its claim for regional assistance ?

b) Is the project well suited to present and future needs insofar as they can be foreseen ? (market studies, traffic studies, etc.)

c) Will the project contribute towards an increase in economic productivity in general ? (Article 20 of the Statute) - assessment of economic profitability -

d) What will the project's likely impact be on the economic development of the region ?

e) More generally and in view of the present serious concern about unemployment, how may the project's direct and indirect effects on the maintenance of economic activity and employment levels be assessed, even if only by order of magnitude ?

I will briefly review these five categories of study, mentioning in passing the main statistical data which the European Investment Bank uses for the purpose.

Secondly, I will go on to indicate the improvements in available statistics which we might desire as users, distinguishing between the improvements which seem feasible in the medium if not the very short-term, and those which may only be achieved in the longer term or are simply pipe-dreams, but which could be of value to the European Investment Bank.

2. Demonstrating a region's eligibility : statistics used

As a general rule, the regions which qualify for loans from the European Investment Bank are those areas already benefiting from a certain level of aid under national schemes for regional aid ; in fact, the scope of these more or less correspond to that of the ERDF. However, the situation and the problems of each region for which a regional development programme has been submitted to the EIB is still analysed.

These analyses relate in particular to the regional economic development level as compared with that of the member country concerned and of the Community, the distribution of activity and jobs by major sectors, the unemployment situation, migration, main sectoral problems and, where necessary, certain aspects of infrastructures. They involve assessments of GDP per head of population (preferably at purchasing power parities), statistics on employment, numbers of unemployed, migrant workers, etc.

Except for very major projects involving a whole level II region, data compiled at level III are preferred. Where EUROSTAT data are available, they are always given preference over national sources on account of their greater comparability at Community level.

3. Ascertaining the extent to which projects satisfy needs

Market studies for industrial projects or traffic studies for communications infrastructures, and trends in demand for investment in the energy sector are a fundamental part of ascertaining both the economic value of a project and its commercial feasibility.

The methods used depend on the nature of the goods and services involved, the data available, the characteristics and size of the target market and the problems which were recognized at the outset in the preliminary phase of the analyses.

These methods may invclve the use of elasticity coefficient for revenues and prices, gravity models (road communications), queue models (harbour equipment), comparative methods, surveys or direct estimates, information on technological trends, and analyses of distribution chains, competition and the resources employed by the project's originator to break into a more or less difficult market, etc.

The application of these methods always calls for adequate data, drawn from general statistical observations, highly specialized information collected from the professional bodies concerned or the promoter himself, or requiring specific surveys as the case may be.

4. Evaluating the economic profitability of the project

This involves cost-benefit analyses using elements which have been adjusted where necessary to express the various advantages and costs in terms of economic value. That implies determining the level at which the elements are best recorded from the point of view of the common interest, assessing costs (excluding taxes and subsidies), and even, where necessary, using shadow prices. Assessments of this type call for sound knowledge of the general economic context of the project.

The internal economic profitability rate or, in certain cases, the relative economic profitability rate compared with the reference alternative, provides a vital global indicator in the energy and infrastructure sectors, in particular for ascertaining project efficiency with respect to production factors.

5. Assessing the regional economic value of the project and its foreseeable impact on the economic development of the region concerned should generally complete the procedure for ascertaining eligibility. It is vital for the project to contribute towards solving regional economic problems.

Evaluating effects in terms of job creation or stability is an important factor in assessing industrial projects but cannot constitute a criterion on its own.

The main function of industrial investment is to create or maintain production capacities which are efficient and competitive enough to guarantee reasonable sales on the market. The main value of such investment is to strengthen undertakings, the structure of sectors or regions. Only on this condition will continuing jobs be safeguarded.

In the case of investments in energy and other infrastructure sectors, the emphasis lies more on the needs to be met and the bottlenecks to be eliminated, and, generally speaking, estimating the extent to which the project should contribute towards developing existing production capacities and creating fresh activities.

Two sorts of information are important for these assessments, i. e. statistical and economic data which describe the situation in the region before the project, and the regional development programme (where this is sufficiently explicit) which defines the objectives to be attained, the investments to be made and the resources to be used.

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Naturally, the degree to which these various types of analysis are carried out vary from case to case. The European Investment Bank is in fact concerned with carrying out meticulous investigations of the projects submitted and gauging the efficiency and economy of the resources involved. This means that the scale of the studies must be related to that of the problems encountered and the questions one can reasonably expect to clear up.

5. Wider assessment of the direct and indirect short-term effects on employment of all projects financed.

Calculations of this sort are in fact a consequence of the fact that the European Council of March 1977 requested the Board of Governors to direct the EIB's future activity towards maintaining investment and creating jobs.

Results achieved to this end should therefore be reviewed periodically. The total number of jobs created or safeguarded as a direct result of the projects financed gives only a very limited view of the impact on the employment situation. Basically, permanent jobs are a consequence of industrial projects. When growth slows down or there is a recession, the demand for finance is weaker and tends to centre on investments for rationalization and modernization rather than development or the establishment of fresh activities. On the other hand, a considerable number of applications for finance relate to energy installations or infrastructures and their effect on employment is felt most where construction extends over several years (at times even five or ten years). Whence the idea of demonstrating investments' direct and indirect short-term effects on employment during the construction period.

To this end, when investments are evaluated, the European Investment Bank produces a breakdown of the costs in order to indicate the demand for goods and services created in the various branches of the economy. Subsequently, an input-output model and EUROSTAT input-output tables are used to establish the approximate number of man-years supported by investments to which the European Investment Bank has contributed during the past year. This figure may next be broken down, using the time schedule for the various categories of projects, to provide an approximate assessment for the current year of the number of workers whose activity has been supported by Bank finance of previous years.

An interesting by-product of these calculations is the assessment by major investment categories of the short-term effect on employment and of the fraction of the project costs corresponding directly or indirectly to wages paid. There can be no question of using such findings as selection criteria or in justifying the project economically as this can only be done by analyzing the benefit the investment is expected to return in relation to its cost.

On the other hand, information on the direct and indirect wage component of project cost may be a very useful factor in interpreting the economic profitability. It may even enable a "shadow price" for labour to be taken more easily into account.

At this point I would like to thank the Statistical Office of the European Communities in particular for the invaluable help they have given the European Investment Bank in providing inverse matrices of the input-output tables and performing the calculations required to implement the model.

6. Future trends in some statistical data and possible applications by the EIB.

A distinction should be made here between what seems feasible in the short or medium term and what belongs to a much more distant future or to the realm of pipe dreams.

6.1. In the category of improvements which seem feasible in the relatively near future, three areas may be mentioned :

- The systematic processing of regionalized data at level III ;

- The preparation of indicators relating to the main economic and social infrastructures in regions ;

- Speedier preparing of input-output tables (up to 1981 only the 1970 tables were available ; when will the 1980 tables come out ?) and if possible, a presentation of imports to enable a breakdown by country for imports originating from other member countries.

The two first types of improvement would be very useful to the European Investment Bank, particularly for demonstrating the degree to which regions qualify for loans and evaluating the impact of projects on regional economic development.

The improvements to the input-output tables are aimed in particular at increasing the reliability of the input-output model's results with a view to assessing the direct and indirect short-term effects on employment. At the present time it would enable account to be taken of changes occuring in the structure of the technical coefficients, in particular in energy uses (replacement of oil, more rational use of energy) and as a result of investments for modernization. More detailed treatment of imports would also facilitate the evaluation of the effects within the Community but outside the country where the project is located.

6.2 With regard to those developments which are conceivable in the longer term, I trust I am justified in giving free reign to my imagination and forgetting for the time being the inevitable constraints of time and money.

I may perhaps err on the side of caution in putting the production of genuine regional accounts into this category. I am sure the spekers who will be dealing with this subject during this seminar will forgive me for this. In fact I would be really delighted if I can reclassify regional accounts under improvements feasible in the very short term as a result of what they say.

As far the European Investment Bank is concerned, the main uses of regional accounts would no doubt be regional analysis and the evaluation of a project's impact on the regions, although some items could perhaps be used for studying requirements. Without wishing to encroach on what other speakers will be saying on the subject, I feel there are important choices to be made concerning the territorial level at which accounts are drawn up and their level of disaggregation. Personally, as a potential user once again, I consider it preferable to forego a very fine territorial breakdown for the sake of better disaggregation of agent's and transaction accounts, and more especially of the "external" account.

Secondly, one may always dream of the possibility of basing the study of regional industrial policies and of project's impact on a battery of regionalized input-output tables ; here again, one wonders whether the territorial level on which they are based (level I ?) should not be foregone for the sake of a breakdown into a sufficiently meaningful number of branches and adequate treatment of external purchases.

Lastly, I will simply touch on two areas where long-term research is conceivable :

- The introduction of a system of regionalized purchasing power parities involving price surveys and weighting coefficients ;

- The establishment of objective indicators of the seriousness of regional problems, by applying sectoral analysis to a series of carefully chosen variables.

7. To conclude this short paper on the EIB as a user of statistics and regional accounts, may I voice two misgivings.

The first concerns my intrusion into a very technical discussion among highly qualified statisticians with my rather self-centred concerns as a user ; in other words I have compounded your problems rather than helping to solve them.

Secondly, while I am showing some appetite for certain conceivable additions to the menu, I would not like it to be felt that I do not fully appreciate the quality of the fare currently served up by the Statistical Office of the European Communities. On the contrary, the value of the present service merits the greatest respect and the most sincere gratitude on the part of a modest user like myself.

I fully appreciate how invaluable it is for our work, mindful as I am of the Koran's warning, "Woe betide those who weigh with false weights".

Document N° 05

THE COMMUNITY SYSTEM OF REGIONAL ACCOUNTS

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THE COMMUNITY SYSTEM OF REGIONAL ACCOUNTS

1. Regional accounts in the countries of the European Community involve a great deal of work not only by the National Statistical Institutes but also by consultancy bureaux, university research centres and professional bodies. The work varies according to the accounting model, nomenclature, territorial coverage and analytical concept. Therefore, traditions have developed in each country in line with institutional structures, information requirements and statistical sources.

2. The Community system of regional accounts basically answers the need to provide the institutions of the European Communities, and principally the Commission, with the statistical means of macro-economic analysis required to implement economic and social policies taking account of regional criteria.

   Given the national variations within the Community, it has been apparent from the outset that these means would have to be developed with a dual aim: making the data already available in some countries comparable, and encouraging the introduction of work in countries where no such information was compiled.
   Furthermore, since it was a question of establishing statistical means to serve a basis for decisions by the Community institutions, the cooperation of the National Statistical Institutes was required since they were the obvious choice for covering the entire national territory and introducing uniform procedures at this level.

3. The Community system is not an ideal one: it has been defined and developed pragmatically and progressively by the Statistical Office of the European Communities (EUROSTAT) and the national Statistical Institutes to meet the essential needs of the Community institutions as and where they arose, within the limits of the availability of the basic statistics.

The approach to regional problems and the resulting statistical data requirements have in fact changed greatly since the beginning of the 1960s, the period when the first ideas were emerging on the role of Community institutions within the overall task set by the signatories of the Treaty of Rome - that of "consolidating the unity of their economies and ensuring harmonious development whilst narrowing the gaps between the different regions and allowing the less favoured regions to make up ground".

3.1. The Conference on regional economies held in Brussels in December 1961, which was organized by the Commission of the European Economic Community, was intended to act as a forum for an exchange of national experience in regional development, but its main aim was 'to highlight aspects of regional problems of Common interest (including the effects of the Common Market on these problems and possible solutions) as well as to inform the governments and the Commission about certain guiding principles for regional policy, and finally to study the assistance which the Commission could afford to the Member States in this field'.

Immediately faced with the problem of specifically defining 'regional problems', the Conference appointed a group of national experts to 'attempt to divide the European Economic Community into regions'. A basic differentiation, which incidentally can now be found in the Nomenclature of Territorial Statistical Units of the Community NUTS, was made between the basic regions 'which generally consist of the breakdown used nationally by the Member States for applying their regional policies' and the major socio-economic regions which combine the basic regions into groups 'in order to study the results of the customs union and economic integration on the areas next largest in size after the national territories'.

Two types of regional problems requiring two types of analyses were thus outlined: the regional/national problems which would have to be dealt with at the level of the basic regions and the regional/Community problems, which required study at the level of the major socio-economic regions.

3.2. In line with this dual approach, EUROSTAT proposed to the National Statistical Institutes in 1970 an initial work programme for regional accounting consisting of the establishment of:

a) an Input/Output Table for the major socio-economic regions of the Community for every 5 years starting in 1970.
b) the main aggregates reflecting the economic situation in the basic regions, annually.

The required international comparability of the results was to be guaranteed by reference to the European System of Integrated Economic Accounts, which had just been completed at the beginning of 1970.

The Input/Output Table appeared to be the most suitable model for the study of economic structures, resource use balances and trade over areas as large as the major socio-economic regions, i.e. regional/Community problems.

The aggregates which corresponded in the main to specific lines or columns of the Input/Output Table, were to provide reference figures within the periods and for the areas covered by the Input/Output Table to allow an assessment of the level and trend of the disparities in economic development of the basic regions, and therefore regional/national problems.

The discussion of the EUROSTAT project was intended to bring to light gaps in statistical information, especially data on intermediate consumption and trade with non-member states; moreover, most National Statistical Institutes were not properly prepared for drawing up the Input/Output Table on a regional basis, the Netherlands was the only country with systematic experience in this field at that time.

Finally, a work programme limited to the main economic accounting aggregates covering the community's basic regions was adopted in 1972 under the heading 'European System of Integrated Economic Accounts - regional application (ESA-Reg)' and the first results,

for 1970, were obtained in 1973.

Most aggregates refer to production of goods and services as well as the formation of productive capital in the regions. Accordingly, action on the part of government institutions to increase the regional productive capital (whether directly or indirectly) was also taken into account.

To supplement the production data however, account was also taken of regional standards of living by an assessment of the income and consumption of resident households.

3.3. Subsequently, in order to satisfy the wishes of the various users, and of the Commission of the European Communities in particular which wanted to improve budgetary statistical information contained in the regional development programmes EUROSTAT proposed to the National Statistical Institutes an initial extension of the scope of ESA Reg in respect of government institutions and in particular, local government.

A set of tables was adopted in 1977 and the first results, referring to 1977 were obtained in 1981.

3.4. Finally, work on the first periodic report on the economic and social situation of the Community's regions, and the preparatory studies for the implementation of competition policy and the improvement of the European Social Fund, very recently revealed the need for fuller information, especially on standards of living in the regions, and for a more detailed territorial approach extending the regional accounts to territorial units smaller than the basic regions.

4. The implementation of ESA Reg had various effects, depending on the country, on the development of the National Statistical Institutes regional accounts work. The need to prepare, for the Community, data with the highest degree of comparability did not preclude the need for data prepared on the basis of national standards: the National Statistical Institutes therefore carried out national and Community work at the same time: the difference between the two types of work vary considerably depending on the country. In countries where the

implementation of the ESA Reg more or less coincided with the start of official regional accounting work, as in Italy, the United Kingdom and France (to some extent), the national system developed as an extension of the Community system and the differences are not very substantial. In countries with a long-standing tradition of regional accounting, on the other hand, the implementation of the ESA Reg was either hindered by the rigidity of existing practice (FR of Germany) or followed by a change in the previous organization of the work (Netherlands). The Tables annexed to this presentation (I to VIII) give a summary of the characteristics of the national and Community regional accounting systems.

5. The Community system of regional accounts is based on the ESA but the application of the ESA to regions differs considerably from its application at the national level. In view of the character of regional economies, and by correlation, the smaller amount of statistical data available at the regional level than at the national level, the ESA Reg constitutes a simplified partial version of the ESA.

5.1. The ESA-Reg follows the concepts and definitions of the ESA, but covers only a limited number of operations and aggregates and it is not possible to prepare on a regional basis the complete system of accounts represented by the ESA at the national level.

Similarly, the ESA-Reg uses the two types of units and two breakdowns of the economy set out by the ESA, but unlike the ESA does not apply double accounting by sector and branch on a systematic basis.

5.2. Breakdown by branch: This is a breakdown into so-called 'units of homogeneous production' characterized by a single activity in connection with a product or group of products and is an essential part of the ESA-Reg. The operations linked with the production process and the aggregates for the production activity are drawn up according to this breakdown, which is the best system for reflecting the actual situation of regional economies.

5.3. The breakdown by sector: This is a breakdown into so-called institutional units with complete accounts and decision-making autonomy and plays a lesser role in the ESA-Reg in view of the practical difficulty of reflecting the regional behaviour of institutional units whose activities extend over several regions. As a result, the ESA-Reg refers more or less only to sectors whose activities can definitely be ascribed to one regional economic territory: households and local government.

5.4. The economic territory of the regions does not correspond to the entire national economic territory since, according to the ESA, the latter comprises areas outside the regions - territorial waters, the continental shelf, territorial enclaves, etc., which make up an 'extra-regional' area to which certain units and flows have to be allocated.

The regional economic territories are defined by reference to the Nomenclature of Territorial Statistical Units (NUTS). The NUTS currently has three types of classification of territorial units:

I the European Community regions (RCE) which were derived from the major socio-economic regions of the Community as defined by the Conference on Regional Economies of 1960;

II the basic administrative units (UAB), corresponding to the basic regions as defined also in 1960;

III the subdivisions of the basic administrative units (SUAB).

The ESA-Reg mainly deals with level II of the NUTS which covers the following basic administrative units which differ from country to country:

FR of Germany	: Regierungsbezirke (and non-subdivided Länder)* - 31
France	: Régions - 22
Italy	: Regioni - 20
United Kingdom	: Standard regions - 11

* not subdivided into Regierungsbezirke

Netherlands	: Provincies - 11
Belgium	: Provinces - 9
Denmark	: Groups of Amter - 3
Greece	: SDR * - Regions - 9

Since Ireland and the Grand-Duchy of Luxembourg are also considered as UAB from the point of view of regional studies, level II consists of 118 UAB for the Community.

Nevertheless, it should be noted that:

- In the FR of Germany, the ESA-Reg is applied more fully at level I (Länder) than at level II;
- In Denmark, the ESA-Reg is normally drawn up at level III (Amter);
- In several countries apart from Denmark - FR of Germany, Italy, Netherlands, United Kingdom - economic accounting work refers to level III territorial units; some of the work consists in an extension of the application of ESA-Reg at level II.

6. The branch aggregates

6.1. The ESA-Reg primarily answers the need to measure the productive activity and development of productive capital in the regions.

It therefore provides for the establishment of the main aggregates of goods and services accounts, production accounts, and generation of income account; it is accepted that the methods of calculating these aggregates will have to differ from those applied at the national level in view of the difficulty or even impossibility of statistically recording certain flows at regional level which are essential for complete accounts, such as production, imports and exports of goods and services, and intermediate consumption.

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* regional development services

6.2. Whilst according to the ESA the gross domestic product at market prices (GDP, mp) represents the 'final result of the production activity' of the national economy, the ESA-Reg measures this result for regional economies by way of the total of the gross value added at market prices (GVA, mp), since taxes linked to imports (in a gross system of VAT recording) cannot be allocated to regional economies very easily.

There is therefore a gap, verying from country to country, between the national GDP and the total of the regional value added: this gap is likely to increase substantially following the changeover, planned under the ESA, from the gross system to the net system of VAT recording, since under the second system, the total VAT on products must be excluded from the calculation of the value added (GVA, mp). In the ESA-Reg, therefore, provision should be made for a regional breakdown of the VAT on products independently of the calculation of value added (GVA, mp) in order to avoid a further differentiation mainly for accounting purposes, between the national economy and regional economies.

On the other hand, the flows allocated to the extra regional sector (diplomatic services and armed forces abroad, offshore oil extraction, etc.) which are taken into account in the calculation of the national GDP, are generally excluded from the calculation of regional value added.

6.3. The branches of the regional economies are defined by reference to NACE-CLIO RR 17 (see Annex VII - Regional Grouping into 17 branches of the Nomenclature of Economic Activities in the European Communities. Classification for the Input/Output Tables: The nomenclature used for defining the branches of the national economy, and in particular for the Input/Output Tables, was aggregated (converting branches into 17) to take account of the most frequent cases of economic integration, to reduce the producer unit and break down the consequent difficulty in estimating value added at the regional level. Nevertheless, the problem of regional allocation of the value added of institutional units (non-financial corporate and quasi-corporate, credit institu-

tions, insurance enterprises, general government and private non-profit institutions) whose activities extend over several regions was solved only at the cost of making assumptions which in many cases were unreliable. Contrary to the opinion of some experts who proposed to regionalize only those activities which were 'easily located' and to allocate to the 'extra-regional sector' the activities which were 'difficult to locate' (transport, communications, credit, insurance, general administrative services, central administration, educational and health services), the ESA-Reg answered the need to allocate to the regions as fully as possible the results of the productive activity of branches and to cut to a minimum the 'extra regional' allocations.

This choice which was aimed at providing an exhaustive review of regional economies, clearly meant using estimates whose reliability was relatively uncertain.

By way of an example, the value added to the various establishments (and in particular the headquarters) of multi-regional undertakings had to be reconstituted in order to allocate to them to the branch(es) to which the undertakings belonged in the various regions: in some cases, it was even necessary to allocate the national value added to some branches (transport, communications, credit, insurance, non-market services of central administrations) by means of regional distribution keys (manpower, wages and salaries, physical indicators of activity, etc.) when no statistical data were available to allow a regional construction of producing and operating accounts for these branches.

6.4. The ESA-Reg makes provision (Annex VIII) for the establishment by branch, as defined by NACE-CLIO RR 17, of the gross value added (at market prices and factor cost) of the compensation of employees, taxes linked to production, production subsidies, gross fixed capital formation, occupied population and wage and salary earners. The availability of these aggregates implies that the gross operating surplus, the balance of the generation of income account of the

branches, can be calculated, but clearly the relative error resulting from the estimation techniques already mentioned (6.3.) will effect the gross operating surplus in particular, since the other main value added item - compensation of employees - is generally well recorded statistically.

Gross fixed capital formation, apart from the breakdown by owner branch (NACE-CLIO RR 17), is then also distributed by producer branch. This is aimed at showing the nature of capital goods in accordance with NACE-CLIO RI 7 (see Annex VIII - Grouping of NACE-CLIO in 7 fixed capital goods producing branches).

6.5. Finally, to answer the needs recently mentioned by the Regional Policy Committee and the European Commission EUROSTAT has begun to establish production indicators for the territorial units - SUAB - corresponding to level III of NUTS. To begin with, by using the unharmonized data of several countries as the basis for a breakdown, the main intention of this work is to distribute between the SUAB the gross value added at market prices established by the ESA-Reg at level II, by groups of branches (agriculture, industry, services).

7. Sector accounts and aggregates

For reasons already mentioned (5.3.), the sectorial approach was initially reduced in the ESA-Reg and it was only recently that EUROSTAT suggested to the National Statistical Institutes that they should develop the work on the sectors with a different role at the regional level and consequently of special interest from the regional policy angle.

7.1. Household 'sector'

The regionalization of the 'Household' sector which, according to the ESA covers individuals or groups of individuals as consumers and possibly also as entrepreneurs provided that, in the latter case, the corresponding activities are not those of separate entities treated as quasi-corporate enterprises, does not create any conceptual problems since the operations carried out by households are basically entered into the accounts at the individuals permanent place of

residence. Some of these operations, on the other hand, are very difficult to register statistically, which is why the scope of work concerning households was restricted for a long time in most countries.

Regional accounts for households, however, are all the more interesting since the regional location of created and distributed income may differ substantially, especially as a result of the mechanisms behind transfer of income and interregional migratory movements.

Initially, the ESA-Reg was restricted to the establishment of two basic aggregates for household income and use of income accounts: disposable (gross and net) income and final consumption; knowledge of the final consumption implied that it was possible to measure savings by calculating the difference. Accordingly, emphasis was placed on the development of living standard indicators independently of any concern about the origin and nature of household income. Gross and net income had to be calculated in such a way as to show the particularly high fixed capital consumption of households in which the function of entrepreneur was exercised (farmers, craftsmen...). Final consumption had to be broken down according to two main functions: food, beverages and tobacco, and other products.

The solution chosen by the ESA-Reg has, as yet, only been applied by a few countries: the FR of Germany, France and the United Kingdom - through lack of statistical information.

Recently, EUROSTAT suggested reconsidering the possibility of resuming the work on households and going beyond the already selected 2 aggregates by drawing up a simplified household distribution of income account with resources (R) and uses (E) as its main headings:

Uses	Resources
Current taxes on income and wealth	Gross operating surplus
Imputed and actual social security contributions	Compensation of employees
Income from property and the enterprise	Social income from property and the enterprise (benefits)
Other uses	Imputed social contributions Other resources

Gross disposable income

Consumption of fixed capital

Net disposable income

It is to be hoped that, apart from France, Italy and Belgium, which apply or are in the process of introducing this method, the other countries of the Community - especially those which calculate disposable household income by a different method from that of the ESA, will be able to obtain comparable information in the near future.

7.2. 'General government' sector

To begin with, only general government operations contributing directly (gross fixed capital formation) or indirectly (investment grants) to the development of productive capital in the regions were taken into consideration by the ESA-Reg.

These operations were also to be broken down by function (see Annex VIII) to show the areas of intervention of general government, and in particular their contribution to the development of infrastructures deserving priority for the purposes of common regional policy.

The regional allocation of these flows, especially in the case of the central government institutions, involved considerable difficulties and few countries were in a position to compile such information, although its fundamental importance was nevertheless clear in terms of economic policy.

In 1975, taking account of the new requirements resulting from the Council Regulation of 18 March 1975 on the creation of a European Regional Development Fund (ERDF), EUROSTAT suggested to the National Statistical Institutes that they carry out a new study of the possibilities of extending the ESA-Reg with regard to general government. The scheme adopted in 1977 breaks down the initial problem by distinguishing between the treatment of central government and that of local government.

Henceforth, whereas the Tables on fixed capital formation and investment grants, which are broken down by function, have to be prepared separately for central and local government, it is planned to draw up a new table showing the receipts and expenditure accounts of local government at the regional level. There is both conceptual and practical justification for extending the scope of data on local government.

The local government institutions, which 'comprise all government institutions whose area of competence is limited to part of the territory, except for local social security funds' are prime examples of institutional units whose behaviour can be recorded at the regional level. Furthermore even though their role may vary according to the constitutional and administrative structures of the Member States, the local government institutions always fulfil functions which are essential to the economic and social life of the regions; in particular, they play a decisive role in the creation of the community facilities and infrastructure which determine regional development (40-80% of the gross fixed capital formation of all general government, depending on the country).

Moreover, financial statistics obtained from the budgetary documents of local government in most countries allow a satisfactory appraisal of the transactions it carries out.

Instead of introducing the systematic regionalization of the non-financial accounts specified by the ESA for institutional sectors and sub-sectors - and therefore including local government - it was found preferable to present on a synthetic basis according to a budget system the main operations of the local governments, and especially those characterizing their role in the economic and social development of the regions and economic policy of the Member States.

This system is based on a clear distinction between current transactions and capital transactions; the capital transactions, however, remain separate, whereas the current transactions are reclassified in a single account showing the concepts of actual current expenditure and receipts. This reclassification highlights the expenditure and receipts corresponding to the specific activities of the local governments and eliminates the flows connected with market or separate account transactions which are of secondary importance, as well as the imputed transactions occurring in the ESA accounts.

The receipts and expenditure account of the local governments therefore has the following structure:

Expenditure	Receipts
A. Actual current expenditure	A. Actual current receipts
including - compensation of employees	including - current taxes
- operational grants	- current transfers between general government institutions
- social benefits	
- current transfers between general government institutions	
B. Capital expenditure	B. Capital receipts
including - gross fixed capital formation	including - investment grants
- investment grants	
C. Final expenditure: A + B	C. Final receipts: A + B

In this presentation, the intermediate balances of the production, generation of income and distribution of income (value added, gross operating surplus and disposable income) disappear, whereas the balances of the use of income and capital accounts can be calculated, and therefore the balance between the actual current receipts and expenditure constitutes the gross saving whilst the balance between the capital receipts and expenditure shows the financing capacity or requirements of the local governments.

8. Conclusions

Ten years after its inception, the Community system of regional accounts is still undergoing development and it is clear that considerable work still remains to be done to improve the quality of the results in order to ensure equal application of the ESA-Reg in all Community countries as well as to complete the system described today on the basis of the statistics currently available.

It will be necessary to carry out new analyses of available data, utilize existing sources more fully (especially administrative resources) and possibly create new sources of information in order to achieve these objectives, but it is certain that the use of regional accounts data by those responsible for economic policy will largely depend on their reliability and scope from the point of view of economic analysis.

ANNEX I

GERMANY (FR)
1. Regional economic aggregates

Territorial units	Länder (11)				
Frequency	Annual			Biennial	
Current price aggregates	Gross domestic product at market prices, by sector	Production Intermediate consumption Gross domestic product at market prices Depreciation Net domestic product at market prices Indirect taxes net of subsidies Net domestic product at factor cost Gross income from employment	by sector))) Gross fixed) capital formation) by type of goods) (construction and) others) and by) sector)	Gross domestic product at market prices by group of sectors	
Price aggregates	Domestic product at market prices, total	Gross domestic product at market prices, by sector			
Nomenclature of the sectors	Agriculture, forestry, fisheries Energy and mines Manufacturing industries Construction Trade Transport and communications Credit and insurance institutions Renting of accommodation Other services Government institutions Households, non-profit making organizations		Enterprises Government institutions	Agriculture, forestry and fisheries, Energy, mines and manufacturing industries, Construction Trade Transport and Communications Renting of accommodation Other services	Agriculture, forestry and fisheries, Industry, Trade and transport Other services
Period covered	Since 1950	1960-1976	1957, 61, 64, 66, 68, 70	1957, 61, 64, 66, 68, 70, 72, 74, 76	
Time available	t + 15 months	t + n months		t + 36 months	
Sources	"Bevölkerungsstruktur und Wirtschaftskraft der Bundesländer" Statistisches Bundesamt Wiesbaden	"Volkswirtschaftliche Gesamtrechnungen der Länder" Heft 9, Entstehung, Verteilung und Verwendung des Sozialprodukts in den Ländern (Joint publication of the regional statistical offices)		"Volkswirtschaftliche Gesamtrechnungen der Länder", Heft 4, 4, 8, 10 Das Bruttoinlandsprodukt der kreisfreien Städte und Landkreise	

GERMANY (FR)

2. Aggregates of resident households

Territorial Units	Länder (11)	Regierungsbezirke (31)	Kreise (327)
Frequency	Annual		
Current price aggregates	Income from wealth and work Current transfers received Social security benefits Current transfers Direct taxes Social security contributions Available income Private consumption Saving		
Period covered	1960 - 1976		
Time available	t + n months		
Sources	"Volkswirtschaftliche Gesamtrechnungen der Länder" Heft 9 Entstehung, Verteilung und Verwendung des Sozialprodukts in den Ländern (Joint publication of the regional statistical offices)		

3. Aggregates of government institutions

Current price aggregates	Current receipts Current expenditure Public consumption	By sector ("Bund, Länder und Gemeinden")		
Period covered	1970 - 1976			
Time available	t + n months			
Sources	"Volkswirtschaftliche Gesamtrechnungen der Länder" Heft 9 Entstehung, Verteilung und Verwendung des Sozialprodukts in den Ländern (Gemeinschaftsveröffentlichung der Statistischen Ämter)			

ANNEX II

FRANCE

Regional Economic Aggregates

Territorial Units	Regions (22)
Frequency	Annual
Current price aggregates	Agricultural accounts (production and operating accounts) Accounts of industries branches (production, operating and some capital accounts) by branch **
Nomenclature of branches**	Meat and milk industries Other agricultural and foodstuffs industries Fuel and solid mineral production, coking Oil and natural gas production Production and distribution of electricity; gas and water distribution Mineral and ferrous metal production, basic processing of steel Production of minerals, non-ferrous metal and semi-finished products Production of construction materials and various minerals Glass industry Basic chemicals, production of wire and synthetic fibres Foundries and metal working Paper and cardboard industry Rubber and plastic processing industry Mechanical engineering Electrical and electronic engineering Construction of automobiles and other equipment for land transport Naval and aeronautical construction, armaments Applied chemical and pharmaceutical industry Textile and clothing industry Leather and shoe industries Wood and furniture industries, misc. industries Printing, press, publishing Construction and civil engineering, agricultural development
Period covered	From 1962 for agricultural accounts From 1970 for the accounts of industrial branches
Time available	t + 18 months for agricultural accounts t + 36 months for the accounts of industrial branches
Sources	Les comptes départementaux de l'agriculture ... (INSEE/R) Les comptes régionaux des branches industrielles en ... (INSEE/R)

** The regional accounts for agriculture are also drawn up for the departments

FRANCE

2. Aggregates of resident households

Territorial Units	Regions (22)
Frequence	Annual
Current price aggregates	Gross domestic product at market prices
Period covered	Since 1962
Time available	t + 48
Sources	Les comptes régionaux des ménages en ... (INSEE/R)

Aggregates of Government institutions

Territorial Units	Regions (22)
Period	Annual
Aggregates at current prices	Accounts of local government (production/operation/income/use of income/capital/ and financial accounts)
Period covered	Since 1962
Time available	t + 48
Sources	Les comptes régionaux des administrations publiques locales en ... (INSEE/R)

ANNEX III

ITALIE

Regional Economic Aggregates

Territorial units	Regions (20)		
Frequency	Annual		
Current and constant price aggregates	Agricultural account Gross domestic product at market prices, total indirect taxes net of subsidies total Gross value added at factor cost, by branch*	Production accounts Total final consumption Final consumption of households within the economic territory, by function ** Final consumption of government institutions	 Gross fixed capital formation by groups of branches * and by product ***
Nomenclatures of * branches ** functions *** products	* Agriculture, forestry and fisheries Energy products Minerals and metals, metal products, machines other products of manufacturing industries Construction and public works Market services Non-market services	* Food, drink and tobacco products Accommodation and expenditure for the house Transport and communications Other goods and services	* Agriculture, forestry and fisheries Energy products Metal products and machines Others (including construction) Other activities *** Construction Plant machinery, means of transport
Period covered	from 1970		
Time available	t + 24 months (t + 9 months for agricultural accounts)		
Sources	Istituto Centrale di Statistica - Bollettino mensile di Statistica Il valore aggiunto dell'agricoltura per regione		

ANNEX IV

NETHERLANDS

1. Regional Economic Aggregates

Territorial Units	Provinces (11)	C.O.R.O.P. regio (40)	Provinces (11)	C.O.R.O.P. regio (40)
Frequency	Annual			
Current price Aggregates	Production Intermediate consumption Gross domestic product at market prices Indirect taxes net of subsidies Wages, salaries Employers' social security contributions Other income and depreciation		Gross fixed capital formation, by sector* and by product**	
Nomenclature of the * sectors ** products	Agriculture, forestry and fisheries Coal mines Other mines Food industries (products for animals) Food industries (other products) Drink and tobacco production Textile industry Clothing industry Leather and footwear industry Wood industry Paper industry Publishing Petroleum industry Chemical and rubber industry Construction materials Basic metallurgy Metal products, machines Means of transport Industries n.e.c. Public utility undertakings Construction industry Trade, hotels, restaurants, cafes Repair enterprises Air and sea transport Other transport and communication enterprises Banks and insurance Operation of buildings and business Services Medical services Culture and recreation Other services Other n.e.c.		* Agriculture, forestry and fisheries Industry Accommodation Transport and communications Other services Government institutions ** Accommodation Non-residential buildings Civil engineering Means of transport Machines and other equipment	
Period covered	1965, 1970 and from 1973	1970 and from 1973	from 1955	from 1970
Time available	t + 36			
Sources	Regionale economische jaarcijfers (Centraal bureau voor de Statistiek)			

ANNEX V

BELGIUM

1. Regional economic aggregates

Territorial units	Linguistic regions (3) and provinces (9)
Frequency	Annual
Current price aggregates	Gross domestic product at factor cost Gross value added at factor cost By sector
Nomenclature of sectors	1. Agriculture, forestry and fisheries 2. Extractive industries 3. Manufacturing industries a) Food, drink, tobacco b) Textiles c) Clothing and footwear d) Wood and furniture e) Paper, printing and publishing f) Chemical industry and associated activities g) Earthenware, ceramics, glass, cement h) Iron and steel i) Non-ferrous metals j) Metal goods (including naval construction) k) Garages l) Industries n.e.c. 4. Construction 5. Electricity, gas and water 6. Trade, banks, insurance, residential buildings a) Trade b) Financial services and insurance c) Residential buildings 7. Transport and communications 8. Services
Constant price aggregates	10. Gross domestic product at factor cost
Period covered	From 1955
Time available	
Sources	Bulletin des Statistiques (Institut national de Statistique)

ANNEX VI

UNITED KINGDOM

1. Regional Economic aggregates

Territorial units	Standard regions (11)	
Frequency	Annual	
Current price aggregates	Gross domestic product at factor cost Compensation of employees Other income Indirect taxes Subsidies Gross domestic product at market prices, total	Gross domestic product at market prices Compensation of employees Income of self-employed persons Gross profits Rents Changes in stock Gross fixed capital formation by sector
Nomenclature of sectors	Agriculture, forestry and fishing Mines and quarries Manufacturing industries Construction Electricity, gas and water Transport and communications Trade Insurance, banks, financial services Renting of accommodation Other market services Public administration	Agriculture, forestry and fishing Mining and quarrying Manufacturing industries Electricity, gas and water Housing Public administration and defence
Period covered	from 1971	from 1976
Time available	t + 18 months	
Sources	Central Statistical Office - Economic trends Central Statistical Office - Regional statistics	

2. Aggregates of resident households

Territorial units	Standard regions (11)	
Frequency	Annual	
Current price aggregates	Available income, total Tax as on income Personal income, total Income of self-employed persons Rents, dividends and net interest Other transfers	Private consumption by function
Nomenclature of functions		Food, drink, tobacco Accommodation and heating Durable goods and vehicles Other
Period covered	from 1971	
Time available	t + 18 months	
Sources	Central Statistical Office - Economic Trends Central Statistical Office - Regional Statistics	

3. Aggregates of Government institutions

Territorial units	Standard regions (11)	
Frequency	Annual	
Current price aggregates	Gross fixed capital formation by sector	Accounts of local government institutions
Nomenclature of functions	General administration and defence Education	

ANNEX VIII

GREECE

Regional Economic Aggregates

Territorial units	Regional development services (9)	
Current price aggregates	Gross domestic product at factor cost, by branches of economic activity	Gross fixed capital formation by sector (public and private) and by branch of economic activity
Nomenclature of branches	Agriculture, forestry, fisheries Extractive industries Manufacturing industries Electricity, gas, water Construction Transport, communications Trade Banking, insurance and real estate Housing accommodation Government institutions and national defence Health and educational services Misc. services	Agriculture, forestry, fisheries Extractive industries Manufacturing industries Electricity, gas, water Transport, communications Residential and non-residential buildings Other activities
Periods covered	1970 and 1974	1970 to 1974
Source	Ministry of Coordination, Directorate-General of national accounts 'Estimate of the regional product of Greece in 1970 and 1974', Athens 1979	Ministry of Coordination Directorate-General of national accounts 'Regional gross fixed capital formation in Greece' Estimate for the years 1970-1974, Athens 1981

ANNEX VIII

COMMUNITY

1. Regional Economic Aggregates*

Territorial units	Uab (118)
Frequency	Annual
Current price aggregates	Gross value added at market prices, by branch* Gross value added at factor cost, by branch* Compensation of employees, by branch* Taxes linked to production, by branch* Operation subsidies, by branch* Gross fixed capital formation, by branch* Gross fixed capital formation, by products** Total employment, by branch* Wage and salary earners, by branch*
Nomenclature of branches* (NACE-CLIO RR 17)	Agricultural, forestry and fishery products Energy products Minerals and ferrous and non ferrous metal Minerals and basic products from non-metallic minerals Chemical products Metal products, machines, equipment and electrical supplies Means of transport Food, beverage and tobacco-based products Textile products, leatherwear, footwear, clothing Paper, paperware, printed articles Products from misc. industries Buildings and civil engineering Market services Recovery & repair services, wholsesale & retail trade services Catering and accommodation Transport and communication services Services of credit and insurance institutions Other market services Non-market services General administration services Education and research services Health services; domestic services and others
Nomenclature of products** (NACE-CLIO RI 7)	Agricultural products; metal products and machines; others Transport equipment Dwellings Non-residential buildings; civil engineering works
Period covered	From 1970
Time available	t + 36 months
Sources	ESA Regional Accounts - detailed tables by branches (Statistical Office of the European Communities)

ANNEX VIII

COMMUNITY

Aggregates of resident households

Territorial units	Uab (118)
Frequency	Annual
Current price aggregates	Available income Final consumption, by function (food, beverages and tobacco; others)
Period covered	From 1970
Sources	Internal documents (Statistical Office of the European Communities)

Aggregates of Government institutions

Territorial units	Uab (118)
Frequency	Annual
Current price aggregates	- Central government Gross fixed capital formation, by function* Investment aids, by function* - Local government Current expenditure Total Compensation of employees Operation subsidies. Social benefits Current transfers between government institutions - Capital expenditure Total Gross fixed capital formation (by function*) Investment aids (by function*) - Current receipts Current taxes Current transfers between government institutions - Capital receipts Investment aids
Nomenclature of functions	- General public services and national defence - Education, health, social security and social services - Housing and community amenities, other public and social services - Economic services - Miscellaneous unclassified expenditure
Period covered	1977
Time available	t * 36 months
Sources	Internal documents (Statistical Office of the European Communities)

Document N° 06

DEMAND AND SUPPLY FOR REGIONAL STATISTICS IN THE NETHERLANDS

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DEMAND FOR AND SUPPLY OF REGIONAL STATISTICS IN THE NETHERLANDS[1)]

1. Introduction

There is frequently a lack of understanding between the compilers and users of statistics at the national and international levels.

The user always wants more, better, more rapidly available and more reliable statistics. This is only his right and he must continue to voice his wishes. The compilers of statistics should take account of them to a large extent. Both compilers and users should realize that the compilation of statistics is no simple matter.

A question of no small importance in assessing demand for and supply of statistics is the selling price of official statistics. This is usually only a pale reflection of the real costs and often covers the printing costs alone. The low price of statistics makes it difficult to measure the real demand for them. Two factors influence supply and demand more indirectly. The first is correct use i. e. the user selects the right statistics and the right method for achieving his aim. Particularly in the case of regional statistics, which are based on random sampling, the standard error can be so great that the significant conclusions which can be drawn are limited. Not every user of regional statistics realizes this.

The second factor is automation, which enables the user to process large quantities of data himself. This will lead, particularly in the 1980s, to a considerable increase in demand. A separate paragraph is devoted to this aspect.

The following paragraphs deal with the methods employed by the Netherlands Central Statistical Office (Centraal Bureau voor de Statistiek - CBS) to achieve a better balance between demand for and supply of regional statistics. First the demand for regional statistics, and then the supply are discussed. Then follow possibilities for cooperation with regional authorities in collection and compilation. A separate paragraph is devoted to the effects of automation (EDP).

1) The views reflected in this report are those of the author. They do not all necessarily represent the policy of the Netherlands Central Statistical Office.

2. The demand for regional statistics

Every country has a number of regional sub-divisions. Some follow administrative boundaries (municipalities and provinces), while others are more along functional lines.

The municipalities themselves are divided into districts and localities. A highly systematic form of division is the 500 x 500 metre grid. Ideally, regional statisticians should have all possible data for each grid square available to them. Any desired aggregation could then be carried out. Considerations of cost and confidentiality prevent the realization of this ideal. The enquiry burden on respondents would also be unacceptably high.

Since the price mechanism in official statistics does not provide any yardstick for balancing supply and demand, some other method must be found to determine the need for regional statistics. An Advisory Committee on Regional Statistics was set up in the Netherlands in 1980. This committee is composed of users of regional statistics. In order to understand the task and working methods of the committee, an overall grasp of the organization of statistical work in the Netherlands is required. Official statistics are centralized within the Central Statistical Office (CBS). The CBS has an independent advisory body - the Central Statistical Committee. This committee approves the work programme of the CBS every year, including the decisions to start and terminate particular statistical tasks. The Central Statistical Committee has set up subcommittees which advise on special subjects. These include subcommittees on the building industry, small and medium-sized undertakings, employment and social security. The subcommittees advise the Central Statistical Committee. The creation of the Advisory Committee on Regional Statistics took place after careful consideration and the risk of overlapping with other advisory committees was constantly borne in mind. The Advisory Committee can advise on any statistics for which a regional dimension may be relevant. In this context, the regional element, and not the subject-matter as such, predominates.

Three groups of users are represented on the Advisory Committee. These are the central government, local and regional government and regional institutes, and finally the universities. These three groups each cover one aspect of regional statistics.

The central government is interested above all in regionally comparable figures in a given field, the local and regional authorities like consistent data for their region in a number of fields, and the universities voice the needs of scientific enquiry.

The statistical technique required to meet the needs of each of these groups is different - at least if we assume that a statistical field of observation of 100 % is very much the exception. Bringing the groups together in one committee proved to be fruitful. As soon as the committee met the members were asked whether they wished to draw up a list of their needs. The lists were then collected and analyzed by the CBS. A summary of them is given in Annex 1. The results were submitted to the committee with a view to determining priorities. The needs naturally related to fields such as the labour market and housing (subject-related needs) but also to the topicality of a number of statistical series(users' technical needs). In particular, the representatives of the regions also wanted statistics which were consistent with each other at the regional level - for example, to draw up labour market balance-sheets. The needs are divided into two categories. It should be possible to meet the needs in the first category in the short term. This is above all a matter of improving the regional dimension in statistics which already exist, and hardly requires more CBS manpower and equipment than normal. An important factor in the short term is the creation of an information centre for regional statistics. The user could then ask the centre precisely what information is available and to what extent it is usable for the aim in view.

The needs in the second category can be met only in the medium or long term. They require a review of certain statistics, e.g. a different method of random sampling or a larger sample, or a modification of the organizational structure. These needs must be assessed within the overall framework of all CBS statistics and the results of the assessment will be clear only after many years.

An important point to bear in mind for the medium and long term is cooperation with regional bodies on the supply of statistical information. Many departments in the lower echelons of government, but also the Chambers of Commerce, keep records which are a good source of regional statistics. Any decentralized collection and processing of data within the region itself must not be allowed to prejudice the protection (confidentiality) which the respondents enjoy in central compilation by the CBS. Data which the individual or institution provides for statistical purposes may not be used against that individual or institution, nor may the individual be recognizable in the statistics. An initial note on this subject was drawn up by the management of the CBS this year.

The Advisory Committee on Regional Statistics set up separate working parties in 1981 to remove two bottlenecks. The first working party deals with the group of statistics relating to the regional labour market. The second working party is mainly concerned with regional population and subsidised housing statistics. The creation of the second working party is linked above all with the fact that there was no 1981 Census in the Netherlands.

3. Supply of regional statistics

We confine ourselves here to the regional statistics published by the CBS. The regional data which are collected and processed by other bodies are not taken into consideration.

Immediately after the creation of the Advisory Committee on Regional Statistics a decision was taken within the CBS to investigate the possible regional dimensions of all statistics. During the preliminary discussions, both with members of the Advisory Committee and within the CBS, it became clear that a

rapid and simple stocktaking was preferred to an exhaustive one. It was a question of sketching out in the short term a rational picture of the possibilities and limitations of regional breakdowns of existing statistical data.

The regional statistics booklet - a two-yearly publication - contains a selection of regional data. Other regional data appear in various monthly and quarterly publications.

One of the things to be ascertained in the regional stocktaking was whether the basic documents were of a regional nature. It was also important to know whether the type of document and processing would make publication of the regional results worthwhile and/or possible in the future. For each of the 900 or so sets of statistics compiled by the CBS a number of characteristics are required.

(A summary of the results of the stocktaking is given in Annex 2)

These characteristics are :

1. The source and nature of the data, i. e. which body supplies the data to the CBS (source). Is the information on finance, on persons or on quantities ? Some statistics include varying kinds of data.

2. The population size, type of random sampling and the percentage covered. This information is needed to determine whether the standard deviation for regions is within acceptable limits.

3. The method of calculation.
If the compilation process is complicated, adaptation for purposes of regional statistics could be expensive and time-consuming...

4. The extent of coordination
Most of the economic statistics handled by the CBS are subject to coordination rules, inter alia for purposes of national accounts. Changes in the collection and compilation of coordinated statistics must be checked for conformity with these rules.

5. The frequency and processing time of the staitstics.
This is of importance for the topicality aspect.

6. The data of publication
If the publication data is far removed from the time of observation the statistics lose some of their value.

7. The regional dimension in collection, compilation and publication...
This is also important for assessing the possibilities of regionalization.

a) If an undertaking which has establishments in several regions is surveyed, regionalization of all data will usually not be possible.

b) If no account is taken of regional grossing factors in compilation, the calculation and publication of regional results is usually not worthwhile. There are certainly possibilities here of introducing regionalization in a number of cases where the costs are relatively low, provided of course that the size of the random sample permits it.

c) Sometimes users do not know for which level of territorial divisions data are available. The stocktaking adopts the smallest territorial division for which data are at present available.

8. The period for which comparable data are available.
This is important to users who work with time series. In the regional stocktaking as described here no refinements have yet been introduced. Thus there is as yet no description of all the details which occur in a particular set of statistics.

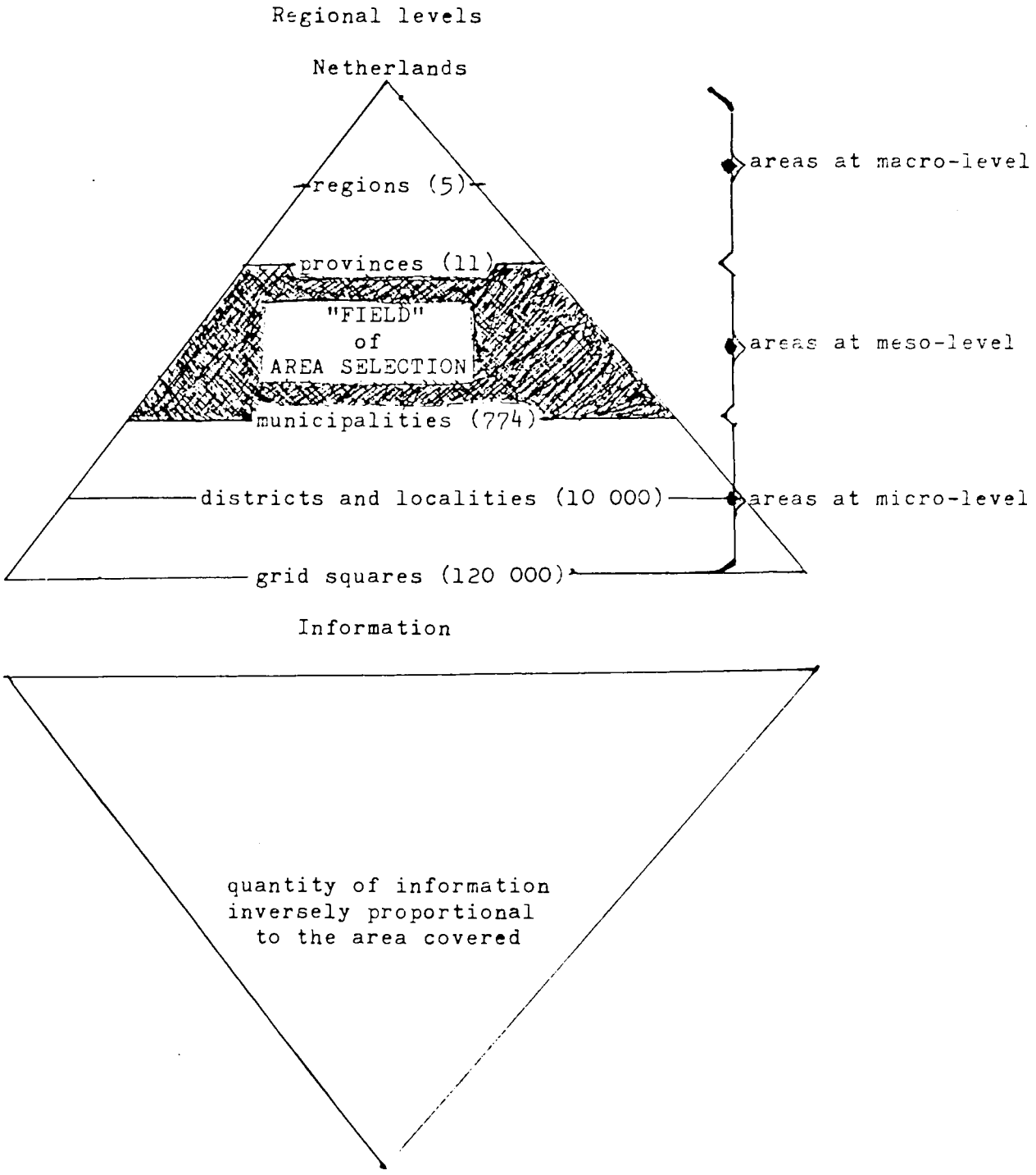
The stocktaking has been distributed in a provisional form to the members of the Advisory Committee on Regional Statistics.

It constitutes a practical step by the CBS in its attempt to achieve a better balance between supply of/and demand for regional statistics.

As was stated earlier, the level of detail of regional statistics depends on the size of the area involved.

The diagram below shows this with reference to the Netherlands.

Diagram 1.



The CBS seeks to achieve a definite uniformity in regional divisions. The regions and provinces constitute fixed divisions which correspond to Eurostat's NUTS-I and NUTS-II. In addition there is a smaller statistical area (the so-called COROP division) which corresponds to Eurostat's NUTS-III. It can be seen from this diagram that there is a shaded area between municipalities and provinces. For many different purposes (regional planning, education, labour market etc.) territorial divisions are in use which belong within the shaded area. A summary of most of the regional divisions in use at the CBS is given in Annex 3. The NUTS-III division is also included. With a view to coordination and comparability the CBS seeks to use the NUTS-III division as much as possible. For specialized statistics other regional divisions can be used alongside the COROP division if necessary. In integrated statistics, such as the regional accounts and the annual regional economic figures, the regional division is confined to the NUTS levels. This is necessary since integrated statistics are based on information from various sources and on various subjects. Estimates are sometimes necessary for subdivisions of a set of integrated statistics.

Regional accounts thus belong to a special group of statistics which are obtained through a number of more or less complex calculations and estimates which have to be applied to existing (incomplete) information.

Proper interpretation of these statistics is possible only through careful description of the methods and techniques employed. Otherwise there is a risk that the user may interpret them incorrectly. Cases have been known of users drawing policy conclusions which were closely linked with the technique of estimation. However, where the CBS, in the absence of reliable regional data, takes the national average wage for a worker in a given industrial category, and then multiplies this wage by the readily available regional employment figure, it is incorrect to conclude that there are no regional wage differences in that industrial category. In all cases where observation is based on random sampling the compiler of statistics will have to draw up working hypotheses. It will be clear that the reliability of the results and the random sampling fraction for each region does not vary.

A point which we only wish to touch upon in the context of supply of statistics is the difference between levels and changes. Many statistics are based on the observation of levels, e.g. of turnover or employment. The change is then calculated by taking the difference between the levels for two periods. In many cases the standard error of the change can be so great that one is hardly justified in drawing any conclusions.

The technical aspect of the supply of regional statistics is gone into rather more deeply. For proper use of regional statistics it is of the greatest importance that the supplier should give a clear indication of the methods and techniques used and the user should make himself thoroughly acquainted therewith.

The CBS intends to entrust a separate department with the task of consulting users on such technical matters with the main specialized departments of the CBS being of course as closely involved as possible.

4.Cooperation with regional bodies in the supply of statistical information

The foregoing has merely touched on cooperation with regional bodies, but this cooperation is expected to increase in the future. Two main factors are involved here. The first is the increasing need for information within the regions, which is linked with the intention of the central government to achieve more decentralized administrative relationships. The second factor relates to the greatly increased activity of regional bodies in regional economic research. This type of research is stimulated particularly by the much reduced costs of automatic data processing. There is also the fact that the CBS has not always responded adequately (or been able to respond adequately) to the needs of the regional bodies, and that the major surveys which yield regional statistical information were delivered late (e.g. the Census and the Industrial Survey). In a number of cases lower levels of government have taken to developing complementary - and sometimes also duplicating - activities in order to meet their own information needs.

This has led to an uncontrolled growth of information channels, which are moreover insufficiently harmonised.

Cooperation with regional bodies concerns all stages in the production of statistics. The process can be divided into :

1. The setting up of a survey (statement of the problem, definitions and classification to be used, preparation of the questionnaire).

2. Collection of basic data.

3. Processing.

4. Publication.

Re 1 : since the CBS bears the major part of the costs of a survey, the general discussion of the setting up of the survey takes place in the Central Statistical Committee. The Advisory Committee on Regional Statistics will normally have advised the Central Statistical Committee on it. In the case of a regional survey, to be carried out by and at the expense of regional bodies, the CBS can make a contribution in the way of methods, techniques and classifications. The CBS then acts as a Bureau of Standards. It is probable that the applicability and possible uses of a survey are increased and the (social) costs reduced thereby. The printing costs will also be reduced since the survey results can be used for more purposes, thanks to coordination.

Re 2 : cooperation in the collection of basic material depends on a number of conditions. The most important of these is that individual data collected for statistical purposes may never be used for administrative purposes without written permission of the respondent. The strict division between statistical and administrative purposes is of considerable importance for protection of privacy. Cooperation may therefore be detrimental to the response or to the quality of the basic material. This can of course play a part in surveys to which a response is not obligatory. The more the respondent thinks the information could become known to third parties, the more reticent he will be.

Re 3 : the same conditions apply to cooperation in processing as to cooperation in collection. Particularly in the case of regional statistics, which are based partly on extrapolations/grossing procedures and estimates, the introduction of regional knowhow can lead to an improvement in quality. This applies to the compilation of regional input-output tables and other regionally integrated statistics. This approach also offers advantages for the regional bodies.

Cooperation enables them to interpret the data better.

Re 4 : cooperation in processing and publication could also circumvent a number of confidentiality problems. A rearrangement or amalgamation of data can then take place in consultation, involving a minimum of information loss. Moreover, the CBS can put together a basic package of regional data in consultation with the regional bodies in each region. This can take the form of a subscription. Atthe moment by no means all the regions have the regional data which are available to the CBS ; this is partly due to the less accessible way in which the CBS presents the information.

Cooperation with regional bodies can only succeed when there are clear agreements which ensure a rational balance between costs and benefits, both for the CBS and for the regions. In all cases it is desirable to avoid wasted effort (duplication of survey printing).

5. Automation (EDP) and regional statistics

Automation is revolutionizing regional statistics. Two reasons can be adduced for this strong assertion. The first is the possibility of processing large quantities of information at relatively low costs-low in comparison with costs per man hour. The users will be able to aggregate data themselves for the territorial divisions which they want to study. So they always want more and more detailed information...

They must select the basic data which correspond best to their purposes. The large number of regional divisions and the differences in regional structure lead to a varied requirement for information. Every region has its own characteristics and problems. Regional statisticians should if possible make use of administrative data available within their region, for example on population

and housing in the municipalities, Chamber of Commerce information on firms, provincial labour offices' data on employment and unemployment. Of course, if this information is available in automated form, it is probable that it will be used for statistical purposes. And this is the second reason for the revolutionary change. The use of administrative files can entail a number of dangers. The first of these is the confidentiality aspect. An individual datum may not be made public in statistics unless the respondent has given his express agreement. Moreover, the coordination and interpretability of a set of statistics can be jeoperdized if methods, definitions and classifications deviate from the usual forms. Comparison between regions is then also seriously hindered.

6. Conclusions

A. The balancing of demand for and supply of regional statistics is no simple matter, given the varied nature of demand.

B. In the Netherlands a number of measures have been taken or are in preparation to ensure a better balance between supply and demand.

1) An Advisory Committee on Regional Statistics has been set up in the form of a subcommittee of the Central Statistical Committee. Thus there is now an official forum for the exchange of information on requirements and possibilities.

2. Within the CBS there is a separate department for regional statistics. This provides information on existing regional statistics in close consultation with the main specialized divisions. It acts as a central information point.

Moreover, the department will be able to take an active part in studies initiated by regional bodies. The expertise of the CBS in the field of methods, definitions and classifications can thus be used to the full and it can act as a "Bureau of Standards".

3) There must be even more extensive use in statistics of a Standard Regional Division corresponding to the NUTS levels I, II and III. Where possible, statistics for which a different territorial division is in use must be published in accordance with this Standard Division as well.

C. Automation will have a considerable effect on regional statistics, on the one hand through the use of automated administrative files of institutions

within a region, and on the other hand through the considerably increased processing possibilities within many regions. Previously a finished product was wanted, but now people want basic data which they can aggregate themselves.

D. The need for strict confidentiality of individual data will lead in a number of cases and particularly for smaller areas, to a loss of statistical information.

Annex 1

OVERALL STOCKTAKING OF LISTS OF NEEDS RECEIVED

1. General

Although not all the lists of needs relating to regional statistics compiled by the members of the Advisory Committee are available, it seems useful to summarize those which have been received so far.

This annex will first deal briefly with the suggestions made by the members for improving the quality of regional statistical information as well as with the conditions to be met in supplying it.

2. Quality improvement

Improving the quality of regional statistical information depends mainly on the 5 factors listed below :

a) reliability of the regional data ;

b) mutual comparability ;

c) (reasonable) topicality ;

d) suitability for user needs ;

e) use of central data as a means of checking and supplementing the regional data.

Re a) :
The reliability of a large amount of data at the regional level is closely linked with the frequently far-reaching breakdowns for which a disaggregation of national data rarely provides sufficient guarantees (employment figures, annual regional economic figures).

Re b) :
In addition to the synchronic comparability of the data from different regions, attention should also be paid to diachronic comparability . Breaks in series of regional data lessen their usefulness. Moreover, definitions and classifications at both national and regional levels must be harmonized to increase the possibilities of analysis.

Re c) :
With regard to the topicality of the data, it should be noted that structural information alone is not enough for regional analysis ; regional indicators showing development are also important. As to the topicality of data on a yearly basis it can in general be assumed that structural data must be available after t + 24 months and development data after t + 12 months.

Re d):
How far specific user needs for regional information can be met must be studied ; the size of random samples is closely linked with this.

Re e) :
The question arises here to what extent the information held by central data-collecting institutions (e. g. the CBS) can be used to check or supplement the regional information (e. g. that of the municipalities).

3. Conditions of supply

It is thought desirable to have a central documentation point, even though the information itself has to be made available later by other bodies. Such a documentation point would be particularly useful to policy-making bodies which have no unit of their own for collecting primary regional information.

It is pointed out that despite the privacy aspect stressed by users, of which the CBS must take account in its publications, the annoying situation sometimes occurs in which the required information can easily be obtained from third parties or taken from open sources. In the exchange of information "human" mediation must be avoided as far as possible, by sending data on tape or other media, to keep errors to a minimum.

Stress is laid above all on the flexibility of regional territorial divisions, involving coding at the smallest territorial level (district, grid square, street index or postal code) which makes it possible to arrive by aggregation at a file of data for larger regional units.

4. Summary of lists of needs received

The aim of the attached summary is to give an overall view of the regional statistical information requested according to a restricted number of characteristics derived from the available lists of needs. The question of who will and/or can provide this information is not considered. It is striking that hardly any questions are raised about the customary population data.

Provisional summary of the regional statistical information requested

Subjects / Characteristics	Nature of the data	Periodicity	Availability	1) Territorial division desire
1. LABOUR MARKET				
Employment				
- active population				
- self-employed including family workers				
Employed population				
- total employed population				
- employees				
- commuters				
Migration				
- total population				
- employed population				
Inactivity				
- unemployment/registered demand				
- law on Social Security (WAO) General Law on Widows and Orphans (AWW)				
- others (including short-time working)				
2. ECONOMIC DATA				
Production				
- gross regional production				
- gross value added				
Investments				
- in fixed assets				
- total investments				
Consumption				
- households				
- public				
3. SOCIO-ECONOMIC DATA				
- economic activity				
- size of undertaking				
- position in the undertaking				
- occupation (occupational group)				
- training				
- hours worked				
4. HOUSING				
- housing stock, changes, unoccupied, number of rooms, surface area, etc.				
-rental value, purchase prices				
- forms of ownership				
- basic use				
- year of construction				
- type (single-family house, detached, flat, etc.)				

Characteristics / Subjects

5. WELFARE

Education

- number of pupils
- flow of pupils
- teachers
- junior education
- first-year students by provenance and orientation of studies
- type (full or part-time ; day and evening classes)

6. HEALTH CARE

Hospitals, old people's homes, children's homes etc.

- capacity
- proportion of capacity used
- staff data
- data on use

ANNEX 2

Overall summary of the results of the stocktaking of regional statistics carried out by the CBS

This summary is confined to a few brief observations which are important for regional statistics. Unless otherwise stated, the data are annual.

The observations are divided up under headings which follow the organizational structure of the CBS.

A. ECONOMIC STATISTICS

Most of the basic information is obtained from firms and institutions.

1. Agricultural statistics

- Land use in the Netherlands may be ascertained by grid square (500 x 500 m).
- The physical data on agricultural production are broken down regionally to a large extent.
- Value data on production by COROP area.
- Exhaustive structural surveys once every 5 to 7 years.

  Publication by province and by conurbation.

2. Statistics on the building and other industries

- Multiregional undertakings constitute an obstacle to direct regionalization of production information since data by establishment are often not available.

- The general industrial statistics give the active population by COROP area every quarter. Basic data are available for each municipality.

  In the publication "Regionale Economische Jaarcijfers" (Annual Regional Economic Figures) comparable data for ± 20 industrial classes (production and investments) are given by COROP area and in some cases by province, with a time-lag of 2½ years. The time-lag for regional accounts is considerably greater.

- Industrial investments in fixed assets are collected by municipality and published by COROP area.

- Building industry statistics are partly regionalized (e. g. manpower, progress reports, housing statistics). These data are frequently available on a monthly or quarterly basis.

3. Statistics on internal trade and services

- Regional information on turnover and production has not been available up to now.

4. Traffic and transport statistics

- There is almost complete coverage of goods transport (by rail, road and water). Publication by municipality/province/type of transport.

- Movement patterns of persons. Publication by province. Basic data by municipality.

5. Financial statistics (including public finances)

- Statistics on municipal finances are published by province (municipal accounts) and COROP area (budgets).

- Information on national finances, polder-boards and joint bodies are not published regionally.

- Debt situation and capital expenditure published quarterly by province.

- Mortgages published by province.

- Drainage and purification of effluent water, by province.

6. External trade statistics

- No regional breakdown.

7. Price statistics

- With the exception of housing costs statistics (COROP) no regionalization takes place.

- For large towns (100 000 +) a price analysis is made every year.

8. National accounts (regional accounts)

- Five-yearly input-output table by province and conurbation. Last issue published for 1965. Issue for 1975 in preparation.

- Annual regional economic figures. By industrial classes (or combinations thereof), figures according to the Standaard Bedrijfsindeling (Standard Industrial classification) for : production, consumption, value added, volume of work and employed persons. Also information on investments in fixed assets. Publication by COROP area.

9. Basic economic surveys

- Complete single surveys of a given industrial sector. The basic survey of retail trade in cars, bicycles, mopeds, motor-cycles and petrol, and of service stations and repair firms, has not yet been published. Nor have the surveys of activities at the levels of municipalities, joint bodies, provinces and polder-boards and at the national level.

- The Fourth General Industrial Survey for 1978 has not yet been published. The results will of course show a thorough regional breakdown.

10. Coordination of economic statistics

- The General Register of Undertakings also contains information on branches of undertakings and institutions. At present no regional information from this source is published.

B. SOCIAL STATISTICS

These statistics are more directly related to persons or groups of persons than the economic statistics.

1. Population statistics

- Very detailed data on population are available by municipality and for a number of regional territorial divisions (births, deaths, marriages, divorces, age structure, internal moves, internal and external migration).

- Election results by municipality (Second Chamber, Provincial States, Municipal Councils, European Parliament).

- Survey of household structure. This takes place once every five years and covers 7000 households.
  Publication by province.

2. Health statistics

- For health care institutions (hospitals, voluntary health organizations, Municipal Health Services, etc.) the data are collected by municipality, processed by COROP area and published by province. The field of observation is total.

- The health survey covering 10 000 persons will probably be published by region in view of the size of the random sample.

- Statistics on diagnoses, infectious diseases, causes of death and cremations have an extensive regional breakdown (lowest level COROP).

3. Statistics on education and science

- There is a separate booklet of education statistics, which appeared for the first time in 1980.

- Most of the data on pupils and teachers are collected from the totals concerned. Sometimes the regional characteristic is abandoned in processing. In publication there is often no regional breakdown, but an extensive breakdown by type of education.

- The financial and economic statistics on education are not available at the regional level, except for the amounts made available per pupil for primary and secondary education.

4. Employment and wages statistics

- Employment. The statistics on active population are based on a stratified random sample covering $\pm$ 70 % of the number of active persons. The maximum time-lag is 18 months. The results are published by COROP area and for the large towns. Considerations of confidentiality can stand in the way of a very extensive breakdown by industrial class.

- The manpower survey is based on a 3 % random sample of households. As a Census was not held in 1980/1981, the 1981 random sample was extended to 5 %. It is a two-yeraly survey with a time-lag of 20 months. Publication by COROP area and by Provincial Employment Office area.

- Statistics of registered unemployed are based on data from the Ministry of Social Affairs. Publication of data by COROP area and by municipality with more than 25 000 inhabitants.

- The two-yearly estimate of the employed population is based on other CBS statistics (e. g. the manpower survey) and complementary data from sources outside the CBS (including the Joint Medical Services). Processing of data is done in cooperation with the Economic and Technological Service of North Holland. Publication by COROP area and by Provincial Employment Office area.

- A large number of statistics are available on wages (quarterly survey of wages earned, total wage index, half-yearly wage survey, wage costs, minimum wages, wage structure, agricultural and horticultural wages, statutory wages). Only in the case of the six-yearly wage structure survey and the half-yearly wage survey are regional data published, by province and by region respectively. The statistics on wage costs and minimum wages appear on a three-yearly basis.

5. Socio-cultural statistics

- The field of observation of this department is very large and varied. At present many data are published by province, and some by large municipality, municipality or tourist area.

- The main subjects are :

a) social welfare, including :
old people's homes, home help services, services providing help by telephone, district and club housework schemes, children's play centres and the general law on assistance (including one,two, three and five-yearly surveys) ;

b) tourism and leisure activities, including :
holidays taken by Dutch nationals, daytime recreation, leisure activities, visiting tourists and tourist traffic ;

c) accommodation survey, including :
sports facilities, play areas, cultural facilities, etc. (five-yearly) ;

d) culture and participation, including :
music and plays, museums, libraries, educational and youth work ;

e) survey of living conditions (3-yearly) ;

f) costs and financing of socio-cultural activities.

Publication by COROP area and by large municipality.

6. Statistics on crime and the administration of justice

- Most of the sub-divisions are published by province and for large towns (100 000 +) or by district.

7. Social accounts (general surveys)

- This main department is responsible for territorial divisions for the purposes of regional statistics.

It also has the task of preparing the population census.

8. Personal and household surveys

- The manpower survey already mentioned under employment and wages statistics is carried out and processed by this main department.

9. Income and consumption statistics

- The regional income and wealth distribution is published on a two-yearly basis by municipality. The basic data are derived from the Ministry of Finance (random sample). The most recent data to be published cover 1976.

- The annual budget survey covering 1978 onwards will be published by region only, in view of the limited size of the random sample (0.06 ‰).

- The four-yearly housing requirements survey is processed externally. It contains data by COROP area and for the large municipalities (100 000 +).

The regional statistics of the various main departments are frequently not harmonized with each other. At the national level harmonization takes place on a regular basis, for the national accounts for example.

Regional divisions used within the CBS

1. Region (NUTS-I)
2. Province (NUTS-II)
3. COROP area (NUTS-III)
4. Municipality
5. Large municipality (100 000 +)
6. Provincial Employment Office area
7. Economic-geographical area
8. Agricultural area
9. Tourist area
10. Traffic area
11. Transport area
12. Chamber of Commerce District
13. Conurbation
14. Jurisdiction (district)
15. Jurisdiction (canton)
16. Nodal area
17. Educational area
18. Forestry area

Divisions 6 to 18 inclusive are generally larger than a municipality and smaller than a province.

19. District or locality
20. Grid square
21. Postcode

Divisions 19 to 21 inclusive are smaller than a municipality. Hardly anything is published by the CBS at this level. However, these territorial divisions are useful as the basis for aggregation for larger areas.

Document N° 07

SOME SPECIFIC ASPECTS OF REGIONAL STRATEGY

Presented by:

Prof. Renato GUARINI
Dr. Giovanni BARBIERI

SOME SPECIFIC ASPECTS OF REGIONAL STRATEGY

1. Introduction

Before getting down to the paper as such, the meaning of certain terms which will be used must be clarified in order to define a subject which is part of a far broader context.

First and foremost, the meaning given in this paper to the term 'economic strategy' must be explained. In the deep-rooted tradition of Italian economic and political life and jargon, this term is preferred to the more usual term 'planning' (or planification in French or Planung in German) found in international literature. However, the term will be used here in a meaning different from that which, amidst much terminological debate, still prevails. In other words, the term will not be used as a synonym for 'economic policy' or economic measures taken by the 'state', or, with a more positive connotation, for 'new economy policy' or 'more equitable development policy'. Unlike these meanings which have been given a very heavy ideological bias and which are still associated with a period of reforms, albeit unsuccessful in the Italian politico-social context, the term will be used to denote a coordinated and structured package of measures and instruments tailored to the objectives of economic policy.

This definition is essential for an in-depth understanding of the field of economic accounts, because in this meaning of the term, the essence of the whole process involved is that the means are made commensurate with the ends, and the resources with the objectives; and this commensuration, is achieved, both conceptually and technically, by the institution of systems of economic accounts in which demand for and supply of resources are balanced out.

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1) In view of the multi-disciplinary nature of the subject, Prof. Renato Guarini, who was asked to prepare this paper, called in Dr Giovanni Barbieri, who, through his research at the ECOTER (Institute for Economic and Regional Research and Planning, Rome), has gained direct experience, particularly on the institutional, legal and procedural problems of regional economic strategy in Italy.

In the context of this symposium, regional accounts will of course mean something more technically specific; however, it should be noted that the very structure of economic accounts is dictated and shaped by the requirements and the strategy of economic policy.

The second definition which requires clarification is the term 'region' and, consequently, its adjective 'regional'. For the sake of argument, not even 'regional' will be given the meaning it generally has in the theory of geographical delimitation of territory and in regional science. The term will in fact be used in its more usual acceptation denoting a major administrative entity, albeit with certain shades of meaning bound up with the meaning given to economic strategy and economic policy. If, as we have seen, economic strategy is one of the functions of the Region as an autonomous political body - to be more precise, it is the function whereby it mobilizes resources, instruments and actions with a view to the most rational use (vis-à-vis specific objectives) of available resources - by the same token, the 'region' can be defined as the sum total of economic, productive and human resources situated within a given area. In the final analysis, this interpretation of the term 'region' embodies the theories on the 'programme-area' as the focal point for the implementation of economic policy strategy. However, it should be stressed that this definition includes, alongside the elements of legal and formal 'homogenousness' (and, ultimately, equality), other elements tailoring the means to the end, in which the means are a strict function of economic strategy, while the ends, i.e. the use made of the resources earmarked for the target area, are a function of the economic, administrative and governmental homogenousness of the region. Bearing in mind this theoretical and methodological premise, it can be seen that where, as in the case in Italy, there are regions which have economic powers or, generally speaking, there is some degree of federalism or political/administrative decentralization, the conditions are usually right for the geographical/spatial and the economic/institutional lines to converge and blend into economic strategy.

2. Economic accounts and regional economic strategy

Implementation of regional reform in Italy began in 1970 with the setting up of the Autonomous Regions having Ordinary Status.

The regions are intended to be autonomous governments, possessing an equal degree of representativeness in relation to central and local authority and wide-ranging powers which are becoming increasingly specific in terms of functions or groups of function and although, even in the documents defining their status, the reference to economic strategy as a method of government appears to be a tribute to the national economic strategy of the 1960's and to the "development guidelines" laid down by the Regional Committees for Economic Strategy, nevertheless as from the second regional legistature, i.e. after 1975, a system of structures, procedures and instruments purpose-designed for their own economic policy became increasingly essential for the Regions as their powers and their problems, imbalances and crisis points grew in number.

It is precisely in this process of development of the "instruments" of regional economic strategy that the need for regional economic accounts and, more broadly, for a system of information for this strategy, originates:

- firstly, as a basic framework of information, as a systematic data base for the purposes of strategy development, as an instrument for monitoring the progress of the regional economy;

- secondly, as an accounting exercise, in terms of available resources/final uses balance sheets or the means/ends interface which characterizes regional development planning; this exercise generally focuses on the major macro-economic aggregates (consumption, investment, output, productivity, employment, wages and salaries, income, savings);

- thirdly, as a link between the budget of the Regional government (the only agency in a position to guarantee implementation of options and mobilization or resources which can concretely and directly be controlled by budgetary strategy) and the resources/uses balance sheet, via the compilation by general government of a consolidated account within the system of financial accounts;

- lastly, as an ex post facto check on effectiveness, i.e. the extent to which the objectives of the plan have been attained.

This standpoint and this rationale form the basis of this paper; in other words, attention will be focused on examining requirements which a system of economic accounts must be able to meet for the purposes of regional economic strategy; what are the current shortcomings of the compilation of sub-national economic accounts; and, lastly, which of these shortcomings must and can be dealt with as soon as possible to avoid a break in the continuity of very promising developments in regional economic strategy.

3. The phases of regional economic strategy

To break down Italian experience in regional economic strategy and utilization (or non-utilization as is often the case) of economic accounts is a daunting task, even if merely by way of illustration and without any claims to a systematic approach. The point about regional autonomy is that the Regional Governments do in fact govern autonomously, not only as regards their own economic policy, but also as regards means and instruments of analysis and decision-making. It is admittedly possible in many cases to identify trends or behavioural patterns common to a number of Regions; however, it will more often than not prove preferable to relate to concrete examples carefully selected from those which are better known as a result of direct scientific and professional experience.

The economic policy of the Regions can be broken down (and this breakdown applies to all Regions and can, in fact, be further generalized) into two fundamental types of action;

- guidance and mandatory action, the (different)compulsory framework of which is linked to a system of sanctions (and incentives; although in this latter case there is a link with the second type);

- 'budgetary' action which, according to the now accepted classification of Musgrave, boils down to the functions of allocating, and distributing, stabilizing, resources.

Much of the economic policy of the Regions - which deserve credit for having recognized the fact immediately at the time when 'overall macro-economic strategy' was the order of the day - has to do with budgetary action.

It therefore comes as no surprise that when developing their own strategy instruments, the Regions almost invariably made a point of intermeshing strategy and budget as far as possible and adopting methodological models of the PPBS (Planning Programming Budgeting System) or RCB (Rationalization of Budgetary Options) type. Against this background, economic strategy is geared to using historical analysis of the socio-economic regional situation as it stands to provide an interpretation of the regional system capable of showing its underlying trends, of identifying the nerve centres, bottlenecks and vital points of its functioning, and of highlighting the strategical levers available for the purposes of central government action. This analysis is the source of all options to modify and steer, either wholly or partly, the 'spontaneous' development and/or structure of the economy at the regional level.

Transforming these strategic options into quantitative objectives and drawing up programmes for the attainment of these objectives lies at the heart of economic strategy.

It is here that the amalgam between plan and budget is achieved, partly because each programme is geared to the attainment of one option or a specific objective and partly because for each 'programme' there is (provided the action involved is a 'budgetary measure') an estimate of expenditure in the accounts documents.

Lastly, the strategy process itself is subjected to a dual monitoring procedure;

- to check compatability and internal consistency, covering both the objectives (which must not be contradictory) and the programme (which must not be mutually exclusive or constitute parallel or duplicata programmes which would otherwise waste resources) as well as the resources themselves, subject to the strict budgetary rules;

- an ex post facto check on efficiency and effectiveness which, coinciding with the new place of analysis on the situation at the regional level, rounds off the plan and gives fresh impetus to the process of economic strategy. The analysis of the socio-economic situation in fact provides the parameters for assessing both the results of programmed economic policy action and the future requirements.

4. General and sectoral analysis

These phases of analysis in the economic strategy process represent the first elementary level of utilization of the system of regional economic accounts. On the one hand, regional economic strategy - generally more closely related as we have seen, to budgetary and decision-making techniques than to broad macro-economic systems -

here entails the need to take stock and to interpret in depth the structural and functional characteristics of the regional system considered as a package of territorial resources. On the other hand, the economic accounts have their raison d'être, even more than as a possible instrument of macro-economic strategy, as a synthetic instrument of observation and assessment of an economic system by applying an interpretive model of the Keynesian type.

This would therefore bring together all the elements needed for a perfect amalgam between the two areas of economic strategy and accounts as part of a wider system of regional information.

Contrary to what could be justifiably expected, however, not only does the Italian experience of regional economic strategy provide an example of systematic under-utilization of the economic accounts series for representative and explanatory purposes, but it even exemplifies a trend which is gathering strength, namely basing the description and interpretation of the regional economy on ad hoc studies, qualitative surveys and indirect indicators. This can be put down partly to the interest aroused at present in Italy, following the emergence of the 'black'economy and the 'new economic geography', by the surveys based on 'circumstantial models' in which the sociological or generically investigative aspects take precedence over the more traditionally statistical ones. Without wishing to deny the heuristic validity of these methods, which have made it possible to 'uncover' phenomena and trends which hitherto evaded the traditional statistical investigations, the need for subsequent scrutiny of these 'discoveries' using systematic analysis, in order both to define the actual field of validity and to incorporate them in an orderly manner in a consistent and homogenous system of information, must be stressed.

In so doing, however, we encounter once again the sore point that very little use is made of the regional accounts series in analyses carried out for the purposes of economic strategy.

This is a twofold problem:

- on the one hand, the regional accounts series currently compiled are, as will be better explained later, insufficient as instruments for interpreting the functioning of the economic system of given region, because of the nature and degree of aggregation of the data, because of the way in which they are compiled, and also because of the inordinate time lag between collection and availability (it must be remembered that in Italy, for instance, most Regions publish an annual progress report on the implementation of the plan and on the socioeconomic situation, somewhat along the lines of the social and economic state-of-the-nation report which the government presents to Parliament every year);

- on the other hand, the information requirement which becomes apparent during the analyses carried out for the purposes of regional economic strategy never coincides perfectly with the type of information which comprehensive regional economic accounts can provide; this is because these analyses are not an end in themselves but are part of a decision-making process in which the interpretation of regional development and of the factors which provide information is reconstructed on the basis of a special process of formulation and verification of hypotheses with a view to obtaining general and economic policy guidelines.

Both these limitations, which already weigh heavily in the general analysis, become critical when it comes to the sectoral analyses required for the purposes of drafting the individual programmes. The nature of the information needed for this latter phase differs from the point of view of depth and breakdown from that which would be adequate for a more wide-ranging survey. On the other hand, the data which can be derived from the regional accounts series are lacking not only in sectoral coverage (at class-of-activity level, for instance), but also in significance and reliability, for want of "external" checks, whenever they are obtained by breaking down a more 'condensed' item of data. It therefore comes as no surprise

that in sectoral analyses there is a marked predominance of ad hoc surveys as a theoretical method, since the use of models of the input-output type has still to be tried in practice.

Moreover, in view of all these limitations, it is for the analysis of the economic strategy process that regional accounts data are most widely used. There is no need for specific examples here, since there is not a single document on regional analysis which does not devote, for want of better information, substantial space to observations on the data presented. This is quite justifiable, for it must be recognized that the series compiled along the lines of national accounts guarantee at least continuity and statistical comparability and are essential for the purposes of comparison with the national and other levels. In addition, they cater for the need to have certain basic economic indicators, (particularly for the production and income aggregates) providing a composite, but also systematic and continuous, picture of the short-term and structural trends in the regional economy. This composite assessment of the functioning and the state of health of the region represents a yardstick for comparison of the allocation of available resources, as well as providing information for the community at large.

5. The budgetary side of strategy

It is precisely in this central phase of the economic strategy process, namely the allocation of resources, that it becomes convenient to use a framework of macro-economic accounts based on regional economic accounts. The focal point of this stage of the process has already been mentioned; the fulcrum of a process which most regions identify with decision-making can only be represented by the construction of an accounting framework geared to the definition, critical comparison and assessment of the programmes. It is through the comparison and selection of alternative programmes within a general framework of accounts that the rationale of government is seen in this system.

The programmes drawn up - which cover within this conceptual framework all the possible uses of regional resources and which it is taken for granted cater for all the objectives laid down and scrutinized for compatibility with resources available; the resulting accounts framework is an instrument for assessment for the policy decision-maker responsible for determining which programmes are to be financed and to what extent.

It is important to stress in passing how this accounting check not only serves as a transition phase from a mixture of individual programmes to their consolidation within the framework of a homogeneous plan from the point of view of both strategy and the resources raised, but also constitutes a component of the feasibility analysis for each programme. In fact, in the context of economic strategy, the feasibility analysis of a programme is expected to "validate" not only its inherent technical and economic usefuleness (check on the technical resources needed for its implementations) but also its usefulness "from the point of view of the regional economy" (check on the commitment of "external" resources, i.e. the commitments deriving from the fact that the resources can more profitably be invested in other programmes).

In other words, each individual programme must be assessed beforehand in order to confirm its consistency with the general development objectives; this check therefore requires an accounting strategy framework which is clearly-defined, well-structured and quantified in its strategic aggregates.

This preliminary consistency check is a precondition, although not enough in itself, for the decision to go ahead with the programme. It has to be backed up by a value judgment which can be arrived at only by comparing the programme itself and the alternative uses to which the resources earmarked could be put. This value judgment in fact reflects the priorities of public preferences by institutions.

There is thus a problem of comparability between projects which cannot be solved solely by using the usual parameters of a cost-benefit analysis (net current value, cost-benefit ratio anticipated, internal efficiency of the project).

Projects can relate to heterogeneous target-functions which cannot therefore be compared directly. A system of coefficients is therefore needed to standardize investment projects and to arrive at an index of the inherent project and which at the same time will highlight the impact at the social, economic, public and corporate levels.

The Keynesian approach would be to cater for this quest for a common denominator to qualitatively divergent strategies by applying a standardizing scheme which can be expressed in terms of territorial economic accounts.

Is such an answer still sufficient?

An immediate cause for doubt arises precisely from the all-embracing nature of this type of scheme for, as experience shows, the abstract and general nature of such a model often entails a marked underevaluation and an ingenuous (or ideological) claim to technical rationalization of the decision-making process. However, the decisive objection, albeit one which is probably taken for granted, is the need which this scheme tends to overlook to take due account of the objectives themselves when drawing up the reference information framework represented by economic accounts in the strict sense.

It has been seen that, after discarding approaches based on the overall structural macro-economic strategy, the Italian Regions are opting for approaches which are conceptually closer to budgetary strategy and in practical terms more in keeping with a realistic and pluralistic view of the rôle of their economic policy in a market system broken down into several 'institutional layers'. It therefore

comes as no surprise that as this trend gathers impetus "budgets relating to the formation and use of resources" (i.e. the overall resources of the regional system) have become increasingly rare, while "programme structures" and "activity objective coherence matrices" have become increasingly common.

The first attempt at compiling forward economic accounts in Italy was the Regional Programme for the 1966-1970 five-year period drawn up by the Autonomous Region of Friuli-Venezia Giulia (the Autonomous Regions date back to before 1970, the date when the ordinary-status regions came into being). Owing to the reasons mentioned above, this experiment carried out by the Centre for Economic Plans and Studies was virtually the only one of its kind, with the exception of a second programme by the same region (1971-75) and the Development plan drawn up by the CRPE of Apulia (1966-1970), both of which moreover, were based on the same methodological matrix. More recently, another attempt to compile forward accounts for the purposes of regional economic strategy as carried out by the IRSPEL (Institute for Research and Studies on Economic Strategy in the Latium Region); the Latium Reference Framework (1977-1981-1985) is not the same as the Regional Development Plan, but merely a back up instrument of the latter for the purposes of decision-making. This experiment is of considerable methodological interest and represents a great deal of work, and stands out for its originality from the somewhat monotonous pattern of regional economic strategy implemented in Italy, where the Latium Reference Framework showed and still shows its limitations in its failure to become fully part and parcel of the assessment criteria and structures on which to base the regional economic policy decisions which, to a large extent, constituted its raison d'être.

The rationale governing these experiments can be summarized as follows; the forward estimate of income is designed as the summary in monetary (in other words, commensurable) terms of the individual programmes and the process by which these programmes can be

critically compared, expressed in the accounts in terms of available resources and of constraints governing uses.

Conceptually speaking, therefore, this stage involves checking priorities and choosing between alternatives. The budget thus projects, for the reference years, the outlook for growth in output (and, more precisely, in value added), employment and value added per person occupied (as a parameter for measuring productivity), as can be derived from sectoral programmes. Compiling economic accounts on the formation of regional income involves a comparison between the basic situation at the start of a plan and that anticipated in the final year of the plan, together with the analytical reconstruction of the contribution of individual programmes to sectoral and overall development. These tasks, which are arduous per se, are (to some extent) complicated by the profound contradiction which always stems from any attempt to compare and aggregate heterogeneous entities (suffice it to think of the different levels represented by historical analysis, trend forecast analysis and prospective "strategy" analysis as well as the homogeneousness of the different economic "activities"). Similar problems arise in forward accounts in which the overall availability of resources for internal use is broken down over competing uses (household expenditure, public expenditure and services, private investments, fixed capital formation); these are accounts which are designed to synthesize the trade-offs resulting from the system of relative priorities implicit in the objectives and indicators of any plan.

6. The link between economic accounts and financial budgets

On the basis of the recognition of these problems inherent to strategy preparation and also, to a greater extent, of a change of outlook in economic policy, an alternative approach began to take shape in the mid-1970's, abandoning the search for a link between macro-economic aggregates and government intervention in favour of the convergence between strategy formation and decision-making. This switch of emphasis was helped by the recognition of a mesh formed by the multiplicity of subjects, powers and behavioural patterns, the awareness of the all-embracing nature of the scope of public (and

particularly regional), action and the criticism of the inevitable ambiguity between forecasts and achievements which is implicit in the target scenarios. Taken to the extreme, this "ideological rethink" leads to abandonment of intervention in the processes which go beyond the existing scope for intervention by government (and this is tantamount in our case to the powers, particularly the institutional powers, of the regional authority), and in particular in the processes whereby resources are formed, in order to concentrate on rationalizing the use and management of resources considered to be available, i.e. in the "operational" procedures which link the various combinations of possible options to the designed results.

Against such a background, the compilation of forward accounts naturally lies outside the sphere of strategy preparation, not because no compatibility check is necessary between available resources and uses, but because this check is switched from the context of macro-economic growth - which it is claimed evades any control whatever by government and its rationale in a market society in which the flow of information is far from satisfactory - to the context of the public authority's budgetary options.

Is this a step backwards or, even worse, an unconditional surrender by the "strategy school of thought"?

Not necessarily, if for no other reason than because to intervene at the points of overlap maximum capacity and operational efficiency of the instruments of the region's economic policy and the framework of strategic objectives to initiate a process of change affecting the whole regional economic system, may mean, in an approach in which such points of overlap are never taken for granted, that the process of strategy formation consists of arriving at these on the basis of analysis of the situation and the patterns which characterize the specific regional situation on the one hand, and on the basis of the transformation of the public structures and their functioning on the other.

Nevertheless, it has to be acknowledged that, at least as far as use of economic accounts methods is concerned, the discarding of a sufficiently consistent and proven model has not been offset by a corresponding effort of theoretical development capable of devising accounting instruments attuned to the new requirements and of endowing the new conceptual framework with the requisite level of link-up and checking. Even if the government's plan of action is not the prime and exclusive instigator of development, it undoubtedly remains geared to the attainment of objectives which have to do, albeit indirectly, with changes in the economic system. The yardstick for assessing the effectiveness of economic policy measures - inasmuch as it covers partly, although not exclusively, the extent to which these changes have been achieved therefore always entails a comparison in macro-economic terms between the prospective situation which would probably arise if there were no plan and the prospective situation apparent in (and therefore, to some extent, resulting from) the plan.

The need for regional economic accounts as an instrument of assessment and strategy formation is therefore enhanced in this context rather than diminished. And in so far as the acid test for the capacity of this regional economic strategy "philosophy" to translate ideas into hard facts is its ability to make strategy, effectiveness and budget planning converge, the information requirement is defined by the need for a link between macro-economic accounts and regional "financial" accounts. Although this is a universally recognized need, there is apparently no record of full integration having been achieved between the multi-annual budget of a region and a system of forward economic accounts. On the other hand, there are examples of consolidated government budgets in a given region, which have not, however, been linked up by means of the government account to the marco-economic accounts series. (Once again, the exception is the 1966-1970 programme of the Friuli-Venezia Giulia Region; in keeping with the system already examined, it is the income account in this case which is "broken down" in order to compile a consolidated government account).

Nevertheless, even without concrete examples, it is still possible to reconstruct the basis of a closer link between economic accounts and budget planning.

The widespread and understandable criticisms of abstractness and unwieldiness made of the so-called "overall macro-economic regional strategy" indicate that the contents of the public budget, as an instrument of financing and rationalizing regional economic policy, should be used as the basis for an ascending rather than descending process in the search for macro-economic compatibilities. In other words, once budget planning has been taken as an instrument capable of guaranteeing implementation of economic policy decisions and of mobilizing the resources directly and tangibly available to the Region, the aim is to seek a macro-economic reference point to be used as a yardstick for assessing the conformity and effectiveness of the broader plan to change the regional situation and the capacity of government to influence the raising and use of resources. The aim is, without any claim to be all-embracing, to transform something conceived as a legal-accounting instrument of management, into a mechanism - but a privileged mechanism since it is available to government - for raising, allocating and increasing resources.

This ascending process, which moves interactively and iteratively towards the search for the macro-economic conditions and consequences of budget formation, is indoubtedly more cumbersome than the conventional arrangement whereby the public budget is reconstructed by successive breakdowns of an overall, but general framework of compatibility. However, it is undoubtedly also more consistent and worthwhile to impose on the "real" uses of resources stringent checks on their effectiveness in relation to the general objectives set by public authorities, on their "economic" compatibility in relation to the strategic options in the regional community and on the implementation constraints imposed upon the programme.

The information requirements at this checking stage naturally go beyond the level of regional economic accounts currently available, since, for the purposes of the 'general government' and, in particular

the financial accounts sector not only greater detail but a key to the transition from the 'micro' level to the 'macro' level and from the accounts of the Region to the accounts of the regional economic system are required. This means that in the compilation of regional economic accounts, just as in the framing of economic policy options, integration between the level comprising the divisions and operations of the public sector and the level comprising the economic changes aimed at cannot be taken for granted, but must be reconstructed iteratively on the basis of a specific assessment of means and ends.

7. The need for a regional system of information

The foregoing considerations clearly show both the limitations which, from the point of view of economic strategy, are to be found in the present system of regional economic accounts and the challenge and practical task which experience and methods of regional economic strategy in Italy prove that the 'producers' of statistics must cope with.

Turning from the realm of theory to come down to earth and tackle this challenge, we have to bear in mind a distinction which characterized the whole of the information requirement of economic strategy formation; in other words, distinction has to be drawn, even if only for empirical purposes, between an information requirement which can reasonably be met by upgrading the regional accounts system as it stands today or as it can be envisaged, as a requirement which, although it has to do with economic, social and regional accounting in the broad sense of the term, draws on varying sources of information for reasons of data reliability, cost, intrinsic nature of the information, and heterogeneousness in relation to the conceptual framework of the system of economic accounts.

In order to throw more light on this last point, we can first attempt to define the context.

First and foremost, the constraints and objectives of a system of economic accounts must be weighed up: It is not merely a question of remembering that the collection and organization of data are costly and subject to economies of scale, and therefore typically relate to a supra-regional level, but also of bearing in mind the importance within the system of continuity and comparability of the series:

- on the one hand, this clearly identifies the function of the accounts system, which is expected to be global and possess internal consistency in order to provide a 'reliable' framework of accounting relationships and a point of link-up with and re-integration into the supra-regional economy;
- on the other, the limitations of these accounts remain unchanged, not only because of the unbridgeable gap between accounting identities and economic policy rules, but particularly, and more prosaically, because of the discrepancy between the systematic and homogeneous nature of the model and the specific nature of the regional economic process to be illustrated.

Both these requirements - comparability and analytical interpretation - are fundamental, but call for different solutions.

From the point of view of economic strategy, the problem is clear enough: a consistent information reference comparable in time and in space and conceptually sound is indeed required in order to monitor programmes and achievements. But going down the scale hierarchically from government to the citizens at large, the objectives expressed in aggregate terms require more detailed definitions: in terms of spatial organization for housing, services and productive activity, in terms of qualification and suitability for mobility, in terms of inter-individual redistribution of income.

It is this inter-meshing of constraints and requirements that gives rise to the demand for an autonomous regional system of information, albeit compatible with the conventional system of economic accounts. A large number of experiements and trial runs have been carried out in this field at the regional level, although these are far from perfect and still at a very rudimentary stage. All of them, predictably

taking as their starting point a concept of regional economic policy based mainly on the problem of employment and the use, sectoral and spatial, of those resources which are available or which are comprised by the territory in question, are aimed at preventing the process of aggregation whereby macro-economic accounts are compiled from obscuring the typical and indeed, the specific nature, of their fundamental economic data and relationships.

In other words, they are designed so as not to lose information on the nature, behaviour and strategies of enterprises; on their geographical situation in the territory; on installation patterns and the occurrence and disappearance of small advantages originating in local factors; on the qualitative characteristics and the inclinations of the workforce; and on the quality and efficiency of specific services and utilities.

This is the rationale behind the introduction of "regional observers" of the labour market, productive activities, urban development, etc. - a rationale which is different from that behind regional accounts but by no means alien to it. It is different because it focuses on the problems that emerge and not on the reconstruction by simplification of a set of homogeneous and comparable data; because it is constructed on supra-individual data bases with facilities for highlighting exceptions and on in-depth approaches, which are of necessity asymmetrical, to the different sectors and the different territorial components; and lastly because it operates not only in terms of flows, but also in terms of stocks of resources and factors available for alternative uses. However, it is compatible with a system of regional accounts 'overhauled' so as to be more adaptable to the characteristics and needs of economic strategy.

8. Conclusions

By 'overhauling of regional economic accounts' we mean that portion of the information requirement which, as has already been mentioned, can reasonably be satisfied by upgrading the existing system set up

by a homogenious national statistical service, albeit with local ramifications.

A first fundamental requirement is timely availability of information. At present, the publication of regional economic accounts involves a 2-3 year time lag. Considering that in their effort to make strategy planning the lynch-pin of their economic polica, the Regions are engaged in the creation of instruments for "real" and financial planning on an annual basis, it is understandable that this time lag is the major obstacle to a more wide-ranging use of these data as an instrument for interpreting and assessing policy strategy. This time lag is in no way the manifestation of inefficiency, but reflects the inherent difficulties of producing a set of internally cohesive statistics compatible with the national aggregates and possessing some degree of "reliability". Nevertheless, an effort at timeliness can be made by producing provisional data, naturally requiring adjustment at a later date but nevertheless capable of providing an insight into short and medium-term trends in the regional economy.

This can reasonably be achieved by using econometric models which on the basis of national data can give a preliminary estimate of the trends in regional economic aggregates.

A second requirement is to "focus" the economic accounts system to a greater extent on the target variables peculiar to regional economic strategy; these variables are unlike the traditional ones of overall macro-economic strategy (in terms of income, employment, productivity, investment, etc.). This would give, on the other hand, a greater degree of sectoral coverage (even down to individual projects) and, on the other, a closer interrelation between government budgetary strategy and financial flows which are part of the system.

Regional economic accounts are therefore required to provide not only, at the regional level, the entire set of accounts required by the ESA, but also a greater level of detail in terms of sectoral

analysis (particularly as regards those sectors of activity in which the institutional tasks and the strategic responsibilities of the Regions are concentrated), of financial accounts (with specific reference to the inherent problems of public finance consolidated accounts), and of assessments of the direction and extent of inter-regional trade flows.

The responsibility for all these operations cannot be placed on the national statistical service alone, partly because they can only be compiled by aggregating regional and local data rather than by breaking down national data. For this very reason, these operations should be carried out in close cooperation between the producer of statistics at the central level and regional information systems.

Lastly, a fundamental requirement of a system of accounts for the purposes of economic strategy is the availability of a set of sub-regional accounts albeit in summary form. From the standpoint of regional economic strategy, as was observed in the case of sectoral coverage, it is obvious that the availability of aggregated regional data provides no useful information for the purposes of allocation of resources within the region.

This is perfectly normal, bearing in mind that the compilation of regional economic accounts was originally intended as a back up instrument for central government's regional policy, i.e. an instrument for evaluating divergencies within the country to be ironed out by means of compensatory action. This compensation and allocation function is, however, also essential within each territory for the economic policy of the individual regions (for instance the analyses, which have become increasingly frequent in recent years, of divergencies between provincial and urban areas, between areas in which certain services are concentrated between employment intensive areas, etc.), without their being able as things stand to have direct and regular information on the subject in question. Be that

as it may, rather than direct involvement of the central statistical service in this field, it is technical and methodological back-up that is required to enable the statistical and economic strategy departments of the region to draw up sub-regional accounting systems which, provided they are linked with regional series, concentrate as far as possible on the geographically-circumscribed problems and structures of the individual regions.

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STATISTICAL REQUIREMENTS FOR REGIONAL DEVELOPMENT PROGRAMMES IN GREECE

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If one adopts a purely inductive approach, the analyst of the problem of regional imbalances cannot have much to suggest to those responsible for the collection of data and information pertaining to it. One is bound to analyse the data excluding any personal preconceptions, values or prejudices and limiting oneself to whatever conclusions the data themselves seem to bear out. Consequently, on a rigorous level, the issue of the prospective fruitfulness of any particular set of data or information cannot be prejudged. One cannot draw any inductively valid conclusions unless the data in question is available and have been studied thoroughly. In other words the proof of the pudding lies exclusively in the eating.

The analyst may have suggestions about the sort of data he would need to complete a certain picture or to refine a piece of analysis. Since, however, he would not be able to prejudge the issue of the comparative importance and usefulness of other sorts of data relating to the problem, he would have little to suggest as regards priorities in data collection.

Epistemologically however, pure induction as an approach to scientific analysis, especially in the social sciences, where facts and data are generally soft and scant, has been shown to be inadequate. The alternative approach of formulating hypotheses, using one's best judgement and all one's faculties and subsequently attempting to verify them or still better to falsify them, has gained a lot of ground. Thus, although the precepts of induction should certainly be taken very seriously, it is nowadays thought perfectly legitimate, even on the most rigorous level, to formulate hypotheses and examine their implications and validity. On this latter approach, the analyst can perfectly legitimately suggest what kinds of data he needs and which, other things being equal, should be supplied as a matter of priority.

In this spirit, as a user of regional statistics in regional planning work, I may be entitled to make a number of suggestions concerning priorities for regional data collection in Greece.

Community regional development policy, as it can be inferred from official documents, seems to be based on the perception, that, if not the ultimate, at least the proximate cause of the problem of regional imbalances is essentially a question of a lack of jobs and comparatively low incomes. Indeed the basic criterion for considering an area as eligible for assistance from the European Regional Development Fund is the level of income there vis a vis the country average and the Community at large and one of the basic criteria of eligibility for the financing of projects in an area from the E.R.D.F. is their direct and indirect impact on jobs. I hasten to add that a broadminded approach is usually adopted in interpreting official directives and regulations, which have been intended to be applied flexibly. Essentially the Community bodies administering the regional development policy are open to persuasion if one offers sound argument in favour of one's position. But the presumption is always in favour of job creation as the key to arresting a further aggravation of regional imbalances or to a reduction in their intensity.

Infrastructure projects are amply financed. However, although the interpretation of regulations is now broader than in the past, and less narrowly centered on job creation, it is still the case that economic infrastructure as opposed to social and welfare infrastructure is favoured and that projects without an identifiable contribution to job creation or preservation are frowned upon.

I generally find these arrangements as a necessary precaution against wasting ERDF resources in ways that may contribute nothing or very little to regional economic development(understood as a process of increase in production, incomes and employment.).It is indeed all too easy to waste resources on projects ostensibly contributing to development in newfangled ways but essentially contributing minimally to the creation of wealth and the satisfaction of human needs.

Speaking for Greece, there can be very little doubt that the lack of jobs in the regions and the comparatively low incomes there, have been and continue to be albeit to a smaller extent, essential causes of the

demographic movements which have gravely upset the regional balance in the country. There is also little doubt that the creation of employment opportunities in the regions and the strengthening of incomes there will certainly be positive factors in improving the regional distribution of population and economic activity.

The formulation of regional development policy in its aspect as a job sustaining and job creating enterprise in Greece is however hampered by the lack of data on the extent and the character of unemployment and job deficiency in the Greek regions. Comprehensive employment data are available only at census intervals and those of the last census in 1981 have not yet been made available in the necessary detail. Quarterly employment survey data which have begun to be produced since 1974 do not cover the rural areas whose importance is paramount for regional development. Apart however from the fragmentary character of available data and the large blank time intervals, there are some more fundamental difficulties.

The standard definitions employed, independently of the considerations which may have prevailed in deciding to use them, may be the most appropriate for developed areas but seem to be inappropriate and potentially misleading for Greek rural areas. Many people there have a number of part-time jobs with idle intervals in between. In view of this, the basic piece of information which one would need to have, is not only the percentage of "open" unemployment characteristic of full-time employees who have lost a regular job or have never been able to obtain one, the usual case in a developed area. Further than that and probably even more so, what one requires is the structure of employment in the sense of the number of different part-time jobs and the degree and pattern of intermittent idleness.

Trade and distribution, construction, tourism, handicraft and other auxiliary occupations which go hand in hand with agriculture on the one hand and the depopulation in many regions on the other have gone a long way in reducing open unemployment, labour surpluses and the rate of growth of the labour force. Thus, along with the creation of new jobs the kind of jobs created and the way they may fit into the existing pattern of employment committments, which people are reluctant to give up, are equally important considerations.

The importance of the factors just indicated is demonstrated by developments in the field of tourism in the regions. The state is providing generous subsidies for tourist investment provided certain conditions regarding standards and the character of investment are fulfilled. A very large number of entrepreneurs however choose to forego state subsidies and shoulder the whole cost of investment in order to set up establishments which, independently of their other merits and demerits, have proved profitable because their manpower requirements can conveniently fit in with the pattern of labour supply on a part-time basis in the corresponding areas. Large establishments with large full-time labour requirements are in many cases losing money and having difficulties of recruitment in spite of generous state subsidies. It is probably worth pointing out that the self-financed flexible establishments which are partly underground, account for up to half the tourist turnover and the foreign exchange from tourist activity, strengthening the competitiveness of the sector in the country at a time when international competition is getting fierce. It seems to me that the best kind of jobs to provide, if such jobs can be found, are those whose manpower requirements can easily fit into the existing occupational structure and provide extra income without requiring those interested to make hard choices and forego existing employment committments, which are valued not only as sources of income but also for the feeling of safety and independence which they provide.

Apart from the problem of the appropriateness of the current definitions used in employment statistics discussed above, a related problem is false response. An unknown but probably important number of people provide false answers to the census interviewers for reasons that will become immediately clear. The provision of minimal social services to small settlements depends on the census population figure. Thus, people who have emigrated but still have an emotional or economic interest in keeping their native village provided with essential social services register there. To avoid awkward situations when interviewed for the census, such people provide false information not only about their residence but also about their job. Few people would declare that they are accountants, lawyers, engineers, or business executives in a rural village of 150 inhabitants. They rather declare they are farmers,

thus building up a status which entitles them to various privileges. One such privilege which has recently been very much abused is the exemption from the extremely stiff car purchase tax to which farmers are entitled. In Athens one can see many small tax free cars registered as farming equipment. The fact that the poor census interviewer has no relationship with the other government departments deciding on such matters is irrelevant in view of current perceptions about state activity and intentions.

It is I think clear, from what has been said, that the documentation of the current employment situation in Greece is probably a great deal more difficult than in more developed countries. It is nevertheless an essential prerequisite for an effective regional development policy. To my understanding the problem should be attacked from two sides. The first should be the orthodox collection of comprehensive statistics, which however should be complemented from the point of view of concepts and definitions to take full account of Greek regional reality. Emphasis should be given to a full mapping of the structure of employment as regards time patterns and occupational composition. The second should be the conduct of sample surveys to provide answers to questions which cannot be adequately dealt with in the context of comprehensive data collection and to check upon the reliability of statistics otherwise obtained.

With reliable and adequate employment statistics one may be able to avoid orientating the whole job creation effort along lines which may misfire, creating employment opportunities of a kind that few people are willing to take up.

III

I tried to make it perfectly clear above, that the creation of suitable employment opportunities in the regions in Greece should be one of the essential purposes of regional development policy. I would however like at this point to advance the hypothesis that in the case of Greece, the lack or the inadequacy of basic services in the regions has been in the past, and gradually tends to become more and more so, a very serious aggravating factor in regional imbalances, which needs to be addressed directly and separately

and which should not be considered as something to be automatically dealt with through the creation of jobs and income. Furthermore I would like to submit that in the case of Greece, now that the greatest part of the demographic surpluses from agriculture have been dissipated and migratory movements are not so inexorably determined by poverty and lack of employment but are gradually becoming rather a matter of choice based on relative amenity and social attractions, the importance of social services as a constituent of development and a determinant of the spatial distribution of population and economic activity is increasing.

In advancing these two propositions I am sure that I am not suggesting anything new. Social amenities, services and conditions in general are certainly among the factors influencing migratory movements. Thus it has been repeatedly pointed out that the strong attraction of Paris or London upon the French and the British population is not simply a matter of job availability. Decisions to move there are certainly influenced by a multiplicity of factors summarised in the image of those large conurbations as places where life can be more exciting and opportunities in greater supply.

It is also commonplace that what are called higher order services are not available and probably cannot be made available in smaller settlements.

It seems to me however that the disadvantage of the Greek regions from the point of view of social services as compared to Athens and Salonica is much more pronounced than in other countries and probably also qualitatively different. If that is the case, the emphasis in Community Regional Development Policy on job creation and economic infrastructure, the flexibility with which the Community implements the policy notwithstanding, may not be fully appropriate to Greece. The strengthening of educational and health services for example in some areas might be equally effective in arresting migratory movements and thus assisting development as job creation and economic infrastructure. This, quite apart from the fact that the provision of social services often does create jobs in the provinces.

No data or other reliable indicators are available for a satisfactory documentation of the role which the lack of basic social services in the provinces has played in the past and is currently playing as a factor responsible for emigration and regional imbalances, and the main point of the present

argument is to stress the need for producing such data or indicators as a matter of priority. Nevertheless one may draw attention to a number of facts which seem to support the conjecture formulated above.

It is observed that significant parts of the country have quite satisfactory incomes by Greek standards, accruing from the merchant marine and in some cases from emigrant remittances from abroad. Often in such areas there seems to be no question of poverty or extensive unemployment and there seems to be little doubt that any new manufacturing establishment in such areas would have difficulties in recruitment and would be objected to by the people for environmental reasons as well. People in such areas, the most important examples of which are some islands, can secure jobs in the merchant marine or abroad. Nevertheless such areas have suffered among the heaviest depopulations.

Although, as it has just been pointed out, no proper data are available, it is widely reported and believed that families from such areas come to live in Athens or in other large urban centres mainly for the sake of the education of their children and for health care. In spite of the greater cost of living in Athens and in spite of the fact that family heads are keenly aware of the family dangers involved in living in a large urban centre, they reluctantly move their folk there because basic social services are lacking in the provinces.

When it comes to education private coaching schools in Athens and Salonica are perceived to be the key to securing a university entrance for candidates, a veritable obsession of practically every Greek family. Further than that, private language schools in Athens are considered as practically the only outlet for learning a foreign language, a very important qualification in Greece. Government schools do not provide any usable foreign language instruction.

As far as health services are concerned it is probably sufficient to mention that so great is the unwillingness of doctors to serve in the rural areas, that until very recently young doctors were refused a license after completing their studies and training unless they had first served for two years in country posts. One can imagine the kind of service which young

doctors, usually without appropriate equipment or auxiliary staff and against their will could offer.

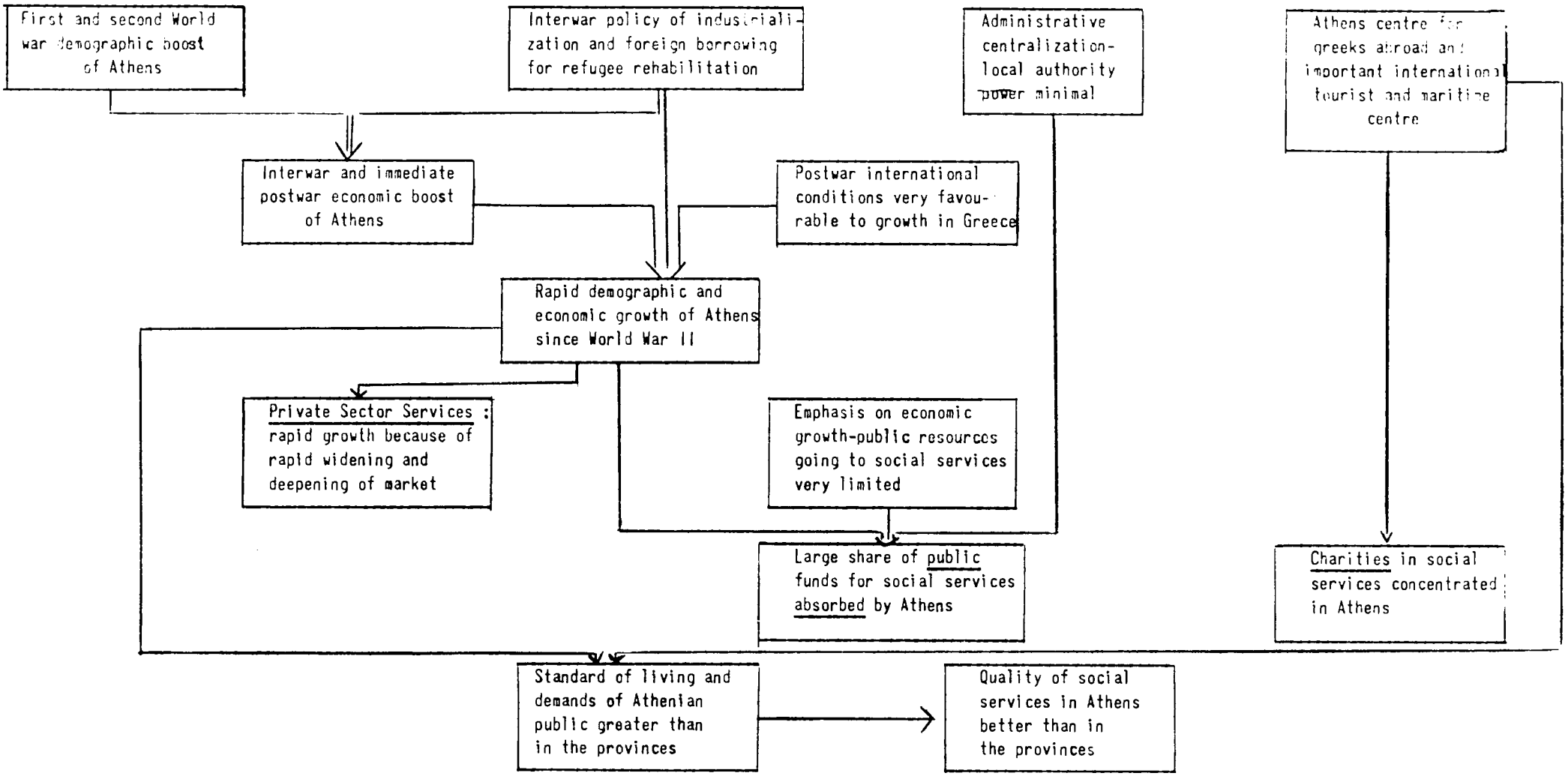
One could draw attention to many more instances that go to support the impression that often people may leave the provinces and go to live in Athens or elsewhere because of the lack of essential services in their native places. It is however more important to attempt a brief analysis of the main factors which render the problem especially acute in Greece and an almost independent significant cause for migratory movements and regional imbalances. For, rightly I think, the presumption is that although metropolitan areas exercise an extra pull upon people because of a wider and more exciting spectrum of opportunities and a better quality of a number of services, it still remains true that large, regionally imbalancing demographic movements are essentially a matter of jobs and incomes.

Three categories of reasons are probably among the most important for the seemingly unusually large gap in the availability and the quality of social services as between large urban centres and particularly Athens on the one hand and the rural areas and the provinces in general on the other (See also attached chart).

The first, though not necessarily the most important, is the cultural, economic, demographic and social preponderance of Athens to an extent which is rather unusual and which is connected to a number of reasons relating to the history of the country, the policies adopted in recent decades and the character of the Greek nation. The second is the highly centralised character of the Greek state and public administration headquartered in Athens. The third is the comparatively rapid rate of growth in the postwar period which went along with an emphasis on economic infrastructure. That led to a relative neglect of social infrastructure with the almost inevitable consequence that what little was done was heavily concentrated in Athens thus leaving the rest of the country and more particularly the rural areas far behind and grossly underequipped.

Back in 1920 Athens was a city of less than half a million, representing approximately 9% of the country's population, not an unhealthy relationship for a small country. The big wave of refugees from Asia Minor in 1922

Sketch of Main Factors responsible for GAP in social services between Athens and the rest of the country



coupled with a fairly vigorous and effective economic development and industrialization, partly based upon foreign borrowing for refugee rehabilitation in the ensuing years doubled the city's population by 1928 and raised its share in the country's population to 13%. Refugees were heavily concentrated in Athens because they were largely urban folk and they had nowhere else to go.

Explosive growth of the sort observed during the period 1922-28 cannot easily subside and the city continued to grow fairly rapidly even during the years of the great depression.

The second big population boost on top of normal growth came as a result of the civil war that broke out upon the end of the Second World War. The countryside, and especially the higher ground, which was comparatively densely populated in Greece for reasons going back to the circumstances of the Ottoman occupation, was the main battleground for the civil war which lasted until 1949. Seeking refuge from civil strife people fled to the large urban centres and mainly to Athens which was relatively calm. Thus, in spite of the fact that famine during the Second World War was much more acute in Athens as compared to the countryside killing significant numbers in the former and pushing a lot of people to the latter which produced food, the city gained a quarter of a million people between 1940 and 1951. That was nearly the whole of the country's demographic increase over the period in question raising the city's share in the country's population to 18%.

During the 1950's the city gained another four percentage points in the country's population. The process however of further concentration in the capital and depopulation in the provinces assumed its most virulent dimensions during the 1960's. From the beginning of this decade economic growth and industrialization accelerated whereas the growth of agricultural production, which was still fairly rapid until about 1961, slowed down quite appreciably. This put the provinces at a disadvantage the debilitating impact of which was further enhanced and precipitated by the massive outmigration of the 60's mainly to Western Europe and more particularly West Germany. The result was that during the decade 1961-71 Athens gained roughly 700 thousand people, its share in the country's population jumping

from 22% to 29% and Salonica, which was growing rather sluggishly till then, 160 thousand. The country as a whole gained only 380 thousand people. Thus the rest of the country excluding Athens and Salonica suffered an absolute population loss of nearly half a million or 9.2% of its base year figure of 6,157 thousand.

The exceptionally rapid growth in the population of Athens during recent decades coupled with vigorous economic growth, especially since the early fifties, had two important consequences from the point of view we are examining here. With an average rate of economic growth in the city of more than 10% per annum from 1950 till very recently, the market for private sector social services widened and deepened very rapidly, thus enabling a corresponding rapid growth. More particularly medical and educational services were available in Athens in the private sector thus partly making up for the inadequacy of public sector services.

The more limited and stagnant or even declining markets in the provinces did not provide sufficient incentives for the private sector, especially when very lucrative outlets were available in the capital or Salonica. Thus practically all private secondary education was concentrated in Athens and Salonica. Some of the private schools offered a quality of education better than that obtained in public schools whereas others catered to the social need of seeing through the secondary educational ladder children who could not make it in public schools for various reasons.

Those generally considered as good doctors, usually with studies or experience abroad, settled in Athens because it was more lucrative there. The market was much wider and the majority of important posts in private or public institutions were available there.

The second important consequence of the very rapid growth of Athens was the concentration of public spending in the basic social services there. That may seem unjustified. On closer consideration however it was almost inevitable and to a certain extent possibly justified as well.

During the postwar period Greece found itself economically, socially and geographically very well poised to take advantage of the exceptionally

favourable international conditions for economic growth. Thus until the late 70's the country experienced rapid and sustained economic growth that averaged 6% per annum. Rapid growth was enabled or at least it implied a concentration of investment in economic infrastructure and directly productive facilities. Both capital formation and current expenditure in the social services by the public sector was neglected. At a time when expenditure on education, mostly public, in many European countries hovered close to 10% of G.N.P. with not a very different figure for the health services, the corresponding figure for Greece remained nailed down to 2-3% for many years.

An indisputable consequence and witness of this neglect is the fact that Greeks turn abroad for university education in exceptionally large numbers and often visit foreign medical establishments for medical care. Large sums of foreign exchange are spent every year for imports of these two social services into the country. Though reliable estimates are difficult to come by, Greece is currently spending more than 1.5% of G.N.P. for basic social services imports from abroad.

Faced with the difficult choice of distributing essentially grossly inadequate funds for the social services between the large urban centres and the rest of the country, the government inevitably had to give priority to Athens and Salonica because they were growing very rapidly with a corresponding explosive growth of needs. Thus the modernization and the improvement in quality that can only come with investment in the social services was essentially limited to Athens and to a smaller extent Salonica. The provinces were inevitably starved.

Apart from private sector establishments in the field of basic social services and public social services proper, charities in health and education were also heavily concentrated in Athens. A feature of Athens that is not always appreciated is that it is the centre and the point of reference of the Greek nation including about 3 million ethnic Greeks living in various countries. That is connected to the city's history and its national and international role and position. Thus charitable instincts when combined with wealth, as it has been the case with several Greeks who made large fortunes abroad, mostly directed their benevolence to Athens.

Practically all the processes described above were strengthened in favour of Athens as a result of the highly centralised character of the Greek state and public administration. The needs of Athens were always more strongly and more effectively represented, and satisfied whereas those of the provinces depended for their satisfaction upon decisions made in Athens. No significant funds and no decision-making power were vested anywhere else except in the hands of the central government in Athens.

Finally, as a result of all these factors and processes the Athenian public, with a higher standard of living, became generally more demanding, thus contributing to the uplifting of standards in the social services there as compared to the provinces.

It must be pointed out that in recent years the situation is gradually changing in what seems to be a healthy direction from the point of view of regional balance. The countryside registered a substantial positive demographic growth during the 70's and the rate of growth of Athens slowed down. That was partly the result of environmental deterioration in Athens which began to affect people and partly the result of government policy in favour of the regions.

The present government is strongly committed to administrative decentralization, the strengthening of local authorities and regional development.

Nevertheless, in spite of recent progress and government commitments the results of long established and deeply entrenched tendencies cannot easily be reversed. It seems to me that it would be extremely helpful, in formulating regional development policies in Greece, to have data and information concerning attitudes and perceptions in relation to social services and the kind of investment and current expenditure in the provinces which would best satisfy needs and neutralize the deleterious effects of the lack of social services upon the regional balance in the country. A mere analysis of data on hospital beds or classrooms and the like is totally insufficient. Surveys should be conducted to obtain valid data on the true standard of services offered and the reasons why people may consider them inadequate. Without sound information in such matters it is very easy to channel resources into the social services in the provinces without achieving a reduction in the perceived gap between Athens and the rest of the country in this respect. It is not necessary to draw attention to the waste of resources that would result from such policy errors.

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STATISTICAL INFORMATION AND PROBLEMS CONCERNING THE BREAKDOWN OF AGGREGATES BY REGION IN ITALY

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STATISTICAL INFORMATION AND PROBLEMS CONCERNING THE BREAKDOWN OF AGGREGATES BY REGION IN ITALY

1. STATISTICAL INFORMATION NEEDED TO CALCULATE REGIONAL ECONOMIC ACCOUNTS

1.1 - Introduction

Many different kinds of statistical data are used to calculate economic aggregates at regional level. These data in fact comprise -albeit with different degrees of detail - the great majority of regional data compiled by the Istituto Centrale di Statistica (ISTAT) and by other public and private bodies. They extend on the one hand to the results of surveys specifically designed to work out aggregates for national accounts and, on the other hand, to a whole series of indicators -which, by their nature, are mainly indirect-that can be used for the territorial breakdown of aggregates which refer to the national economy as a whole.

It is not practicable however, to draw a demarcation line between indirect and direct data, partly because of the vagueness of the definitions used, but above all because the majority of the figures are drawn from several sources at once ; because the phenomena are examined from various points of view, the different sources help to improve the reliability of the results. This procedure is usually applied, not just in the absence of specific surveys on the phenomena to be investigated, but also in cases where surveys on all the regions exist but their results are not comparable to those for the entire country for reasons connected with the nature of the surveys (which are very often incomplete or on a sample basis) or connected with the considerable difficulties of geographical attribution of data.

It should also be noted that the corpus of statistical information used is not the outcome of an organic plan specifically designed by the ISTAT. On the contrary, this body of facts is the end product of a long process of gathering, selecting and combining the elementary series of data available, which very often contain anomalies and distortions to such an extent that it is hard to use them for the purposes of regional accounts. This means, therefore, that there is a need to improve both the calculation methods and the basic statistical data, extending the surveys to areas that are not covered or which are given only scant attention and transferring the general plans adopted for the national economy to the territorial level. What is more, although the different sources are not derived directly from a theoretical model, they do make it possible to draw a picture of the current situation capable of revealing not only the broad pattern but also where further detailed research is needed to meet the projected requirements of data users.

1.2 - Analysis of statistical sources

Briefly, the statistical sources currently used may be grouped in the way indicated below.

a) Data collected from enterprises

The main source here is a survey on the economic accounts of enterprises with 20 or more employees. This survey is carried out every year by the ISTAT and

covers the industrial, construction, commercial , public service, transport and communications sectors. For each individual economic sector, regional data are derived on the number of employees, on value added, on earnings from employment and on fixed investments which can be attributed to individual areas.

For all the other sectors, however, the statistical information is more fragmentary, and therefore not comparable, in terms of scope, with the type of survey mentioned above. In particular, while there are data on economic accounts for nearly all enterprises in the entire country(derived from a survey carried out jointly by the ISTAT and the Banca d'Italia) for specific sectors such as credit institutions, the same cannot be said for similar data at regional level, which are calculated according to distribution criteria based on elements of an indirect type. For other sectors (such as agriculture), data on production, intermediate consumption and value added are derived directly from specific surveys which, rather than being directed at individual holdings, take the form of a widespread recording of the areas used for the various types of cultivation and the corresponding average yields per hectare, which are calculated in the field by the competent agricultural bodies. In other words, total production-like intermediate consumption (seeds, fertilizers, pesticides, etc.) is calculated for a hypothetical reference holding which comprises all the parcels of land within a particular region.

It is evident from the above that only a proportion - albeit a substantial one-of enterprises are surveyed annually, while the whole group of non-agricultural enterprises with fewer than 20 employees and the services sector in general are hardly subject to investigation at all. Figures on these enterprises are produced according to purely inductive criteria, using primarily information on expenditure, including the data provided by households as part of the surveys listed under b).

To sum up, a brief glance at the situation leads to the conclusion that there is a need to expand future surveys to include enterprises with fewer than 20 employees - which up to now have been investigated only in a sporadic manner by the ISTAT or other bodies - and to launch an inquiry in the services sector. In this way, the most obvious gaps in this field, which are particularly detrimental when calculating fixed investments, can be filled.

b) Data gathered from households

In order to gather information which can be useful for national accounts, the ISTAT currently conducts two distinct surveys which are aimed at households :

1) the first survey is intended to provide data on the labour force and, in particular, on the number of employed persons in each region classified according to occupational status (employees or self-employed) and sector of economic activity ;

2) the second survey is combined with the previous one through a system whereby households are rotated but its purpose is to provide data on consumer's expenditure broken down by groups of goods and services.

Persons living in"communities"(hospitals, barracks, prisons, orphanages, monasteries, etc.) are excluded from the field of inquiry of both these surveys, which are, in addition, affected by the variability of the sample, with a progressive reduction in reliability from the national level to that of individual regions and from the total of the aggregates to that of individual categories . What is more, since the households interviewed still seem to show a certain reluctance to answer questions, the replies to some questions are still approximations of the truth ; this happens, for instance, in the case of questions on any "unofficial" work carried out by members of the household and also when it comes to giving details of large items of expenditure such as cars, furniture, holidays abroad, etc.

A further limitation of the surveys in question (and particularly of the second) is that they do not record the incomes of the households but only their expenditure, and that the annual variations in the aggregates are affected by the changes and improvements made over the years to survey techniques.

Special inquiries in the form of "panels" are also conducted by other bodies and public and private research centres, often less than yearly. Where expenditure on articles of clothings and on various items of household equipment is concerned, for instance, two separate surveys are currently carried out by a market research company - IANUS. At the same time, in order to obtain the information needed for the purposes of legislation on the leasing of urban property, the ISTAT itself from time to time conducts an inquiry on households living in dwellings which they do not own, in the course of which questions are asked on the rent paid and related charges.

However, neither the basic survey on household budgets, nor the individual inquiries mentioned above provide accurate information on expenditure outside the home in the form of services rendered by inns, restaurants, bars, cafes, etc. or money spent on the renting of second homes and on food, transport and entertainment during holiday periods.

Consequently, a survey which look account of the expenditure of holidaying Italians in the places where they stayed, coupled with statistics from hotels and other holiday facilities, would provide a more solid basis for the calculation of transfers of money from one region to another as well as for that of the aggregate of final consumption which goes under the name of "net expenditure of non-residents".

c) Information gathered from government bodies

Information of this type can be classified in three groups :

1) the first group includes statistics on the budgets of central government bodies and local administrative units ; these statistics permit the calculation -inter alia- of the costs borne by each region and the benefits accruing to them from the activities of the public authority in question ;

2) the second group comprises data collected by social security authorities on the contributions received and the benefits paid out in each region and on the number of workers covered by the various forms of social insurance (sickness, disability, old-age, survivors, etc.) ;

3) the data in the third group are those on the incomes of various categories of taxpayers, which are taken from tax returns.

The Ministry of Finance and the ISTAT currently conduct the surveys on the budgets of public bodies. Although a vast amount of data are available at national level on central government finances and are used for calculating the aggregates of economic accounts, territorial analyses are so scant and contradictory that calculations have to be made on the basis of criteria which are for the most part inductive. On the other hand, the difficulties encountered in the case of local authorities, whose activities are at least confined to their own particular areas, stem from the scarcity of analyses and from the delays before the data become available.

In the case of social security statistics, a specific survey on contributions paid and benefits received in each region is conducted annually by the ISTAT in collaboration with the most important bodies operating in this sector. Data on the number of workers insured are likewise recorded by some of these bodies, particularly the Istituto Nazionale per la Previdenza Sociale (INPS) (National Institute for Social Insurance) which supplies data for each region on employees and on their corresponding gross wages and salaries, figures which are used to determine social security contributions.

This picture is completed by statistics from the Ministry of Finance on the annual tax returns which are used to work out individual income tax (IRPEF) ; however, the results are only available three to four years after the reference period.

For this reason these data have not yet been counted as one of the regular sources used to calculate economic aggregates, even though lately - now that the first running-in phase is over - the interest in such data has been boosted by the institution of regional estimates relating to the breakdown of income by function. The slowness with which the financial authorities have begun to publish the data in their possession is not the only reason for these delays. Account must also be taken of evasion and of the partial or complete erosion to which taxable incomes are subject, factors which cast doubts over the usefulness of such data for our purposes.

d) Data of an administrative character gathered from various organizations

Worthy of a separate mention are the statistical data which a large number of organizations - other than government bodies - gather as a sideline to their main activity, as part of the managerial and supervisory functions which it is their task as institutions to carry out. These statistics deserve to be mentioned because, despite their administrative character, they practically always treat the phenomena under investigation correctly and therefore do not need to be subjected to significant changes before they can be used for the purposes of national accounts.

Confining ourselves, for simplicity's sake, to the most important of these organizations, the statistical documentation which they provide at regional level can be summarised as follows :

- Banca d'Italia (BANKITALIA) : data on deposits with credit enterprises and on corresponding investments in the various sectors of the economy, with a distinction being drawn between short-term and medium and long-term investments ;

- Ente Nazionale per l'Energia Elettrica (ENEL) (National Electricity Board) : data on the production of electrical energy and on its uses in the various sectors of the economy , including consumption by households ;

- Radiotelevisione Italiana (RAI) : data on the number of new radio and television licence - holders (black and white and colour sets) and on the number of licence - holders at the end of each year ;

- Automobile Club d'Italia (ACI) : data on licensed vehicles (cars, coaches, buses, etc.) , broken down by make and type, and on the number of vehicles on the road at the end of each year ;

- Unione Nazionale Costruttori di Macchine Agricole (UNACOMA) (National Federation of Agricultural Machinery Builders) : data on the number and rating (in horsepower) of tractors and other agricultural machinery registered and their numbers at the end of each year ;

- Società Italiana degli Autori ed Editori (SIAE) (Italian Authors' and Publishers' Association) : data on the number of tickets sold and money paid out by the public for the various forms of entertainment (cinema, theatre, sports events, etc.).

The activities of these organizations which expanded mainly in the 50s and 60s, have to a certain extent filled the gaps in the information provided by government bodies. Nevertheless, these gaps have become more and more pronounced in the last decade because some powers have been transferred to regional bodies while other organizations, judged "useless", have been dissolved.

It is therefore to be hoped that this initial period of confusion -made all the more acute by the lack of appropriate regulations- will be followed by an awareness of the role that local authorities can be called on to play in this field, first of all by reinstating and subsequently expanding surveys of an administrative character in the sectors for which they are responsible.

2. PROBLEMS CONNECTED WITH THE GEOGRAPHICAL ATTRIBUTION OF ECONOMIC AGGREGATES

2.1 - Introduction

The previous chapter revealed - among other things - the shortcomings of the Italian statistical system as regards calculation of some of the regional economic accounts aggregates. So far, no mention has been made of the financial and organizational problems connected with the acquisition of basic data which are at the moment lacking. These problems, which vary greatly in their complexity, can more or less be assigned to one of the two groups outlined below :

- the most straightforward case, where Italy is concerned, seems to be that of investments for the improvement and conversion of land ; this type of investment alone accounts for a very high proportion of fixed capital formation in the agricultural sector.

For the moment, there are no direct surveys at either regional or national level for this sector. Estimates are therefore based almost exclusively on indirect data. However, in view of the fact, that the projects in question are usually carried out with the help of bank loans at specially reduced rates, it is reasonable to hope that a survey might be carried out as soon as possible in collaboration with the credit enterprises operating in this sector. Such a survey would be designed to give an idea of the total amount spent on such projects, whatever the sources of finance used by the parties involved.

In this particular case, apart from the organizational difficulties and the limations imposed by the type of sources used, the problems of regional assessment do not seem to be any more complex than those which crop up in respect of the entire national economy because, since the projects are of the fixed type, it should be relatively easy to pinpoint investments in the various areas.

- it seems that trickier problems are encountered with respect to the inter-regional exchanges of goods and services. These values are only obtained - unfortunately - as a by-product (together with the values for trade with other countries) by comparing the gross domestic product of each region with the corresponding total value of final domestic consumption and gross investments.

Calculations for the whole of Italy are made on the basis of results from a survey on imports and exports with the rest of the world. This survey is

feasible because of the existence of customs barriers and a body of legislation regulating the movement of goods and monies into and out of the country. Regional estimates, however, do not appear to be quite so easy, owing to the need to take account of trade between each individual region and the rest of Italy, since there is free movement of goods and services unrestricted by customs regulations or other such provisions.

Nevertheless, if the aim were to calculate directly the totals of 'net imports from outside', breaking down the amount into two components - input and output - and depending on whether such movements were with other countries or between regions, it would be necessary :

1) to reprocess the data derived from bills of trade with other countries so as to guarantee (and this is not done at the moment) the accurate recording of the regions of origin or destination of the goods traded ;

2) to carry out a survey of inter-regional flows based either on statistics of enterprises' sales, broken down by geographical destination, or on statistics on the goods conveyed by rail and by road.

Quite apart from the financial and organizational problems which hinder the launching of all these theoretically necessary surveys, the calculation of economic aggregates runs into other difficulties connected with the need to attribute the data to regions. In turn, these problems stem from the institutional features of the system as well as other more incidental reasons such as the mobility of resources, the different criteria used for recording, etc.

Excluding borderline cases (among which may be counted, for instance, financial flows originating from the transactions of central monetary authorities), the breakdown of aggregates by region can always be carried out by using empirical criteria and attempting to eliminate the reasons for incompatability which crop up among data originating in different areas. This has been attempted by the ISTAT, the long experience that this institution has had in this field has enabled it to draw up a set of rules covering transactions in goods and services and the distribution and redistribution of income.

2.2 - Problems connected with transactions in goods and services

Where transactions in goods and services are concerned, the main problems of regional breakdown are outlined below.

a) Dispersion of productive activities in several places

Since many enterprises do not confine their activities to a single region but have branches elsewhere as well, there is a need to divide their production data into those which refer to the territory in which the main part of the enterprise is located and those which refer to the areas in which the dependent local units operate. However, while data on the number of employees, on personnel costs and on the majority of fixed investments can easily be provided by the enterprises themselves - including data on their individual geographical units - other data (primarily those on value added)are only recorded as a total and therefore cannot be broken down among the regions in which the enterprises operate, except by indirect methods.

Aware of this limitation, the ISTAT has had to adopt some general rules which-such as in the case of the survey on the economic accounts of industrial and commercial enterprises with 20 or more employees - provide that :

1) for smaller enterprises(fewer than 50 employees) the value added is attributed entirely to the area where the enterprise is based, provided that - if there are other branches - they are all to be found within the borders of one region ;

2) for larger enterprises (with 50 or more employees) the value added is broken down by region in proportion to personnel costs which the enterprise states that it has sustained in its various local units in the course of its economic activity, whether for operational or administrative purposes. However, with the exception of small producer units (which, for simplicity's sake, are exempted from the obligation to provide separate data on each region),for "multiregional" enterprises it is assumed that the distribution of value added is in proportion to the contribution of the factors of production utilized in each area ; this contribution corresponds more or less to the compensation of employees.

If this approach is adopted, the value added of these enterprises is therefore attributed not only to local operating units (such as plants, laboratories, workshops, etc.) in which the actual production takes place, but part of it - a proportion equal to the corresponding expenditure on personnel - is also imputed to the administrative units that provide services of an auxiliary nature to the operating units in the strict sense of the term. This is justifiable if it is borne in mind that the administrative units do not figure as such in any classification of economic activities, since they are meant to be grouped together with their operating units in the same assigned class, according to the goods and services produced by the firm. What is more, this criterion of distribution does not alter the value added of all the activities performed throughout the country , since an identical result for this can be obtained by totalling the values attributed to the local units in the various regions.

b) Inter-regional transport and communications services

Leaving aside those enterprises whose activities are confined to their region of residence, most of the services in question (transport by rail, sea or air, postal communications, telephones, etc.) are provided by national public enterprises which, having large technical and financial resources, convey goods, people and messages from one part of the country to another. The "itinerant" character of the activity performed by such enterprises constitutes a serious obstacle when trying to attribute geographically the value added and the related aggregates, to such an extent that the problems encountered are comparable with those arising in the case of enterprises with more than one location. What is more, in view of the affinity with these enterprises, the procedure adopted in this case also is to divide the total value added of each enterprise into parts which are proportional to the contribution of the factors of production utilized in each of the various areas ; rather than equating such a contribution merely with personnel costs, however, it is also based on other factors such as the number of employees, volume of traffic and amount of fixed capital invested (1).

Apart from being straightforward, this method is to be recommended because it allows two equally important conditions to be fulfilled, namely : firstly, it calculates the income generated in such a way that it is more or less equal to the income distributed, thus helping to reduce to modest proportions the value of inter-regional transfers, which is one of the trickiest items to determine ; secondly, it attributes to each region a value added which is calculated on the basis of the factors of production (capital and labour) utilized in it, which facilitates comparisons of productivity from one region to another.

c) The State and other central government bodies

Government bodies can be divided into two broad groups. The first, comprising all local authorities, does not give rise to any problems of allocation whatsoever, since the powers of these authorities are confined to their region of residence. The second group, however, consists of ministries and other central government bodies, which, although their headquarters are located in the capital, have branch offices throughout all the other regions. These offices perform activities which are not necessarily geared to the interests of the local population.

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(1) Turning from the formation of capital to its use, it is also to be observed that expenditure on transport purchases (motor vehicles, boats, aircraft, rolling stock for railways and tramways, etc.) is allocated geographically according to the place in which such vehicles are registered, taking account of the province or coastal sector of registration, and so on.

Whereas we may assume the equation "production = consumption" in the case of local authority services, such an equation is not applicable in the case of central government. Where the latter is concerned, two distinct situations are possible : on the one hand, some regions will be shown as net exporters of collective services because they produce more services than the local population consumes ; on the other hand, some regions will appear as net importers since their internal consumption exceeds the corresponding production of collective services.

Having stated this necessary premiss, it should be noted that the regional calculation of the value added of central government departments (defence, justice, education, social security, etc.) is carried out by the ISTAT, in the absence of more suitable information, on the basis of data on the number of staff employed in each area, thus assuming a strict correlation between the value added of the individual areas and the number of people they employ.

The bulk of intermediate consumption is also calculated mainly in terms of the number of employees in each sector, while the remainder is broken down in the same proportion as final household consumption, as it is assumed that the purchases of these government departments in individual regions can, to some extent be correlated with the corresponding expenditure of consumers on goods and services.

Finally, collective consumption is broken down according to various criteria depending on whether the services concerned are :

1) of a general and indivisible nature (such as defence), these are allocated to regions on the basis of the resident population of each region ;
or
2) more easy to identify (such as education)these are broken down proportionally to the number of users ;
or
3) services of a purely economic nature (such as those provided by the ministries of the economy and finance), these are allocated on the basis of the value added of the corresponding sectors of production.

2.3 Problems connected with transactions involving the distribution and redistribution of income

Income distribution also raises problems, as it is hard to allocate geographically. The major problems are described below.

a) Distribution of income to factors of production

In view of the considerable interchange of factors of production throughout the country and the significant amount of inter-regional transfers of income from labour and capital, it seems a good idea to calculate the "regional" income of each area alongside the "domestic" product. The "domestic" product corresponds to the value of the final goods and services produced by the factors of production

utilized in the region irrespective of the place of residence of the owners of these factors of production ; regional income, on the other hand, is the total remuneration received by the owners of the factors of production residing in the area, irrespective of the place in which the income is generated.

Taking the two aggregates net of amortization, the following equation can be said to apply between distributed regional income and the corresponding net domestic product at factor cost :

$$r_d = r_p + (t_e - t_u)$$

where

r_d = distributed regional income;

r_p = net domestic product ;

t_e = incoming revenue (generated outside and transferred to economic agents resident in the region) ;

t_u = outgoing revenue (generated in the region and transferred to economic agents resident elsewhere).

Nevertheless, whether distributed income is calculated directly, by totalling the remuneration received by resident owners of the factors of production, or whether it is determined indirectly by calculating $t_e - t_u$, using the algebraic equation and adding it to r_p, the problems of geographical attribution are numerous and by no means easy to solve. That is why it is essential to proceed cautiously, avoiding where possible the use of data which are highly distorted - such as fiscal or social security statistics - and can artificially increase the values for some regions to the detriment of others.

In practice, the problems could be simplified to a certain extent if a dual classification of the factors of production were available, so that they could be listed according to the region where they were actually located and that in which their owners were resident. Thus, where earned income is concerned, it is necessary to know not only the number of employees but also the number who are resident. This can be obtained by adding to those who are present persons who are temporarily working outside the region in question and, on the other hand, subtracting those who, while their usual abode is outside the region, are temporarily working there and thus contributing domestic income. A similar criterion cannot be followed - where Italy is concerned at least - for property and entrepreneurial income, since there is no survey which takes account both of the production fugures of the various territorial units (see paragraph 1.2) and of the geographical distribution of the owners of the factors used : entrepreneurs, shareholders, bond holders, etc. This is without counting the difficulties of obtaining data on income from the viewpoint of "final" receivers, where the few available statistics are spoilt by "intermediate" flows which

cannot always be eliminated from the calculations. This is the case, for example, of dividends, which, rather than being paid to households, are transferred from one to another of the enterprises - which are often in different regions - on account of the shares they hold, or for various reasons of business policy.

b) Redistribution of income through central government

The transactions effected by central government which present most difficulties from the point of view of regional breakdown are those connected with tax collection, the payment of operating subsidies to enterprises, and transfers to households particularly those emanating from social security schemes.

With regard to taxes, the first point to note is that a distinction has to be made in respect of those on income and property (direct taxes), which should be recorded in the place where the revenue is derived, in other words, at source. The procedure followed for breaking down the value added of enterprises located in more than one place, implies that a proportion of company taxes should be imputed to the regions in which the various local units operate. If, on the other hand, the breakdown were to be made according to the place where the taxes are actually paid to inland revenue offices, then almost all company taxes would have to be allocated to the regions where the companies' headquarters are located.

Where taxes on production and trade (indirect taxes) are concerned, however, the question is whether they should be attributed to the place of final use of the goods where the taxes are in fact levied because the goods have been transported there or whether it would not be more appropriate to attribute them to the place of production, thus following a principle which seems to conform more closely to the rules of national accounts.

The ISTAT's approach to this problem is to break down each tax by region according to the place of tax collection. The justification for this approach - which is, moreover, quite tenable - is that it complies with the principle whereby "each value must be recorded at the place in which the corresponding transaction is carried out". This principle is also applied to customs duties collected in border regions ; such duties are therefore transferred only indirectly - along with the value of goods - to their regions of destination, which record them as part of the total value of imported goods and services.

Similar problems arise with the breakdown of operating subsidies paid by central government to enterprises. In the case of subsidies for a specific purpose (subsidies to producers of durum wheat, olive oil, etc.) a regional breakdown is carried out on the basis of data on the corresponding output. In all the other cases, however, where the subsidies are generally paid out to national public companies or to enterprises with several branch offices, their total value is divided into parts which are proportional to the value added of the sector generated in each region.

Finally, as regards transfers by the public authorities, particularly, those effected under the social security system, the method adopted is to set the costs borne by each region (constituted in this particular instance by social security contributions disbursed) against the corresponding benefits accruing to residents (economic and medical benefits received). While it is easy to allocate such benefits by region, however, the same cannot be said for social security contributions, which are normally paid in the places where the headquarters of the enterprises are located. For the regional breakdown to be more correct, therefore, the values of the contributions wrongly attributed to these offices must be reallocated. This can be done by using, for instance, criteria similar to those described for the calculation of value added.

Document N° 10

APPLICATION OF THE ESA TO UK's REGIONAL ACCOUNTS

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INTRODUCTION

1. The central purpose of this paper is to describe the application of the European System of Integrated Economic Accounts (ESA) to UK regional accounts. The description aims to elicit the central features of the UK's income approach to estimating regional GDP, in the hope of permitting useful comparisons to be made with alternative approaches adopted by other countries. For this purpose, the description focuses on impurities in approach, on data sources on income and on the major exercises we undertake to adapt traditonal UK practices to meet ESA special requirements. Thus, the aim is not to be comprehensive either in covering every component, however minor, of the accounts or in discussing concepts. A number of the omitted items can be found in the UK official paper for this seminar. The views expressed in this paper are mine and mine only.

APPROACH IN GENERAL

2. Text books tend to expatiate on the three methods of estimating GDP, viz through income, through expenditure and through production, (sometimes making a distinction also for the commodity flow approach). Conceptually, these distinctions are clearcut and are necessary for analytical purposes. In practice, statisticians know that their estimates of regional GDP are in varying degrees a hybrid of the three approaches. Thus, my reference above to the UK's income approach to estimating regional GDP is misleading, unless it is understood as a convenient, shorthand expression for indicating that income was the major rather than the only route chosen. This clarification is also important when gauging the merits of the three approaches by making comparisons between estimates that are really not independent because some of the underlying data sources are the same.

3. In pointing out the existence of a mixed approach, the intention is not to disparage it but, on the contrary, to endorse it because its results, though imperfect, can be good enough for practical purposes; accuracy is relative to use. Lessons can be learnt from the pragmatic historical development of the national accounts. For example, in UK the series of official national estimates which began in 1941 were based primarily on income data but items of expenditure other than capital formation were directly estimated. It was only as recently as the 1950s, - mainly because of the development of new sources of information

about expenditure on fixed assets and stocks, - that it became possible to use basically independent data sources for all, or almost all, forms of national income and national expenditure. The mistake of allowing the best to become the enemy of the good was avoided.

4. Even so, "impurities" can creep in at stages other than that of compilation, for example at the stage of utilisation. At present in UK, independent data sources are used to estimate national GDP from the expenditure, income and production routes, ie GDP(E), GDP(I) and GDP(O) respectively. However, the policy is to "mix" the three estimates in making assessments of movements in long-term trends. For example, in 1980, GDP(E) in index number form was 107.3, GDP(I) 109.2, and GDP(O) 107.2, yielding an average of 107.9, which is published. It is the time-series of these averages which are regarded as the most useful basis for forming judgements about trends, though for the interpretation of short-term changes GDP(O) is preferred.

5. At the regional level, the difficulties of adopting a single approach are the familiar one of lack of consistent data sources covering all components of GDP. Illustrations of these difficulties are available from the various unofficia attempts over the years to estimate UK regional GDP. The most notable attempts were those made by A Campbell (1955), by G. McCrone (1965), by V Woodward (1970) by H Begg, C Lythe and R Sorley (1975), by C Lythe and M Majundar (1978) and by Professor David Simpson and Dr Bulmar Thomas (1979).

6. Campbell attempted estimates of Scottish GDP for the years 1924-1949 by using the sum-of-incomes approach. Data on wages and salaries and agricultural income for Scotland were directly available, but other components of Scottich income had to be estimated by applying certain proxy ratios to UK totals.

7. McCrone sought the production approach to estimate Scottish GDP for 1951-1960 based on value-added obtained from production data for agriculture, mining and quarrying, manufacturing, gas, electricity and water and construction. But for most other industries, he had to fall back on income data produced from income tax returns. One advantage in McCrone's use of production data in the years for which a census of production was undertaken and for those industries covered by the census is that he was able to circumvent the uncertainties involved in the measurement of profit income.

8. Woodward, like Campbell, tried the income approach to estimate GDP for all the regions of UK for the year 1961. For wages and salaries, he used data from the Inland Revenue Survey of Personal Income, which is not a household survey in the conventional sense but a small sample of income tax returns. However, Woodward was forced to depart from the pure income approach by using the Census of Production, 1958,to estimate profits for manufacturing industries and by using proxy indicators, such as size of employment and turnover of retail sales, to estimate the profits of non-manufacturing industries.

9. A different approach was used by Begg et al in seeking to estimate GDP for Scotland for 1961-71 and 1972-73. The basis was the expenditure route in terms of the conventional components of consumers' expenditure, general government final consumption, gross fixed investment, value of physical increase in stocks and exports of goods and services. In estimating consumers' expenditure, the source employed was the Family Expenditure Survey, which was a sample of about 3,500 households for most of the 1960s and thus a very slender basis for the purpose concerned. The dilution of the pure expenditure approach entered mainly through the estimates of stock appreciation and of gross fixed capital formation, in which a variety of data sources and methods were used.

10. One of the most interesting attempts to estimate regional GDP was through the exploitation of input-output tables. The primary purpose of such tables is of course to shed light on inter-industry relationships but as a natural byproduct they provide the net output, (in practice not entirely free of duplication and therefore not the same as valued-added), of each industry, which can then be aggregated to provide approximate estimates of GDP. Such an attempt was made under the so-called Scottish Input-Output Project (SIOP) 1978, which was used to estimate GDP for Scotland. The data for SIOP were collected through a tailor-made purchases enquiry, which covered manufacturing fairly well but not services.

11. Perhaps the most thorough unofficial attempt was made by Charlotte Lythe and Madhavi Majundar in estimating the GDP of Scotland for 1961-71. They adopted a "value-added approach where possible", the phrase "where possible" recognising that any realistic approach must be eclectic. Value-added was obtained directly from production data for all years in agriculture, forestry, fishing and construction; and for census of production years (1963, 1968, 1970 and 1971) additionally in mining and quarrying, manufacturing, gas, electricity, and water.

The departure from the pure value-added approach was incurred by resorting to factor incomes for the remaining industries. Nevertheless, for census years, value-added was used to measure 50 per cent of Scottish GDP, with the additional advantage of industrial disaggregation down to broad order levels of the UK Standard Industrial Classification (SIC).

12. The obvious and inevitable consequences of a varying mix of data sources and approaches are discrepancies between the results, though not as large as one might expect, as the following example of estimates of Scottish GDP show:

		£ million
By McCrone	1960	1,964
By Woodward	1961	2,031
By Lythe	1961	2,034

However, there were appreciable differences in the estimates for manufacturing, public administration and defence, and other services. It is beyond the scope of this paper to elaborate further on these discrepancies. What this brief sketch of the various historical attempts indicates is not only the inevitability and the impurities of a patchwork approach but also the skill displayed in identifying and dovetailing a complex diversity of data sources and methods, each with its own imperfections in terms of reliability and exact relevance to regional accounting.

RESIDENCE/WORK-PLACE BASIS

13. One of the impurities present in regional accounts is that not all the components of GDP are consistently based on a residence (home address) or on a work-place basis. The mixture of the two locations increases with the level of spatial disaggregation; so that in the national accounts the problem is virtually non-existent (except in the transition from GDP to GNP) whereas at Level III the differences can be large because of substantial commuting across local boundaries. The consequence is that the resulting regional GDP is neither wholly an indicator of economic well-being nor wholly an indicator of productive activity, but a combination of the two.

14. In a sense, the reason for this combination is the same as that discussed above for merging the three approaches, viz the use of a variety of data sources.

Expenditure figures derived from household surveys, such as the Family Expenditure Survey in the UK, are on a residence basis. Employment income derived from establishment surveys, such as the New Earnings Survey in the UK, is on a workplace basis. When fiscal records are used, the basis could be either residence, workplace or notional workplace (in the sense that tax returns can be made centrally from head office when the employee is stationed at a local branch of the business). Profit income estimated from the production census is on a workplace basis. All these sources are used in the UK regional accounts.

15. For the Level 1 regions in UK, the distinction between home address and workplace is not of much practical significance because these areas are large. The results of a 10 per cent sample of the Census of Population returns for 1971 show that for all the Level 1 regions of England, except for the East Midlands, the net difference between those working in the region and those living in it was always less than 1 per cent, and in most cases considerably less than 1 per cent of the economically active population. For the East Midlands, the difference was below 2 per cent. Since these differences are in any event within the possible margins of error of the regional accounts estimates, the distinction between the standard region of residence and the region of work may be largely ignored.

16. However, there are acute problems for areas smaller than the regions, particularly for counties adjacent to such large conurbations as Greater London, to which people travel to and from work. Thus, in 1977, the GDP for Surrey on a residence basis was £2,438 million compared with £1,877 million on a workplace basis, with the wages and salaries component being £1,765 million and £1,220 million respectively. This kind of disparity constitutes one of the arguments behind the plea for constructing economically more homogeneous functional areas, such as areas where people both live and work. However, while the analytic utility of functional areas is indisputable, producing a comprehensive range of statistics for them would at present be impossible, unless some form of locational reference building-block is automatically recorded in the whole array of governmental data collected through censuses, household sample surveys and, as a byproduct, through administrative records.

CENTRAL STATISTICAL OFFICE (CSO) METHODOLOGY

Approach

17. Unlike estimates for individual regions in isolation, official estimates must embrace all regions of UK on as consistent a basis as possible within the

framework and the constraint of the UK national accounts. This principle largely dictates the choice of methodology, in particular the choice of data sources. Accordingly, UK regional GDPs are estimated largely through incomes, conventionally regarded as the sum of:

	£ million, 1980
Income from employment	137,083
Income from self-employment	18,394
Gross trading profits of companies	24,979
Gross trading surplus of public corporations	6,015
Gross trading surplus of government enterprises	170
Rent	13,231
Imputed charge for consumption of non-trading capital	2,138
Total domestic income	202,010
less Stock appreciation	- 6,477
Residual error	- 2,045
GDP at factor cost	193,488
Taxes less subsidies	32,072
GDP at market prices	225,560

As already mentioned, not all the above items are estimated via incomes. Production data are used to measure manufacturing profits and owner-occupier rents are estimated from expenditure sources. However, as elaborated below, the bulk of GDP is derived from income data, which explains why the UK approach is labelled the income approach. Moreover, more than 95 per cent of regional GDP is estimated directly for each region, with the sum for all regions constrained to the national accounts totals; the remaining 5 per cent is simply a distribution of the national accounts totals to regions according to given correlates, such as the size of employment.

Employment income

18. Regional estimates of employment income are derived mainly from four sources: the New Earnings Survey (NES), the Annual Census of Employment (ACE), the Newcastle sample of tax deduction cards, and the national accounts controls by industry. Thus, not used are the Family Expenditure Survey, which covers all types of income, - factor incomes and tranfer incomes before and after tax, - for about 7,000 households each year. Also not used is the Inland Revenue Survey of Personal Incomes (SPI), based on income tax records for about 70,000 tax units or $\frac{1}{4}$ per cent sample of the population; excluded from the SPI's income coverage are employees' superannuation contributions; moreover, the SPI's regional figures of total income are a mixture of home address and business address.

Another unexploited data source for the purpose in hand is the Annual Census of Production (ACOP), which collects data on wages and salaries; a fuller discussion of this source is deferred until later paragraphs.

19. NES is conducted by the Department of Employment to obtain information on the make-up of pay in terms of, for example, overtime pay for all employees in all occupations in (almost) all types and sizes of businesses and in all industries. The Survey is based on a one per cent random sample of employees selected in the following way: each employee has a national insurance number; all insurance numbers ending with the pair of digits 14 are selected by the Inland Revenue and the names and addresses of those selected individuals and of their employers are then passed to the Department of Employment. The Department of Employment then approaches the employer for pay data in respect of the named individual for a specified pay period in the year, for example a week or a month covering April 29 in the 1981 NES.

20. The Survey is not perfect. Its results are subject to sampling errors, increasingly with the level of geographical and industrial detail. They are subject to unrepresentativeness arising from the presence of abnormal factors in the particular survey period; and they are on a workplace basis. There are a number of other areas of somewhat incomplete coverage of pay and of firms in the sample that are too detailed to discuss in this paper. However, on balance, NES provides the most reliable source of earnings data by industry consistently across the regions of the United Kingdom. Extracted from it are a matrix of the earnings of employees classified by region (rows) and by industry (columns), and the corresponding matrix of numbers of employees in certain categories (eg males and females). Because of sampling fluctuations, what are used for the regional accounts are not these earnings themselves but the internally calculated per head average in each cell multiplied by the corresponding, more reliable numbers of employees collected in the independent Annual Census of Employment (ACE).

21. ACE, also conducted by the Department of Employment, was introduced in 1971 to provide the detailed annual statistics previously derived from counts of national insurance cards. (The abolition of these cards followed the collection of national insurance contributions through the Pay-As-You-Earn system operated by employers). ACE is conducted by means of a postal enquiry addressed to employers in June of each year, requesting data on the numbers of employees on census date classified by sex and by full-time/part-time. These data are

obtained for each address for which pay records exist in order to enable regional analyses. Additional details are asked about business activity to allow industrial classification to the fine Minimum List Heading (MLH) level.

22. The latest ACE was for 1981. As a result of recent government cuts in public expenditure, ACE will no longer be annual but triennial. Thus, in inter-censal years employment income in the regional accounts might be estimated using the quarterly enquiries of employees in employment, which were introduced in 1974 in order to provide material for use in extrapolating from the most recent ACE benchmark. Each enquiry is on a sample basis, with variable sampling fractions ranging from o per cent for small units to 100 per cent for the largest units, but, overall, the quarterly enquiry covers a sample of 60 per cent of all employees. At present, the sample is not considered sufficiently reliable for a regional breakdown of employment down to MLH level. That drawback could be countered, if appropriate, by the aggregation of quarters to serve the purposes for which ACE is being used in the regional accounts.

23. The third input into the estimation of compensation of employees is a 1 per cent sample of deduction cards selected at Newcastle by the Department of Health and Social Security (DHSS). For each employee, employers maintain a cumulative record or deduction card within the income tax year showing, inter alia, the employee's weekly or monthly pay and the corresponding income tax and national insurance contributions which are deducted at source. These deduction cards are sent by employers to the Inland Revenue at the end of the income tax year. The Revenue then pass them under statutory authority to DHSS. Each deduction card normally carries the national insurance number. The cards of employees whose insurance numbers end in digits 14 are selected by DHSS and the data on them merged with other data, such as residence, held by that department for administrative purposes. Although subject to sampling error, this data source is fully computerised; its pay data (unlike the NES) cover the whole year; its analysis is by region of residence (again unlike the NES); and, in selecting the same national insurance numbers and hence the same persons each year, which are also the numbers and persons selected in the NES sample, the Newcastle source is capable of analysis longitudinally and of exact linkage with the NES. The main table obtained from this source for the regional accounts gives annual earnings classified by region of residence.

24. Because of the principle that the sum of the independent regional estimates should be consistent with the national accounts totals, with the implicit assumption that these totals are more reliable than the regional aggregate, the final input, though a derived input, into the estimation melting-pot is the national controls of pay by industry. The national industry figures are compiled from a variety of data sources, including the censuses of production, Central Government appropriation accounts, and the UK index of average earnings (not derived from NES or DHSS sources but independently).

25. The final step in the operation is to blend these sources so as to reflect the consistency of the NES/ACE regions x industry estimate of earnings, the DHSS twelve-month/residence basis, and the comparatively reliable national accounts totals of pay by industry. The data from these sources are arranged in a matrix in which (a) the cells are the NES/ACE workplace estimates of earnings in each region and each industry, (b) the row totals are DHSS residence estimates for each region, and (c) the column totals are the national accounts estimates by industry. In order to make the cells add up in both row and column dimensions, they are manipulated by the technique of RAS, which is an iterative two-way pro-rating procedure that produces convergence to a stable matrix after about ten iterations. The actual differences between the unadjusted estimates and the results after adjustment by RAS are obtainable from Table 1:

Regional Wages and Salaries, 1977 — Table 1

Region	Unadjusted (1)	Adjusted (2)	Unadjusted (3)	Adjusted (4)
	£ million		Percentages	
North	3,968	4,028	5.5	5.5
Yorkshire + Humberside	6,074	6,222	8.4	8.5
East Midlands	4,583	4,814	6.4	6.6
East Anglia	2,000	2,077	2.8	2.8
South East	24,528	24,861	34.1	33.9
South West	4,551	4,828	6.4	6.6
West Midlands	6,880	6,832	9.6	9.3
North West	8,185	8,417	11.4	11.5
Wales	3,153	3,236	4.4	4.4
Scotland	6,496	6,560	9.0	8.9
Northern Ireland	1,470	1,504	2.0	2.0
United Kingdom	71,888	73,379	100.0	100.0

It is clear from the Table that the effect of the various adjustments applied to the initial NES/ACE estimates in column (1) is to raise the wages and salaries bill in each region without materially altering their relative distribution within the United Kingdom totals.

26. As mentioned earlier, the wages and salaries figures obtained in ACOP are not used. The evidence in the following table suggests that they might in total be too low:

Regional Wages and Salaries, 1977, All Manufacturing Industries

Table 2

Region	NES/ACE (1)	ACOP (2)	NES/ACE (3)	ACOP (4)
	£ million		Percentages	
North	1,580	1,517	6.3	6.4
Yorkshire + Humberside	2,385	2,258	9.4	9.5
East Midlands	1,884	1,766	7.5	7.4
East Anglia	661	646	2.6	2.7
South East	6,737	6,250	26.7	26.3
South West	1,439	1,361	5.7	5.7
West Midlands	3,441	3,202	13.6	13.5
North West	3,425	3,321	13.6	13.9
Wales	1,117	1,067	4.4	4.5
Scotland	2,137	1,984	8.4	8.3
Northern Ireland	446	435	1.8	1.8
United Kingdom	25,252	23,807	100.0	100.0

The NES/ACE figures in column (1) above are on the same basis as those in Column (1) of Table 1, ie unadjusted. The ACOP figures in column (2) are not on exactly the same definition as the NES/ACE figures but the differences are trivial; and are in any event in the direction of overstating ACOP compared with NES/ACE.

27. The occasion when ACOP wages and salaries could be used is in the estimation of profit income, by subtracting them (and other non-profit factor income) from the net output figures collected by that source. That is in fact the procedure actually followed; the alternative was to deduct the adjusted NES/ACE estimates from ACOP's net output, thereby ignoring ACOP's wages and salaries, but such a mixture of data sources would destroy the internal consistency of ACOP's data. The converse could be argued, viz that if you use ACOP's wages and salaries for estimating manufacturing profits, you should use them also for estimating employment income in manufacture; but to do so would result in incompatibility between the estimates of employment income for ACOP industries and those for non-ACOP industries, such as distribution and services; the converse is also unacceptable.

28. The preceding paragraphs on employment income are concerned principally with the nature of the data sources and their synthesis. However, there are also definitional issues. Adjustments are required to the initial NES/ACE definitions in order to match them to the ESA(R10) concept of compensation of employees. Hence, to be added are employees superannuation contributions (part of R101) and their counterpart paid by employers (R102). Data on the incidence of contributions by industry and region are scant. For example, UK tax records are of no assistance because such contributions are exempt from tax and are therefore unrecorded. Again, the Family Expenditure Survey of 7,000 households is too thin to support complex cross-analysis of contributions by income by region and by industry. In these circumstances, the required additions are made simply by distributing the national accounts total contributions to regions in proportion to the initial estimates of wages and salaries.

29. A second omission from the initial estimate is income in kind. The required addition is made by scaling the regional estimates of wages and salaries, excluding income in kind, to the national controls, which include income in kind. These procedures of proportional allocations by reference to correlated indicators yield the ESA total estimates of compensation of employees. At the national level, contributions and income in kind are respectively about 13 per cent and 1 per cent of total employment income.

Self-employment income

30. Up to 1979, estimates of self-employment income analysed by industry (SIC Order) and by region for non-manufacturing industries, and by industry and country (ie without distinction for regions within England) for manufacturing industries were obtained from a special 5 per cent sample of tax assessments undertaken by the Inland Revenue, with the sample stratified by size of income to enable the selection of a higher sampling fraction of large incomes. There are two noteworthy features of these statistics. First, unlike the final estimate of employment income, self-employment income derived from this source is governed by the location of the tax office making the assessment, which is generally in the same region as that in which the business is carried on but not necessarily as that in which the home address is located. Secondly, for manufacturing industries, a further stage of estimation was required in order to allocate the England total to its constitutent regions; this allocation was effected by assuming that self-employment income in each region each year was proportional to the numbers of self-employed persons as revealed in the 1971 Census of Population. After 1979, this 5 per cent sample disappears and the required estimates of

self-employment income will be derived from the Survey of Personal Incomes described in paragraph 18 above. One advantage of the changeover will be that a c t u a l counts rather than estimates of the regional distribution of self-employment income within England should be available from the SPI; whether scaling to the national accounts controls would be necessary would depend on whether or not the national accounts also change over to the SPI. There is one aspect, however, in which the change to the SPI would represent a retrograde step; the sample size would fall from about 5 per cent in the pre-1979 source to about 1/4 per cent in the SPI.

Trading profits

31. As mentioned earlier in paragraph 27, ACOP's wages and salaries figures are deducted from ACOP's gross value added (GVA) in order to estimate profit income in the manufacturing sector. One consequence of relying on production data is a mixture of the residence concept embodied in the final estimates of employment income with the location of industry basis inherent in ACOP. However, gross value added in ACOP is virtually free of duplication and therefore does sum across all regions and across all industries almost exactly to national GDP. Thus, unlike its predecessor, net output, GVA excludes the cost of non-industrial services (rents of machinery, plant and buildings; payments for insurance, advertising and professional fees; and, since 1974, transport costs also). Any small duplication remaining in GVA is implicitly corrected by scaling to the national accounts controls of profits, which are estimated independently from tax assessments.

32. For non-manufacturing industries, hard data on profits are not generally available. The allocation of national accounts totals to regions is made at SIC Order level in proportion to size of employment, except for the oil and gas extraction industries for which special information is obtained from the Department of Energy and except for Northern Ireland for which special assumptions are made. The employment criterion is imperfect but alternative indicators, such as turnover and size of investment, are even less satisfactory because of inaccuracies in the statistics. Precisely how imperfect the employment indicator is is hard to assess because of lack of independent data. One possibility is to distribute manufacturing profits to regions in proportion to employment and to compare the results with the ACOP-based estimates described in paragraph 31 above.

However, such a check would be of limited validity because there is a weaker association between manufacturing profits and manufacturing employment than there is between the more labour-intensive non-manufacturing sector, such as distribution and services, and its numbers of employees. Nevertheless, such calculations were in fact carried out and, as expected, the trial use of the employment indicator did not result in a consistent pattern of overestimation or underestimation of manufacturing profits between regions.

Rent

33. The main components of interest in measuring rent income are (a) rents of privately-owned dwellings, including the imputed rent of owner-occupied dwellings, (b) local authorities rent, (c) imputed consumption of non-trading capital (ICC), and (d) business rents. For owner-occupied business premises, the rent is imputed, thereby implicitly assuming that the economic benefits of ownership are included in the trading profits of enterprises.

34. Data on cash rents paid to landlords in respect of privately-owned dwellings are available from the Family Expenditure Survey. Thus, the average rent per dwelling is obtained from this source. These averages are subject to sampling fluctuations and so they are smoothed; for example, the average rent for 1980 is taken as the weighted average of the rent payments obtained from the FES for 1979, 1980 and 1981, with weights of 1, 2 and 1 respectively. These weighted sample averages per dwelling are then grossed-up by being multiplied by the total dwelling stock in each region; that stock is estimated from the latest available population census data, updated by administrative data on demolitions, new completions and conversions.

35. By far the largest element in the rent of private dwellings is owner-occupiers' imputed rent. The procedure for estimating this element is the same as that used in the national accounts, ie the conceptual and broad methodological questions were already resolved at the national level. The services of the buildings are regarded as having a value equivalent to the net income which could be obtained by letting the building commercially. In UK, that notional net income is measured by rateable values, which are themselves assessed on the basis of letting values (for the purpose of raising local government revenue). But such rateable valuations are undertaken only periodically; for example, in England and Wales, the last valuation was in 1973. Thus two sorts of

updating are required. First, we need to know about changes in rateable values (for example, arising from the extension of a dwelling) since 1973; these changes are picked up in the FES. Secondly, we need to adjust these values for movements in prices in order to reflect the current levels of rent; this adjustment is made by the use of an index of actual rents calculated as part of the general retail prices index. The results of these calculations yield the national accounts estimates of imputed rents.

36. For the regional accounts, the procedure is relatively straightforward. The FES data on rateable values of each dwelling in the sample are tabulated by region and are smoothed because of sampling errors. Thus, inter-regional variations in rents are automatically taken into account. For updating to allow for rent (price) movements, the national rent index is used. Thus, region-specific indices are not produced because of inaccuracies in index data at the regional level; because, while there are substantial inter-regional differences in the levels of rents, the same is generally not true of differential changes over time; and because regional differentiation for one component of the retail prices index could have complex administrative and political repercussions given the sensitive importance of such indices in the wage bargaining process and in social security benefit upratings.

Local authorities rent

37. In UK local authorities operate a Housing Account, which is treated like the production accounts of trading bodies, thereby showing revenue and expenditure. The surplus of this account or economic rent (before depreciation) is a factor income that enters GDP.

38. Tenants of local authority dwellings pay a rent (in a different sense of the word). If they cannot afford the normal rent, they receive a rent rebate, ie they are allowed to pay less rent. The General Rate Fund (ie part of the general revenue account) pays a sum to the Housing Account to compensate it for the "loss" through rebates. At the same time, the central government pays a subsidy direct to the Housing Account to enable the service to be sold at a lower price (rent). On the expenditure side, cost is made up of management expenditure, repairs and a balance. This balance or rent is before providing for depreciation of dwellings (ie capital consumption at current replacement costs) and before providing for debt interest (ie charges for capital borrowed).

For 1980, the national accounts figures are:

UK Housing Operating Account 1980
(£ million)

Revenue		Expenditure	
Rent on dwellings:		Supervision & Management	632
Paid by tenants	1,808	Repairs	976
Rent Rebates	520	Other current expenditure	80
Rent on other property	83		
Subsidies:		Balance = rent (	3,059
Central government	1,654	before interest	
Local authorities	499	and depreciation)	
Other income	183		
	4,747		4,747

The data sources for the above statistics are local authority financial returns to the Department of Environment, (which is responsible for the local arm of government). For the regional accounts, reference is made back to these returns and the data aggregated to regions for each of the above items. Thus, the regional data are compiled on the same concepts and from the same basic documents as the national accounts.

Imputed Consumption of Non-Trading Capital (ICC)

39. A trading body charges (or should do) enough to cover depreciation of their offices, computers and other capital items. Its gross trading profits, which enter GDP, include depreciation. But, bodies with no trading income such as general government, universities, etc, also consume capital by using their buildings to provide services, and therefore a picture of the true cost of these services requires an estimate of capital consumption. This concept is used in the ESA, and so UK has fallen in line by adopting it in substitution for the previously-used imputed rents from government owner-occupied non-trading property, though this charge is still shown under the heading of rent.

40. On the statistical aspects, the national accounts employs the perpetual inventory method for estimating both capital consumption and gross capital stock. The required data on property are returned by local authorities to the Central Statistical Office via the Department of Environment; and assumptions are made by the CSO about the length of life of broad categories of assets, about the rate of obsolescence being linear, and also, to some extent, about price index numbers appropriate to measurement at current replacement costs.

41. Clearly, these assumptions cannot be made with any certainty and so the resulting estimates of capital consumption are subject to an appreciable margin of error. Thus, while it is in theory possible to compile regional figures of non-trading capital from the basic returns submitted by local authorities, the resulting gain in reliability would be too small to justify the extra effort and the extra cost involved, especially as imputed charges account for only about 1 per cent of GDP. Thus, for the regional accounts, the national estimates are distributed to regions by the use of proxy indicators with which capital outlays and hence capital consumption are correlated. Specifically, for the regional allocation of the national accounts estimate of capital consumption in the hospital sector, the yardstick used is the number of available beds; and in the other sectors, such as education, the criterion is the size of employment in that sector.

Stock appreciation

42. The sum-of-income approach to the measurement of GDP includes profits derived from commercial accounting data and therefore includes stock appreciation. As the national and regional accounts should cover only those additions to wealth arising from economic activity, stock appreciation is deducted. It is difficult enough at the national level to estimate stock appreciation because of the assumptions that have to be made about revaluation, about the period over which stocks are built up and about the commodity composition of stocks. Consequently, no attempt is made to replicate the national accounts methodology at the regional level. Instead the available national accounts estimates are distributed to regions according to given correlates. Stock appreciation in the personal sector is partitioned between regions in proportion to the previously estimated self-employment income, and in the other sectors in proportion to the profits in each industry group.

The residual error

43. As mentioned earlier, estimates of GDP at the national level are compiled from both the expenditure and the income approaches. The two sets of results are not identical. The difference between them arise not only from inaccuracies in the basic data but also from an undetectable lack of simultaneity in timing. Purely for convenience, and without implying that the expenditure-based estimate is superior, the difference or residual error is shown as a balancing adjustment, positive or negative, to the income-based estimate of GDP. As the approach to regional GDP is based on income, and income only, the national residual error adjustment has to be carried through to the regional accounts. This is done in

proportion to employment income in market services in each region, because it is in this industry group estimates are regarded as weakest.

44. The above description covers the major methodological points of interest in the compilation of the UK regional, income-based GDP. The other major issues are:

(a) The industrial analyses of GDP by NACE-CLIO (RR17).
(b) The evaluation of (a) at market prices.
(c) Accounts for the household institutional sector.

Regional GDP by NACE-CLIO (RR17)

45. NACE-CLIO branches of ESA are defined in terms of units of homogeneous production. Under this classification, "if a producer unit contains a principal activity and also one of several secondary activities, it will be subdivided into the same number of units of homogeneous production, and the secondary activities will be classified under different headings from the principal activity", paragraph 267 of ESA. Such subdivisions and reallocations are not the basis on which the UK industrial classification (SIC 1968) is defined. Thus, to adapt to ESA requirements, two adjustments to SIC are required, one to match ESA's definition of industry and the other to match its classification or groupings of industries. These adjustments are described below.

46. The latest (1975) 'make' input-output matrix is used to convert SIC(UK) to SIC(ESA), ie to SIC in terms of units of homogeneous production. This procedure transfers secondary products to industries of which they are the principal products and also transfers the associated primary inputs, using the technology assumption. Thus, for example, income from employment is arranged in a 11x23 matrix of region by SIC industry groups. This matrix is post-multiplied by a transposed 23x23 make matrix, (transposed to give industry in rows and commodities in columns), in which the cells are the percentage commodity make-up of each industry's output. The product of these two matrices yields a 11x23 matrix of region by commodity (or its equivalent in primary inputs). It can happen as a result of this operation that a few cells result in small negative values. These are set at zero and the modified matrix pro-rated iteratively to control to row and column totals. The differences which this conversion makes are given in the appendix table.

47. As the aim is to arrive at NACE-CLIO (RR17), the 23 SIC industry groups in the product matrix in paragraph 46 above have to be collapsed into 17 branches. But, the SIC and NACE classifications of commodities are not coterminus. Thus, the conversion requires subdivision of SIC groups and their reallocation between NACE branches, using percentages derived from the 1975 input-output tables. For example, NACE-CL10 Branch 3: Coal, lignite and briquettes,is equal to 100 per cent of UK industry Group 8: Coal-mining, plus 15 per cent of industry Group 10: Coke-ovens and manufactured fuel, with the remaining 85 per cent of Group 10 allocated to NACE-CL10 Branch 5: Products of coking.

48. The above two adjustments are applied separately to (a) income from employment, (b) Gross Value Added (GVA) less (a), (c) the number of wage and salary earners, and (d) the total occupied population less (c). As already stated, the adjustments are necessary because of the incompatibility between the UK 1968 industrial classification and NACE-CLIO. The UK now has a revised classification , SIC (R), which is to come into effect in 1983. SIC(R) will be much closer to NACE, though not identical with it, and so any error remaining in future because of the approximate nature of the conversion will be negligible.

Taxes and subsidies

49. So far this paper has been concerned with GDP at factor cost. Eurostat requires also GVA at market prices for NACE-CL10 (RR17). The chief problem in meeting this requirement stems from the ESA convention of treating taxes and subsidies as falling on production, whereas in UK nearly two-thirds of them fall on final consumers' expenditure. Thus, the ESA treatment requires an allocation of UK commodity taxes (such as those on drink and tobacco), non-commodity taxes (such as those on rates) and subsidies (such as on housing and transport) to NACE branches, in the first instance at the national level. The data source for this allocation is again the 1975 input-output tables plus discussions with Eurostat on particularly unclear cases. The end-result is, for example, the allocation of all expenditure taxes on drink in 1975 to NACE Branch: Food, drink and tobacco; and, of agricultural subsidies, the allocation of 42 per cent to NACE Branch: Agriculture, forestry and fishing; of 57 per cent to NACE Branch: Food, drink and tobacco; and of the remaining 1 per cent to Branch : Chemicals.

50. For years after 1975, all-industry figures of each tax/subsidy are available from administrative records, and they are distributed between branches according to the pattern decided for 1975, to yield a 25x17 matrix of taxes/subsidies by branch, (say matrix A). These calculations are carried out at the national level. For the regional accounts, there is a third hurdle, which is to derive the regional dimension of matrix A, ie to regionalise each cell representing the amount of a particular tax/subsidy which falls on a particular industry. Most cells are distributed to regions in proportion to regional GDP at factor cost in the branch concerned. At this stage, a further manipulation is required because:

(a) by summing, an all-industry total of each tax/subsidy for each region is obtainable from the above computation;

(b) hard administrative data comparable to the estimate in (a) are available.

As (a) and (b) are not identical, the submatrix of tax/subsidy X industry derived at (a) for each region (ie 11 submatrices in all) is constrained to (b).

Household sector

51. UK does not produce comprehensive regional accounts for all institutional sectors, nor estimates of all components of regional GDP(E). However, the personal sector is regarded as sufficiently important for us to estimate consumers' expenditure and personal disposable income.

52. The shares in which particular data sources contribute to the national accounts estimate of consumers' expenditure are as follows:

	%
National Food Survey	16
Retail Enquiries	20
Customs & Excise Demands	8
Trade Sources	8
Government Departments	33
Family Expenditure Survey (FES)	15

In contrast, about 95 per cent of the regional estimates of consumers' expenditure is derived from the FES. The FES sample of 7,000 households is stratified by region. Each household completes a diary recording its expenditure over a two-week period. Clearly, the sample is too small to support a joint

analysis of the 11 regions by the 60 or so detailed expenditure categories shown in the national accounts. Thus, the published regional estimates are restricted to four categories viz (a) Food, drink and tobacco, (b) Housing and fuel, (c) Durables and vehicles and (d) Other, though separate estimation is required of such non-FES items as wages and salaries paid by private non-profit making bodies, of capital consumption of assets owned by such bodies, of income in kind, and of tourists' expenditure. Also, for ESA purposes further adjustments are required: first, licences on motor vehicles are regarded in the ESA not as consumers' expenditure but as a tax on income, and so they are excluded from UK consumers' expenditure and deducted from gross income to arrive at personal disposable income. Secondly, tourist's expenditures are excluded to arrive at a measure in terms of the domestic concept.

53. Although the regional estimates are based mainly on the FES, they are controlled up in corresponding categories to the national accounts totals, thereby sharing somewhat in the variety of sources used at the national level. Finally, the controlled estimates are smoothed by using a weighted three-year moving average with weights 1, 2, 1 centred on the year for which accounts are being prepared.

54. On personal disposable income, much of the ground is covered in the UK official submission to the seminar. My paper has already described at some length estimates of compensation of employees, of self-employment incomes, and of rents. To these, as explained in section 1.5 of the UK official submission, are added estimates of transfer incomes derived from a variety of sources and are deducted taxes derived mainly from the Inland Revenue Survey of Personal Incomes.

Conversion from UK SIC to SIC(ESA) — Income from Employment

Appendix 1

Industry Group

Regions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total
North	102	99	121	107	101	100	103	116	102	92	167	113	107	101	109	112	105	104	95	126	90	92	100	100
Yorkshire & Humberside	101	99	112	102	110	100	99	112	118	111	116	98	101	101	106	109	105	110	96	116	90	92	100	100
East Midlands	101	99	112	103	113	101	98	110	105	186	109	103	101	100	106	109	105	101	96	116	90	92	100	100
East Anglia	100	114	108	-	115	126	100	93	108	99	108	114	142	103	105	108	103	99	96	126	90	92	100	100
South East	101	142	136	106	112	134	105	96	103	97	110	106	184	107	112	113	102	105	96	128	90	92	100	100
South West	100	104	113	233	120	121	103	92	108	94	107	108	114	102	110	110	103	99	96	114	91	92	100	100
West Midlands	101	104	115	109	123	101	102	142	103	168	102	96	110	105	100	119	109	97	96	121	91	92	100	100
North West	102	108	113	105	102	119	101	116	102	103	105	104	103	102	103	110	103	102	96	125	90	92	100	100
Wales	101	99	129	98	109	98	104	110	103	163	112	105	107	103	112	113	110	97	96	115	90	92	100	100
Scotland	101	101	111	104	111	102	102	95	107	93	124	107	103	103	109	112	103	110	95	134	90	92	100	100
Northern Ireland	101	107	106	167	146	225	110	98	107	92	110	113	101	100	104	109	106	98	95	124	91	92	100	100
Total	101	101	118	105	109	103	102	99	104	96	108	102	105	103	106	112	103	102	96	123	90	92	100	100

1. Agriculture etc
2. Mining and Quarrying
3. Food, Drink, Tobacco
4. Coal and Petroleum
5. Chemicals and allied
6. Metal manufacture
7. Mechanical engineering
8. Instrumental engineering
9. Electrical engineering
10. Shipbuilding etc
11. Vehicles
12. Metal goods, N.E.S.
13. Textiles
14. Leather + clothing + footwear
15. Bricks etc
16. Timber etc
17. Paper etc
18. Other Manufacturing
19. Construction
20. Gas, Electricity and water
21. Transport and Communication
22. Distributive Trades
23. Market Services

Note Each ratio is derived by dividing SIC (UK) by SIC (ESA)

Document N° 11

RELIABILITY AND ACCURACY OF REGIONAL ACCOUNTS IN FRANCE

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INTRODUCTION

The description of the sources and methods used to estimate regional GDP and other economic aggregates shows quite clearly that the usable statistical material is more limited than at the national level and that it does not admit of multiple approaches: production, income, expenditure, volume, prices, value, which go a long way towards enhancing the reliability of the aggregates estimated at the national level.

Furthermore, an examination of the sources brings out the uneven development of statistical information according to the production sector involved.

The most comprehensive coverage is of agriculture. There are two reasons for this. Firstly, the spatial dimension is naturally integral to the analysis of agricultural activities; it was, moreover, in this field that the first theoretical models on the localization of production (Von Thünen's model) were constructed. Secondly, government intervention is by tradition very substantial in this economic sector and this has given rise directly to the gradual institution of a complex system of information, the geographical components of which are particularly well-developed.

The services sector, on the contrary, is extremely poorly covered, although a substantial part of this sector embraces economic activities the market areas of which have regional features and the analysis of which is particularly significant when it comes to territorial economic balance.

Half-way between the previous two from the point of view of control of spatially-distributed economic information lie industrial activities. The main difficulty encountered in gauging the contributions of this sector to the formation of regional GDP is the high degree of geographical ramification of the organization of industrial production, a factor which is all the more significant because the enterprises are bigger and account for a greater proportion of industrial value added. However, unlike in the services sector, France has since 1969 had an annual industrial survey relating simultaneously to the two levels involved, i.e. enterprises and local units, whereas the usual fiscal sources give access to the information only at enterprise level.

CONTRIBUTION OF MULTIREGIONAL ENTERPRISES TO REGIONAL VALUE ADDED IN 1978

REGION	
ILE-DE-FRANCE	74%
CHAMPAGNE-ARDENNE	63%
PICARDY	75%
UPPER NORMANDY	83%
CENTRAL FRANCE	77%
LOWER NORMANDY	75%
BURGUNDY	73%
NORD-PAS-DE-CALAIS	66%
LORRAINE	68%
ALSACE	62%
FRANCHE-COMTÉ	74%
PAYS DE LA LOIRE	69%
BRITANNY	64%
POITOU-CHARENTES	56%
AQUITAINE	74%
MIDI-PYRÉNÉES	65%
LIMOUSIN	67%
RHÔNE-ALPES	64%
AUVERGNE	76%
LANGUEDOC-ROUSSILLON	72%
PROVENCE-ALPES-COTE D'AZUR	79%
CORSICA	
METROPOLITAN FRANCE	71%

However, although the annual industrial survey, which covers 100 000 local units (industry in the broad sense, including building and public works), raises no major problems as regards representativeness and yields data on units whose geographical location is not generally ambiguous, it nevertheless remains insufficient for working out directly at this level calculations of value added, intermediate consumption and gross operating surplus, to mention just the main variables. This state of affairs, limiting the direct observations which can be made at local unit level, cannot be overcome in the current administrative set-up, which imposes no obligation on enterprises to keep analytical accounts which could be used to show the situation and trends concerning geographically separate production units.

The purpose of this paper is not to tackle in full the problem of reliability and accuracy of the regional accounts aggregates. Although crucial in view of certain uses of regional economic indicators, this issue is far too vast to be handled simply and comprehensively. The problem has therefore been narrowed down to the industrial sector alone, the contribution of which to GDP - 31% at the national level (in 1980) - varies according to region (from 21.5% (Languedoc-Roussillon) to 45% (Franche-Comté).

The problem will be dealt with in turn from two points of view in this paper. The first is static and explains the uncertainty surrounding estimation of industrial GDP by region in terms of the problem of allocation raised by multiregional enterprises and the fragmentary nature of the data available on the various local units.

By way of example, let us compare the differences in the estimation of regional industrial GDP produced by the micro-economic model currently used and a variant based on the hypotheses of productivity made for the same branch of activity broken down to cover all the local units of a given enterprise. This first, purely static approach brings out margins of variation in industrial GDP ranging from -16.5% to + 15.5% in relation to the level obtained by the usual method.

The second approach adopted in this paper is a dynamic one. It involves assessing the validity of the annual time series obtained by successive transversal processing of the annual surveys of enterprises.

In actual fact, while the temporal continuity of the field of survey is well monitored at enterprise level thanks to a computerized register of surveys conducted, the same is not true of the local units or of their geographical location. Before setting up a longitudinal register of local units, for which the experienced gained as regards enterprises has shown that this was a particularly cumbersome and costly exercise, it should be researched by statistical methods whether it is possible to identify "anomalous" trends before tackling, where necessary, the problem of a method of rectification. This study was conducted over a period of six years (1971-76) on the basis of region x branch (21 x20) matrices and concerns five variables, viz. production, paid employees, wages and salaries, value added and investment. The problem is to detect anomalous trends in the tables, which have 12 600 boxes, representing a substantial degree of simplification in relation to the 1 740 000 initial basic observations. The second problem, that of rectification, inevitably involves an arbitrary element but has the advantage of providing an approach to the lack of accuracy of the results, which is the subject of this paper.

Several successive steps were taken. First, methods of factorial analysis of all the annual tables were used, based on the idea that it was preferable not to have an explicit formal model of aggregate trends and that the analysis would itself make it possible to bring out the anomalous points while at the same time leaving the statistician free to draw his own conclusions.

Two techniques were used in this context, a factorial analysis of correlations (FAC) using a chi-2 matrix and a spherical factorial analysis (SFA) using a Hellinger matrix (1).

However, this step proved longer and more expensive than had been anticipated.

Thereafter another category of methods was therefore used: smoothing of series, regression in order both to detect anomalies and to apply computerizable rectification techniques. The research carried out using the different methods will be outlined below.

(1) cf. Volle-Domenges - Annales de l'INSEE No. 35, July-September 1979.

I. - Uncertainty concerning industrial value added: static approach

The annual survey of industrial enterprises (34 000 enterprises - 58 000 local units) yields very comprehensive information on all the variables which figure in the general operating account and especially on the value of the enterprise's gross production and the value of its intermediate consumption. Furthermore, this information is available in a detailed breakdown of activities by branch (level 600 of the NAP nomenclature). In the case of local units, the number of employees is known with the same degree of breakdown of activities by branch. However, the wage bill is only an overall figure by local unit. With the usual method, the hypothesis of an apparent labour productivity having an identical value for all the branches of homogeneous units of a given enterprise has therefore to be postulated. This is not the only hypothesis possible and the purpose of the following variant is to propose another method of calculation which reveals an initial element of static uncertainty about the level of values added.

1. - Description of the variant

The purpose of the variant is to modify the hypothesis of equi-productivity of the local unit sections of a given enterprise having the same activity at level 600. In order to do this, productivity was made to vary from one section to another according to the level of wages in the local units.

Formalization of the model :

In a given enterprise, there are I activities in NAP 600: i = 1..., I and K local units: k = 1, ...,K.

For each activity i, we know:

the size of the labour force: N_i ; the value added VA_i ; the wages and salaries S_i ; and productivity $\pi_i = \frac{VA_i}{N_i}$

For each local unit k, we know:

the total labour force N_k ; the labour force per activity (N_{ik}), i = 1, ..,I; total wages and salaries: S_k ; the distribution of wages and salaries per activity (S_{ik}) i = 1,....I is calculated in the following manner: let $s_{ik} = \frac{S_{ik}}{N_{ik}}$ i = 1....,

$$\begin{cases} \dfrac{s_{ik}}{\pi_{ik}} = \lambda_i \quad i = 1, \ldots, I \\ \text{and } \sum_{i=1}^{I} S_{ik} = \sum_{i=1} s_{ik} N_{ik} = S_k \end{cases}$$

The following hypothesis is therefore made :

in a local unit ratio of wages and salaries per person between two activities is equal to the ratio of the productivity values of these two activities calculated at enterprise level.

Taking the case of an activity i carried out in two local units k and k' only, the value added to be allocated to them :

$$VA_{ik} \text{ and } VA_{ik'}$$

is calculated by:

$$\begin{cases} \dfrac{VA_{ik}}{N_{ik}} \Big/ s_{ik} = \dfrac{VA_{ik'}}{N_{ik'}} \Big/ s_{ik'} \\ \text{and } VA_{ik} + VA_{ik'} = VA_i \end{cases}$$

The following hypothesis is therefore made:

In an enterprise the ratio of the productivity values of two sections having the same APE at level 600 is equal to the ratio of wages and salaries per person in each.

2. - Comments on the results

The most salient feature as regards all activities is the increase in value added in the Ile de France, 15.5%, which can be attributed to the strucure of employment by qualifications in this region.

Also noteworthy is the stability of the Nord-Pas-de-Calais (-0.3%) and the slight fall in the other highly i. strialized regions:

Rhône Alpes	:	- 6%
Lorraine	:	- 9 %
Pays de la Loire	:	- 7%

and a more marked fall in the case of Provence-Alpes-Côte d'Azur-Corsica (-13%).

Apart from the Ile de France, two regions have a value added showing an upturn: Lower Normandy (2%) and Franche-Comté (11%).

A look at the regional values added at level 40 of the NAP for the industrial branches shows a preliminary result which was to be expected: the less dominant activities in a given region are often subject to substantial variations. Nonetheless, it will be noted that for certain regions there is instability in the major activities:

Picardy	:car industry	:18% (10% of value added)
Upper Normandy	:oil and gas	:15% (28% of value added)
Lower Normandy	:car industry	:33% (15% of value added)
Franche-Comté	:car industry	:24% (29% of value added)
Britanny	:car industry	:23% (11% of value added)
Aquitaine	:oil and gas	:-24% (16% of value added)
Midi-Pyrénées	:aeronautical industry	:32% (12% of value added)
Auvergne	:rubber	:35% (29% of value added)
Languedoc-Roussillon	:electricity	:-74% (15% of value added)

Almost all regions show a high degree of instability as regards T05 (oil and natural gas) and T06 (electricity, distribution of gas and water).

PERCENTAGE VARIATION IN REGIONAL INDUSTRIAL VALUES ADDED BY BRANCH (NAP 40)

Year studied 1978
Unit %

REGIONS AND "ZEAT" ECONOMIC ZONES		T 04 Coal	T 05 Oil	T 06 Eletric. Gas and water	T 07 Iron and Steel	T 08 Non-ferrous metals	T 09 Building materials	T10 Glass-ware	T 11 Chemicals	T 12 Chemical processing	T 13 Metal processing
Paris region	11	-	17,67	114,96	-24,88	-22,08	4,42	-7,73	11,29	5,48	-8,43
CHAMPAGNE	21	-	-91,26	-83,93	-4,28	26,2	8,07	-9,57	-47,38	-11,34	-8,58
PICARDY	22	-	-41,19	-67,17	-18,6	9,88	9,84	14,78	-9,78	4,04	3,79
UPPER NORMANDY	23	0,00	14,93	-45,12	-25,11	-16,45	-10,86	14,24	4,68	-4,27	-4,08
CENTRAL FRANCE	24		-82,65	-67,78	-36,07	2,24	2,13	-6,73	-9,74	-5,30	-0,59
LOWER NORMANDY	25	1,40	-85,00	-19,66	-1,03	18,99	-5,85	-4,34	-5,09	-18,06	7,32
BURGUNDY	26	54,65	-89,12	-75,52	-2,85	-12,96	-3,78	-10,26	-29,13	-13,49	2,58
PARIS BASIN	2										
NORTHERN FRANCE	31	0,60	-18,84	8,9	-20,88	8,60	2,15	7,53	-1,52	-1,40	-5,73
LORRAINE	41	-1,14	-62,34	-53,29	-3,89	-2,57	0,49	12,61	-25,29	-19,95	-6,14
ALSACE	42	-	-32,12	-37,25	0,48	3,63	-1,69	6,42	-16,07	-8,04	-15,05
FRANCHE-COMTE	43		-38,37	-76,77	-13,48	-31,14	8,13	0,00	33,95	15,93	-20,47
EASTERN FRANCE	4										
PAYS DE LA LOIRE	52	21,63	96,72	-51,56	-1,07	-24,9	2,57	-13,53	-17,12	-2,66	6,55
BRITANNY	53	-5,57	97,06	-74,28	15,14	-7,35	-4,88	-10,58	-36,23	-8,6	-1,00
POITOU-CHARENTES	54	-66,38	-62,56	-71,76	-27,02	-96,19	-1,41	26,47	-33,48	-9,86	0,45
WESTERN FRANCE	5										
AQUITAINE	72	-52,01	-23,78	-45,94	6,77	-36,80	-14,46	-11,99	-0,25	-4,53	-15,2
MIDI-PYRENEES	73	15,07	-60,47	-69,05	-23,67	-20,32	-6,54	0,45	6,68	-9,67	-1,43
LIMOUSIN	74	-	-98,97	-80,62	-0,08	-39,98	-2,32	-19,71	-5,83	-20,13	-1,05
SOUTH-WESTERN FRANCE	7										
RHONE-ALPES	82	-47,19	-24,93	-28,13	0,94	-8,09	-5,10	-15,8	-2,94	-1,31	-1,20
AUVERGNE	83	-78,17	-94,84	-77,54	6,36	67,9	11,54	8,9	-14,71	-3,66	-3,02
CENTRAL EASTERN FRANCE	8										
LANGUEDOC	91	-7,02	-51,38	-74,4	-62,87	39,76	-8,5	-6,72	-25,33	-21,95	-3,00
PROVENCE-Côte d'Azur	92	-14,83	-2,60	-38,60	-0,79	32,49	11,48	-55,19	-6,95	-13,93	-5,25
CORSICA	94		-99,49	-91,52	—	—	-23,30	—	-87,99	-92,59	-20,34
Provence-Côte d'Azur — Corsica	92										
MEDITERRANEAN	9										
MEDIT. EXCL. CORSICA											
FRANCE EXCL. CORSICA											
TOTAL FRANCE											

PERCENTAGE VARIATION IN REGIONAL INDUSTRIAL VALUES ADDED BY BRANCH (NAP 40) (continued)

REGIONS AND ZEAT ECONOMIC ZONES		T 14 Mechan-ical en-gineering	T 15 Electro-mechan. engin.	T 16 Car man-ufactur-ring	T 17 Ship-building	T 18 Textiles	T 19 Leather	T 20 Wood	T 21 Paper	T 22 Printing	T 23 Rubber
Paris region	11	-0,35	-10,55	-12,46	2,80	-1,59	-8,75	-2,04	-9,65	1,64	-6,82
Champagne	21	3,72	-13,56	-16,48	0,40	2,47	-4,09	-1,97	8,23	-1,19	0,47
Picardy	22	1,92	-6,98	17,82	-69,32	6,96	2,85	-2,65	11,06	-11,87	6,25
Upper Normandy	23	-2,00	-7,41	-25,13	-5,55	9,59	5,05	-6,43	5,15	3,85	-5,44
Central France	24	1,52	2,87	-3,95	-24,68	-2,04	-1,70	6,19	-4,63	-1,37	0,66
Lower Normandy	25	0,15	4,58	33,14	12,14	-0,96	-5,09	8,73	0,74	3,56	8,51
Burgundy	26	-3,79	-10,110	-16,69	13,77	-2,81	-1,21	-4,43	4,59	-6,83	0,35
PARIS BASIN	2										
Northern France	31	0,50	-6,13	-16,54	-0,02	-1,61	-6,81	-0,92	2,45	-5,09	-5,53
Lorraine	41	-7,07	-25,88	-6,38	-70,37	-5,06	15,84	0,58	0,19	-2,29	-14,49
Alsace	42	-2,05	-11,74	-38,61	0,62	-2,04	-1,28	-0,44	-11,25	-1,91	-8,16
France-Comté	43	9,93	0,54	-23,68	-99,95	-10,41	3,24	-4,16	-0,36	-12,44	-1,21
EASTERN FRANCE	4										
Pays de la Loire	52	1,46	13,21	-10,23	-13,75	0,24	-1,30	0,95	-13,15	-4,52	-22,55
Britanny	53	-19,16	-38,23	-13,48	-2,94	-6,06	-3,16	-0,98	-1,56	-6,17	-31,75
Poitou-Charentes	54	0,14	-0,15	-5,2	-16,64	0,53	-2,78	-7,23	-1,33	-10,68	-28,15
WESTERN FRANCE	5										
Aquitaine	72	-1,86	-8,3	-13,10	-7,46	-3,49	-0,09	-1,96	0,88	-5,53	-18,4
Midi-Pyrénées	73	-9,96	-12,5	-31,55	-32,27	-0,12	-1,01	-1,36	-4,12	-0,88	-40,66
Limousin	74	-2,11	-3,94	-19,56	-0,27	-7,87	-0,43	-0,57	-26,64	-3,29	-23,97
SOUTH-WESTERN FRANCE	7										
Rhône-Alpes	82	-0,31	-4,32	-12,33	-0,81	-1,89	-2,10	-0,89	-1,15	-0,46	-4,87
Auvergne	83	-8,81	-10,46	-7,32	-32,18	-0,98	-5,64	-1,15	-1,35	-0,35	-34,71
CENTRAL EASTERN FRANCE	8										
Languedoc	91	-7,68	-16,52	-52,77	-80,33	-0,64	-0,98	-0,34	-25,93	-2,65	-0,13
Provence-Cote d'Azur	92	-5,04	-27,63	-43,41	-2,87	-1,43	-9,94	-4,84	-14,21	-3,16	-9,13
Corsica	93	—	-50,21	—	-0,00	-81,99	-99,65	-0,00	—	-98,64	-99,83
Provence-côted'Azur-Corsica											
MEDITERRANEAN	9										
MEDIT. EXCL. CORSICA											
FRANCE EXCL. CORSICA											
TOTAL FRANCE											

Source: Annual survey of enterprises EAE - Industry

All branches covered by the EAE-industry

Year : 1978

Unit : FF 1 000

	Industrial value added		
REGION	Usual estimate	Variant	% Variation
11 - ILE DE FRANCE	157 416 091	136 218 596	15,56
21 - CHAMPAGNE-ARDENNE	10 454 010	11 455 210	-8,74
22 - PICARDY	15 713 456	15 865 500	-0,96
23 - UPPER NORMANDY	21 457 739	22 378 717	-4,11
24 - CENTRAL FRANCE	17 497 084	19 243 730	-9,07
25 - LOWER NORMANDY	8 800 921	8 595 575	2,39
26 - BURGUNDY	11 384 040	12 743 525	-10,67
31 - NORD - PAS-DE-CALAIS	37 634 125	37 747 333	-0,30
41 - LORRAINE	20 595 295	22 751 834	-9,48
42 - ALSACE	14 257 361	16 238 950	-12,2
43 - FRANCHE-COMTE	14 666 473	13 240 847	10,77
52 - PAYS DE LA LOIRE	19 778 986	21 276 388	-7,04
53 - BRITANY	8 468 469	10 023 008	-15,5
54 - POITOU-CHARENTES	7 362 568	8 032 067	-8,34
72 - AQUITAINE	15 737 813	17 828 604	-11,73
73 - MIDI-PYRENEES	10 347 815	11 646 921	-11,50
74 - LIMOUSIN	3 770 565	4 306 677	-12,45
82 - RHONE-ALPES	49 458 014	52 595 462	-5,97
83 - AUVERGNE	10 126 601	10 292 309	-1,65
91 - LANGUEDOC-ROUSSILLON	5 827 118	6 971 981	-16,42
93 - PROVENCE-ALPES-C. d'AZUR	18 688 201	21 343 995	-12,44
94 - CORSICA	37 916	222 201	-82,93
TOTAL FRANCE	18 726 026	21 566 496	-13,17

II.- Uncertainty as regards regional industrial aggregates dynamic approach.

The purpose of this part is to describe step by step the different stages followed so that the methods used later for the regional data of the EAE[1] to obtain the final results may serve as an approach to the uncertainty affecting the estimates of regional industrial aggregates and their annual trends.

The calculations relate to industrial activities in France as defined by the nomenclature "Niveau 40 A" : NA = 20 branches (from T04 to T23).

These are broken down by region, Corsica having been aggregated with the Provence-Alpes-Côte d'Azur region (NR =21 regions numbered 1 to 21, represented by two initials).

The items of the accounts of these regional branches of activity studied between 1971 and 1976 (in volume[2]) are as follows:

- Q :Production HT[3], by branch of local unit
- P :Number of paid employees, by sector of local unit
- W : Wages and salaries by sector of local unit
- V : Gross value added at factor cost, by branch of local unit
- H : New investments, as a proxy for Gross Fixed Capital Formation (GFCF), by sector of local unit.

1) Data analysis

a) Analysis of the items based on the average values between 1971 and 1976 of Q,P,W,V,H and of the ratios: Q/p, W/p, V/p, H/p. Both the FAC[4] and the SFA[5] were used, the latter in two ways; weightings of the observation points equal to the unit on the one hand and equal to the margins on the other hand.

---

(1) Annual survey of enterprises

(2) National deflator of production by branch

(3) Exclusive of taxes

(4) Factorial analysis of correlations

(5) Spherical factorial analysis

These analyses are virtually no help when it comes to detecting anomalies in the statistical series. They do, however, constitute a way of comparing, by means of data which are simple to interpret, the results obtained according to the method used; these results were processed at the time of the study, but they are also potentially the source of interpretations on the industrial configuration of the French regions of interest.

The partial conclusions - confirmed by later results - are that there is, at least as regards the problem we are concerned with here, a distinct correlation between the FAC results and the SFA results. The only caution to be exercised when using the SFA valucs is not to attempt to interpret the first factorial axis, the purpose of which is merely to switch the point of origin of the axes towards the centre of the cluster. It can then be seen that the first axes of the FAC strangely resemble those of the SFA[1].
This comes as no suprise [2] since all the points are situated in the first quadrant of R^{NR} (or of R^{NA}), the proximity of the observation points in space is not fundamentally called into question by the difference of definition of the matrices used (X^2 and Hellinger), and the factorial axes therefore have similar meanings. Only the geometric representation in this space differs in the SFA itself, according to the weightings given to the observation points. Further, if these weightings are all equal to 1, there is a high degree of convergence between the representations of the SFA and the FAC.

The results are identical as regards explaining the construction of the factorial axes, whatever the weightings selected in SFA (either the contribution of the points to the construction of the axes or their correlation with these). The graphic representation alone differs (deformation of the cluster presented, without calling into question the relative proximities).

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(1) The p^{th} of the FAC being compared to the (p+1)th of the SFA

(2) See Volle-Domenges, op cit.

b) Analyses by region over the period of six consecutive years

The variables in this case are the annual activities, the characteristics remaining the regions. Thus, for example, activity 10 (glass industry) for 1973 will be identified by code 103.

The analyses related to the five items (Q, P, W, V, H); subsequently, the FAC, SEA (with unit weightings), SFA (with margin weightings) were carried out. The same operation was resumed after eliminating as variables activities 04 (solid mineral fuels) and 05 (production of oil and natural gas), recording of the relevant data having been considered insufficiently reliable.

These analyses hold a definite interest for regional economic studies. They show, in addition to the relationships between activities and regions, the trends over time of these activities through their movement in the factorial space.
However, in addition to the fact that it shifts the focus of the objective, this task is delicate and requires adjustments in the presentation of the results (see below).

As regards the detection of anomalies, the underlying idea for the use of the method is that instead of observing 2 520 data (region x activity x year, in the present application), the factorial analysis makes it possible to observe a mere 141 points (21 in the space of the "regions", 120 in the space "activities x years"). To observe points in space is tantamount to observing all its projections along the factorial axes. However, the axes contain increasingly less information, and only the first few (1, 2, 3 etc;) are in fact observed.

The number of points projected, depending the number of axes selected, on the factorial planes, is :

2 axes : $141 \times C_2^2 = 141$

3 axes : $141 \times C_3^2 = 423$

4 axes : $141 \times C_4^2 = 846$

etc. .....

The advantage of factorial analysis is therefore to aggregate the maximum number of data and to illustrate the essential features of the statistical cluster. An anomaly for a given year must therefore be apparent from the fact that the representative point of the "activity x year" concerned distinguishes itself from the general trend of the activity.

1. PROBLEMS CONNECTED WITH THE DETECTION OF ANOMALOUS VALUES

The anomalous values in question do not relate to the activity considered overall.
They relate to the activity in a given region; and therefore an anomalous value:

- cannot be detected directly by factorial analysis (it is necessary to go back to the basic data);
- is often not observable, at least along the first axes, because:
  - . as the first axes give the salient characteristics of the cluster (in terms of proximities), an anomalous value will seldom have any degree of representativeness of the cluster, and its projection along the first axes will not bring it out;
  - . the anomalous value of a 'region x (activity x year)' affects only very slightly (except when it is very distinct) the 'activity x year' point, which is an aggregate covering all the regions.

Moreover, a glance at the annex showing a graphic representation of a factorial plan is enough to realize that all the observation points (120 + 21) are not represented. This does not mean that they do not exist, but that they are mixed up with other observation points. Reference then has to be made to the tables defining the position of each point on each factorial axes in order to incorporate them in the graph[1]. After that, it is necessary to locate all the observation points which are part

---

(1) There is another solution, viz. to increase the scale of the graph. Certain points are split into two. But in this case it is impossible to have an overall view of the factorial plan, and interpretation is trickier.

Moreover, there is no way of knowing on which scale all the points will be shown on the graph.

of the same time series (same activity for the six years, for instance: 181, 182, 183,184, 185, 186). If one of the points in a series does not "seem" to follow the trend of the other five points, a re-examination of the basic regional data makes it possible to discover the source of the deviation from the general trend.

In fact, it is not on the graphs that the series are interpreted: the processes involved in the localization of the observation points and the decision concerning the"anomalous" nature of an observation point are too long and too random. It is possible to avoid these processes and consider only the tables indicating for each observation point:

- its coordinates on the factorial axes selected
- its contribution to the construction of the factorial axes
- its correlation with these.

When the contribution of an observation point to the construction of a factorial axis differs substantially from that of the other observation points for the same activity (those of other years), this point can be taken as being anomalous: its behaviour does not reflect the general trend of the activity.

Thus, more systematically, but still retaining the possibility of judging on a case-by-case basis, the detection of anomalies is feasible. However, there is always the possibility of going back to the basic regional data to get to the source of the anomalous value. Flagrant anomalies have been detected beyond all doubt by this procedure both for SFA and for FAC:

- for item P, branch T07 in 1971: recording error observed in the Burgundy region, which was corrected;
- for item W, branch T13 in 1975: error in the raw datum itself in the Nord region. The remuneration per person employed in 1972 was in 1975 twice what it was in 1976. This mistake was rectified manually;
- for item Q, branch T18 in 1972. This was a recording error in the Franche-Comté region, and was corrected.

A new series of spherical factorial analyses was then conducted, taking these rectifications into account. The detection of anomalies became trickier since the judgements made on the degree of significance of the deviations from the trends over time of a given activity became increasingly subjective. This explains why certain differences in judgement occurred, depending on the analysis observed, and this in spite of the fact that the overall results are close[1]. In many cases, doubt made it necessary to examine whether in the basic data the given region did not by chance behave "abnormally". All in all, the basic data were examined almost systematically.

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1) See annexes for comparisons.

This procedure did not therefore prove very effective in attaining the objectives set. Data analysis seems far better suited to detecting a similarity (or a proximity) of behaviour than to the detection of anomalous values[1]. Aggregation of data and the flexibility of the method, which a priori give the observer considerable latitude in judging and interpreting the results, are not advantages in this case.[2]

That is why there was a switch in the study to more direct, but less flexible methods which offer the advantage - when certain more or less constraining hypotheses have been postulated - of systematically detecting the deviations of a given value in relation to a reference value considered as "normal". The SFA is therefore temporarily abandoned, as it is more suitable for studies aimed at identifying major and significant phenomena, anomalies being automatically excluded because they are marginal.

2. DETECTION OF ANOMALOUS VALUES BY SMOOTHING METHODS

After abandoning an overall approach to trends in regions and activities for detecting anomalous values, each time series[3] was analysed independently of the others. The methods described are therefore valid whatever the quantity of data, since these are broken down prior to any analysis in such a way as to maintain individuality only in simple series, which are compared with

---

1) All anomalous values would show up if the projections of the points were continued along the factorial axes containing a smaller quantity of information. But where is the saving in time and processing effort in this case?

2) Another SFA series, in which the six years were compared with their average (reference table), confirms this judgement: it illustrates the proximity of activities which had a comparable growth during this period, which is very significant. However, the observation points of a given series are dispersed in space.

3) Activity-region, during the six years 1971-1976.

"reference" series. The relative deviation between the value observed and the reference value is then used as a basis for evaluating the anomalous or non-anomalous character of the value code. Two types of smoothing have been tested:

- smoothing by moving averages
- smoothing by methods of linear regression.

Moving averages

Let us consider a time series x_t, in which t = 1,T.

If the variations in an item [1] over a period of time are assumed to be stable or gradual (i.e. if the structural trend is strong), the value of the function $x(\Theta) = ka^{\Theta}$ which is based on the following points:

$\begin{cases} x_{t-1} & \text{for } \Theta = t-1, \\ x_{t+1} & \Theta = t+1 \end{cases}$ is close to x_t in the case of Θ_t, i.e.

deviation: $e_t = \dfrac{x_t - ka^t}{ka^t}$ between the value of the item on the trend curve (reference value) and the observed value must be small.

The hypothesis is apparently strong, but in actual fact it is not very constraining. An observation point cannot be considered as anomalous unless its deviation from a reference value is significant and well in excess of the normal trend deviations. This explains why it is not necessary to construct as a reference model an econometric model which would feature a number of explanatory variables; the theoretical representation of the actual trend (provided the model is well designed) would benefit, but this would not help as far as the degree of accuracy required is concerned[2].

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1) H is excluded, since a significant variation of H from one year to the next does not generally affect the continuity of the other items.

2) The standard deviation selected as the minimum threshold for an anomaly was initially set at 10%, in relation to the trends for items Q, P, W, V; this threshold was subsequently raised to 20%. In any case, these thresholds merely give an idea of a potential anomaly: below these, trends can be affected by short-term random factors, which are seldom, however as significant from one year to the next.

This is why the moving average used here is even more simple: the reference value $x_r(t)$ is: $x_r(t) = \frac{x_{t-1} + x_{t-1}}{2}$

an arithmetic mean of the previous value and the following value [3] [4] and the deviation measured is :

$$e(t) = \frac{x_t - x_R(t)}{xR(t)}$$

---

3) For a trend growth rate of 10%, which is already on the high side, the error in relation to the constant growth rate curve is a mere 0.5%. Value $x_q(t)$ is in fact equal to

$$\frac{ka^{t-1} + ka^{t+1}}{2}$$

instead of ka_t. Now, $x_r(t) = ka^t \frac{(a^{-1}+a)}{2}$ where, $a = 1 + t$ (t = growth rate). $x_r(t) = ka^t \frac{(t^2+1)}{2}$

The standard deviation $\frac{xt}{k_a^t} - 1$ is therefore modified by approximately $\frac{t^2}{2}\left(\frac{xt}{x_r tt}\right)$ is near to 1); in other words, when $t = 0.1$, by approximately 0.5%, which is negligible in relation to the anomaly threshold.

4) A conventional moving average takes as its reference value for t the value :

$$\frac{x_{t-1} + x_t + x_{t-1}}{3}$$

If x_t is taken to be an anomalous value, the deviation between x_t and the reference value would be underestimated inasmuch as the latter would be biased by the presence of xt.

This method has two main advantages:

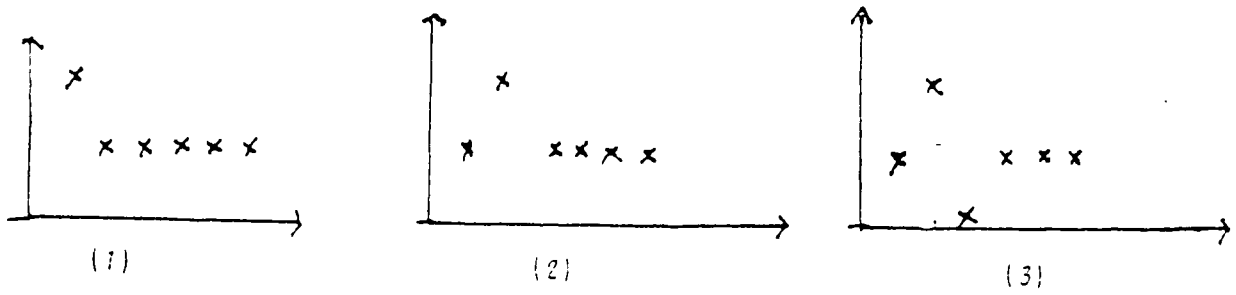
- it is very simple. The calculations to determine the deviations are mathematically immediate;

- it remains valid whatever the medium-term and long-term trends of the series.

The only hypothesis is that the change in trends be gradual from one year to the next(which is realistic in the normal run of events, but not always in a period of swift economic restructuring. An example is the setting up of the Fos/Mer steelmaking complex, which suggests anomalous values between 72 and 74).

Despite these undeniable advantages, the method has been dropped. The only decisive reason for this is that it is generally impossible to pinpoint the year in which the anomalous value(s) occur, i.e. the point in the series affected by the deviation from the trend. In order to locate the anomalous value, it is necessary to go back to the source [1] and, if direct observation is not enough, use an additional method of detection.

The following diagram illustrates the difficulty of pinpointing the period in which the anomaly occurred:



1) NB: The study covers 420 series (20 activities x 21 regions).

It should be noted first of all, for a series with T elements, only T-2 deviations can be calculated since the data relating to e(1) and e(T) are not accessible[1]. In the above four instances, e(2), e(3), e(4) and e(5) remain to be calculated (the general trend is towards reasoning and constancy). It will be assumed that in each instance the points outside the horizontal which plots the general trend have a standard deviation from this, E, which is greater than the minimum threshold for anomalies.

fig. 1 : $e(3) = e(4) = e(5) = 0$, $e(2) \neq 0$: although x(1) is anomalous, it is not certain that e(2) is greater than the anomalous value threshold. In fact: $e(2) < \frac{E}{2}$. It is therefore not always possible to detect the anomalous value.

fig. 2 : $e(4) = e(5) = 0$, $e(2) = E$, $e(3) < \frac{E}{2}$;

e(2) is above the anomalous value threshold, as e(3) will sometimes also be. If e(3) is not above the threshold, how can the case shown in Figure 1 and that shown in Figure 2 be distinguished on the basis of the results?

If e(3) is above the threshold, how it is possible to know whether x(2) or x(3) is the anomalous value[2]?

---

1) The more elements there are in the compilation of the moving average, the less it will be possible to calculate deviations. This is one reason for selecting a three-element average x_{t-1} x_t x_{t+1} (from which x_t is excluded, see note on previous page).

2) On examining this, it could be objected that it would suffice to compare the relative values of e(2) and e(3). But generally speaking the points are not aligned exactly, and deviations (albeit small ones) appear for each element. The comparison thus becomes trickier.

Figure 3 illustrates two anomalous values; it may be that only e(2) and e(3) lie above the anomalous value threshold ($e(4) \sim \frac{E}{2}$). How can we distinguish from the previous case?

Detection of the anomalous value must be systematic and must not be restricted to stating that "there is an anomalous observation" without specifying the year in which it occurred.

This method has **there**fore been dropped[3]. Only a method embracing all the elements of the series can ensure systematic detection.

---

3) It is, however, adequate in many cases.

3. LINEAR REGRESSION

The linear regression method generally means the least squares method[1]. Tested on one item[2], this method as a rule gives accurate results. However, its purpose by definition is to estimate the coefficients of a model of the following type:

$$Y = Xb+U^{(3)}$$

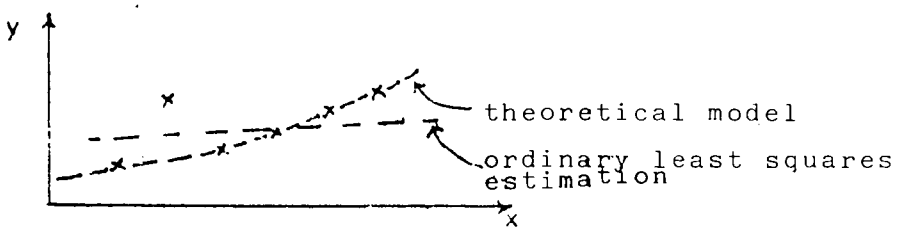
on the basis of observations Y_t, X_{kt} ($t = 1, T, k = 1,K$), where Y is the series observed which has to be represented, and x_k the explanatory variables.

The problem stems from the fact that if the observations are biased, then the estimations and the model estimate will also be biased[4]: $\hat{b}=(XX')^{-1}X'Y$ is biased as soon as one of the values of Y used in constructing the model becomes anomalous.

This does not rule out the possibility of observing the anomalous values by measuring the standard deviations $\frac{Y(t)}{\hat{y}(t)} - 1$; however bias in the estimations leads to:

- an under-estimation of the deviation if y(t) is anomalous (which is not all that important if it is sufficiently great)
- an over-estimation of certain deviations if the y(t) values are close to the reference hyperplane (trend).

Example: (case of the model y = bo + bx + u):



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1) Ordinary or generalized.

2) Time is the only explanatory variable (with the exception of the constants).

3) Simplified form, in which Y is a vector, (T,1)X a matrix (T,K) and b the vector (K,1) of the coefficients to be estimated.

4) The deviations U in the model Y = XB do not satisfy the ordinary least squares hypotheses.

The risk is therefore that points which are in fact perfectly in line with the general trend will be considered as anomalous [1]. Whence the necessity for a more satisfactory model, and the one finally selected is based on the following principles:

- all the elements of the series are taken into consideration;
- the representative model of the series is of the type:

$$y_t = \sum_{k=1}^{K} b_k x_{tk} + u_t \quad (1)$$

where t = 1,T : number of observations T
k = number of explanatory variables, and therefore of b parameters to be estimated
x_{tk} = t^{th} observation of the exogenous explanatory variables (x_k)
Y_t = t^{th} element of the series;

- the estimated hyperplane is determined by the $\hat{b}_k$ estimated so that :

(i) $\hat{y}_t = \sum_{k=1}^{K} \hat{b}_k x_{tk}$ and

(2) the sum $\sum_{t=1}^{T} |y_t - \hat{y}_t|$ is minimal.

The aim is therefore to determine the $\hat{b}_k$ which minimize the sum of the absolute values of the deviations between the values of the observed series and the values of the estimated series (MSAVD) [2]

---

1) This risk may not be of any consequence if the only objective is to know whether a series contains any anomalous values. However, problems do arise if it is intended to rectify the anomalous value on the basis of the regression hyperplane.

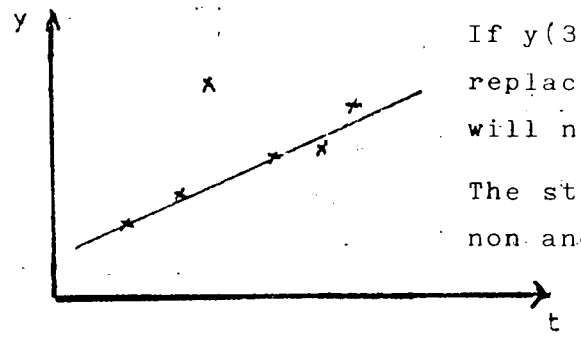
2) Minimization of the sum of the absolute values of deviations.

ADVANTAGES OF THE METHOD

The shortcoming of the methods studied previously was that the estimated value of the deviations was erroneous because of the systematic bias resulting from taking account of the anomalous value in compiling the "reference value" (or estimated value of the element of the series).

In the case of moving averages, this makes it difficult, if not impossible, to locate the year in which the anomalous value occurred. In the case of ordinary least squares, the standard deviations of the non-anomalous values are often overestimated, and there is therefore a risk of "normal" observations being considered as anomalous. In MSAVD - provided, however, that the model is correct, i.e. that the explanatory variables are judiciously selected - the coefficients $\hat{b}_k$ do not depend on the value taken by the anomalous point. The latter point[1] automatically excludes itself from the definition of the estimated hyperplane.

Example: regression in relation to time $y(t) = b_o + b,t+u$



If y(3) is an anomalous value, replacing y(3) by $y(3) \pm \varepsilon$ will not change the $\hat{b}_k$ (2)

The straight line is based on non anomalous observation points

The (minimum) two points on which the regression line is built are not always the same unless the observation y(3) was not anomalous (3);

---

(1) Or points

(2) At least in the margin

(3) See the results in the Annex. This is not a negative criticism; with the ordinary least squares, any change in y(3) would produce a change in the $\hat{b}_k$.

whatever the case may be, the influence of the position of y(3) is small and the estimated model does not have any systematic bias[1].

5. IMPLEMENTATION

In order to be effective, the method described above must deal with each time series and indicate the standard deviations from the regression hyperplane for each observation (at least when this deviation is above a given threshold).

A programme (including a MSAVD sub-programme) has been prepared for this purpose.

The explanatory variables for each series remain to be defined : since the series studied here are short (6 years), no more than three must be dealt with for the model to have any significance. Two stages were planned:

1. - working on the assumption of a fairly steady trend over time, a first regression was made taking as explanatory variables:

x_{1t} = (1,1,1,1,1,1), i.e. the constant

x_{2t} = (1,2,3,4,5,6), representing the six years 1971-1976.

For the series in which all the elements are positive in the strict sense, the dependent variable y_t was replaced by its logarithm in order to construct a better model of a constant

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(1) This method was conceived as a two-stage method: in order to limit the influence of the anomalous point in the estimation of the $\hat{b}_k$, which is great in the ordinary least squares in which the deviations to be minimized come in the form of squares, the first stage was to consider the absolute values of the deviations. An estimation programme (MSAVD) exists.

Unfortunately, the estimated hyperplane must - by this method - pass via the average point, which does not eliminate the systematic bias on the $\hat{b}_k$. Whence the construction of a new method (2nd stage).

growth rate series[1];

2. - taking time as an explanatory variable is very restrictive, since no account at all is taken of economic conditions. X_2 was therefore replaced by an economic explanatory variable, considered as a reliable reference, the number of paid employees (branch x region x year) based on the regional reference file.

This works out as follows for the different series (region x activity):

- Q (production), considering that labour productivity is stable or evolves in a linear manner over the period under consideration;

- P (number of employees), comparing two statistical sources;

- W (wages and salaries), assuming a linear trend;

- V (gross value added), estimating that it varies in a linear manner with the number of employees.

Even if these hypotheses do not always prove to be correct, they seem on the whole probable over a period of six years and the correlations with the different items are better than when time is used as an explanatory variable.

As the objective is to detect anomalies, only significant deviations (the threshold of 20% was selected as being sufficiently high) from the general trend deserve attention, and this model is quite adequate in the medium term.

(1) When at least one term in the series is zero, i.e. there is no such activity in the region consideration in a given period, this is obviously impos . y_t was maintained.

6. RECTIFICATION OF ANOMALOUS VARIABLES

The final stage involves the formulation of a systematic method for rectifying values identified as being anomalous, (1) the method in question being of the multiple regression type with missing observations. Before describing the method itself, it is worth reiterating briefly when such rectification would appear to be called for.

1. Rectification criteria

Whenever an anomalous point is identified in a series, the first step must be to ascertain the cause of the anomaly, and it must be decided from case to case whether to regard the value as valid or in need of rectification.

The various causes of anomalies may be summarized as follows.

a) Observation error: By going back to the source, it is usually possible to ascertain at what stage the error has occurred. If it has occurred at the initial data stage (e.g. in the results of a survey), the erroneous item is eliminated, and in such cases, all that is required is rectification (see below).

b) Poor representativeness of the population on the part of sample observed: The problem here is one of the reliability of the data as a function of the sampling technique used. The only remedy is to rectify the problem statistically, although in future cases it will be necessary to modify the sample characteristics.

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(1) This does not, however, preclude the possible substitution of more reliable or more significant explanatory variables.

c) A change in the norm over a period of time: This is unfortunately a common phenomenon. There is no error in the true sense of the word, but a change in the definition of a given item of data creates a bias which can only be eliminated subsequently by retropolation, i.e. by recalculating all the elements in a series by reference to a common norm, in which case a break in continuity generally occurs in the series.

d) Explicable economic causes: Strikes, bankruptcies and national investment measures may bring about abrupt changes in the structure and level of a particular regional activity. In such cases, there is no point in trying to rectify the "anomaly", since any such correction would gloss over a genuine phenomenon, which is of course not the point of the exercise.

Summing up, statistical rectification is only called for in cases where an error has occurred in the observed value and where it is impossible to go back to the source of the data.

2. Rectification

The characteristics which the various possible methods of rectification have in common are as follows:

a) Calculations must not include any anomalous values, since this would in effect lead to systematic bias of the corrected value.

b) The aim is to place the series in question in a logical trend framework, which means endeavouring to ascertain the probable trends in the series over a period of time (i.e. disregarding of the anomalous value). What this boils down to is the use of explanatory variables, which must of course be the same as those used to identify the anomaly in the first place.

Linear regression methods with missing observations meet these requirements, the missing observations being of course anomalous points, which have been eliminated from the series.

A first possible solution might be to carry out the rectification exercise directly on the regression hyperplane which was used to detect the anomalies in the first place, and in fact a regression method using the ordinary least squares was adopted as the most effective solution.

1. The regression hyperplane obtained by the MSAVD (Minimization of the Sum of the Absolute Values of Deviations) method gives a first indication of the series trend. Rectification on the hyperplane is immediate, given that all the characteristics have been calculated at the previous stage.
   To put it succinctly, criteria governing the choice of the MSAVD method for detection purposes do not work in the case of rectification. While it is true that estimates are not biased because the anomalous point has no effect on the result (or if so, only to a very minor extent which does not affect the validity of the estimate), other elements in the series are likewise eliminated from the hyperplane construction. In fact, only K points (as many as there are explanatory variables) are taken into account, the others (N-K, N being the number of observations) not appearing at all (unless there is coplanarity in the broad sense of the term, i.e. degenerescence in the sense of linear programming).

   Generally speaking, then, the above method does not take all the available information into account, and a method based on ordinary least squares would appear to be more satisfactory from this point of view.

2. Regression by least squares with missing observations.
   The principle behind this method is simple, involving the division of observations into two groups, the first being the one in which the explanatory variables and the dependent variables are observed simultaneously, and the second being the one in which the explanatory variables are observed.
   The model may be set out as follows :

$$\begin{bmatrix} Y_1 \\ Y_2 \end{bmatrix} = \begin{bmatrix} X_1 \\ X_2 \end{bmatrix} b + \begin{bmatrix} u_1 \\ u_2 \end{bmatrix}$$

   Regression is applied to the first group only:

$$Y_1 = x_1 b + u_1$$

Estimation using the least squares method produces the following result:

$$\hat{Y}_1 = X_1\hat{b}, \text{where } \hat{b} = \left[X'_1 X_1\right]^{-1} X'_1 Y_1$$

The missing observations Y_2 are estimated by reference to their values on the regression hyperplane :

$$\hat{Y}_2 = X_2 \hat{b}$$

$$\text{or : } \hat{Y}_2 = X_2\left[X'_1 X_1\right]^{-1} X'_1 Y_1$$

The formulae can be applied without further ado to the present study.

Rectification is carried out for each series in which one or more anomalies have been ascertained, by regarding the periods in question as "missing observations".

Given that the observations cover only six years, the rectification excercise will clearly yield reliable results only if the second group (the missing observations) comprises no more than three periods[1]. If it transpires that there are more than three anomalies in a particular series, there is no point in trying to rectify that series on the basis of the explanatory variables. In this case, clearly, regression will not bring out the series trend, given the poor correlation between the series and the exogenous variables. The solution to this problem will be either to look for other explanatory variables or to analyse the series by some other means (e.g. direct observation).

For each series, the listings contain the following items:

- the initial (i.e. unrectified)values
- the standard deviations from the hyperplane calculated by the MSAVD method.

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(1) Generally speaking, 1 or 2-3 such periods may be expected, since only two explanatory variables have been used.

- rectification on the same hyperplane (where appropriate)[1]

- rectification by the least squares method with missing observations (in volume terms)

- the same rectification in value terms (after correction of the corresponding price indices).

3. Explanatory note on the methodology

The regression method is based on an article by Tocher[2], defining a more general method capable of being used even when certain observations regarding the explanatory variables are missing (the observations then being divided into four groups). In terms of the present study, the logic is as follows.

The model takes the following form (see above) :

$$\begin{pmatrix} Y_1 \\ Y_2 \end{pmatrix} = \begin{pmatrix} X_1 \\ X_2 \end{pmatrix} b + \begin{pmatrix} u_1 \\ u_2 \end{pmatrix}$$

An iterative approach is used to define $\hat{b}$. The missing observations (Y_2) are replaced by zero, and $\hat{b}^o$ is then calculated.

This initial estimate enables $\hat{Y}_2^1$ to be calculated on the regression hyperplane.

The same approach is then adopted again for the calculation of $\hat{b}^1$, $\hat{Y}_2^2$, etc., the iterations converging to a limit for $\hat{b}^n$ and $\hat{Y}_2^n$, $\hat{b}$ and $\hat{Y}_2$, and these results are then used for the rectification exercise.

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(1) Provided there is at least 1 anomaly and fewer than 4 significant anomalies.

(2) Cf. Tocher, 1952, "The design and analysis of block experiments" IRSS, B, No 14, p. 45.

Cf. also Afifi and Elashoff, 1966, "Missing observations in multivariate statistics", IASA, No 61, p. 595

$\hat{b}$ and $\hat{Y}_2$ are calculated as follows :

$$\hat{b}^o = [X'X]^{-1}[X'_1 Y_1 + X'_2 \hat{Y}_2{}^o] = [X'X]^{-1} X'_1 Y_1$$

$$\rightarrow \hat{Y}_2{}^1 = X_2 [X'X]^{-1} X'_1 Y_1 = X_2 \hat{b}^o$$

$$\hat{b}^1 = [X'X]^{-1} X'_1 Y_1 + [X'X]^{-1} X'_2 \hat{Y}_2{}^1 = [I + [X'X]^{-1} X'_2 X_2][X'X]^{-1} X'_1 Y_1$$

$$\hat{Y}_2{}^2 = X_2 \hat{b}^1 = X_2 [X'X]^{-1}[X'_1 Y_1] + X_2 [X'X]^{-1} X'_2 \hat{Y}_2{}^1$$

Assuming $A = X_2 [X'X]^{-1} X'_2$

$$\hat{Y}_2{}^2 = [I + A] X_2 [X'X]^{-1} X'_1 Y_1$$

At the nth iteration :

$$\hat{Y}_2{}^n = X_2 [X'X]^{-1} X'_1 Y_1 + A \hat{Y}_2{}^{n-1}$$

$$= [I + A + \ldots + A^{n-1}] X_2 [X'X]^{-1} X'_1 Y_1$$

Hence:

$$\hat{Y}_2 = [I - A]^{-1} X_2 [X'X]^{-1} X'_1 Y'_1 \qquad (1)$$

$$\boxed{\hat{Y}_2 = [I - X_2 [X'X]^{-1} X'_2]^{-1} X_2 [X'X]^{-1} X'_1 Y_1} \qquad (1)$$

A simpler formula can be obtained by defining $\hat{b}$ rather than $\hat{Y}_2$, whereby :

$$\therefore \hat{b}^1 = \hat{b}^o + [X'X]^{-1} X'_2 X_2 \hat{b}^o = [I + [X'X]^{-1} X'_2 X_2] \hat{b}^o$$

---

(1) This result can be accepted without further ado, given that in the extreme case the position should be as follows :

$$\hat{Y}_2 = X_2 [X'X]^{-1} X'_1 Y_1 - A \hat{Y}_2$$

$$\hat{Y}_2 = [I - A]^{-1} X_2 [X'X]^{-1} X'_1 Y_1$$

$$\hat{b}^n = [X'X]^{-1} X'_1 Y_1 + [X'X]^{-1} X'_2 X_2 \hat{b}^{n-1}$$
$$= \left[I + (X'X)^{-1} X'_2 X_2 + \ldots + [(X'X)^{-1} X'_2 X_2]^n\right] \hat{b}^0$$

Hence :

$$\hat{b} = \left[I - (X'X)^{-1} X'_2 X_2\right]^{-1} (X'X)^{-1} X'_1 Y_1$$

or $$\hat{b} = \left[(X'X) - X'_2 X_2\right]^{-1} X'_1 Y_1 \quad (1)$$

and : $$\boxed{\hat{Y}_2 = X_2 \left[X'X - X'_2 X_2\right]^{-1} X'_1 Y_1} \quad (2)$$

However, the above equivalent formulae are computationally complicated, and all that needs to be noted is that :

$X'X = X'_1 X_1 + X'_2 X_2$ to give the <u>final formula</u> :

$$\boxed{\hat{Y}_2 = X_2 \left[X'_1 X_1\right]^{-1} X'_1 Y_1}$$

---

(1) Formula (1) can also be expressed as

$$\hat{Y}_2 = X_2 \left[I - (X'X)^{-1} X'_2 X_2\right] X'_1 Y_1$$
$$= X_2 \left[X'X - X'_2 X_2\right] X'_1 Y_1 \text{ , i.e formula (2)}$$

CONCLUSION

Detection of anomalies by the last method considered (MSAVD) does not enable the erratic nature of a particular observation to be assessed, but merely whether or not it deviates from a reference model. Rectification, by way of projection on the least squares regression hypothesis (with missing observations), should not be an automatic operation, although the programme drawn up for the purpose may systematically correct any anomalies.

Nonetheless, experimental use of this procedure has revealed a sufficiently large number of problems to justify more systematic research covering the largest statistical units.

The provisional - but nonetheless highly revealing - conclusion is that thought must be given to a thorough reorganization of the processing of the annual survey of enterprises at regional level if annual trends are to be assessed on other than a random basis.

It is planned to carry out tests designed to ascertain the problems presented by the population of industrial local units with 100 employees or more in the course of their life. A longitudinal reference index is available for this population, and this will in the future be used as an interconnecting index linking the surveys in successive years. The tests will cover the years 1975, 1976, 1977, 1978 and 1979. This approach is not feasible for the population of small industrial local units, even if they form part of large enterprises. It can only be hoped that the coverage in terms of value added will be wide enough to enable value added trends to be estimated. This is what future work will reveal. In any case, the said method will significantly increase the cost of producing regional accounts, the attendant suggestion being to restrict the production of such accounts to a two-yearly or three-yearly cycle, if it is acknowledged - as seems reasonable - that their principal use is in analysing structural disparities which remain extremely rigid over a period of time, and not as a basis for economic analysis, for which these aggregates are clearly inappropriate.

ANNEX 1

Meaning of symbols

In the annex,

XAATRR

refers to item X, observed for activity AA, in year T and region RR.

. X stands for either P, V, Q, or H
. the activity codes are set out on the following page
. T is 1 for 1971, etc., down to 6 for 1976
. the regional codes are set out below.

REGIONS

Codes	Region	Economic zone
IF	Ile-de-France (1)	Ile-de-France (1)
CH	Champagne-Ardenne	Bassin Parisien
PI	Picardie	
HN	Haute-Normandie	
CE	Centre	
BN	Basse-Normandie	
BO	Bourgogne	
NO	Nord-Pas de Calais	Nord
LO	Lorraine	Est
AL	Alsace	
FG	Franche-Comté	
PL	Pays de la Loire	Ouest
BR	Bretagne	
PC	Poitou-Charentes	
AQ	Aquitaine	Sud-Ouest
MP	Midi-Pyrénées	
LI	Limousin	
RA	Rhône-Alpes	Centre-Est
AU	Auvergne	
LA	Languedoc-Roussillon	Méditerranée
PC-(PR	Provence-Alpes-Côte d' Azur (2)	
PC-(CO	Corse (3)	

(1) Formerly "Région parisienne" (Law No.76394 of 6 May 1976)

(2) Formerly "Provence - Cote d'Azur" (Decree No.76722 of 2 August 1976)

(3) Formerly classified together with Provence - Côte d'Azur (Decree No. 7018 of 9 January 1970)

Nomenclature of activities (N 40) and definition of the reclassifications used (N 15 A)

Branch or sector (Nomenclature N 40 A)	Reclassification used (Nomenclature N 15 A)
T 04 - Production of fuels, mineral solids and coke	Energy U 03
T 05 - Production of petroleum and natural gas	
T 06 - Production and distribution of electricity distribution of gas and water	
T 07 - Production of ferrous ores and metals, first-stage of processing steel....	Intermediate goods U 04
T 08 - Production of non-ferrous ores, metals and semi-finished products	
T 09 - Production of building and miscellaneous mineral materials	
T 10 - Glass industry	
T 11 - Chemicals, production of artificial and synthetic yarn and fibres	
T 13 - Foundries and metalworking	
T 21 - Paper and board industry	
T 23 - Rubber industry and processing of plastics	
T 14 - Mechanical engineering	Capital goods U 05
T 15 - Electrical and electronic engineering	
T 16 - Construction of motor vehicles and other land transport equipment	
T 17 - Ship and aircraft building, armaments	
T 12 - Chemical processing and pharmaceutical industries	Consumer goods U 06
T 18 - Textile and clothing industries	
T 19 - Leather and footwear industries	
T 20 - Wood and furniture industries, miscellaneous industries	
T 22 - Printing and publishing	

Horizontal axis (2). Vertical axis (3). Title : Spherical factor analysys I = 1.120 activities x time; J = 1,21 regions). 1st corrections.
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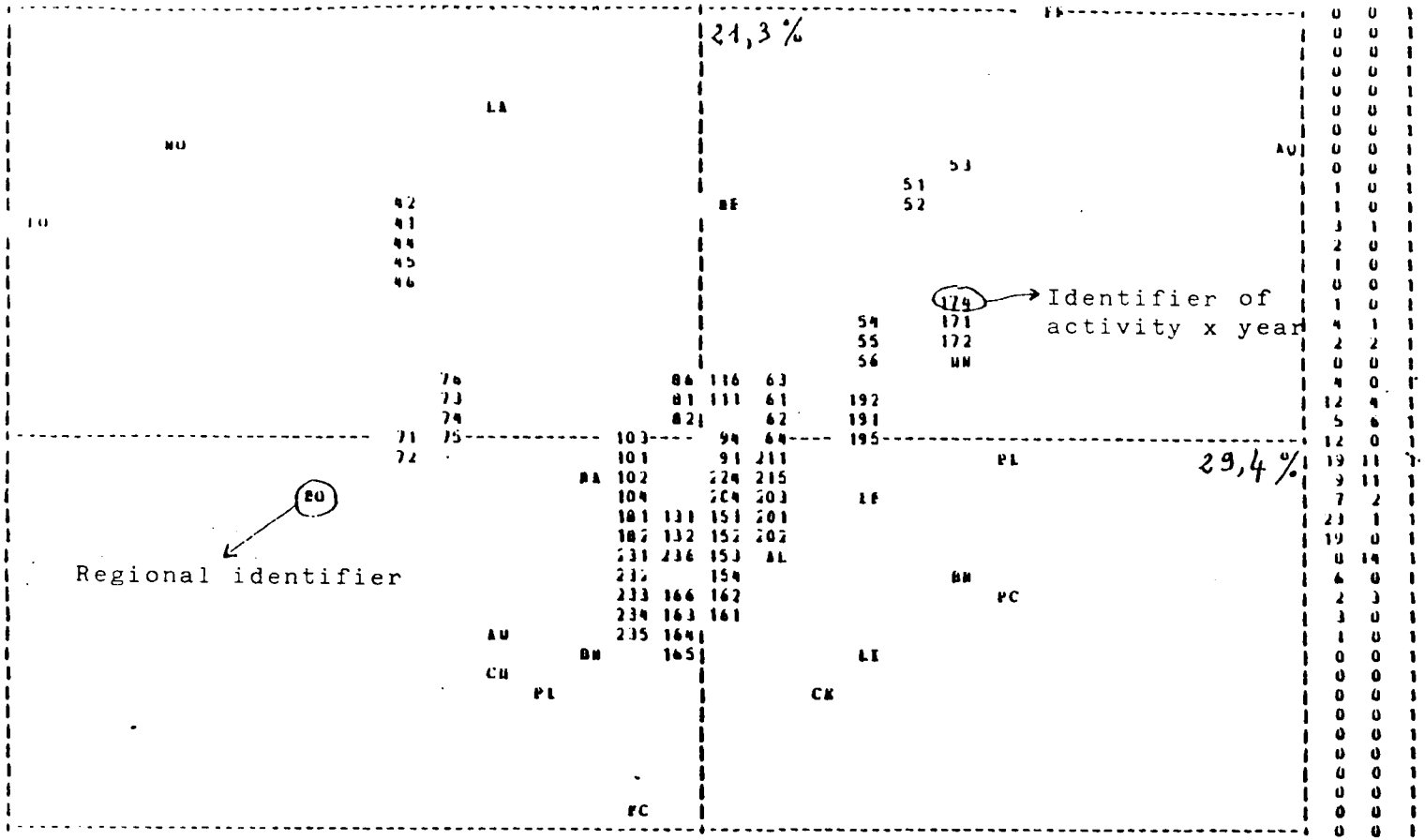
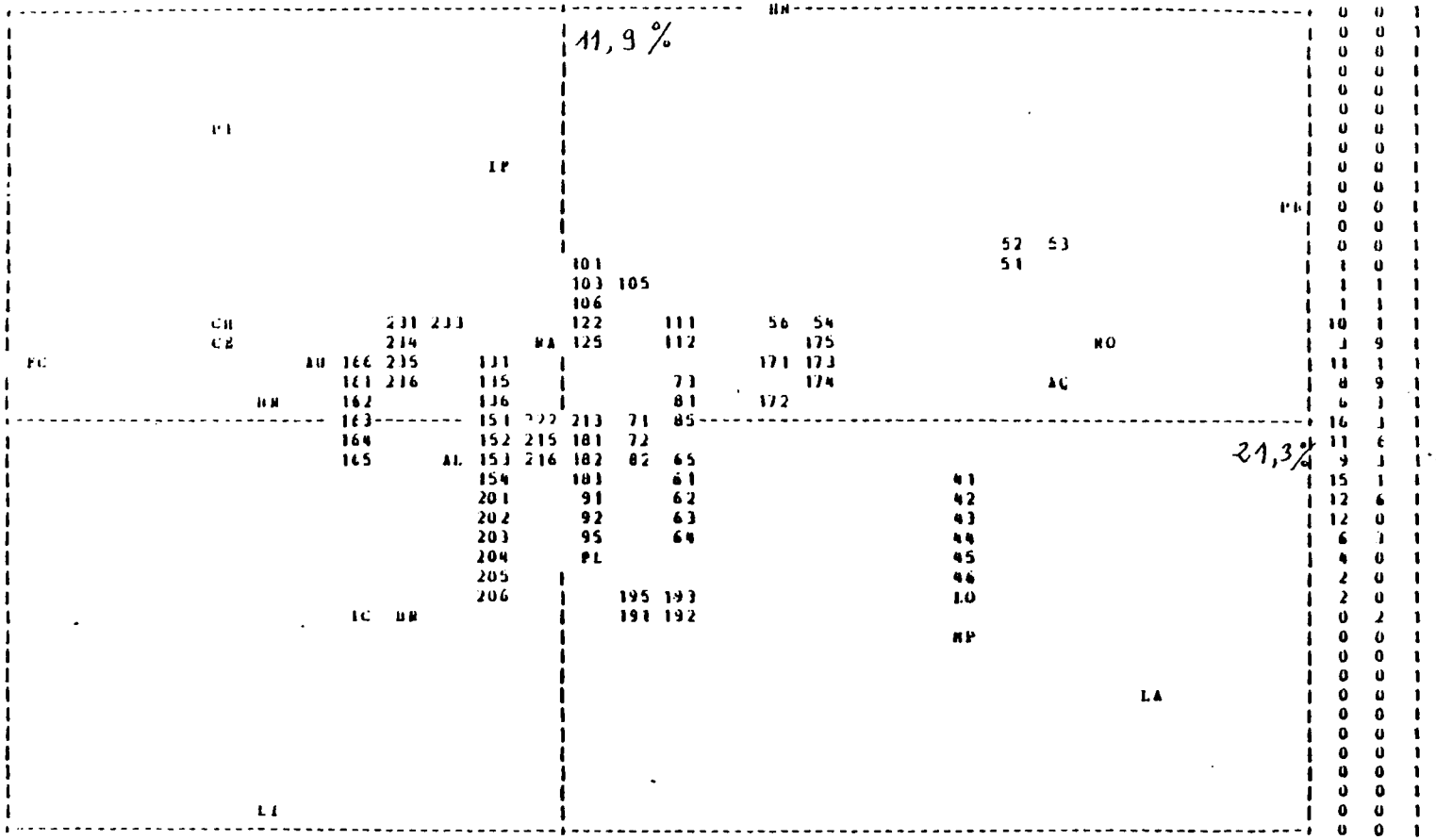


Analysis of specific characteristics of paid employment, with margins

$$A^{P}_{ij} = \frac{P_{ij} / P_{i.}}{P_{.j} / P_{..}}$$

Horizontal axis (3). Vertical axis (4). Title : Spherical factor analysis (I = 1,120 activities x time; J = 1,21 regions). 1st corrections. Width = 0.14294; height = 0.12624; number of points = 142.



P

Analysis of specific characteristics of paid employment, with margins (contd.)

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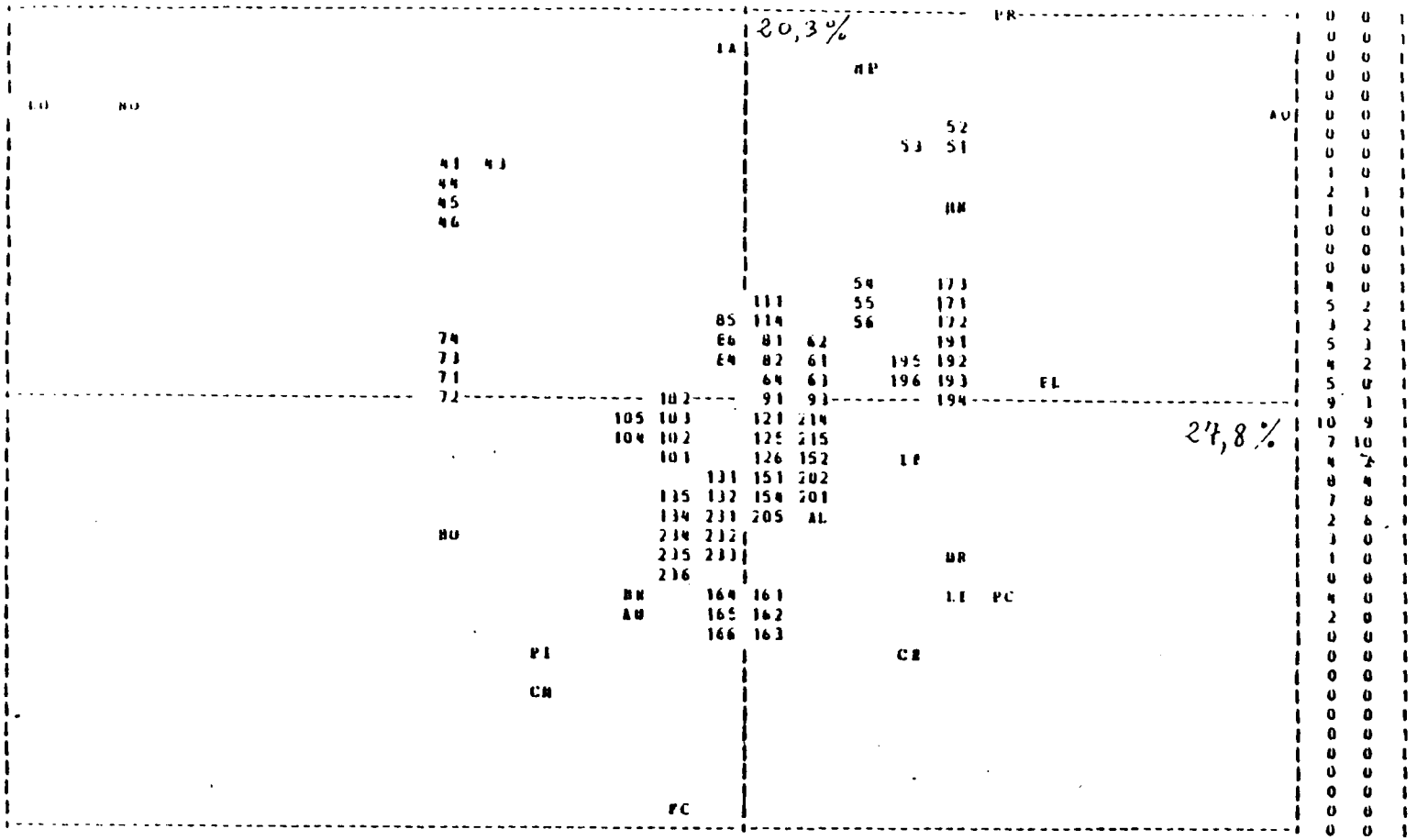

Q Analysis of specific characteristics of production, with margins

$$\Delta_{ij}^{Q} = \frac{Q_{ij} / Q_{i.}}{Q_{.j} / Q_{..}}$$

Horizontal axis (3). Vertical axis (4). Title: Spherical factor analysis
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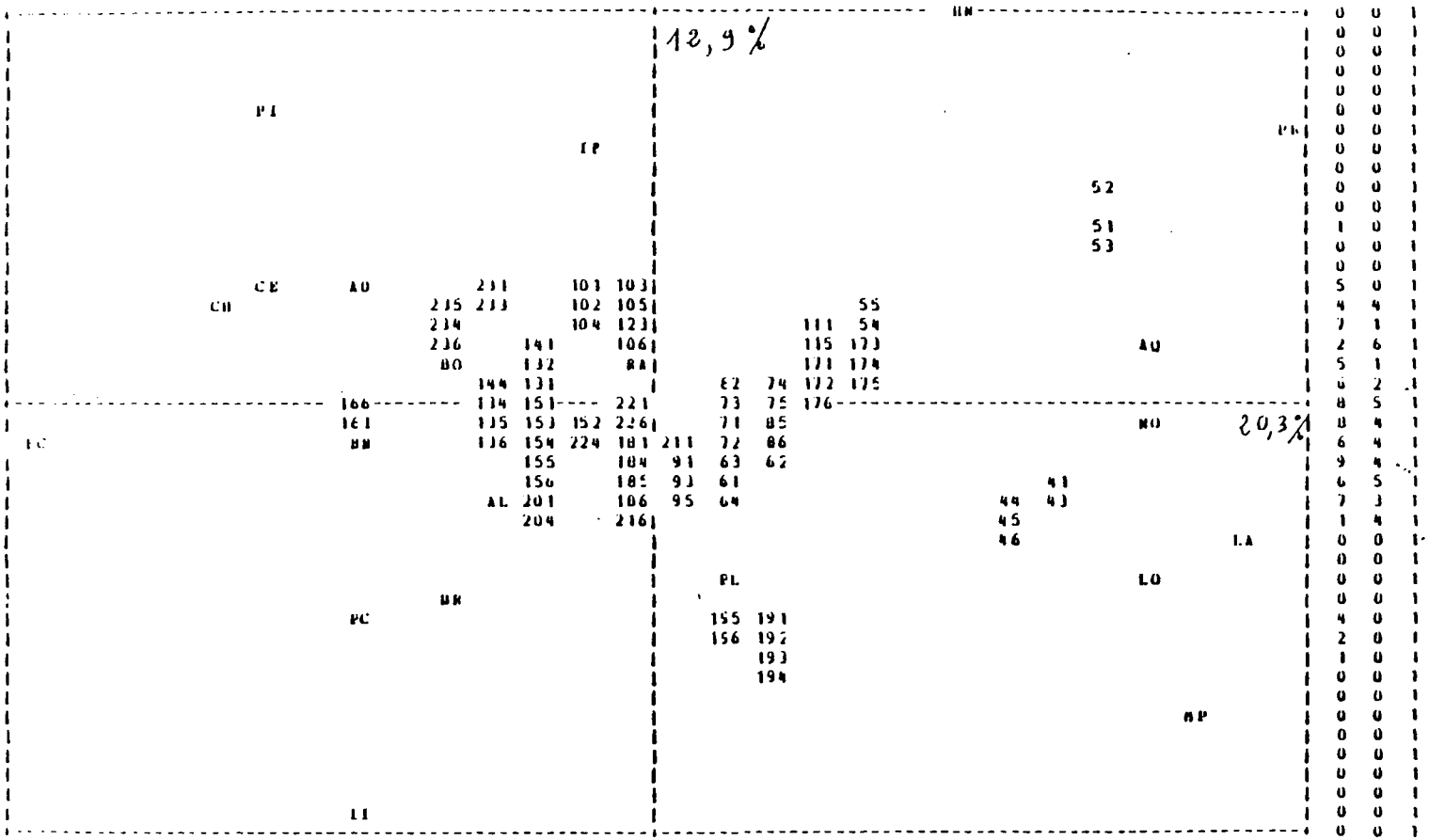

Analysis of specific characteristics of production, with margins (contd.)

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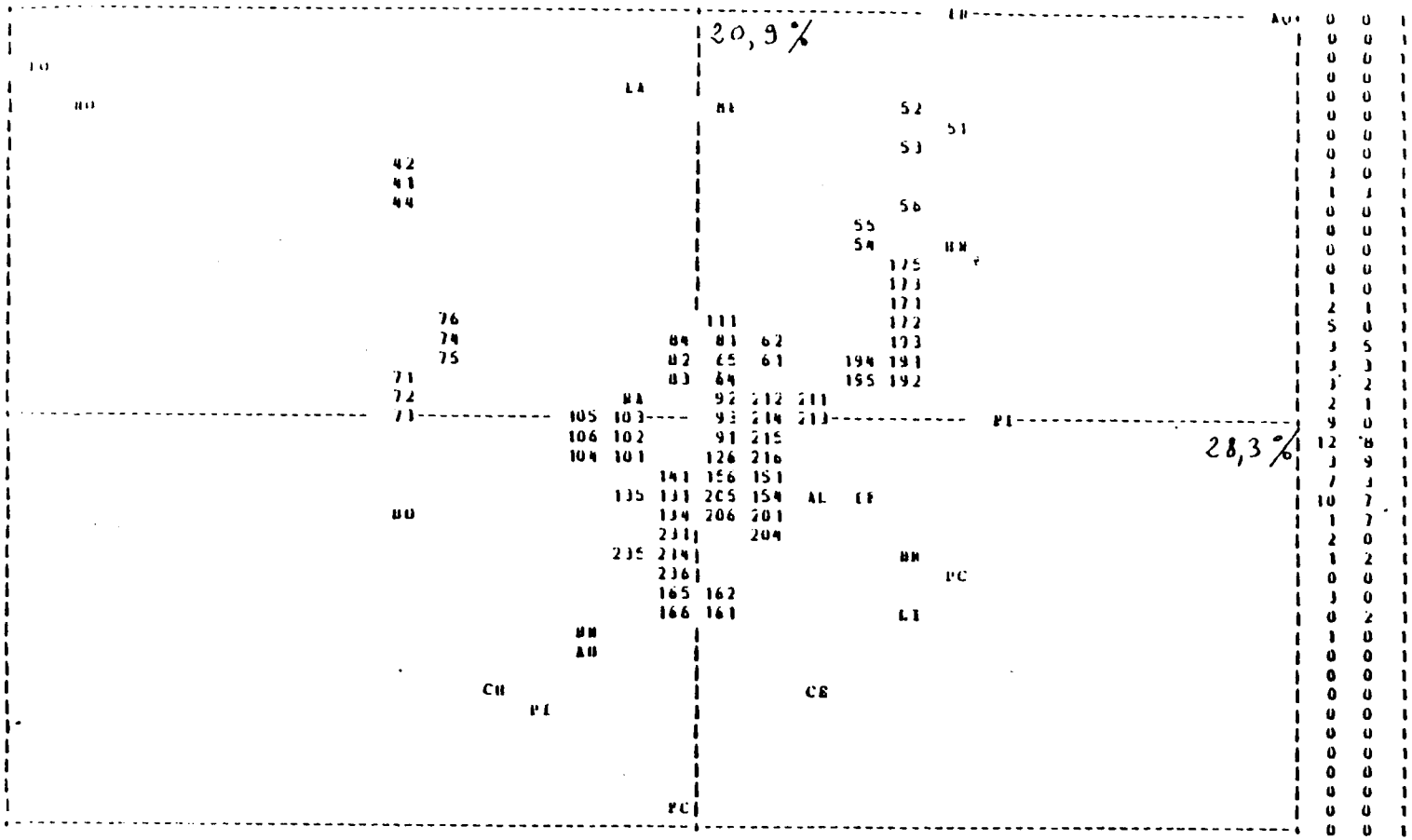

V Analysis of specific characteristics of value added, with margins

$$s^{V}_{ij} = \frac{V_{ij} / V_{i.}}{V_{.j} / V_{..}}$$

Horizontal axis (3). Vertical axis (4). Title : Spherical factor analysis
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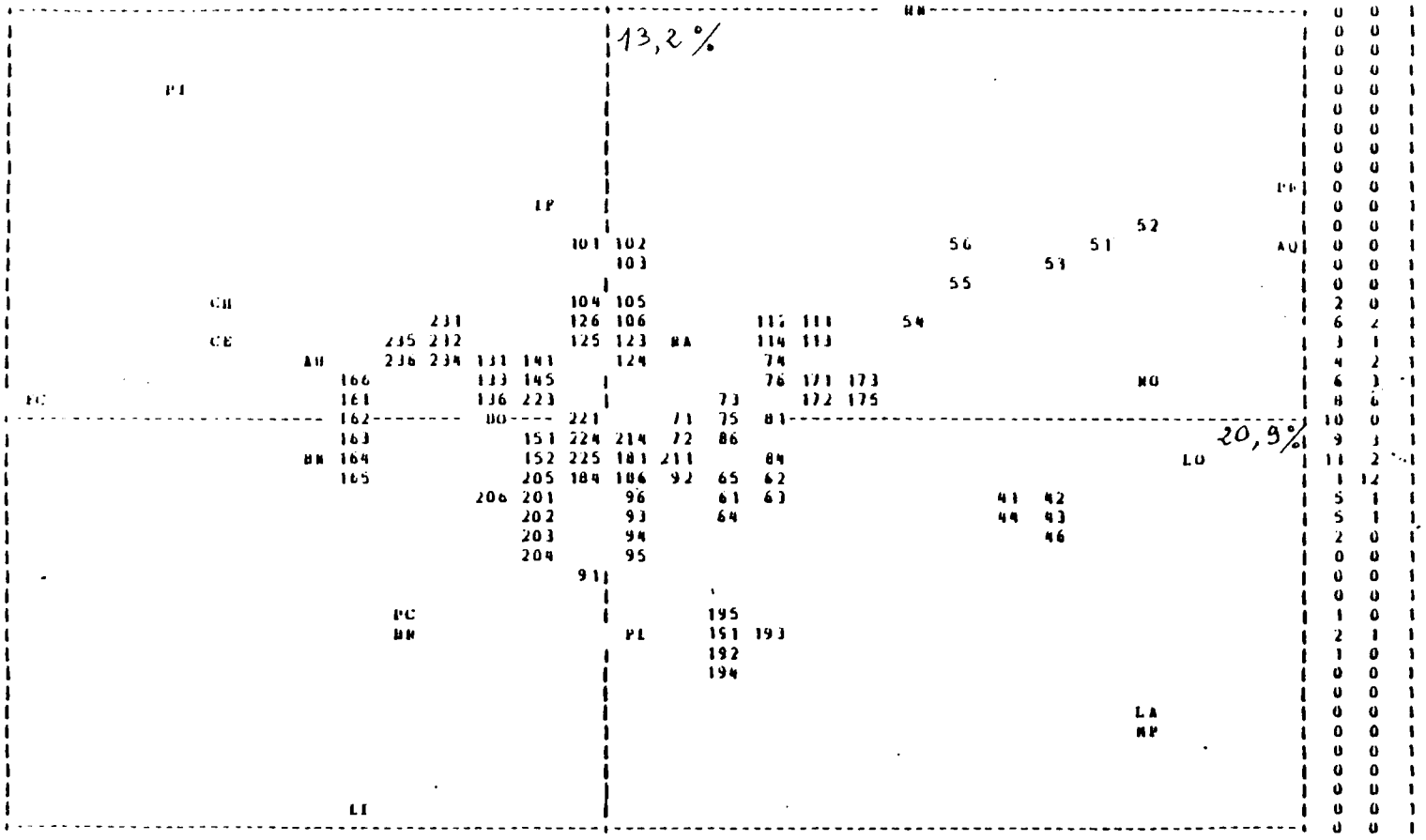

V Analysis of specific characteristics of value added, with margins (contd.).

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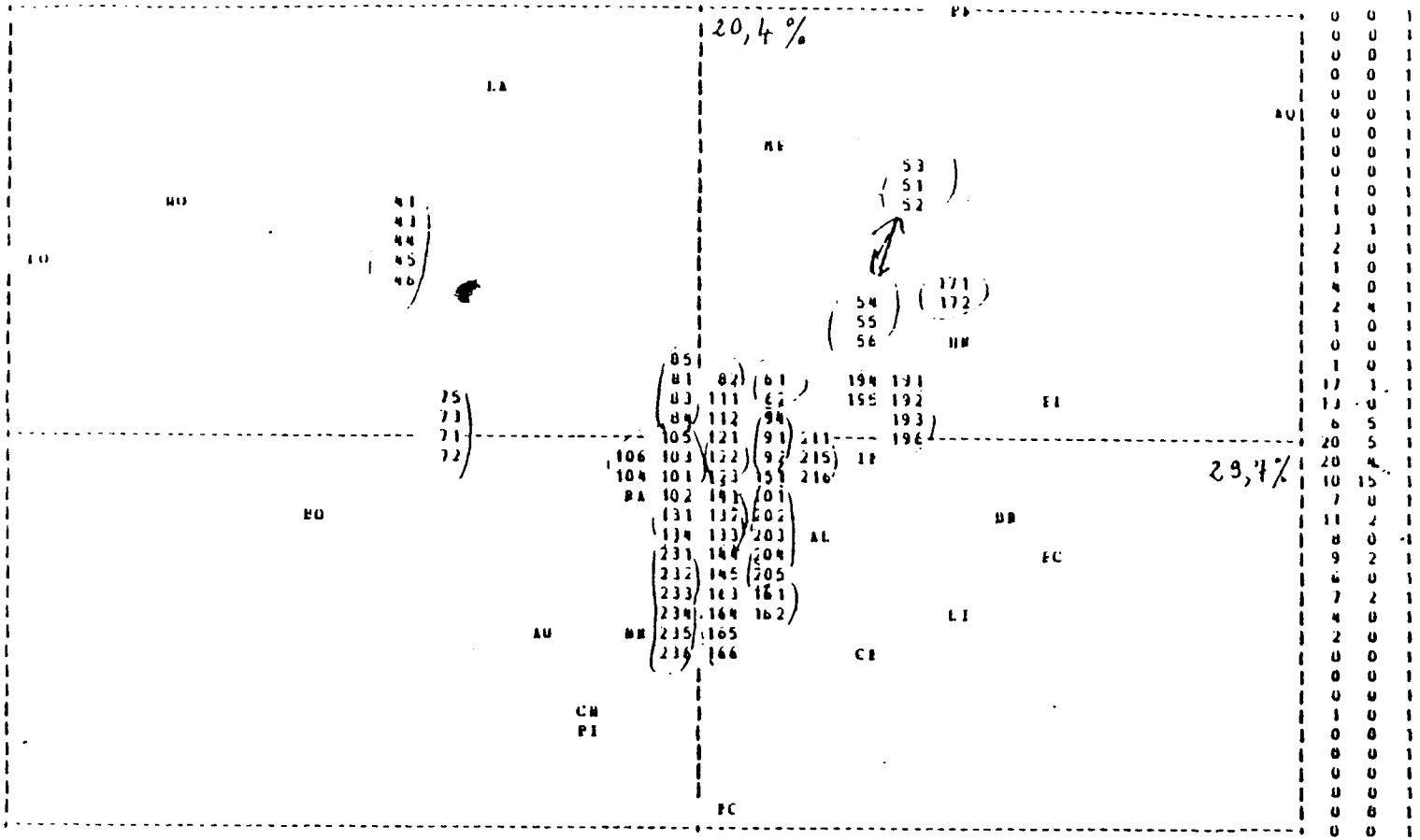

W Analysis of specific characteristics of remuneration, with margins

$$\delta_{ij} = \frac{w_{ij} / w_{i.}}{w_{.j} / w_{..}}$$

Horizontal axis (3). Vertical axis (4). Title: Spherical factor analysis
(I = 1,120 activities x time; J = 1,21 regions). 1st corrections.
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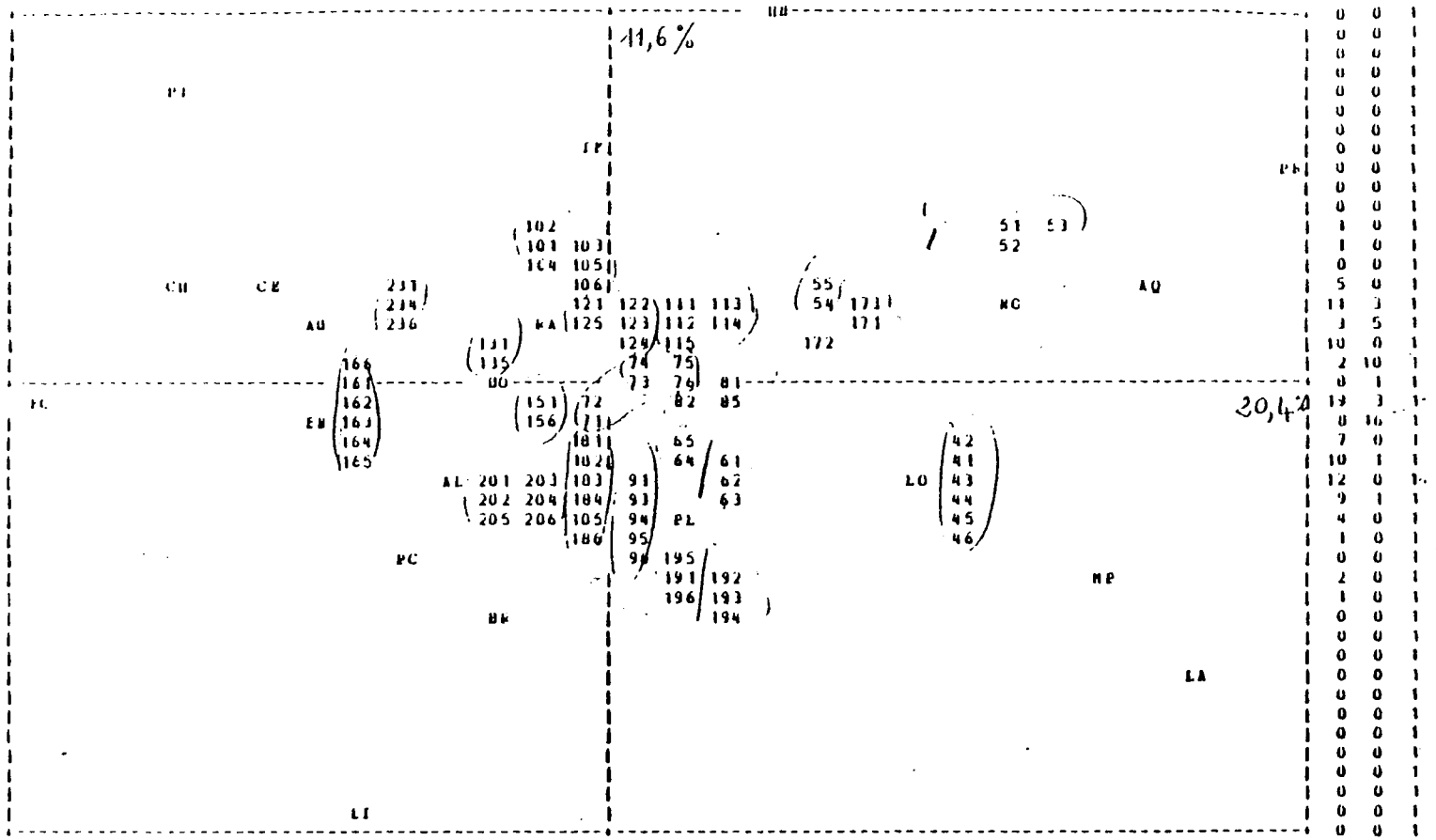

W

Analysis of specific characteristics of remuneration, with margins (contd.)

ANNEX 2

ANOMALIES DETECTED IN THE SQS REGIONAL ACCOUNTS

(Figures not aligned with the French national accounts)

LEVEL ANALYSIS (Spherical factor analysis restricted to T 06-23, with margins and after first corrections)	STRUCTURAL ANALYSIS (General spherical factor analysis, with margins and on the specific characteristics matrices)
P071 BA, PR P072 PR P121 AQ = 4160 en 1971 whereas : P122 AQ = 6350 P123 AQ = 6905) P236 BR	POSt AQ,EN, PR, LA, NO, IF (continuity break in t = 1973-1974) P071 LA, PR P072 PR P10 t LA (continuity break in t =1973-1974 P196 PR,PC
Q 066 PC Q07 t AQ, LI, LA, PR (t= 1971- 1975) Q 072 AL Q10 t LA (t= 1971 à 1975) Q114 rr for entire region rr (Q in t ≠ 1974)	Q05 t AQ, EN (continuity break in t = 1973-1974) Q085 LA, Q086 LA Q106 MP

Q164 MP
Q165 LA

Q17 t FC (t= 1971 to1973)
(≠ 0 whereas H,P,W=0)
Q17 t AL,BN,CE (for an t)
Q172 LI, AU
Q174 AU
Q175 AU, LA

Q144 PR
Q161 NO

Q17 trr (abnormal for an t and rr)
all ✓

Q 21 t rr(∀t,∀rr)
Q235 rr (∀rr)

WO71 LA,MP,RA
WO7 t PR(explicable : POS/NER)

WO86 PC

W112 CE
W135 NO

W196BR

WO41 RA
WO5 t AQ (t= 1973-1974)

WO73 AU (and other rr?)

W101 AU
W105 BN
W10 t rr (general problem)

W146 rr
W17 t BR (unstable with t)
W233 rr (rr)

VO6 t LO (break in t = 1973-1974)
VO6 t IF (break in t = 1974-1975)
VO6 t RA (break in t = 1975-1976)
VO7 t PR (∀t)(explicable)
VO75 LO, BN
VO72 AL

VOS2 CE, BN, NO, PC, LI, AU, CE (negative specific characteristics)
VOS6 PL, RA

VO7 t LA,PR (especially in t = 1973-1974

V082 AQ

V083 BO

V08 t LA (∀t)

V091 LA,RA (especially)

V091 RA,LA,PR,AU

V095 EN

V114 rr (high)

V121 LA, MP

V124 rr(high for whole region)

V135 CE

V146 LI

V146 MP; LI

V161 NO

V172 LI,RA

V173 RA

V175 LA

V176 AL

V196 AQ

V221 AL

V223 AU

V223 AU

V235 AQ

V236 MP

E05 t PR (for all t)

EC53 NC,LO

E071 LA,PR,LO,BR

E072 IF

E07 t PL,MP,AM (for all t)

E075 EN,PC

E076 BN,AU (under revieuw)

E08 t MP (for all t)

E081 MP

E083 MP

EC81 PR

EC84 NO

EC85 NO, LI, AU

E09 t EN.LA (t=1971,1976)

E10 t AQ,MP,BO (all t)

E10 t LA,PR (for all t)

E101 AU

E102 PI

E102 LO

E104 BO,MP,PC

H1C6 NO

H11t BO (for all t)

H112 LO

H115 AQ

H116 PI

H152 RA,PR

H155 AQ,CE,NO,PL,BR,RA,PR

H161 EN

H17 t PR (t=1973,1975)

H 203 BO

H 20 t CE (t=1975,1976)

H 214 AQ,LI,NO

H 215 FC

H231 SC

H 234 NO

H12 t LA (for all t)

H122 AQ

H12 t NO (t = 1975 - 1976)

H156 AL

H161 FC

H173RU

H176 PL

H 196 LA

H 202 LI

H 214 AQ, LI

H 221 AQ, PL

Document N° 12

THE "NON-TERRITORIAL" REGION ("EXTRA-REGIO") IN THE REGIONAL ACCOUNTS SYSTEM

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The "non-territorial" region ("extra-regio") in the regional accounts system

1. Introduction

Basically the regional accounts do not differ from the national accounts in their structure, definition, breakdown or classification. The greatest difference lies in the fact that the national accounts relate to the economic territory of a given country while the regional accounts are concerned with a geographical subdivision of that country.

A comparison of the two systems of accounts shows that a number of activities on the economic territory of the country can not, or not directly, be attributed to the geographical territory of that country. Examples of this are embassies abroad, petroleum and gas extraction on and beyond the Continental Shelf, and expenditure by central government on consumption, e.g. defence.

In order to maintain both a theoretical and mathematical connection between the two systems such activities are recorded as taking place in a "non-territorial" region ("extra-regio").

To examine this kind of region in more detail it seems useful to begin with the terms "resident units", "economic territory" and "centre of interest", as these are described in the European System of Integrated Economic Accounts (ESA) of the Statistical Office of the European Communities.

A detailed explanation of the terms with regard to the delimitation of the non-territorial region is given in paragraph 2. Paragraph 3 examines in detail two of the important criteria for regional accounts, i.e. "place of residence" and "place of activity". In paragraph 4 these criteria are applied mainly to activities which may be of a non-territorial nature. Lastly, paragraph 5 contains a number of conclusions and recommendations.

2. Delimitation of non-territorial regions

It may be determined from the ESA that the national accounts cover transactions of resident units which have a centre of interest on the economic territory of a given country. For a full definition of these terms reference should be made to paragraphs 204 - 211 of the ESA, which are given in the Annex.

In short these explain that "resident units", whether or not they have the nationality of the country and have a centre of interest in it, have been carrying out transactions on the economic territory of the country for a year or more. The economic territory includes the geographic territory, national air-space, territorial waters, the Continental Shelf lying in international waters, territorial and extraterritorial enclaves, and deposits of oil, natural gas, etc. in international waters outside the Continental Shelf.

However, breaking down territories for the purposes of regional accounts may impose certain constraints. In the first instance these accounts are based on the "domestic" concept rather than the "national" concept. The difference between these two concepts is due to the income and capital transactions with other countries (1). A further peculiarity arises in respect of the domestic concept when at regional level the activities of maritime fishing, sea transport, floating platforms in international waters, international air transport, diplomatic representatives abroad, etc. are not included. They should then be described as extraterritorial activites.

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(1) For the national accounts the "domestic" concept includes activities of units, whether really resident or not, which are conducted on the economic territory of the country, and thus include activities such as fishing, sea transport, platforms in international waters, international air transport and diplomatic representatives abroad.

The "national" concept, however, involves all activities of resident units, irrespective of whether these activities are conducted on the economic territory of the country concerned. They include income and capital transactions between these units and other countries.

The territorial concept which results in this case covers only those activities which are conducted on the geographic territory of one or more regions. This territorial concept can be defined still more narrowly whenever activities are not attributed, or at least not directly, to the regions concerned for pragmatic or other reasons. Examples are the large-scale extraction of petroleum and natural gas or expenditure by central government on consumption, such as defence, or inter-regional traffic and tarnsport. It should be possible to describe these activities as meta-territorial activities.

To illustrate this the activities of the non-territorial region are shown in the diagram below. Extra-territorial and meta-territorial activities are defined in more detail on the basis of the national concept.

Economic territory concept :

- National
- Domestic area
- Territorial

Activities of non-territorial nature

- Income and capital transactions with other countries
  - Extra-territorial activities
    e.g. : sea fishing and sea transport, floating platforms, international air transport, diplomatic representatives abroad, etc.
- Non-territorial activities
  - Meta-territorial activities
    e.g. inter-regional traffic and transport, government expenditure on defence, petroleum and natural gas extraction, etc.

3. Criteria

The term "resident unit" referred to in paragraph 2, requires some amplification for the regional accounts.

It is not the activities of these units on the economic territory which is the important factor but those which - being compatible with the territorial concept - can be divided geographically.

We thus have a number of activities which are connected with the location of the establishment and are conducted within a unit, which is called here a "local unit". In the case of undertakings with premises in a number of regions, i.e. "multi-regional" undertakings, the local units must be broken down geographically.

In accordance with the criterion of location the activities of the local units are recorded under the actual place of establishment. This criterion is generally observed in practice.

However, there are a number of activities which cannot be recorded, or at least not directly, in accordance with this criterion. This is particularly true for classes of activitiy connected with traffic and transport. These classes, which consist of independent undertakings in the field of road, rail, water and air transport, derive their income (or rather their contribution to the domestic product in the form of value added) precisely by transporting people and goods between two or more places which may be situated in different regions. The location criterion is an insufficient basis here.

A new locational criterion must be devised in order to classify these activities in the spatial sense, i.e. regionally. The choice therefore falls on the criterion of "place of activity", which must be understood in connection with the domestic concept in a broad territorial context.

In principle this criterion applies to activities on the economic territory of the country which are not restricted to a place or region. As explained above, in the introduction, the economic data which can be obtained from the national accounts can be classified according to the degree to which they can be regionalized, i.e. :

1) directly regional;
2) not directly regional;
3) not regional.

For these three subdivisions the terms "territorial region" (TR), "meta-territorial region" (MTR) and "extra-territorial region" (ETR) respectively have been devised. The second and third categories combined for the "non-territorial region" (NTR).

On the basis of both criteria it is possible to determine in which of the three categories the local units must be included. In this case the TR is practically analogous to the location criterion, while the MTR and ETR are akin to the activity criterion. There are further considerations which militate either in favour of or against the location and activity criteria in respect of TR, MTR and ETR. These concern labour, investments and consumption.

The labour factor, for example pipeline maintenance (for petroleum and natural gas) and the building site (industry) may reinforce the activity criterion; these play a part in connection with regional employment vacancies.

The investments factor can also support the activity criterion, e.g. the laying of pipelines (for petroleum and natural gas), while the location criterion applies to the construction of, for example, offices for the Government as a meta-territorial institutional unit.

The consumption factor supports the place of residence criterion with regard to expenditure on consumer items abroad by households (e.g. tourism), regarded in this case as the regional residence of households. It is desirable that this criterion should be applied here in order to be able to determine the total regional expenditure of households on consumption in the regional accounts system.

4. Application of the criteria

We now examine in more detail a number of activities which may be of a non-territorial nature. These activities, which are broken down in accordance with the NACE classification of the ESA into classes, are allocated in accordance with the criteria discussed in paragraph 3.

4.1. Fishing (NACE 03)

The breakdown of fishing in accordance with the place of residence criterion should be based on the home port. The fishing activity itself is carried out generally outside territorial waters, so that the criterion "place of activity" is more appropriate. In practice, however, in view of the relatively restricted extent of these activities the residence criterion is used, i.e. the home port.

4.2. Extraction of petroleum and natural gas (NACE 13)

Both criteria apply to the extraction of petroleum and natural gas on the economic territory if extraction both on or beyond the continental shelf in international waters is involved. The criterion "place of activity" is usually used for extractive activities in these non-regional areas.

4.3. Building and civil engineering (NACE 50)

The regional classification of the class "building and civil engineering" should in principle be based on the criterion of residence, in this case the registered address of the undertaking. However, since the building site is often located in another region, particularly when undertakings have a number of units throughout the country, the activity criterion is used so that the building site serves as a territorial indicator for the work and investment factors.

4.4. Transport (NACE 71-75)

The activities in the transport sector may be divided into two sections, viz :

1) the place-related section, which is concerned with the activities of transport centres, stations, offices, etc ;

2) the non-place-related section, i.e. the provision of transport, which may be further subdivided into : - intra-regional;
- inter-regional;
- international.

The place-related activity, and also intra-regional transport are classified as regional on the basis of the place of residence criterion. Inter-regional and international transport services, by their nature, are independent of the place of residence and can therefore be classified according to the "place of activity" criterion as meta-territorial and extra-territorial respectively.

4.5. Multi-regional enterprises

This means enterprises with local units in two or more regions. In general these units can be distinguished and are broken down according to the place of residence criterion. In a number of cases, however, it is only the head office of such enterprises (the administrative and management centre) which is in a given region.

Naturally this distinction must be made in the physical sense and not in the statistical sense. In accordance with the "place of activity" criterion such local units may be (artificially) classified as regional in respect of production and value added.

4.6. Government services (NACE 91-97b)

The production of total government (the sum of expenditure on personnel and goods) and the resultant domestic product may be classified as regional in accordance with the place of residence criterion, with the exception of the activities of diplomatic representatives and military personnel abroad.

However, expenditure by central government on consumption should be regarded as extra-territorial on the basis of the place of activity criterion, since it cannot be directly allocated to one or more regions.

Production, domestic product and expenditure on consumption in respect of diplomatic representatives and military personnel abroad are regarded as extra-territorial in accordance with the place of activity criterion.

4.7. Expenditure of households

Expenditure on consumption is broken down regionally on the basis of the regional residence of the population, by analogy with the place of residence criterion.

However, in the system of national accounts part of the expenditure by the Dutch on consumption abroad (including tourism) is regarded as imports of goods and services from abroad.

This is a national concept rather than a domestic concept. As far as the regional accounts are concerned this means basically that such consumption should be regarded as non-territorial.

4.8. International organizations

With regard to the European Community institutions and similar bodies on the geographical territory of a country, these are regarded as non-resident units. They are recorded as extra-territorial enclaves and thus remain outside the economic territory of the country concerned, except for transactions concerning ownership of land and existing buildings (see paragraph 205e of the ESA). These transactions are classified as non-territorial in accordance with the place of residence criterion.

4.9. Overseas province(s)

Transactions conducted in existing (or new) overseas provinces are classified as extra-territorial in accordance with the territorial concept.

5. Conclusions and recommendations

CONCLUSIONS

1. In order to maintain both a theoretical and mathematical connection between the national and regional systems of accounts a number of activities which can not or not directly be allocated to the geographic territory of a country should be included in a "non-territorial region".

2. The criteria for deciding which activities must be allocated to the non-territorial region are those of "place of residence" and "place of activity".

3. In the interests of comparability of regional data (e.g. income and consumption of households) it is desirable to keep the non-territorial region as small as possible, This calls for careful consideration of the arguments in favour of using the non-territorial region.

Recommendations

1. To improve the comparability of regional data from the EEC countries the extent of the non-territorial region should be established.

2. For this purpose the structure of the region should be as uniform as possible.

3. With reference to paragraph 4 some suggestions are given below on the use of the non-territorial region for a number of activites.

   - Fishing (NACE 03)

     It is proposed that fishing activities, in accordance with the place of residence criterion, should be allocated on a territorial basis to the home port of the fishing vessels.

   - Extraction of petroleum and natural gas (NACE 13)

     When extraction activies on the continental shelf and beyond are allocated regionally they should be included in the non-territorial region, on the basis of the activity criterion. Extraction in territorially related areas can be allocated to the appropriate region in accordance with the place of residence criterion. However, there may be circumstances in which the extraction activity would not be recorded under a territorial heading.

For example, extraction activities which produce an extremely high rate of value added in relation to the employment structures and investments in the regions concerned. Statistical information which is not corrected for such extreme cases can give the user a misleading picture of the value of a number of regional economic data. In such situations the regional classification can cause much detailed information to be lost because of the necessarily high level of aggregation required for confidentiality.

- Building and civil engineering (NACE 50)

  This activity should be allocated to the region where the building site is located, and the activity criterion should be applied.

- Transport (NACE 71-75)

  The place-related sector of this activity should be broken down regionally in accordance with the place of residence criterion. The non-region related transport activities may be broken down as follows :

  a) Part of the inter-regional transport services may be allocated to each region to the extent that they are performed on the territory of the region, including transit traffic;

  b) allocation of inter-regional transport services to the regions of origin and destination, transit regions being disregarded;

  c) allocation to the extra-territorial or meta-territorial region of that part of the transport services which is regarded as international or inter-regional respectively;

  d) the non-region related transport services may nevertheless be classified by place of residence which then applies instead of the activity criterion.

Except for the traffic and transport mentioned in d) above non-region related traffic and transport, i.e. road haulage, bus transport, hired cars, taxis, inland water transport, rail transport, domestic air transport and transport of goods by pipeline, may be dealt with as recommended in a), b) or c).

It appears that in practice there is no logical basis for choosing one of these alternatives, one reason being the lack of statistical data. In a number of cases we even have to fall back on d), which constitutes an anomalous application of the activity criterion.

- Government services (NACE 91-97B)

The activity of the government should be classified regionally (according to the place of residence criterion). An exception must be made for expenditure by central government on consumption and for transactions in respect of diplomatic representatives and military personnel aborad. These transactions should be recorded non-territorially in accordance with the activity criterion; the first as meta-territorial and the second as extra-territorial.

- Multiregional enterprises

Data on multiregional enterprises should be broken down territorially as far as possible. Extra-territorial accounts may be established for administrative head offices.

- Households

To enable a comparison to be made in the regional system of accounts between the income of households which can be determined on a regional basis and their total expenditure on consumption, this expenditure should be recorded by region of residence.

- International organizations

  The activities of these organizations should be regarded as non-territorial.

- Overseas province (s)

  In accordance with the activity criterion the transactions of these provinces should be regarded as non-territorial.

ANNEX : See European System of Integrated Economic Accounts (ESA), second edition,
Statistical Office of the European Communities, Luxembourg 1979

THE LIMITS OF THE NATIONAL ECONOMY

204 The units, whether institutional or of homogeneous production, which constitute the economy of a country and whose transactions are recorded in the ESA, are those which have a centre of interest on the economic territory of that country. These units, known as *resident units*, may or may not have the nationality of that country, may or may not be legal entities, and may or may not be present on the economic territory of the country at the time they carry out a transaction. Having thus defined the limits of the national economy in terms of resident units, it is necessary to define the meaning of the terms *economic territory* and *centre of interest*.

205. The term *economic territory* means:

a) the geographic territory within which goods move freely
b) any free zones, including bonded warehouses and factories under customs control
c) the national air-space, territorial waters and the continental shelf lying in international waters, over which the country enjoys exclusive rights([1])
d) territorial enclaves (i.e. geographic territories situated in the rest of the world and used, under international treaties or agreements between States, by general government agencies of the country (embassies, consulates, military bases, scientific bases, etc.)) for *all* transactions *other than* those relating to the ownership of the land constituting the enclave and of the buildings standing on such land at the time of purchase.
e) extraterritorial enclaves (i.e. the parts of the country's own geographic territory used by general government agencies of other countries, by the Institutions of the European Communities or by international organizations under international treaties or agreements between States([2])) *only in respect* of transactions relating to the ownership of the land constituting the enclave and of the buildings standing on such land at the time of sale.
f) deposits of oil, natural gas, etc. in international waters outside the continental shelf of the country, worked by units resident in the territory as defined in the preceding sub-paragraphs.

206. Deleted.

207. The term *centre of interest* indicates the fact that economic transactions have been carried out on the economic territory of a country for a fairly long period (a year or more). It follows that a unit which carries out such transactions on the economic territory of several countries is deemed to have a centre of interest in each of them.

([1]) Fishing boats, other ships, floating platforms and aircraft are treated in the ESA just like any other mobile equipment, whether owned and or operated by units resident in the country, or owned by non-residents and operated by resident units. Transactions involving the ownership (gross fixed capital formation) and use (renting, insurance ...) of this type of equipment are attributed to the economy of the country of which the owner and/or operator respectively are resident.

([2]) The territories used by the Institutions of the European Communities and international organizations thus constitute the territories of States *sui generis*. The feature of such States is that the only residents are the institutions themselves (see 210 e).

208. On the basis of these definitions, units deemed to be residents of a country can be sub-divided into:

a) units which are principally engaged in production, finance, insurance or redistribution, in respect of all their transactions except those relating to ownership of land and existing buildings
b) units which are principally engaged in consumption, in respect of all their transactions except those relating to ownership of land and existing buildings
c) all units in their capacity as owners of land and existing buildings.

209. In the case of *units which are principally engaged in production, finance, insurance or redistribution*, in respect of all their transactions except those relating to ownership of land and existing buildings, the following two cases may be distinguished:

a) activity conducted exclusively on the economic territory of the country: units which carry out such activity are resident units of the country
b) activity conducted for a year or more on the economic territories of several countries: only that part of the unit which has a centre of interest on the economic territory of the country is deemed to be a resident unit. It may be:
   - either an institutional resident unit (see 212) whose activities conducted for a year or more in the rest of the world are excluded and treated separately(*)
   - or a notional resident unit (see 214), in respect of the activity conducted in the country for a year or more by a unit which is resident in another country(*)

210. In the case of *units which are principally engaged in consumption* except in their capacity as owners of land and existing buildings, households which have a centre of interest in the country are deemed to be resident units, even if they go abroad for short periods (less than a year). They include in particular, the following:

a) border workers, i.e. people who cross the frontier daily to work in a neighbouring country
b) seasonal workers, i.e. people who leave the country for several months, but less than a year to work in another country in sectors in which additional manpower is needed periodically
c) tourists, patients, students, visiting officials, businessmen, salesmen, artists and crew members who travel abroad
d) locally recruited unestablished staff working in the extra-territorial enclaves of foreign governments
e) the staff of the Institutions of the European Communities and of civilian or military international organisations which have their headquarters in extra-territorial enclaves
f) the official, civilian or military representatives of the government of the country (including their households) established in territorial enclaves.

211. *All units in their capacity as owners of land and existing buildings* are deemed - in respect solely of transactions relating to such ownership - to be resident units of the country in which the land or buildings in question are located.

(*) It is only where such activity [illegible] activities of the producer institutional unit [illegible] year or more is [illegible]

Document N° 13

THE PROVISION OF ECONOMIC AGGREGATES AT SUBREGIONAL LEVEL IN THE FEDERAL REPUBLIC OF GERMANY

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The provision of economic aggregates at subregional level in the Federal Republic of Germany.

History and introductory remarks

Estimates of economic aggregates at subregional level (NUTS level III) were made in the Federal Republic long before the adoption of the "European system of integrated economic accounts at the regional level" [1]. Up to 1959, these estimates were drawn up in the regional statistical offices, mostly without coordination : e. g. in Bavaria for 1950 or in Baden- Württemberg for 1955 ; thereafter, data on the gross domestic product at market prices of the "Kreisfreie Städte und Landkreise" subregional districts (referred to as "Kreise" below) were calculated at more or less regular intervals by the Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder (Working Party on Integrated Economic Accounts of the Länder), which is made up of representatives of all regional statistical offices, the Federal Statistical Office and the Statistical Office of the City of Frankfurt. The Working Party was set up by the heads of the regional statistical offices in 1956 and, until 1970, was known as the Working Party on national product calculations for the Länder. In this work, all the regional statistical offices apply the uniform methods of calculation laid down by the Working Party and employ the concepts used in the national integrated economic accounts. [2]

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1) Levels II and I are each obtained by addition

2) The Federal Statistical Office makes the conversion from institutional to functional concepts by using the Input-output Tables for Germany.

Results for the first two years covered by reports, 1957 and 1961, were published in Volume 1 of the series of joint publications of the regional statistical offices, which are now referred to as the "Integrated Economic Accounts of the Länder". 3)

Kreise accounts began with the report year 1964 and have been conducted at two-yearly intervals with the results over the past decade becoming available about two years after each report year.
Since the nature of integrated economic accounts is such that methodological and statistical changes have often proved necessary, and since changes in the official statistical survey programme have had to be taken into account and territorial changes have occurred, especially in the first half of the 1970s, it is not possible except in a few cases to speak of the sort of "long series" that regional and national users would actually like to have.

If we ignore the first few years of regional accounts, when emphasis was laid on trying to estimate income variables in the narrow sense of the word, the programme of the Working Party on Integrated Economic Accounts of the Länder covers only the calculation of the gross domestic product at market prices or of the gross value added for four institutionally distinct economic sectors.

Attempts in the past few years to derive the gross domestic product at factor cost from these figures have not produced acceptable data in all regions or Kreise and there is still scope for methodological improvements in this field.

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3) Provisional results for 1978 were presented in March 1981. Results for 1980 should be available by the beginning of 1983.

In all likelihood, shortage of staff in most regional statistical offices is not the only factor preventing the general introduction of calculations of other economic variables for Kreise, such as those already produced by some offices, e. g. gross fixed capital formation, gross income from gainful activities and property, as well as available income of private households.

Estimates of working population by Kreise are (again) being envisaged for the years covered by national censuses and censuses of local units in order to obtain suitable reference data for comparisons between Kreise, as well as data on the economically active population. The economically active population, which is the resident population adjusted for two-way commuting, is another thing which can be obtained with sufficient accuracy only for such a major census year.

THE GROSS DOMESTIC PRODUCT OF THE KREISE AS A DERIVATIVELY DETERMINED FACTOR

As already explained elsewhere[1)], especially in view of their superior statistical base, the results of the Federal Statistical Office's integrated economic accounts for Germany serve as a basis for the calculations made for the Länder by the Working Party on Integrated Economic Accounts of the Länder (Level I of the NUTS). A relatively high proportion of figures for the Länder can be obtained as original values, i. e. the gross production, intermediate consumption and gross value added are determined for the Länder in a very detailed systematic classification and then adapted to the corresponding national figures.

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1) Cf. the general description of methods drawn up during the regional discussions in the Federal Republic of Germany for this seminar.

The representative unit at the regional and sub-regional level is not the company as used by the Federal Statistical Office but the local unit to which the main activity within the company is, from an economic point of view, attributed. [1)]

The gross domestic product of the Kreise, on the other hand, cannot be calculated with original values for lack of an adequate statistical base - it can only be determined derivatively. This means that the regional figures are apportioned to the Kreise by means of keys which are as accurate and uniform as possible throughout the country. As a rule, well over 100 key sectors are formed in order to apportion the figures to economic sectors which are as homogeneous as possible and to obtain a close correlation between the key variable and the gross value added of the sector concerned.

The following summary gives a review of the key headings used and the statistical sources.

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1) This type of representation is not possible, for example, when the employee statistics of the Federal Institution for Labour are used ; in this case, the main activity of the local reporting unit must be taken as the basis. The same applies to company results from turnover tax statistics, which have to be converted to "local units" at the regional level with the aid of employee ratios from the census of local units.

Review of key headings for Kreis accounts

Economic sectors	Key variable	Source of material
Agriculture (incl. some horticulture and animal husbandry)	Standard gross margins	Agricultural reports
Fisheries	Areas of water/turnover	1972 inland fisheries survey
		Turnover tax statistics
Electricity, gas, district heat, water supplies	Wages and salaries	Monthly report of energy and water supply plants (main activity of the company)
Mining	Wages and salaries/ turnover	Monthly report for mining companies (main activity of the company)
Manufacturing industries	Wages and salaries/ turnover	Monthly report for industrial plants (main activity of the company)
Crafts in the manufacturing industry	Turnover	Crafts census (updated with turnover tax statistics)
Construction industry	Wages and salaries/ turnover	Total survey of the main construction industry/ crafts census (updated)
Wholesale trade, retail trade	Gross proceeds, gross turnover	Trade and restaurant census (updated), turnover tax statistics
Trade brokerage	Turnover	Turnover tax statistics
Transport, communications	Number of personnel of railway and postal authorities assessed with average annual earnings; turnover, wages and salaries	Public sector personnel statistics wage and salary agreements, turnover tax statistics, local unit census
Credit institutions and insurance companies	Employees with compulsory insurance coverage, officials of Landeszentralbank	Employee statistics of the Federal Institution for Labour, Landeszentralbank
Renting of accomodation	Rent values	1968 building and housing census (updated housing figures)
Other services	Wages and salaries, employees with compulsory insurance coverage turnover	Local unit census, employee statistics, turnover tax statistics
Federal Government		
Civil administration	Number of personnel of Federal authorities assessed with average annual earnings	Public sector personnel statistics
Defense	Military and civil personnel (number)	Information from the Federal Ministry of Defense
Länder	Resident population	Population statistics
Local authorities and local authority groupings	Personnel expenditure	Local authority finance statistics
Social security	Number of personnel	Personnel statistics
Private households and non profit organisations	Number of persons gainfully employed, number of employees with compulsory insurance coverage	1970 professional census, employee statistics
Deduction of tax previously levied on investments	Unadjusted gross value added of companies	Integrated economic accounts of Länder
Imputed payments for bank services	Unadjusted gross value added	Integrated economic accounts of Länder
Import levies	Unadjusted gross value added	Integrated economic accounts of Länder

The usefulness of the different key headings no doubt varies considerably. The problems involved are illustrated below with a few examples. On the one hand, the link between turnover and gross value added in some economic branches is no doubt very close. In the regional allocation of economic output, however, the variable "turnover" will be doubtful, at least for companies with local units in various Kreise because turnover is generally invoiced only in certain parts of companies, and therefore statistically recorded only at those points. From the economic point of view, it is very difficult to allocate turnover quotas to various company units and hardly feasible at all with statistical approximations.

Wage and salary amounts as a key are easier to allocate and register regionally. On the other hand, their share of gross value added can vary considerably from one sector or region to the other. One only has to consider mineral oil or tobacco processing, the gross value added of which is inflated by indirect taxes, or mechanical engineering, which is to some extent highly labour-intensive.

Figures for persons gainfully employed or employees probably correlate less with the "genuine" gross value added of the relevant sectors. It is assumed for this key that the average productivity and amount of work is identical in all cases. If the category "number of employees with compulsory insurance coverage" from the employee statistics of the Federal Institution for Labour is used, these keys will be sectorally, and most probably regionally too, less accurately allocated than similar data from the official statistics.

Since results of the relevant surveys are not available for each Kreis accounting year, during selection of keys it also has to be considered whether or not a key which is available for the year covered and has a lower correlation with the gross value added should be preferred to a key which is not up to date but correlates more closely with the gross value added. The problems involved in up dating if the second key is chosen are often very difficult to assess. Because of the large number of problems and possible data configurations in regional accounts, the questions of key selection can only be answered pragmatically and therefore without any quantitative data support, and consequently have no general applicability at all.

The key headings are decided upon by the Working Party detailed discussions and studies, in which the many years of statistical experience of the members of the Working Party certainly come into play but which nevertheless have to remain subjective.

In the course of this work, a close acquaintance with problems of basic statistics and a good "geographical" knowledge are without doubt very important and not to be underestimated. Although the importance of the key headings varies sharply with the differences of economic structure in the Länder and Kreise, the following table with figures for Baden-Württemberg provides a rough picture. After all, on average over 55 % of the gross value added is regionalized on the basis of wages and salaries.

Kreis accounts for Baden-Württemberg 1978

Gross value added (GVA) by key sectors

Key variables	Thous. Mill. DM	Proportion %
Turnover	19, 9	9,7
Wages and salaries [1]	117,1	56,9
Persons gainfully active, employees	51,9	25,2
Miscellaneous [2]	16,9	8,2
Total GVA	205, 8	100

1) Unlike the practice in some of the Länder, the (nominal) GVA of the manufacturing industry was not included under turnover

2) E. g. resident population, gross rents, standard gross margins, data for military personnel.

CHECKS FOR ACCURACY AND ERRORS

Compared with the means available for checking federal and regional accounts, these is very little scope for accuracy and error checks, such as those drafted by G. HAMER in 1970 for the Federal Republic, in the calculation of the gross domestic product of the labour market regions, whether it is irrespective of the methods or the results which are to be checked.

This is firstly because of the derivative method of calculation, which does not allow for plausibility considerations using principal or subordinate national economic variables employed in the calculation of gross value added and results in the regionalization of statistically uncertain Land data.

Furthermore, hardly any additional economic statistical material is available for comparison, since the most suitable headings are already used as keys. As a result, the type of statistical discrepancy which may occur in the calculation of a national economic variable via various equivalent and mutually independent means cannot usually be determined.

All that remains, basically, is a detailed comparative study of the key headings as a further check of the basic statistics, whose results often cannot be used in this degree of detail regionally or sectorally. In addition, gross value added figures aggregated at a low level are checked for the plausibility of their evolution in terms of time progression and regional context. Any cumulations of keys figures which in themselves are plausible but give implausible results when added together can thus be detected and adjusted as past of the elimination of extreme values. There are no plausibility indicators available at Kreis level for variables such as imputed bank services or deduction of tax previously levied on investments, or import levies, whose regionalization must be carried out at the Land level with monumental assumptions in some cases. Such data should therefore not be included in future either, i. e. when the net system is adopted.

IMPORTANCE AND RELIABILITY OF THE RESULTS

The importance of general economic information at Kreis level for regional planning and regional economic policy is now beyond any doubt, as evidenced by the strong demand for it, since only with the integrated economic accounts is it possible to obtain a consistent view of the economically relevant activities of the sub-regions which is both consistent and broadly comparable with that of the regions and the Federal Republic as a whole. Theoretically there are several arguments against a complete collection of general economic data for small, closely-knit areas such as Kreise, but the main reasons for not extending the calculation programme are shortcomings and gaps in the data base. Since the gross domestic product of the Kreise is the only general economic variable available throughout the Federal Republic, the user must be aware of the limited usefulness of this yardstick for economic performance as well as of the possible statistical errors incorporated, in order to restrict logical or analytical user error to a minimum.

With regard to statistical error, no information can be given by the producers of the data. Although their figures are given in "Millions of DM", they are unlikely to be accurate "to the nearest million DM". In all probability, false breakdowns in the most detailed sectoral or regional classification can be offset by an appropriate aggregation, but the extent of the compensation or aggregation

effect cannot be determined where errors in basic statistics or integrated accounts are concerned.

The idea often mooted in connection with national and regional calculations, that uniform calculation methods used over the years and for all regions show more reliable rates of change than living standard data, can generally be accepted for Kreis accounts and their aggregations.

The larger the administrative unit is, the closer the period lies to a"major census year", the stabler the economy has been and the more similar the economic structure is to the average for the region, the more accurate will be the Kreis calculations.

In spite of all reservations, the gross domestic product should provide useful information on the evolution and level of economic performance in the Kreise. Where this rough overall economic review does not allow adequate discrimination in borderline cases, more detailed statistical indicators must be used. The Working Party has always drawn attention to the need for critical use of other regional indicators.

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Document N° 14

THE PROVISION OF ECONOMIC AGGREGATES AT SUBREGIONAL LEVEL IN THE FEDERAL REPUBLIC OF GERMANY

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The provision of economic aggregates at subregional level in the Federal Republic of Germany.

Accompanying paper

1. It is extremely important to point out that fairly wide margins of error must be expected in the calculation of "Kreis" results in the Federal Republic of Germany. Most variables of the integrated economic accounts, which in many cases have to be derived synthetically from a large number of separate statistical data, can be assumed to have been calculated relatively accurately at the Federal level 1). There is a complete framework for accuracy checks at the Federal level within a complete system (including input-output calculation), in which data can be compiled and processed and the results checked and analysed. For the calculation of the results of integrated economic accounts at the Länder level, the means available for accuracy checks are relatively limited, and at the Kreis level completely non-existent. Although adequate checking facilities are not available, it must be assumed that the keys used (three quarters of which are data on earned income or gainfully active persons) will produce incorrect results because of their lack of balance, especially in cases deviating sharply from the structure of the average regional unit. This means that the degree of error possible in the representation of the regional structure also depends on the (as a rule unfortunately unknown) spread of the labour or earned income coefficient (defined as the ratio of the working population or earned income to the gross domestic product) between the economic units of the various economic sectors included in the calculations. These problems are of course closely linked with the difficulties resulting from the increase in the number of cases in small regional groupings in which the main economic activity, and thus the allocation to an economic sector

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1) Cf. G. HAMER : Genauigkeitskontrollen bei der Aufstellung Volkswirtschaftlicher Gesamtrechnungen, Allgemeines Statistisches Archiv 1970/1, p. 76 et seq.

with a specific labour or earned income coefficient for the local unit differs from the main activity of the economic unit covered by the statistics serving as the basis.

If it is assumed that in the Federal Republic of Germany, within the separate economic sectors, distinct deviations from the average of the above mentioned coefficients are possible which , because of the keys used, are not reflected regionally in the results and also contain distortions as a result of the systematic allocation of the local units of companies consisting of several plants, it must be recognized that for these reasons alone the results of the national product calculation by Kreis can only be designated as rough figures for the economic activity of the regions.

2. At the moment, the calculations for the Kreise in the Federal Republic of Germany only provide data for the gross domestic product at market prices and gross value added broken down into four economic sectors ; this is not very much, considering the requirements of the ESA-Reg (for "Regierungsbezirke" to be compiled from Kreis results). An extension of the present programme is hindered by shortage of staff and by substantial problems in obtaining data with regard to gainfully active persons and wage and salary earners according to the place of work concept and gainfully active persons according to the place of residence concept. Data will be obtained from the 1983 census which, together with the data from the permanently updated employee statistics (statistics of blue collar and white collar workers with compulsory social insurance), will make it possible to obtain corresponding Kreis results. It remains to be seen whether progress can be made towards obtaining Kreis data on income from paid employment (domestic concept) on the basis of these calculations. The available data basis for the other variables required under the ESA-Reg appears to be very restricted, even though some regional statistical offices calculate and publish such results at Kreis level.

The reviews on Kreis accounts issued for example, by the Regional Statistical Office of North-Rhine Westphalia on the available income of private households and investments contain a very clear warning about any "over-interpretation" of the results. In the Kreis results for the available income of private households the main problems are naturally encountered in estimating net income from entrepreneurial activity and property for the breakdown of which data from the three-yearly income tax statistics have to be used, which are incomplete because of the many different special tax regulations and which are very difficult to adapt to the definitions of the integrated economic accounts. Furthermore, major difficulties are encountered in the Kreis-based calculation of the other types of income from which the available income of private households is formed, especially in the case of regular transfer payments received 2).

The Kreis-based breakdown of investments for which no appropriate data are available for most of the economic sectors is at least as difficult, with the result that gainfully employed figures or other data must be used as a guide for the breakdown. Gerss indicates for the calculations in North-Rhine Westphalia that about 38 % of investments are allocated to the separate Kreise on the basis of statistically compiled data or other sources, whereas for more than 60 % of investments analogies of varying quality have to be formed 3).

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2) Cf H.-J. TREECK : Materialgrundlagen, Berechnungsverfahren und Fehlerquellen bei der Ermittlung des Verfügbaren Einkommens in den Kreisfreien Städten und Kreisen, Statistische Rundschau für das Land Nordrhein-Westfalen, 1982/11, p. 765 et seq.

3) Cf W. GERSS : Bedeutung und Berechnungsmöglichkeiten gesamtwirtschaftlicher Investitionsdaten für kleinere Regionen, Statistische Rundschau für das Land Nordrhein-Westfalen, 1981/8, p. 516/7.

3. A further remark concerns the use of the results. There is a pressing demand for integrated economic data at subregional level. However, this is no reason to use the results uncritically. In its publications, the Working Party on Integrated Economic Accounts of the Länder has given a clear indication of the limitations of these figures. In actual fact, national product as a variable in the system of concepts of the integrated economic accounts only has sensible, economically interpretable significance for an economic area with a uniform economic, monetary and external economic policy. For smaller regions, the economic significance of the relevant variables is limited by the fact that their ability to influence economic policy is not, as a rule, confined to individual regions; the effectiveness of regional economic policy measures thus cannot be assessed reliably. Apart from this rather theoretical limitation, however, there are objections based on the economic significance of the variables of integrated economic accounts themselves. The discussion on welfare assessment and the development of social indicator systems has highlighted the main limitations in the significance of national product variables. This applies in particular when, as in the Federal Republic, only data on the gross domestic product are available which are then often used as substitutes to answer questions which should actually be answered with income data ; in this connection it is mostly forgotten that gross domestic product also contains the balance from indirect taxes (including customs duties) and grants as well as depreciation, i.e. variables which are extremely difficult to break down meaningfully on a regional basis. Furthermore, the method applied in Kreis accounts creates limits mainly resulting from the fact that, on the "origin" side of national product, variables must be used which are difficult to breakdown regionally, as in the case of payments by central government, imputed charges for bank services etc., whereas there is no check on the "use" side of national product, with the result that no correction is made via the balance of the external relations of the individual regions. These limitations mean that a check must always be made as to whether the regional results are at all relevant to the case in question. Moreover, the use of data at subregional level would appear to be less suitable or completely unsuitable for comparing regional levels; instead, more attention should be given to medium-term comparisons.

Document N° 15

AGRICULTURAL ACCOUNTS AT REGIONAL AND DEPARTEMENT LEVEL IN FRANCE

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AGRICULTURAL ACCOUNTS AT REGIONAL AND DEPARTEMENT LEVEL IN FRANCE

The French offices responsible for agricultural statistics have been drawing up regional agricultural accounts since 1962 and agricultural accounts at département level since 1967.

Considerable experience has thus been acquired in France and may be usefully studied in an international comparison. In describing this work we shall therefore try to confine ourselves to the most general questions of organization and methodology, without dwelling on current estimation techniques which are far too dependent on the special conditions applying to locally available statistical information.

That said, even the main features of this important task, which plays a considerable part in the French agricultural statistics system, depend to a large extent on the statistical and administrative conditions peculiar to France. What follows must therefore be regarded as an outline of national experience, and is of course not intended to serve as an example for any work on regional agricultural accounts which may be undertaken in other countries.

I - DEVELOPMENT OF THE GENERAL METHODOLOGY FOR ACCOUNTS AT DEPARTEMENT LEVEL

(From 'disaggregation' to in situ compilation)

The main features of the method of drawing up agricultural accounts at département and regional level in France were developed at the beginning of the 1970s and have been largely retained since then. They involve drawing up the accounts in a decentralized way but in close coordination and complete conformity with the national agricultural accounts, the basic level selected being the French département. These various aspects will be examined in turn after an outline of the earlier experiments carried out before the introduction of the present accounts.

1. The initial experiments

The first French regional agricultural accounts were prepared by the National Institute for Statistics and Economic Studies (INSEE) to cover 1962 and incorporated in the regional accounts for all sector drawn up for the same year[1]. A similar study, this time covering 1966 but confined to the agricultural sector, was carried out jointly in 1968 by the INSEE and the Central Office for Statistical Surveys and Studies (SCEES) of the Ministry of Agriculture[2]. The important work carried out under the aegis of the SCEES and INSEE between 1969 and 1972 and led by Professor Jean Ousset defined for the first time a compilation methodology for regional agricultural accounts and resulted in a homogeneous series of regional accounts for 1962 to 1967. Although they do not yet allow of a short-term approach, these accounts can already be used for retrospective studies and even projections[3].

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1 INSEE, 'Etudes et Conjoncture', special issue - 1966

2 Commission des Comptes de l'Agriculture - May 1969. 'Les Collections de l'INSEE', No C3.

3 Commission des Comptes de l'Agriculture - April 1971. 'Les Collections de l'INSEE', No R13 (September 1973).

Whatever progress they marked, all these initial studies had three things in common:

- they were carried out with reference to the planning region ('région de programme') (22 administrative areas);

- they were carried out centrally without participation by the regions

- they were based on a disaggregation of the national agricultural accounts and were therefore entirely consistent with them[1].

At the beginning of the 1970s, the SCEES assumed permanent responsibility for regional agricultural accounts, while the INSEE retained responsibility for national accounts as a whole (including agriculture)[2]. Two basic requirements not applying to the earlier work were introduced at that time and have been constantly borne in mind in subsequent work:

- the need for 'direct' assessment of the accounts by the local authorities (in this case those of the département);

- the need to retain consistency with the national accounts

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1 'Disaggregation' (called in French 'décontraction', 'désagrégation' or 'déglobalisation') signifies the division among the regions of a heading of the national accounts in proportion to a breakdown key (criterion) which is considered to be well correlated with the disaggregated quantity. Disaggregation may be a very crude or a very precise operation depending on the closeness of this correlation. For example, to disaggregate the value of agricultural fuel oil consumption in proportion to the known quantities of regional consumption is a very satisfactory operation since it simply assumes that prices are the same in all regions, which is more or less true. On the other hand, to break down the value of wheat deliveries in proportion to the wheat-growing area would be hazardous, to say the least, since one would have to assume identical yields in all regions, identical prices and, above all, identical deductions from production (self-supplies and consumption).

2 The initial results covering 1967 and 1968, in a form very similar to their present one, were submitted to the Commission des Comptes de l'Agriculture (Agricultural Accounts Committee) at its May 1972 meeting and published in 'Statistique Agricole, Série Etudes' No 88 (November 1971).

2) The choice of the département level

The decision to compile regional accounts at this more detailed geographical level of the 95 French départements was based primarily on practical considerations, since division into 22 planning regions appears inadequate for a proper description of such a diverse agricultural sector as the French one, in which there are considerable geographical differences[1]. On the other hand, some feared that information at too detailed a geographical level would be unreliable.

At all events, the département level became necessary for administrative and statistical reasons when the Ministry of Agriculture assumed responsibility for regional accounts. Firstly, the administrative organization of the Ministry and the predominant role played therein by the Direction Départementale de l'Agriculture caused the latter to be the main requester of geographically decentralized information[2]. It is also the main source of basic data, since the French agricultural statistics system has itself adapted to the situation by creating a sizeable administrative office (3 or 4 persons) in each département and by trying to provide as often as possible significant information at the département level.

This explains the existence of the very long-standing series 'Statistique Agricole Annuelle Départementale' (Annual Agricultural Statistics by Département), which synthesizes in an exhaustive and particularly detailed way (more than 1 300 headings) all the information available on areas under cultivation, livestock, yields and crop and animal production in the département[3]. The annual agricultural statistics of course constitute the substrate of the production part of the département accounts. They are all the more useful for this in that since 1965 they have been supplemented by the calculations of 'final agricultural production by département' valued at producer prices.

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[1] For example, the value of average agricultural production per hectare varies by a ratio of 1 to 4 among the 22 planning regions (Limousin FF 3 200/hectare, Brittany FF 12 800/hectare in 1981). There are at least three regions within which the disparity among départements is even greater: Provence 1 to 6, Ile de France 1 to 11 and Languedoc 1 to 16.

The same applies to the average income per holding: five regions (Franche-Comté, Centre, Rhône-Alpes, Corsica and Provence) showed in 1981 an internal disparity among their départements at least as great as the disparity among the 22 regions (1 to 4).

[2] The importance assumed by the regional level in French administrative and political life over the past 15 years, and in the recent decentralization measures, has not led to a decline in interest in infra-regional information - quite the opposite, in fact.

[3] This project underwent a major overhaul in 1980, which did not, however, change its general characteristics.

It is therefore the Services Départementaux de Statistique Agricole (Offices for Agricultural Statistics at département level) of the Directions Départementales de l'Agriculture which have the main responsibility for drawing up agricultural accounts at département level in France. Of course, the Regional Offices coordinate and monitor the work, as they do for all agricultural statistical projects. Except for this, the regional accounts are simply a summation of the département accounts within the region[1].

3) Direct compilation of accounts at the local level

The compilation of accounts using direct estimates made by the local offices of the geographical unit concerned has two advantages over purely centralized compilation. Firstly, it makes it possible to circumvent a difficulty which is partly psychological: the local users very largely reject assessments made for their region at the central level using standardized methods, readily regarded as crude technocratic methods which ignore the diversity of local conditions[2].

But, above all, decentralized compilation of accounts makes it possible to obtain the most relevant information locally available in every area - information which because of its diversity could not be used in a centralized approach, either because it is not available in all regions or because it is not equally reliable or suited to the aim in view.

It must be borne in mind that this concern for the relevance and quality of the estimates carries a definite risk of dispersal and heterogeneity of the results. Yet the main requirement for regional (or département) accounts is obviously that they should facilitate valid comparisons among regions, and therefore that the results should be as homogeneous as possible, both in terms of concepts and in terms of numerical data. In order to overcome this contradiction, the following system has gradually been set up.

[1] However, certain proposed reforms under discussion could change the situation by extending the rôle of the Regional Agricultural Statistics Offices.

[2] In France, the technique of "disaggregation" - even when wrongly cited - has acquired such a pejorative connotation that it has become a ready argument for disregarding a disputed result.

a) In terms of concepts and accounting frameworks, the surest way of harmonizing all the local levels was to refer systematically to the general framework of national accounts. The agricultural accounts at département level are therefore compiled on the basis of more or less total consistency with the definitions used in national agricultural accounts compiled by the INSEE[1].

b) On the other hand, the local levels are allowed considerable latitude in evaluation methods and statistical sources used. The techniques for obtaining data at département level differ not only from those used in national accounts but also from one département to another, for a number of reasons relating to:

- the objective differences in the structure of production, production systems and costs, marketing methods, etc, in the different départements;

- the ways in which local statistics interpret these different situations: varying importance attached to surveys by the national programme and by the local statistical staff, existence of surveys carried out on local initiative, etc.

Methods of estimating the various headings of the accounts are therefore suggested as precisely as possible to the local offices by the central office, in fulfilment of its general coordination responsibility and on the basis of a generalization of experience, but they could not be made systematically compulsory, with one or two exceptions. Let us consider a few examples:

In the field of production, special conditions apply to the sale of some products and make it possible to obtain production figures - whatever the scale - using the same methods in all départements[2]; however, for most products the methods will vary.

[1] There are only a few exceptions - well defined and of limited scope - to this rule. It applies particularly to:

- the definition of the agricultural sector covered by the accounts (exception: since 1975 agricultural works contractors form part of the sector in the national accounts but not in the département accounts);

- the definition of agricultural production, and particularly the concepts of farm consumption (including inter-département flows of agricultural products), final production and deliveries within the sector;

- the nomenclatures used;

- intermediate consumption and recorded operating costs (except for social security contributions to the non-wage earning farmers' scheme);

- the income ascertained (with the reservation that the gross agricultural income (RBA) in national accounts includes social transfers, unlike the gross operating result (RBE) in département accounts).

[2] This applies: to cereals, since they have to pass through a network of approved collectors whose statistics are harmonized and centralized by the Office National Interprofessionnel des Céréales (National Cereals Office): to milk, since it is collected by neighbouring dairies throughout the territory: to wine, because of the fiscal check when it leaves the vineyard: etc.

Thus, in order to estimate meat production, some départements which produce little meat may take as the basis the slaughtering statistics, duly supplemented by estimates of imports of lean animals; in other départements where production systems are more complex, this information will have to be supplemented by nothing less than demographic models in miniature, tracing annual trends in livestock numbers. Fruit and vegetable production will also require approaches varying considerably from one département to another.

In the field of prices, it will always be a matter of estimating producer prices as accurately as possible, in accordance with the national accounts rules; however, for the same product in different départements, these prices will be ascertained by market surveys, questionnaires addressed to marketing cooperatives and farmers, etc.

In the field of production costs, some départements will have the opportunity to use abstracts of accounts (from the Farm Accountancy Data Network or the local Management Centres), while others will prefer to question supplier companies (distributors of plant health products and fertilizers, manufacturers and distributors of animal feedstuffs, etc) and yet others will content themselves, for less important headings, with estimates based on ratios or expert advice.

c) It must be pointed out that there were - and in some respects still are - two exceptions to the system described above.

The first, and very important, exception relates to all the expenditure headings of the accounts which, until 1975 to 1977, continued to be assessed by the SCEES using disaggregation of the national accounts. For many years, the expenditure side thus constituted the "soft underbelly" of département accounts. This situation of course reflected the relative backwardness of statistical knowledge of production costs as compared with the earlier progress in production statistics synthesized at the département level in the Annual Agricultural Statistics and the Final Agricultural Production figures.

In this respect, the département accounts played an informative rôle by drawing attention to the inadequacies of the statistical system. A number of surveys aiming to achieve a better knowledge of production costs were launched or completed[1]. Moreover, a considerable effort was made within the statistical offices to achieve more satisfactory estimates of expenditure headings, without, however, entirely making up the lost statistical ground. This was brought about gradually, and at present nearly all these headings are covered by direct estimates under conditions similar to those for income headings. However, for some headings the SCEES still carries out indirect estimates by disaggregation for certain years. These estimates are submitted for information to the départements' statisticians, who are completely free to modify them in the light of any local information available to them, but can also usefully compare them with their own sources or even keep them unchanged when they have no other data available.

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[1] Ad hoc questions were thus added to the livestock surveys (aiming at better information on animal feedstuff consumption) and to the crop production surveys (use of fertilizers and plant health products). Two special surveys were carried out in 1977 and 1982 on energy consumption, etc.
Finally, the desire for better information on operating costs was the main reason for launching a survey from 1976-1978 onwards - now annual - on income and expenditure of agricultural holdings (ERDEXA) to supplement the results of the FADN (Farm Accountancy Data Network).

The second exception, much less important and significant, relates to the flows - usually expenditure - involving the State or administrative bodies: various tax headings, production subsidies, social security contributions and, to a certain extent, interest paid. As these flows give rise to very centralized administrative statistics, it became clear that it was frequently easier to obtain adequate département information at the central level than at the local level. In this case, the SCEES directly collates all the desired information and redistributes it to the départements[1].

From this detailed description of the existing system, there thus emerges at the regional agricultural accounts level the traditional picture of macroeconomic accounting, a statistical synthesis combining the most varied sources in a coordinated framework: results of Community, national or local statistical surveys, information which is a by-product of administrative activities, expert estimates in some cases, and finally estimates carried out at the central level. In the case of agricultural accounts at département level, these various sources are combined in different proportions in each département in accordance with the local agricultural conditions and the means available locally.

Hence the concern to obtain in every case the most relevant information available at the local level, which has caused the initial indirect estimation methods to be abandoned in favour of compilation in situ, is necessarily accompanied by great diversity and a definite risk of heterogeneous estimates.

4) The principle of final adjustment on the basis of to the national accounts

In the circumstances, and since the instructions given to département statisticians expressly provide for the use of the same concepts as those used at the national level, any divergence between the national accounts results and the sum of département estimates has come to be regarded as a sign - or indeed a measurement - of the system's lack of precision and to be treated as an error.

The final consistency of the département accounts with the national accounts is therefore ensured by systematic and proportional adjustment of the département accounts to the national accounts.

This practice, which can be explained by a legitimate desire for consistency in the information presented to users, can be justified in principle only because there is good reason to think that the valuations supplied by national accounts are more reliable than département estimates. Indeed,

- the methodology of the national accounts is older and better established than that of the département accounts;

1 Thus enabling them to complete their département accounts.

- the national accounts are drawn from more numerous sources, particularly overlapping sources such as consumption surveys or customs statistics which do not exist at the département level; these sources are also more reliable at the national level - particularly sample surveys, the representativeness of which at the département level is debatable;

- finally, the valuation of inter-département flows of agricultural products (feedstuffs, animals, etc.), which have no interest to the compiler of national accounts, considerably complicates the work of the département statistician, whose resources are greatly interior to those used to draw up the national accounts.

As for the somewhat rough-and-ready nature of this proportional adjustment, clearly it can only be justified if all precautions have been taken to avoid any systematic divergence and if research has been carried out to explain and reduce the differences observed, so that the final adjustment constitutes a last-stage procedure of limited scope.

The following table gives the approximate scale of the adjustments made to some production headings in the initial years of the accounts and at present:

	1967-69	1979-80
Cereals	+ 4 %	± 2 %
Beetroot	- 5 %	± 1 to 2 %
Potatoes	± 15 to 25 %	± 5 to 10 %
Vegetables	- 2 %	- 7 %
Fruit	+ 15 %	± 3 to 4 %
Wine	± 5 to 10 %	± 2 to 4 %
Full-grown cattle	+ 12 %	- 4 %
Calves	+ 8 %	+ 5 %
Sheep and goats	+ 15 %	- 8 %
Pigs	+ 15 %	+ 8 %
Poultry	+ 25 %	+ 4 %
Eggs	+ 13 %	+ 8 %
Milk	+ 7 %	- 2 %

It can be seen that despite the improvements introduced, some of these adjustments are still quite sizeable. However justified this effort to achieve consistency may appear - at least to the national agricultural statisticians in France - it must be acknowledged that it is sometimes looked upon with disfavour locally[1]. Efforts are therefore continuing to limit the scale of these corrections and above all to lessen their automatic nature. However, they serve to show that département accounts involve a certain degree of unreliability which must be borne in mind.

1 This can easily be explained: a correction of 5% for a given production heading, uncontroversial in most départements, may mean a correction of much more than 5% in income in a département where this type of product accounts for the bulk of production.

II -PRESENT STATE OF AGRICULTURAL ACCOUNTS AT DEPARTEMENT LEVEL

(compilation and uses)

Now that the main principles of compilation of département-level accounts have been set out, we can examine how they are drawn up on a day-to-day basis, the main characteristics of the results and the uses to which they are put in the French agricultural statistics system.

1) Day-to-day compilation of the accounts and timetable of work

The département-level accounts are compiled annually (since 1967) and, like the national accounts, relate only to the calendar year. Accounts are never drawn up for farm years.

a) The compilation of the so-called "semi-definitive" retrospective accounts is the basic operation and gives rise to the most complex work. For July of the year "n+1", the départements statistical offices draw up forms for "final agricultural production" and for "expenditure" showing the various headings of their account for the year "n" in terms of quantity, price and value. These estimates are made in very fine detail - about 400 headings. (Examples of these calculation forms are annexed to this paper).

These forms are processed centrally in two ways. First there is a traditional check for errors, together with the detection of unusual variations from the previous year and an initial comparison of the total département estimates with the national accounts figures. Once the two-way communication with the regional and département offices needed for these checks and verifications is completed, a second data-processing operation involves the final adjustments and the publication of the results. The accounts for the year "n" are thus drawn up provisionally in December of "n+1" (or January of "n+2").

It should be added that all these operations also take place at the same time on the revised data for the previous year, making it possible to draw up a semi-definitive version of the accounts for the year "n-1".

b) The so-called "rapid" accounts are drawn up using a chain of simplified procedures created in 1976 in order to obtain much quicker results. The rapid accounts for the year "n" are compiled on the basis of a nomenclature reduced to about 50 headings and use a simplified method. The estimates required of the département offices are in this case not evaluations in terms of quantity, price and value but simply indices of variation for "n/n-1" in terms of price and volume which apply to the results of the provisional accounts for the year "n-1" compiled by the complex method and available in January of "n+1". The work is carried out in February of "n+1" and is followed by simple processing, mainly involving the adjustments on the basis of the national accounts[1]. Thus the results of the rapid accounts for the year "n" are available in April of "n+1". These results will be reassessed at the end of the year by comparison with the provisional accounts drawn up using the complex method described above.

1 As the procedure starts from département-level accounts which are already consistent with the national accounts, it will be noted that the adjustments required are not so great here (much smaller than the orders of magnitude indicated above).

2) Characteristics of the results

a) The structure of the département-level accounts is very similar to the accounting framework used by the national accounts with 1962 as the base year, before the adoption in 1975 of the new base year 1971 (see table on following page).

The production account records under income the final production of agricultural products, valued at "ex-farm" prices. Final production includes sales and own-account consumption as well as the "sales-purchases" balance for intermediate agricultural products such as seeds, animal feedstuffs, lean animals, eggs for hatching, etc. These balances, which delineate inter-département flows, are added to the production of départements which "export" (to other départements) or deducted from that of "importing" départements; in the latter case the purchases are recorded as "negative production".

Changes in stocks are calculated for cereals and wines, and to some extent for potatoes. They refer to stocks held at the farm at the end of the calendar year, valued at the average price for the year (the appreciation of stocks, resulting from the difference between prices at the beginning and end of the agricultural year, is therefore not calculated). These figures can be used to estimate final production - and hence value added and income - from two aspects:

- the "production" (or harvest) aspect measures production in the course of the year;

- the "marketing" or "deliveries" aspect records sales during the year; it is the income calculated from this point of view which is most frequently used[1].

Intermediate agricultural consumption valued inclusive of all taxes appears on the expenditure side the production account. The balance of the production account constitutes the value added.

The operating account records value added, production subsidies and compensation for losses under receipts. Under expenditure appear the operating costs: wages and social security contributions, rents, share-cropping, interest, insurance contributions, direct and indirect taxation (including in particular the net VAT paid to the tax authorities). The balance of the operating account is the département gross operating result (Résultat Brut d'Exploitation - RBE), which constitutes the main income concept used in département accounts.

The RBE is shown as an overall figure and as an average per holding, per hectare and per family agricultural worker (the number of workers being measured in full-time equivalents). The annual indicators of average income growth per holding or per family worker are calculated in real values, after deflation using the index of Gross Domestic Product at market prices.

Since 1980, an additional calculation makes it possible to assess depreciation of equipment and buildings and the net operating result (Résultat Net d'Exploitation - RNE).

1 In the medium term, the differences between the two approaches cancel each other out. In the short term, they can be considerable in départements with a high proportion of cereal or wine production. In 1981, the agricultural income of the Gironde increased by 44% according to the production approach but fell by 26% according to the marketing approach. On the other hand, in the Gard it dropped by 25% according to the production approach while increasing by 27% according to the marketing approach. The same applies to the Loir et Cher département (- 6% and + 7%).

PRODUCTION AND OPERATING ACCOUNT (Million FF)

1980
BOURGOGNE
SAONE-ET-LOIRE

FINAL PRODUCTION	79	80	%	Q I	P I	V I
A. Production excluding VAT	2505.8	2439.6	100.0	94.8	102.5	97.2
1. Vegetable (non-woody)	940.7	827.3	33.9	87.9	99.4	87.4
Cereals, including:	116.4	153.1	6.3	128.3	102.5	131.5
common wheat	67.1	84.6	3.5	129.0	97.8	126.2
durum wheat						
rye	1.0	1.9	0.1	177.9	108.1	192.2
barley	13.4	23.5	1.0	168.6	103.9	175.2
oats	2.5	4.3	0.2	160.2	107.2	171.8
maize	32.5	36.8	1.6	113.3	105.3	119.3
rice						
Potatoes:	36.5	38.9	1.6	102.6	103.9	106.6
early potatoes	0.2	0.4	0.0	488.7	41.1	200.7
other potatoes	36.3	38.5	1.6	100.6	105.5	106.1
Vegetables, including:	50.5	72.6	3.0	120.1	119.6	143.7
fresh vegetables	50.5	72.6	3.0	120.2	126.3	143.8
dried vegetables	0.1	0.0	0.0	48.3	102.5	49.5
Fruit, including:	23.2	21.7	0.9	89.2	104.9	93.6
citrus fruit						
bananas						
fresh fruit	23.2	21.7	0.9	89.2	104.9	93.6
dried fruit						
Wines, including:	673.5	478.2	19.6	76.2	93.2	71.0
VQPRD wines	645.1	454.2	18.6	76.4	92.2	70.4
other wines	28.4	24.1	1.0	72.1	117.5	84.7
Tobacco	1.2	0.9	0.0	64.0	114.1	73.0
Industrial beetroot	1.8	2.6	0.1	122.2	119.8	146.4
Oilseeds	9.1	16.7	0.7	165.9	110.7	183.6
Other vegetable products	28.5	42.7	1.7			
green flax or hemp						
hops						
chicory						
feedstuffs						
flowers	12.5	23.2	0.9	110.7	120.1	185.9
plants and seedlings	15.0	18.8	0.8			
others	1.1	0.7	0.0			
2. Animal production	1565.1	1612.3	66.1	98.9	104.1	103.0
Livestock on the hoof, including:	1149.7	1127.3	46.2	95.6	102.5	98.0
full-grown cattle	854.6	849.3	34.8	96.9	102.6	99.4
calves	63.6	65.1	2.7	99.0	103.4	102.3
horses	4.5	5.1	0.2	97.8	114.8	112.4
sheep and goats	68.6	69.4	2.8	105.8	95.6	101.2
pigs	158.3	138.3	5.7	83.0	105.3	87.4
Milk at the farm	249.0	282.9	11.6	105.6	107.5	113.6
Poultry	85.9	108.4	4.4	121.4	104.0	126.3
Eggs	44.7	53.3	2.2	107.6	110.9	119.3
Other animal products, including:	35.9	40.3	1.7			
game	3.2	3.7	0.2			
rabbits	26.3	29.6	1.2	98.1	114.6	112.4
honey	4.2	5.1	0.2	113.2	106.7	120.8
wools, furs, etc.	2.1	1.9	0.1	95.8	96.5	92.5

	79	80	%	V I
B. Intermediate consumption	888.6	1034.5	100.0	116.4
Animal feedstuffs	276.9	307.6	29.7	111.1
Electricity	8.7	11.1	1.1	128.2
Refined petroleum products	26.2	36.8	3.6	140.5
Various minerals	9.1	10.0	1.0	111.0
Mineral chemistry	103.6	121.6	11.8	117.4
Secondary chemistry	43.9	52.6	5.1	120.0
Maintenance of buildings	57.8	69.3	6.7	120.0
Services carried out on the holding	45.9	51.1	4.9	111.4
Services of craftsmen and mechanics	123.3	139.5	13.5	113.1
Health services	88.9	107.3	10.4	120.7
Other intermediate consumption	104.6	127.5	12.3	121 8
Production excluding VAT	2505.8	2439.6	100.0	97.4
Gross VAT	109.1	123.0	5.0	112.7
Production including VAT	2615.0	2562.6	105.0	98.0
Intermediate consumption	888.6	1034.5	42.4	116.4
Value added	1726.3	1528.2	62.6	88.5
Change in stocks	194.6	7.0		
C. Operating account				
Income	1757.0	1601.3	100.0	91.1
Value added	1726.3	1528.2	95.4	88.5
Production subsidies	15.5	59.0	3.7	381.9
Damage compensation	15.2	14.1	0.9	92.6
Expenditure	430.7	487.8	100.0	113.3
Insurance	36.7	42.4	8.7	115.5
Interest	83.4	95.6	19.6	114.7
Wages	70.0	85.1	17.4	121.6
Social security contributions	22.1	29.3	6.0	132.4
Indirect taxes	58.3	66.8	13.7	114.6
Rents and share-cropping	160.2	168.6	34.6	105.2
RBE of the sector				
- production aspect	1326.3	1113.5	45.6	84.0
- marketing aspect	1131.7	1106.5	45.4	97.8
RBE of the holdings				
- production aspect	1262.1	1020.6	41.8	80.9
- marketing aspect	1067.5	1013.6	41.5	94.9
Agricultural area used (100 ha)	5444.	5446.		100.0
RBE per hectare (in FF)	1961.	1861.		94.9
Number of holdings	20310.	20089.		98.9
RBE per holding (in FF)	52562.	50456.		96.0
Number of family workers (man-years)	28102.	28021.		99.7
RBE per family worker (FF)	37988.	36173.		95.2
GDP price index				111.3
RBE per holding in real values				86.2
RBE per worker in real values				85.6

b) The field of département accounts consists, as for the national accounts, of the agricultural sector, which of course includes agricultural holdings, but also some agricultural activities carried out outside these (particularly kitchen gardens of non-farmers). It should be remembered that the agricultural sector does not include forestry or non-agricultural activities which may be carried out on agricultural holdings, particularly the processing of agricultural products (making of butter or cheese, distillation, slaughtering etc), or (in the case of département accounts) agricultural works contractors.

However, the desire for a better grasp of the activity of farmers has led to the reconstitution of two special sub-fields within the agricultural sector in département accounts. The first sub-field is that of agricultural holdings, obtained by eliminating from the sectoral results the production of the kitchen gardens and stockbreeding activities of non-farmers, as well as production of non-cultivated mushrooms and wild game. All these headings are of course very approximately assessed in each département; moreover, corrections are made only on the production side, since the expenditure incurred to obtain these products is regarded as negligible. In these circumstances, the results for agricultural holdings alone are a more practical approach to the actual agricultural situation than those for the sector.

However, they still have limitations, particularly where studies of inter-département agricultural income disparities are concerned. Agricultural holdings are in fact defined in a very broad way in agricultural surveys and censuses, and include a considerable number of marginal units - run by retired persons or for subsistence - in which agriculture is a purely secondary activity, and the income from which cannot be validly compared with that of really professional holdings.

To overcome this difficulty, it seemed desirable in the département accounts to extract from the total number of holdings those in which agricultural activity employees at least the equivalent of one full-time worker. Full-time holdings are thus defined as those which employ at least one Annual Labour Unit (ALU). In 1979 they represented some 768 000 holdings, i.e. about 63% of the total, but occupied 93% of the agricultural area utilized and accounted for 94% of agricultural production and income.

The adoption of this sub-field eliminates in practice the possible excessive nature of the inter-département dispersion of results when it is calculated on the basis of all holdings. Expressed as an index in relation to the national average, the average département incomes per holding vary between about 45 and 290 if all the 1 200 000 agricultural holdings as defined for statistical purposes are taken into account, whereas they are limited to the range 55/280 if only the full-time units are taken into account.

The transition to the sub-field of full-time holdings, fairly satisfactory from a conceptual standpoint, does however give rise to a problem of statistical measurement and involves indirect assessment methods, the results of which are necessarily less reliable than the overall data of the accounts[1]. Bearing in mind these uncertainties, the complement to the field of full-time holdings (which represents a very small fraction of production and income) is not regarded as significant enough to be presented as the part-time holdings account.

3) Use of the results

a) A general information role

The département accounts, which have been drawn up annually for nearly 15 years, have made it possible at the local level to refine information on agriculture in each region or département, and at the overall level to analyse the nature and extent of the geographical differences within French agriculture:

- differences in the distribution and concentration of agricultural production: in 1980, 10 départements out of 95, representing 18% of holdings, 17% of the total AAU and 19% of total workers, accounted for 25% of total agricultural production;

- differences in the yield obtained from the land: the average production per hectare varies by a ratio of 1 to 7 between départements (from FF 2 500 per hectare to nearly FF 17 000 per hectare);

- differences between production systems: the intensification measured by the ratio intermediate consumption/production varies from 20% to 65% (with a national average of about 45% in 1979).

It is above all in the field of information on incomes that the département accounts have provided new and valuable data, since the problem of income disparities within agriculture has always been regarded as particularly worrying in France. For a long time, the département accounts were the only macroeconomic instruments providing information on part of this problem[2]:

- In "1980" (average of 1979-80-81), for full-time holdings alone, the average income per holding in the five least-favoured French départements was of the order of FF 37 000 (i.e. about half the national average income), whereas it exceeded FF 200 000 (nearly three times the national average) in the five most wealthy départements, which represents a "bracket" of 1 to 5.5.

The average département income per family worker (ALU) varied from FF 25 000 to 140 000 per ALU, i.e. a range similar to the previous one.

Between the two extreme regions, this bracket is about 1 to 3.3, which once again shows the importance in France of a detailed approach at the département level.

1 The calculations made are based essentially on the updating to recent years of the studies "Analyse 1970" and "Analyse 75" carried out by the SCEES on the basis of the 1970 General Agricultural Census and the 1975 survey of agricultural structures, which made it possible to determine the proportion of full-time holdings in relation to total holdings for the various accounts headings. At this point we should stress the special importance not only of current statistical surveys but also of exhaustive agricultural censuses to bring into line from time to time certain statistics used in département accounts.

2 A part of the problem only to the extent that geographical differences represent only one of the sources of disparities and therefore one of the aspects of the problem. That is why the statistical set of macroeconomic accounts has been supplemented since 1975 by a system of accounts by categories of holding (type of farming and size classes).

The pattern of these disparities is also of considerable interest in terms of assessing the results of an agricultural policy or the effects of agricultural development. Hence the importance of a homogeneous series of accounts comparable over a long period. Bearing in mind the hesitations involved in the creation of, and the subsequent improvements to, the annual département accounts (particularly with regard to assessment of expenditure), the creation of this homogeneous series required strenuous efforts and it was only possible to make the series more or less acceptable from 1970 onwards[1].

The variation coefficient of average département incomes per holding (ratio of the standard error to the average of the data for the 95 départements), calculated on the basis of the results of the 1970-1981 series, shows the following pattern of disparities over the whole decade:

1970	71	72	73	74	75	76	77	78	79	80	81(p)
0.62	0.59	0.59	0.66	0.63	0.52	0.49	0.56	0.52	0.54	0.54	0.45

This pattern shows a slight tendency for disparities to be reduced, more noticeable in 'bad years' in particular.

b) A short-term information instrument

The decision at the beginning of the 1970s to compile annual département accounts was by no means obvious, for some thought that two- or three-yearly accounts would be enough to bring out the main features of inter-regional differences and that annual results would have only limited interest and reliability.

Not only have these reservations been overcome, but efforts have been made over the past ten years constantly to improve the time-lags involved in compiling the accounts. The first results, covering 1967-68, were available in May 1972. Today the current compilation timetable for département accounts is virtually the same as that for national accounts and means that the first results for year 'n' are available in April of 'n+1', as shown above.

This timetable depends mainly on the sessions of the Commission des Comptes de l'Agriculture de la Nation (National Agricultural Accounts Commission), an institution set up by decree in 1964 to examine the annual agricultural accounts and comprising members of the administration, the agricultural profession and other qualified persons. The département accounts have traditionally been presented to this body since they were introduced. The report on the département accounts presented by the Ministry of Agriculture to the Accounts Commission is thus a part of the most comprehensive and most prominent annual review of the agricultural situation in France. In this report, the département income trends for the previous year are classified according to the main agricultural characteristics of the département[2] and according to whether or not they increase the general heterogeneity of département incomes.

1 'Collection de Statistique Agricole' No 197 (May 1981): Dix ans de comptes départementaux de l'agriculture, 1970-79.

2 The results provided by the accounts have formed the basis for various attempts to classify the départements, usually according to the share of various products in the total agricultural production but also according to intensiveness, income per hectare, etc. The typology currently used to present the annual results divides the départements into five categories: départements with predominantly animal agriculture (meat and milk), multicrop/stock-breeding départements, départements with predominantly crop agriculture (special crops or large-scale crops).

This possibility of short-term information is also appreciated at the local level. In many départements and regions, the accounts have become a tool which is much used by local decision-makers for monitoring agricultural output and income trends for the previous year, and even for the current year[1]. Thus it frequently happens that without any request from the central level the département officials initiate the compilation of a département account as a forward estimate. The central administration has called for the compilation of forward département accounts on two occasions:

- in August-September 1976, at the time of the catastrophic drought which affected a large part of France, but to a varying extent and with consequences of varying seriousness in different regions;

- at the end of 1980, to assess without delay the effect on département incomes of the second oil crisis, which looked as if it would have a particularly serious impact on French agriculture.

Bearing in mind the lack of precision still found in département estimates, one cannot refrain from wondering whether this short-term use is justified: does the inexactitude of the assessments not exceed the magnitude of short-term trends? It seems that reality has answered this question to a considerable extent. However, account must also be taken of the scale of département-level income fluctuations. Although the variations rarely exceed 10% at the national level (twice in 20 years), it is usual for them to be much greater at the département level: during 1981 alone, 39 départements recorded an income variation of more than 10% in relation to the previous year (19 higher and 20 lower), and this variation even exceeded 20% in seven cases. We should add that départements which specialize in certain products which are very speculative or very dependent on marketing conditions (fruit, vegetables, wine, etc.) have economic results which usually vary by between 20 and 40% from one year to the next. In the circumstances, it can be seen that a rapid estimate of département-level trends, albeit imperfect, is possible and undoubtedly of some use.

c) Administrative uses

It is impossible to know all the uses to which a regularly published statistical tool is put, since many of them are completely unknown to the compilers of the information. A number of bodies use these results as a basis for distributing national funds of various kinds among the départements. Thus, in 1976, the département accounts were used for the distribution of state aids to compensate for the effects of the drought. The accounts are also used by the Crédit Agricole, together with other socio-economic data, in order to allocate to each Caisse Régionale (Regional Fund) the funds which it is likely to need. They are used in the calculation of département-level contributions of the Chambers of Agriculture, etc.

The very imperfect knowledge of agricultural incomes in France - due particularly to the many gaps in fiscal coverage - partly explains the development of some uses of the département accounts. The gross operating result (RBE) which they show is in fact often regarded as a more satisfactory approximation of farmers' taxpaying capacity. Of particular importance in this context is the use of the RBE in determining the basis of social secsurity contributions payable by farmers (non-wage-earning scheme), progressively replacing the cadastral income, which is now regarded as less

1 Here and there, in certain départements or regions, département accounts are also drawn up by the economic departments of the professional bodies using more or less consistent methods, usually quite similar to those which have been set out here. Only the département accounts drawn up by the public authorities are capable of covering the whole of France on a regular basis.

appropriate. For 1981, these contributions represent FF 7 800 million, corresponding to 10% of the total agricultural income, and have increased considerably over the past few years. In 1982, the RBE (average for 1975 to 1979) accounts for 50% in calculating the basis of these contributions.

This use of the results for determining contributions, parafiscal duties or any other type of levy continues to cause concern in that it can lead indirectly over a period of time to a risk of pressure being brought to bear on the statisticians responsible for compiling the accounts[1]. In the case of *département* accounts these pressures could be all the more dangerous, in that their compilation is particularly vulnerable to them, involving as it does a considerable amount of evaluation and estimation which can be properly done only in the absence of pressures and in that the organization of this work, as described above, allows considerable latitude to *département*-level statisticians far away from the central 'law-enforcing' SCEESe, but very close to local users wo have too much ot a vested interest to be always entirely objective.

The experience of recent years shows that the administrative organization of French agricultural statistics, firmly established within the central and external departments of the Ministry of Agriculture, has fortunately made it possible to render these fears groundless and guarantee the strict independence which is essential for statistical work. Nevertheless, this independence must continue to be vigilantly defended; this is one of the reasons for the prime importance attached in France to the consistency of the *département* accounts with the national accounts, both in terms of concepts and in terms of figures.

[1] For example, in 1980 a *département* account gave rise to an appeal to the Conseil d'Etat from an agricultural professional body.

ANNEX I PUBLICATIONS OF THE FRENCH MINISTRY OF AGRICULTURE

(Service Central des Enquêtes et Etudes Statistiques

ON AGRICULTURAL ACCOUNTS AT DEPARTEMENT LEVEL

1) In the periodical 'Collections de Statistique Agricole'

. Les comptes de l'agriculture en 1967-1968 (Nos 88 and 88 bis, November 1971).

. Les comptes départementaux de l'agriculture de 1969 et 1970 (No 120, February 1974).

. Les comptes de l'agriculture en 1976 (No 152, July 1977).

. Les comptes départementaux de l'agriculture de 1970 à 1975, Nouvelle Série (Nos 160 and 160 bis, March 1978).

. Les comptes départementaux de l'agriculture, 1976 (No 162, April 1978).

. Les comptes de l'agriculture française pour 1977 (No 166, July 1978).

. Les comptes de l'agriculture française pour 1978 (No 175, July 1979).

. Les comptes départementaux de l'agriculture de 1975 à 1978 (No 185, April 1980).

. Les comptes de l'agriculture française pour 1979 (No 188, July 1980).

. Dix ans de comptes départementaux de l'agriculture: 1970 - 1979 (No 197, May 1981).

. Les comptes de l'agriculture française pour 1980 (No 200, October 1981).

. Les comptes de l'agriculture française pour 1981 (No 203, July 1982).

. Les comptes départementaux de l'agriculture de 1979 à 1981 (No 206, October 1982).

2) In the "S" series (Synthèse Statistique - Comptes et Revenu)

. Les disparités de revenu en agriculture (No 22, November 1979).

. Estimation des amortissements départementaux de l'agriculture (No 35, December 1981).

3) In the periodical "Cahiers de Statistique Agricole"

. Essai de classification agricole des départements français (No 22, June 1975).

. Le revenu agricole moyen par hectare dans les départements français depuis 1970 (No 1/6, January 1981).

. La place des exploitations à temps complet dans l'agriculture française (No 2/6, March 1982).

ANNEX II - EXAMPLES OF FORMS USED IN THE CALCULATION OF FINAL AGRICULTURAL PRODUCTION

COMMON WHEAT

1 1 9 0 1 1 1 1 1 0 1 1

Dép. year

		Quantités (1000 q)	Prix (F/q)	Valeurs (1000 F)
Collection (excluding seeds)				
Du 1/1 au 31/7/n (harvest n - 1)	010			
Du 1/8 au 31/12/n (harvest n)	020			
Total (010 + 020)	030			
Trade				
Du 1/1 au 31/7/n	040			
Du 1/8 au 31/12/n	050			
Total (040 + 050)	060			
Change in stocks (excluding seeds)				
Collection from 1/1 to 31/7/n + 1 (harvest n)	070			
Less collection from 1/1 to 31/7/n (harvest n - 1)	080			
Total (070 - 080)	090			
Total				
Collection + trade + change in stocks	100			

Row 010 = row 080 in quantities

Row 010 of the document for the year n = row 070 of the document for n-1 in quantities

Price $_{010}$ = price 040

Price $_{020}$ = price 050

Price $_{070}$ = price 080 = $\frac{\text{Value 030}}{\text{Quantity 030}}$

Calculation form : DO NOT PERFORATE

POTATOES (for human consumption and processing) **Département :** 10 bis

		Quantities (1000 quintals)	Prices (FF/quintal)	Values (FF 1000)
Early and new potatoes (open field and edge of fiedl) harvest n (form 4, rows 140 and 150, form 13, rows 130 and 140 and, if appropriate, form 9).....	010	///		
Less proportion used as seed potatoes 1	020			
Total (010 – 020).....	030		///	///
Carry over to form 10, row 030				
Potatoes used for starch Harvest n (form 4, row 160).....	040			
Less animal fodder 1	050			
Less proportion used as seed potatoes 1	060			
Total (040 – 050 – 060)	070			
Carry over to form 10, row 070				
Ware potatoes Harvest n–1 (form 4, row 170and, if appropriate, F. 9	080			
Less proportion used as animal feedstuff 1	090			
Less proportion used as seed potatoes.....	100			
Less storage losses.....	110			
Remainder of harvest n–1 (080 – 090 – 100 – 110).....	120			
Proportion of harvest n–1 used in year n (40% of row 120).....	130			
Harvest n (form 4, row 170 and, if appropriate, form 9).....	140			
Less proportion used as animal feedstuff 1	150			
Less proportion used as seed potatoes 1	160			
Less storage losses.....	170			
Remainder of harvest n (140 – 150 160 – 170).....	180			
Proportion of harvest n used in year n (60 % of row 180).....	190			
Total (130 + 190).....	200			
Carry over to form 10, row 200				
Grand total (030 + 070 + 200)	210		///	
Carry over to form 10, row 210				

(1) Farm supplies taken from harvest in question

How 200 : price = $\frac{\text{Value 200}}{\text{Quantity 200}}$

ANIMALS SOLD IN YEAR N FOR IMMEDIATE SLAUGHTER
OR SLAUGHTERED ON THE FARM

1	9	0	1					1	9

Dép. year

		Quantities (net tonnes of meat)	Prices (FF/net Kg)	Values (FF 1000)
a) Horses (folio 18, row 030).....	010			
b) Full-grown cattle				
- cull animals (folio 18, rows 040 + 060).....	020			
- animals for fattening (folio 18, rows 050 + 070).....	030			
Totaux (020 + 030).....	040			
c) Calves (folio 18, row 270).....	070			
d) Sheep and lambs				
- sucking lambs (folio 18, row 310).....	080			
- others (folio 18, row 120)....	090			
Totaux (080 + 090).....	120			
e) Goats and kids				
- Kids (folio 18, row 350).....	140			
- others (folio 18, row 160)...	150			
Totaux (140 + 150).....	180			
f) Pigs				
- pigs for prepared meat products (folio 18, rows 180+200+220)..	190			
- cull animals (folio 18, rows 170+190+210).....	200			
Totaux (190 + 200).....	230			
Grand total (010+040+070+120+180+230)...	240			

ANIMALS FOR STOCKFARMING AND BREEDING

1 | 9 | 0 | 1 | | | | 2 | 4 | B

Dép.-year

Animals bought [1] in year n by stockbreeders in the département :		Quantités (Nombre de têtes)	Prix (F/tête)	Valeurs (1000 F)
a) Full-grown cattle				
- draught animals.....	210			
- lean animals for fattening...	220			
- breeders (male).....	230			
- breeders (female).....	240			
b) Calves				
- cull calves.....	250			
- other calves.....	260			
c) Sheep and lambs				
- lambs for fattening.....	270			
- cull animals bought for fattening.....	280			
- breeders (male).....	290			
- breeders (female).....	300			
d) Pigs				
- piglets (less than 20 Kg)....	310			
- wearners (from 20 to 50 Kg)..	320			
- breeders (male).....	330			
- breeders (female).....	340			
e) Goats				
- breeders	350			
f) Equidae				
- draught horses.....	360			
- breeding horses (male).....	370			
- breeding horses (female).....	380			
- donkeys, mules and hinnies....	390			
Total (210 à 390).....	400	+	+	
Balance (sales - purchases) (200 - 400)	500	+ or -	+ or -	

(1) Form 24A, with the same format, for animals sold.

ANNEX III

Average RBE per holding from 1970 to 1981 (all holdings)*
Trend indices in real values in relation to the previous year

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
FRANCE	106 2	114 9	105.2	93.5	97 7	97 8	99 8	98 7	97 2	94 3	99 4
I D FRANCE	102 1	117 7	102 3	90 8	82 7	80 7	133 9	92 2	77 2	87 8	89 2
S & MARNE	97 2	108.3	101 6	88 2	81 8	79 0	138 6	89 7	68 5	100 3	92 1
YVELINES	107 8	108 5	83 8	99 0	72.0	94 2	148 5	87 8	98 6	74 7	86 3
ESSONNE	114.6	127.7	96.2	94.0	93 2	77.3	138 1	97 8	81 2	86 4	87 7
92+93+94	93 6	276 7	120 8	91.4	80 6	84 5	93 9	96 5	61 9	58 5	100 5
V D'OISE	103 7	88 0	117 4	88 9	94 6	71 1	139 8	99 2	87 2	89 0	81 3
CHAMP ARD	87 9	128.2	130.7	89.0	76 2	99 7	100 2	93 7	125 3	92 4	77 0
ARDENNES	114 5	108 9	96.8	104 8	93.1	87 1	81 6	104 5	119 3	93 0	99 4
AUBE	107 9	114 6	137 5	91 0	82 0	91.5	105 4	93 5	138 1	96 2	83 7
MARNE	71 8	144 2	144 9	80 8	69 6	113 1	101 6	91 0	127 0	90 0	66 4
H MARNE	106 7	116 2	94.3	120 3	95.9	73 9	106 7	96 1	94 0	96 0	101 3
PICARDIE	110 1	104 4	104 5	96 8	92 3	86 1	112 0	88 9	99 3	88 4	97 8
AISNE	104.4	116 4	102 7	88 0	90 3	95 9	108 0	90 6	105 5	83 6	90 3
OISE	111 6	80 9	115.3	104 8	89 2	82 3	134 0	91 6	82 2	102 7	102 3
SOMME	114 3	111 8	99.6	100 4	96.3	79 9	100 5	84 0	109 3	82 6	102 4
H NORMAND	103.5	106 5	108 7	89.4	93.6	82 0	107 4	88 8	119 4	82 8	99 9
EURE	101 0	101 8	113 4	93 4	89 0	88 6	127 6	89 6	117 7	88 2	104 7
S MARIT	105 4	110 2	105 1	86 1	97 7	92 3	95 2	88 1	120 7	78 3	95 4
CENTRE	113 7	112 0	93 7	86 2	89 1	113 2	105 5	94 7	105 2	90 9	
CHER	122 5	108 8	98 5	117 3	76 5	95 6	91 8	106 8	73 9	116 4	89 4
E & LOIR	119 2	83 9	132 8	99 7	93 4	67 1	132 6	106 4	94 9	104 6	91 6
INDRE	124 5	117 9	93 1	81 7	80 0	132 6	83 3	111 6	79 5	104 8	89 4
I & LOIRE	115 3	117 8	92 1	83 5	83 0	113 6	114 1	80 9	89 5	98 2	84 4
L & CHER	102 4	117 3	104 0	94 7	69 9	83 7	126 1	105 8	131 3	103 9	98 5
LOIRET	99 3	135 0	79 0	86 3	102 9	80 8	124 3	118 8	97 1	106 2	89 4
B NORMAND	109 1	115 9	92 0	86 7	91 2	106 3	93 1	102 4	109 0	92 2	91 5
CALVADOS	96 2	117 7	87 5	75 0	93 2	139 8	95 2	97 8	119 9	92 3	83 2
MANCHE	111 6	119 5	97 9	90 1	85 1	87 8	105 7	98 8	93 8	94 2	97 3
ORNE	122 3	111 6	86 6	73 1	99 3	108 8	73 0	116 5	121 8	89 6	93 7
BOURGOGNE	121 2	115 7	104 5	99 0	93 9	93 1	112 3	116 4	85 8	103 8	88 2
COTE D'OR	119 9	120 1	96 4	100 5	79 2	93 6	111 4	118 4	85 0	115 6	69 5
NIEVRE	126 7	105 5	104 3	112 1	87 2	62 7	95 3	112 2	94 8	113 9	110 7
S & LOIRE	119 7	108 4	114 7	86 4	125 0	75 3	123 8	115 0	82 5	86 2	94 6
YONNE	120 2	101 1	100 9	107 4	90 3	84 8	106 1	118 4	85 6	112 7	91 1
NORD P CAL	110 0	106 5	107 8	87 0	103 1	111 3	79 0	89 1	92 5	86 7	104 7
NORD	104 6	107 7	110 4	86 1	103 9	121 1	73 5	80 7	82 4	84 8	108 3
P CALAIS	114 1	105 8	104 6	88 1	103 8	96 8	87 7	100 4	95 7	88 7	101 1

Average RBE per holding from 1970 to 1981 (all holdings)*
Trend indices in real values in relation to the previous year (continued)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
LORRAINE	115 4	114 7	95 8	108 4	94 2	98 8	95 5	100 4	100 6	93 3	99 2
MEURTHE M	122 9	121 7	93 3	120 0	94 4	95 7	95 8	96 3	93 3	113 3	101 8
MEUSE	121 0	111 7	98 4	115 3	99 8	79 4	110 1	95 1	106 9	97 9	101 8
MOSELLE	113 7	109 7	106 9	100 2	100 6	114 8	87 5	103 1	96 1	95 6	97 7
VOSGES	104 3	118 0	98 6	100 0	101 5	104 6	78 1	106 1	106 5	93 0	98 3
ALSACE	114 6	105 7	104 2	101 6	99 1	124 1	111 8	105 7	99 0	89 2	99 8
BAS RHIN	114 9	92 4	108 3	114 3	91 9	114 7	111				
RHIN	119 8	109 5		83 9	112 5	138 4	111				
FR COMTE	105 7	110 0	91 3	106 7	107 6	75	96 4	105 9	102 5	91	105 9
DOUBS	124 3	119 5	90 4	98 2	89 9	73 9	99 5	99 6	98 0	113 7	102 8
JURA	107 6	103 1	96 0	112 6	99 2	89 2	93 8	110 3	95 6	78 9	106 1
H SAONE	108 7	105 9	85 6	116 2	101 3	77 4	95 2	111	114 8	80 1	109 4
T BELFORT	83.6	102 1	92 9	91 7	112 7	71 5	107 3	84 3	98 3	82	102 1
PAYS LOIRE	105 3	110 4	90	96 5	109 4	101 8	100 7	101	102 0	93 3	99 2
LOIRE ATL	98 6	114	94 5	90 9	106 5	110 2	99 3	100 6	95 9	85 6	102 9
M & LOIRE	109 2	100 8	105 1	93 7	108 0	104 2	119 0	100 1	99 7	84 1	95 5
MAYENNE	100 9	122 1	92	105 0	93 5	93 4	81 9	115	108 1	96 4	102 5
SARTHE	119 6	106	87 0	103 1	103 5	106 0	93 1	95 3	114 4	97 8	100 4
VENDEE	103 0	110 9	108 3	91 3	102 5	100 1	99 5	102 5	101 8	106 4	99 5
BRETAGNE	107 4	116 4	115 6	83 5	110 1	92 5	85 0	99 1	105 4	90 0	112 1
C DU NORD	111 0	123 3	120 4	84 9	107 0	99 1	80 4	100 2	106 4	97 5	112 9
FINISTERE	106 6	113 7	120 2	72 0	108 4	90 7	96 9	96 0	112 4	83 5	115 4
I VILAINE	109 7	113 4	103 4	91 5	113 7	87 1	89 3	101 3	100 9	89 1	104 9
MORBIHAN	102 6	113 7	110 4	92 9	111 2	93 5	86 5	99 8	99 6	91 9	112 9
POIT CHAR	112 6	105 4	109 7	94 8	91 0	107 2	81 8	99 7	91 8	97 2	94 9
CHARENTE	114 1	87 7	143 4	92 4	75 2	121 4	71 3	90 3	83 3	91 5	83
CH MARIT	118 2	101 0	121 0	96 5	75 0	121 5	80 6	83 5	95 1	78 4	89 9
D SEVRES	105 7	113 9	79 9	95 0	109 3	84 3	85 9	94 5	92 0	104 3	101 5
VIENNE	113 7	120 1	104 2	94 6	116 0	111 5	89 2	95 2	93 0	115 1	105 3
AQUITAINE	106 1	126 3	111 0	84 2	93 9	119 7	85 8	108 2	100 1	78 1	101 0
DORDOGNE	104 3	105 5	106 4	127 2	92 7	106 9	108 6	82 1	86 0	98 4	86 2
GIRONDE	122 1	188 1	116 2	43 2	81 4	153 1	97 9	104 6	118 4	57 4	68 1
LANDES	110 1	101 9	121 1	95 6	116 3	121 6	86 2	135 7	101 3	72 0	121 8
L & GARON	92 6	117 8	101 9	96 2	79 3	128 3	58 6	133 6	87 5	103 0	111 5
PYR ATLAN	107 4	103 2	109 0	101 1	97 7	104 5	80 0	117 2	105 7	78 1	112 5
MIDI PYREN	99 6	122 0	101 9	107 3	98 4	101 7	90 2	101 9	90 0	104 6	120 1
ARIEGE	111 9	103 4	94 2	90 1	105 4	111 1	77 6	117 1	101 6	93 2	109 8
AVEYRON	103 9	141 8	97 3	90 2	119 1	96 2	98 2	80 5	89 2	100 3	112 5
H GARONNE	104 0	104 6	112 3	109 9	90 6	107 6	87 1	93 1	98 2	110 6	116 1
GERS	105 3	116 3	121 2	100 8	78 7	107 4	67 0	156 0	96 7	114 2	116 9
LOT	92 6	117 4	95 5	103	109 1	99 5	106 0	111 6	83 2	94 8	101 2
H PYREN	95 6	113 0	115 7	100 2	103 9	103 0	91 7	102 1	123 1	86 4	111
TARN	107 3	138 1	76 6	122 7	115 5	85 4	105 6	90 4	76 1	95 1	125
TARN & GAR	80 5	131 9	93 9	102 5	99 6	111 3	94 1	89 4	62 0	108 4	148

* RBE from the marketing aspect (Source : SCEES - Agricultural accounts at département level)

Average RBE per holding from 1970 to 1981 (all holdings)*
Trend indices in real values in relation to the previous year (concluded)

	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
LIMOUSIN	107.6	115.0	90.3	110.2	129.8	10[illegible].9	94.1	[illegible]	103.[illegible]	[illegible]	[illegible]
CORREZE	105.4	115.5	98.0	107.3	118.[illegible]	105.[illegible]	86.9	91.8	108.6	8[illegible]	[illegible]
CREUSE	108.0	126.6	76.0	122.4	147.6	96.2	97.2	83.1	103.[illegible]	[illegible]	10[illegible].1
H VIENNE	109.0	105.7	95.6	104.4	127.0	107.2	98.5	88.2	99.1	[illegible]	10[illegible].3
RHONE ALPES	106.6	115.1	102.4	90.9	101.6	93.6	101.6	111.2	97.4	96.9	103.8
AIN	97.5	110.7	96.0	101.0	102.5	86.2	101.8	111.0	99.5	80.3	104.5
ARDECHE	108.6	111.0	103.6	91.8	80.6	96.8	88.6	111.1	67.9	217.7	102.8
DROME	91.1	130.4	113.1	77.9	93.3	122.5	97.8	116.2	107.6	105.0	102.2
ISERE	109.4	114.2	101.2	91.6	102.7	90.7	98.9	99.5	91.5	94.1	109.4
LOIRE	106.0	130.9	85.7	106.4	126.1	77.9	106.6	91.0	112.6	97.8	100.[illegible]
RHONE	161.0	101.0	119.1	76.6	108.0	94.0	108.5	129.2	87.1	79.9	100.3
SAVOIE	86.0	116.2	92.6	123.0	103.4	88.1	101.0	102.2	104.5	79.5	10[illegible].0
H SAVOIE	87.8	116.2	88.9	98.7	91.4	90.9	102.6	115.6	113.6	93.1	108.[illegible]
AUVERGNE	112.7	112.5	94.6	115.9	103.3	92.6	93.7	98.4	95.7	99.2	101.[illegible]
ALLIER	111.0	108.7	93.2	124.0	90.7	109.7	89.5	105.4	85.8	97.1	96.4
CANTAL	113.0	108.9	73.2	166.5	108.6	88.3	96.8	81.9	104.7	94.0	110.9
H LOIRE	127.4	113.1	94.0	91.6	121.9	89.5	96.0	95.6	111.5	96.0	105.6
P D DOME	106.1	117.1	108.6	103.3	100.1	86.2	93.1	106.7	90.2	106.6	9[illegible].[illegible]
LANGUEDOC	100.0	132.7	107.6	95.7	113.7	82.8	126.1	92.0	74.6	106.6	113.0
AUDE	116.2	117.5	113.5	91.2	124.0	72.8	115.9	111.0	81.2	113.9	10[illegible].[illegible]
GARD	98.8	125.3	101.7	91.7	108.4	105.8	137.1	100.5	68.2	12[illegible].[illegible]	11[illegible].[illegible]
HERAULT	99.0	170.4	108.8	90.8	93.3	79.0	145.3	100.0	65.1	95.0	10[illegible].[illegible]
LOZERE	93.8	110.1	88.2	135.8	120.1	91.9	102.9	81.7	125.5	97.5	106.8
PYR ORIENT	89.4	113.4	110.7	110.1	143.0	74.4	104.0	75.1	89.1	93.2	143.5
PROVENCE	97.0	112.5	101.0	89.4	94.9	117.0	117.0	86.9	82.5	98.2	95.5
ALPES H.P.	107.1	107.6	91.1	99.4	107.6	107.3	67.3	98.0	52.0	123.9	88.0
H ALPES	91.2	126.4	78.5	74.9	133.5	83.1	105.1	101.2	87.9	107.5	9[illegible].4
ALP. MARIT.	88.2	83.5	122.3	105.7	98.8	80.5	118.4	98.9	100.0	69.1	82.8
B D RHONE	78.2	126.4	106.2	90.7	87.3	159.7	113.9	79.6	80.7	90.[illegible]	108.0
VAR	104.1	108.2	98.9	82.8	116.1	127.1	98.9	91.4	100.3	106.5	98.6
VAUCLUSE	97.4	114.7	96.6	85.0	83.8	101.7	147.2	85.4	73.8	110.[illegible]	86.0
CORSE	129.3	125.1	127.3	63.6	118.5	97.3	132.9	65.9	90.9	12[illegible].5	108.[illegible]
CORSE SUD	...	...	...	...	...	...	105.2	74.0	87.6	91.2	89.8
H CORSE	...	...	...	...	...	...	141.2	63.9	91.8	130.8	111.7

* RBE from the marketing aspect

Percentages of the national total accounted for by the regions in 1970 and 1981 (production, intermediate consumption, value added, RBE from the production aspect)

	PRODUCTION		Intermediate consumption		Value added		R B E from the production aspect	
(FRANCE = 100 %)	1970	1981	1970	1981	1970	1981	1970	1981
ILE DE FRANCE	3.76	2.85	3.22	2.34	4.01	3.30	4.02	2.61
CHAMPAGNE ARDENNE	4.99	5.28	4.35	4.42	5.41	6.71	5.66	6.26
PICARDIE	5.40	5.35	5.24	5.15	5.60	5.59	5.42	5.73
HAUTE NORMANDIE	3.11	2.65	3.09	2.72	3.10	2.54	3.00	2.31
CENTRE	7.45	7.08	8.48	6.94	6.98	7.13	6.91	6.75
BASSE NORMANDIE	4.53	4.24	4.42	4.27	4.49	4.06	4.10	3.92
BOURGOGNE	4.42	4.16	4.49	3.84	4.35	4.45	4.41	4.43
NORD PAS DE CALAIS	4.92	4.73	5.45	5.43	4.70	3.97	4.93	4.16
LORRAINE	2.48	2.60	2.47	2.53	2.45	2.65	2.65	2.93
ALSACE	1.51	1.92	1.42	1.26	1.55	2.61	1.65	2.98
FRANCHE COMTE	1.65	1.68	1.50	1.70	1.70	1.63	1.87	1.94
PAYS DE LA LOIRE	8.03	9.06	8.36	9.58	7.83	8.55	7.38	8.46
BRETAGNE	8.72	12.19	11.28	16.46	7.56	8.07	8.14	9.37
POITOU CHARENTES	5.47	4.77	5.07	5.33	5.61	4.14	5.72	3.65
AQUITAINE	6.10	5.88	6.33	5.86	5.97	5.91	5.88	5.41
MIDI PYRENEES	5.73	6.43	6.49	6.19	5.78	6.55	5.42	7.45
LIMOUSIN	1.75	1.52	1.98	1.29	1.59	1.71	1.67	2.11
RHONE ALPES	6.04	6.03	5.80	5.65	6.04	6.23	6.47	6.95
AUVERGNE	3.12	2.87	3.23	2.67	3.07	2.97	3.00	3.53
LANGUEDOC ROUSSILLON	5.45	4.39	3.76	2.96	6.53	6.44	5.41	4.82
PROV ALPES C D'AZUR	4.99	4.00	3.24	3.14	5.83	4.87	5.90	4.40
CORSE	0.38	0.31	0.31	0.22	0.41	0.40	0.38	0.36

Percentages of the national total accounted for by the département in 1970 and 1981. (Production, intermediate consumption, value added, RBE from the production aspect)

(FRANCE 100%)	Production 1970	Production 1981	intermediate consumption 1970	intermediate consumption 1981	Value added 1970	Value added 1981	RBE from the production aspect 1970	RBE from the production aspect 1981
Seine et Marne	1 78%	1 33%	1 79%	1 30%	1 79%	1 36%	1 87%	1 07%
Yvelines	0 70%	0 49%	0 55%	0 35%	0 77%	0 62%	0 74%	0 49%
Essonne	0 52%	0 48%	0 41%	0 34%	0 57%	0 60%	0 54%	0 46%
Haute de Seine	0 04%	0 02%	0 02%	0 02%	0 05%	0 03%	0 05%	0 02%
Seine St Denis	0 11%	0 06%	0 06%	0 04%	0 13%	0 06%	0 13%	0 04%
Val de Marne	0 12%	0 10%	0 05%	0 05%	0 15%	0 13%	0 15%	0 12%
Val d'Oise	0 48%	0 37%	0 34%	0 23%	0 55%	0 50%	0 55%	0 40%
Ardennes	0 80%	0 87%	0 70%	0 79%	0 85%	0 94%	0 89%	1 07%
Aube	0 95%	1 21%	1 13%	1 00%	0 87%	1 42%	0 90%	1 56%
Marne	2 65%	2 56%	1 92%	1 99%	3 11%	3 27%	3 [illegible]%	3 00%
Haute Marne	0 59%	0 63%	0 61%	0 69%	0 58%	0 57%	0 64%	0 64%
Aisne	1 94%	1 91%	1 76%	1 78%	2 07%	2 06%	2 00%	1 93%
Oise	1 54%	1 52%	1 37%	1 30%	1 65%	1 75%	1 58%	1 60%
Somme	1 92%	1 92%	2 11%	2 07%	1 88%	1 78%	1 85%	1 70%
Eure	1 37%	1 20%	1 39%	1 13%	1 35%	1 25%	1 30%	1 14%
Seine Maritime	1 74%	1 45%	1 70%	1 59%	1 75%	1 29%	1 71%	1 17%
Cher	0 92%	0 94%	1 07%	1 05%	0 85%	0 81%	0 78%	0 66%
Eure et Loir	1 62%	1 57%	1 92%	1 27%	1 49%	1 85%	1 50%	1 86%
Indre	0 95%	0 96%	1 14%	1 12%	0 86%	0 78%	0 83%	0 72%
Indre et Loire	1 19%	1 04%	1 23%	1 11%	1 17%	0 96%	1 17%	0 81%
Loir et Cher	1 13%	1 15%	1 30%	1 11%	1 06%	1 18%	1 04%	1 14%
Loiret	1 63%	1 43%	1 83%	1 29%	1 54%	1 55%	1 59%	1 56%
Calvados	1 42%	1 28%	1 25%	1 22%	1 47%	1 31%	1 33%	1 21%
Manche	1 95%	1 82%	1 95%	1 95%	1 90%	1 61%	1 78%	1 62%
Orne	1 16%	1 14%	1 23%	1 10%	1 11%	1 15%	0 98%	1 08%
Cote d'Or	1 23%	1 17%	1 07%	1 14%	1 29%	1 19%	1 37%	1 10%
Nievre	0 68%	0 70%	0 75%	0 58%	0 62%	0 80%	0 56%	0 84%
Saone et Loire	1 41%	1 22%	1 52%	1 15%	1 33%	1 29%	1 34%	1 32%
Yonne	1 11%	1 07%	1 15%	0 96%	1 10%	1 18%	1 14%	1 17%
Nord	2 52%	2 46%	2 50%	2 97%	2 52%	1 88%	2 65%	1 96%
Pas de Calais	2 40%	2 27%	2 95%	2 46%	2 18%	2 09%	2 28%	2 19%
Meurthe et Moselle	0 57%	0 64%	0 66%	0 65%	0 53%	0 64%	0 54%	0 70%
Meuse	0 64%	0 69%	0 62%	0 60%	0 64%	0 76%	0 69%	0 86%
Moselle	0 73%	0 71%	0 66%	0 72%	0 75%	0 71%	0 80%	0 73%
Vosges	0 54%	0 56%	0 52%	0 56%	0 54%	0 54%	0 61%	0 63%
Bas Rhin	0 93%	1 00%	0 85%	0 73%	0 96%	1 26%	1 07%	1 48%
Haut Rhin	0 58%	0 92%	0 57%	0 53%	0 59%	1 35%	0 58%	1 49%
Doubs	0 57%	0 64%	0 52%	0 61%	0 59%	0 66%	0 65%	0 80%
Jura	0 47%	0 43%	0 42%	0 46%	0 49%	0 40%	0 50%	0 45%
Haute Saone	0 53%	0 56%	0 50%	0 57%	0 54%	0 53%	0 61%	0 64%
Terr de Belfort	0 07%	0 05%	0 05%	0 06%	0 07%	0 05%	0 09%	0 06%
Loire Atlantique	1 69%	1 55%	1 57%	1 62%	1 76%	1 51%	1 75%	1 41%
Maine et Loire	1 97%	2 27%	1 89%	2 14%	2 00%	2 40%	1 80%	2 14%
Mayenne	1 39%	1 72%	1 48%	1 89%	1 34%	1 53%	1 75%	1 54%
Sarthe	1 31%	1 50%	1 43%	1 66%	1 22%	1 33%	1 14%	1 28%
Vendee	1 66%	2 02%	1 99%	2 26%	1 50%	1 78%	1 44%	2 07%

(FRANCE = 100%)	1970	1981	1970	1981	1970	1981	1970	1981
Cotes du Nord	2 21%	3 41%	3 03%	4 63%	1 87%	2 22%	1 98%	2 69%
Finistere	2 72%	3 54%	3 40%	4 75%	2 42%	2 37%	2 67%	2 71%
Ille et Vilaine	2 21%	2 68%	2 76%	3 45%	1 94%	1 96%	2 04%	2 21%
Morbihan	1 58%	2 57%	2 10%	3 62%	1 33%	1 52%	1 44%	1 76%
Charente	1 27%	1 00%	1 09%	1 27%	1 34%	0 69%	1 38%	0 33%
charente Maritime	1 53%	1 11%	1 33%	1 31%	1 61%	0 91%	1 69%	0 67%
Deux Sevres	1 56%	1 42%	1 47%	1 64%	1 60%	1 20%	1 68%	1 23%
Vienne	1 10%	1 24%	1 18%	1 12%	1 06%	1 34%	1 02%	1 42%
Dordogne	1 15%	1 08%	1 28%	1 18%	1 07%	0 96%	1 12%	0 95%
Gironde	1 79%	1 41%	1 45%	1 25%	2 00%	1 63%	1 75%	0 00%
Landes	0 77%	0 94%	1 14%	1 03%	0 59%	0 85%	0 52%	0 93%
Lot et Garonne	1 29%	1 30%	1 29%	1 35%	1 28%	1 25%	1 33%	1 21%
Pyrenees Atlantiques	1 10%	1 15%	1 18%	1 05%	1 04%	1 22%	1 16%	1 53%
Ariege	0 29%	0 24%	0 28%	0 18%	0 28%	0 29%	0 29%	0 34%
Aveyron	0 84%	0 97%	1 02%	1 14%	0 74%	0 78%	0 74%	1 06%
Haute Garonne	1 03%	1 06%	1 10%	0 98%	0 98%	1 14%	0 97%	1 20%
Gers	1 13%	1 38%	1 34%	1 16%	1 03%	1 60%	1 06%	1 80%
Lot	0 47%	0 51%	0 55%	0 54%	0 42%	0 46%	0 45%	0 52%
Hautes Pyrenees	0 42%	0 45%	0 50%	0 33%	0 37%	0 54%	0 42%	0 20%
Tarn	0 76%	0 86%	0 92%	0 96%	0 67%	0 77%	0 65%	0 79%
Tarn et Garonne	0 79%	0 96%	0 77%	0 92%	0 79%	0 97%	0 81%	1 02%
Correze	0 53%	0 49%	0 55%	0 46%	0 51%	0 51%	0 52%	0 71%
Creuse	0 54%	0 47%	0 65%	0 42%	0 47%	0 50%	0 48%	0 45%
Haute Vienne	0 67%	0 56%	0 77%	0 41%	0 61%	0 69%	0 57%	0 75%
Ain	1 07%	0 96%	1 21%	1 07%	0 99%	0 83%	1 11%	0 94%
Ardeche	0 60%	0 49%	0 43%	0 39%	0 68%	0 61%	0 75%	0 72%
Drome	1 08%	1 24%	1 16%	1 19%	1 03%	1 08%	1 06%	1 34%
Isere	0 97%	0 96%	0 92%	0 92%	0 97%	0 95%	1 06%	1 02%
Loire	0 65%	0 67%	0 68%	0 63%	0 62%	0 69%	0 64%	0 87%
Rhone	0 86%	0 94%	0 70%	0 76%	0 91%	1 10%	0 92%	1 01%
Savoie	0 30%	0 29%	0 27%	0 29%	0 31%	0 27%	0 34%	0 33%
Haute Savoie	0 50%	0 47%	0 43%	0 41%	0 53%	0 51%	0 60%	0 67%
Allier	1 06%	0 88%	1 36%	0 87%	0 92%	0 87%	0 80%	0 84%
Cantal	0 64%	0 60%	0 61%	0 50%	0 64%	0 66%	0 61%	0 83%
Haute Loire	0 49%	0 48%	0 42%	0 42%	0 51%	0 51%	0 56%	0 74%
Puy de Dome	0 93%	0 92%	0 83%	0 88%	0 96%	0 93%	1 04%	1 10%
Aude	1 35%	0 98%	0 93%	0 71%	1 61%	1 40%	1 26%	0 99%
Gard	1 38%	1 16%	0 92%	0 79%	1 66%	1 73%	1 39%	1 31%
Herault	1 50%	1 17%	1 01%	0 73%	1 83%	1 83%	1 56%	1 38%
Lozere	0 20%	0 17%	0 22%	0 14%	0 19%	0 20%	0 19%	0 26%
Pyrenees Orientales	1 02%	0 91%	0 69%	0 60%	1 24%	1 28%	1 00%	0 87%
Alpes de Haute Prov.	0 31%	0 27%	0 27%	0 32%	0 32%	0 21%	0 33%	0 19%
Hautes Alpes	0 24%	0 17%	0 23%	0 19%	0 25%	0 14%	0 28%	0 19%
Alpes Maritimes	0 58%	0 36%	0 20%	0 26%	0 75%	0 43%	0 80%	0 36%
Bouches du Rhone	1 46%	1 31%	1 16%	1 05%	1 60%	1 51%	1 60%	1 49%
Var	0 83%	0 71%	0 56%	0 42%	1 00%	1 02%	0 92%	0 91%
Vaucluse	1 57%	1 18%	0 82%	0 90%	1 92%	1 51%	1 98%	1 27%
Corse du Sud	- %	0 08%	- %	0 07%	- %	0 09%	- %	0 04%
Haute Corse	- %	0 23%	- %	0 15%	- %	0 31%	- %	0 20%

Document N° 16

POSSIBILITIES FOR DEVELOPING REGIONAL ACCOUNTS OF AGRICULTURE AT COMMUNITY LEVEL

Presented by:

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S.E.D.E.S.,
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INTRODUCTION

In 1979-80, the Directorate-General for Regional Policy asked a group of experts to assess the impact of the CAP at regional level in the Community[1].

This group very quickly perceived the need for regional indicators of the performance of the various agricultural economies as a basis for its analyses. It is a fact that, although regional agricultural statistical surveys provide some information, only an overall regional agricultural accounting exercise can:

- plot the trends over time in the share of each European region in Community production, value added, and total agricultural income;

- evaluate their degree of specialization (prevalence of a specific agricultural product in overall regional agricultural production);

- illustrate regional disparities in productivity and in the standard of living of agricultural workers, and the relevant trends.

The group and its coordinator therefore endeavoured to make the fullest possible use of existing work to create at the Community regional level the instruments they needed, and it is this experience that I should like to describe, beginning with the regional agricultural accounts data available in each Member State at the end of the 1970's, and then outlining the calculations carried out, the uses to which they were put and their inherent limitations.

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(1) Study on the Regional Impact of the CAP: coordinator P. Henry (SEDES France). Members of the group: P. Koester (Germany), P. Benedictis (Italy), P. March (UK), P. De Veer (Netherlands), P. Gad (Denmark), P. Cuddy (Ireland).

I - Regional agricultural accounts data available at the end of the 1970's, broken down by country

Table 1 lists the main data required for the production account:

Expression in value terms of the different agricultural products (crop and animal products)

- intermediate consumption (fertilizers, animal feedingstuffs, etc.)
- gross value added,

and for the agricultural operating account:

Gross value added

- various running costs (wages and salaries, interest repayments, etc.)
- gross operating surplus.

I.1 - Countries having made provision for the compilation of regional agricultural accounts(1)

At the time the work was carried out, only two countries had made provision for detailed regional agricultural accounts and published them:

- France, where the work was first carried out for the years 1962-67 (regional agricultural accounts drawn up by Mr Ousset) and where the SCEES (Service Central d'Enquêtes et d'Etudes de Statistique Agricole) has since 1967 published agricultural accounts by French department (level 3) and by programme region (level 2).
- Italy, where the ISTAT compiles regional agricultural production accounts at Community level (level 2) (however, there is no breakdown of intermediate consumption).
- The geographical level of analysis selected made it possible for Luxembourg to be considered as a single region for which a set of agricultural accounts existed.
- The Belgian statistical service, too, has since started work of the same kind, but nothing has been published so far.

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(1) Certain countries may have published work in this field since 1980. The author of this paper apologizes for not mentioning them and would very much like to establish contact with the departments responsible.

TABLE No 1 – an exemple of regional production and operating accounts

19??

Picardy

PRODUCTION AND OPERATING ACCOUNTS (EXPRESSED IN FF MILLION)

Final production	78	79	%	I Q	I P	I V
	17672.4	8755.7	100.0	104.4	109.2	114.0
Crop production excluding forestry production	5026.0	5845.3	66.8	104.5	111.1	116.0
Cereals; including	2620.1	2775.7	31.7	102.3	103.6	105.9
Common wheat	1801.1	1855.9	21.2	99.4	103.6	103.0
Durum wheat	5.0	2.7	0.0	96.9	91.6	88.8
Rye	3.0	2.6	0.0	86.4	96.8	85.4
Barley	465.7	513.7	5.9	103.2	104.9	110.3
Oats	21.0	24.6	0.3	110.0	106.4	117.0
Maize	326.3	376.2	4.3	115.3	100.0	115.3
Rice						
Potatoes	264.7	490.4	5.6	95.0	195.0	185.2
Early potatoes	7.9	22.5	0.3	156.5	181.7	284.3
Other potatoes	256.8	467.9	5.3	93.1	195.7	182.2
Vegetables; including:	519.6	584.1	6.7	104.8	107.2	112.4
Fresh vegetables	516.5	580.9	6.6	104.9	107.8	112.5
Dried pulses	3.1	3.2	0.0	94.2	109.9	103.5
Fruit; including:	115.5	110.1	1.3	106.2	89.8	95.4
Citrus fruits; bananas						
Fresh fruits	115.0	109.7	1.3	106.3	89.3	95.4
Dried fruits	0.5	0.4	0.0	82.3	108.1	89.0
Wine, including:	27.2	122.7	1.4	361.7	124.8	451.5
VDQS wines	27.1	122.2	1.4	361.0	124.8	450.6
Other wines	0.1	0.5	0.0	763.1	119.1	908.7
Tobacco	2.1	2.4	0.0	107.1	105.6	113.2
Industrial beetroot	1437.2	1693.8	19.3	101.8	115.8	117.9
Oilseeds	18.2	35.7	0.4	176.3	111.5	196.4
Other crop products	21.3	30.3	0.3			
Flax, hemp	23.7	26.6	0.3	97.4	115.2	112.2
Hops						
Chicory						
Fodder crops	23.7	30.9	0.4			
Flowers	52.6	53.9	0.6	104.3	100.0	102.5
Plants and seeds	-79.7	-82.3	-0.9			
Other	1.0	1.2	0.0			
Forestry production						
2 Animal	2646.4	2910.5	33.2	104.4	105.6	110.2
Live animals, including cattle	1257.4	1428.0	16.3	108.0	105.1	113.6
	796.9	951.9	10.9	114.9	104.0	119.5
calves	145.7	163.1	1.9	103.7	107.9	111.9
horses	9.0	10.9	0.1	109.1	110.0	120.0
sheep and goats	44.3	49.0	0.6	103.7	106.6	110.6
pigs	241.4	253.1	2.9	90.5	107.3	96.8
Milk on the holding	1008.3	1119.1	12.8	101.9	108.9	111.0
Poultry	98.5	97.4	1.1	98.3	100.6	98.9
Eggs	155.1	147.8	1.7	96.3	98.9	95.3
Other animal products, including	27.0	118.2	1.4			
Game	37.4	36.0	0.4			
Rabbits	85.0	73.4	0.8	90.9	95.0	86.3
Honey	2.1	6.1	0.1	256.8	112.1	287.8
Wool, skins, etc.	2.5	2.7	0.0	100.1	108.1	108.2

	78	79	%	I V
B. Intermediate Consumption	3382.4	3885.3	100.0	114.9
Animal feedingstuffs	784.5	865.8	22.4	110.7
Electricity	28.0	32.9	0.8	117.7
Processed petroleum products	144.9	180.4	4.8	124.7
Minerals	22.8	32.2	0.8	141.5
Mineral chemistry	914.7	1069.0	27.5	116.9
Chemistry - related	308.4	365.8	9.4	118.6
Upkeep of farm buildings	94.2	109.6	2.8	116.4
Services	272.1	307.6	7.9	113.1
Specialist mechanical services	296.0	324.2	8.3	109.5
Health services	89.8	114.2	2.9	127.1
Other intermediate consumption	426.9	474.6	12.2	111.2
Production ex-Vat	7672.4	8755.7	100.0	114.1
Gross VAT	359.4	415.6	4.7	115.7
Production inclusive of VAT	8031.8	9171.3	104.7	114.2
Intermediate consumption	3382.4	3885.3	44.4	114.9
Value added	4649.5	5286.2	60.4	113.7
Changes in stocks	37.2	18.1		
C. Operating accounts				
Resources	4742.9	5422.5	100.0	114.3
Value added	4649.5	5286.2	97.5	113.7
Production subsidies	48.4	77.4	1.4	160.3
Insurance claims	45.0	58.8	1.1	130.6
Recruitment	1541.2	1732.7	100.0	112.4
Insurance	141.2	153.3	8.9	108.7
Interest	295.0	332.8	19.2	112.7
Wages and salaries	508.2	558.5	32.2	109.9
Social contributions	125.1	151.3	8.7	120.7
Indirect taxes	130.3	158.7	9.2	122.0
Share farming	341.4	378.5	21.8	110.8
Gross operating surplus of holdings - Production approach	3201.7	3689.9	42.1	115.2
- Marketing approach	3164.4	3671.7	41.9	116.0
Gross operating surplus of holdings - Production approach	2882.3	3353.3	38.3	116.3
- Marketing approach	2845.1	3335.4	38.1	117.2
Utilized agricultural area (in 100ha)	13759.	13755.		100.0
Gross operating surplus per hectare (in FF)	2068.	2423.		117.2
Number of holdings	26580.	26021.		97.9
Gross operating surplus per holding (FF)	107036.	128180.		119.8
Number of family workers	33335.	32447.		97.3
Gross operating surplus per family worker	85347.	102797.		120.4
GDP price index				110.3
Gross operating surplus per holding in real terms				108.6
Gross operating surplus per worker in real terms				109.2

The two countries mentioned (France and Italy) had thus been able to test the methods for estimating the various regional agricultural accounts data by developing the specific keys for breaking down at regional level the various headings which figure in national agricultural accounts.[1)]

- Regional breakdown of crop products

. according to regional production (based on surveys) or, failing that, according to area sown

. the more complex estimate of regional volumes of own supply (cereals) and own consumption (fruits, vegetables, wine) based on surveys of the agricultural production system and the consumption budgets of agricultural households.

- Regional breakdown of animal products

. according to regional numbers (poultry, eggs, pigmeat, sheepmeat)
. estimate of the operating models of cattle herds according to the different regional livestock parameters (calving rate, mortality rate, breakdown by sex and type of finishing: calves, lean animals, animals for fattening). Estimate of inter-regional flows in live animals with a view to evaluating total regional meat production.

- Regional breakdown of intermediate consumption

. according to the sales figures of local firms and to technical coefficients specific to each production system (fertilizers, pesticides, animal feeding stuffs, seeds)
. estimate of maintenance costs of machinery and motor fuel consumption according to the regional vehicle numbers
. estimate of veterinary costs according to regional livestock inventories.

- Regional breakdown of operating expenditure

. Wages and salaries according to the declarations of paid employees.
. Interest according to information provided by the agricultural credit institution and the regional production structure and system, etc.

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1) A method for compiling regional agricultural accounts by aggregating information provided by an annual survey among farmers would not appear to exist at present.

I.2 - EEC countries which provided only an overall estimate of gross value added in agriculture at regional level

The other Member States (Belgium, Netherlands, United Kingdom, Denmark, Germany) compiled, as part of the work on regional accounts, estimates of gross value added in agriculture, but often published only a gross value added fugure for the aggregated total of the three sectors of agriculture, forestry and fishing. [1]

The absence of a standard procedure for regional agricultural accounts led to a total lack of data in these countries on the value of final regional agricultural production, the relevant structure, and the level of intermediate consumption.

As far as we were able to ascertain, the methods for estimating gross value added in agriculture at regional level were based on a breaking down of the national value added according to regional coefficients established, depending on the country concerned, using different types of information:

- regional values of standard gross margins in Germany

  (the areas sown per crop and the main herd sizes being known, a specific standard gross margin of the regional type is applied as an indicator of an analytical gross value added figure: value of production per hectare - cost of certain types of intermediate consumption)

- regional values of "standard farm units"

  established on the basis of farm surveys in the Netherlands, Denmark and the United Kingdom.

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1) Data published by Eurostat in "EEC Regional Accounts", 1981.

II - ADDITIONAL WORK CARRIED OUT, ITS USE AND LIMITATIONS

Faced with the heterogeneousness of the state of information on the regional agricultural economies in Europe, the group of experts concluded that the CAP had not gone very far towards instituting monitoring of agricultural performance at regional level and set out to remedy this shortcoming.

However, it must be stressed that the action taken, and which is still going on, is aimed mainly at obtaining indicators of regional economic trends in agriculture in the EEC and does not purport to be a systematic statistical approach. This was not the object of the exercise, although an approach of this kind is essential if any headway is to be made in the framing of regional agricultural policies. The main advantage of this work would perhaps be to demonstrate that the latter aspiration is indeed feasible.

This system of information on agriculture at regional level in the Community (80 regions, see Table 2) has of course gone through a number of stages as regards compilation and methods :

- it was initially designed as a backup instrument for assessing the regional impact of the CAP and consisted of regional data collection by the various experts of the RICAP group and was put on to a computer medium (reference periods 1964-65 - 1968-69 - 1976-77). The need for speed and the heterogeneousness of the sources used, as well as the importance of this preliminary project, required :

. a phase of rationalization of the use of regional data, which was undertaken in conjunction with the SOEC and the Directorate-General for Regional Policy (reference year 1978-79 and rebasing from 1976-77).

This data system today comprises two registers, one relating to regional agricultural production and the other to regional economic aggregates (1).

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(1) All these data are available at DG XVI on computer media - RICAP data bank.

FRANCE

31011 - Ile de France
032022 - Champagne-Ardenne
032032 - Picardie
032042 - Haute-Normandie
032052 - Centre
032062 - Basse Normandie
032072 - Bourgogne
033081 - Nord-Pas de Calais
034092 - Lorraine
034102 - Alsace
034112 - Franche Comté
035122 - Pays de la Loire
035132 - Bretagne
035142 - Poitou-Charente
036152 - Aquitaine
036162 - Midi-Pyrénées
036172 - Limousin
037182 - Rhône Alpes
037192 - Auvergne
038202 - Languedoc-Roussil.
038212 - Provence- Cote d'Azur-Corse
038222 - Total France

IRELAND

401111 - Donegal-North West
401112 - East
401113 - Midlands
401114 - Midwest
401116 - North East
401117 - South East
401118 - South West
401119 - Western
401110 - Total IRELAND

510191 - Sicilia
511200 - Piemonte
511201 - Sardegna
512200 - Val Aoste
513200 - Liguria
524100 - Lombardie
535200 - Trento
536200 - Veneto
537200 - Emilie-Romagna
551020 - Umbria
551120 - Marche
559200 - Toscana
561210 - Lazio
571310 - Campania
581420 - Abruzzi
581520 - Molise
591620 - Puglia
591720 - Basilicata
591820 - Calabria
- Friuli
500000 - TOTAL ITALY

BELGIUM

100422 - Brabant
100202 - Wallonie
109999 - Flandres
700000 - Total BELGIUM

DENMARK

101001 - Stor-København
101002 - Oest for Storebaelt
101003 - Vest for Storebaelt
101000 - Total DENMARK

GERMANY

201011 - Schleswig Holstein
202021 - Hamburg
203002 - Niedersachsen
204111 - Bremen
205002 - Nordrhein-Westfalen
206002 - Hessen
207002 - Rheinland Pfalz
208002 - Baden Würthenberg
209002 - Bayern
210331 - Saarland
211341 - Berlin
200000 - TOTAL GERMANY

NETHERLANDS

701022 - North Nederland
702002 - East Nederland
702052 - Polder
703002 - West Nederland
705002 - South Nederland
700000 - Total NETHERLANDS

UNITED KINGDOM

904041 - East Anglia
905051 - South East
906061 - South West
907071 - West Midlands
909091 - Wales
910111 - Highland Scotland
910222 - Lowland Scotland
911111 - Northern Ireland
912000 - Northern
900000 - Total UNITED KINGDOM

TABLE 2
RICAP REGIONS

USES

Various types of analyses could be carried out on the basis of these indicators of regional agricultural production :

- growth in final regional agricultural production during a given period (see map 1)

- regional indicators of support for agricultural production through the various common market organizations (CMO) per product (see map 2)

- direct impact on regional agricultural production of Community price policies (see map 3).

LIMITATIONS

In addition to the usual problems generated by the gradual change in the geographical coverage of analyses (1), this system of information on agricultural production at regional level :

- does not today, for want of data, include regional cereal crops (these are available in the case of France and Italy)

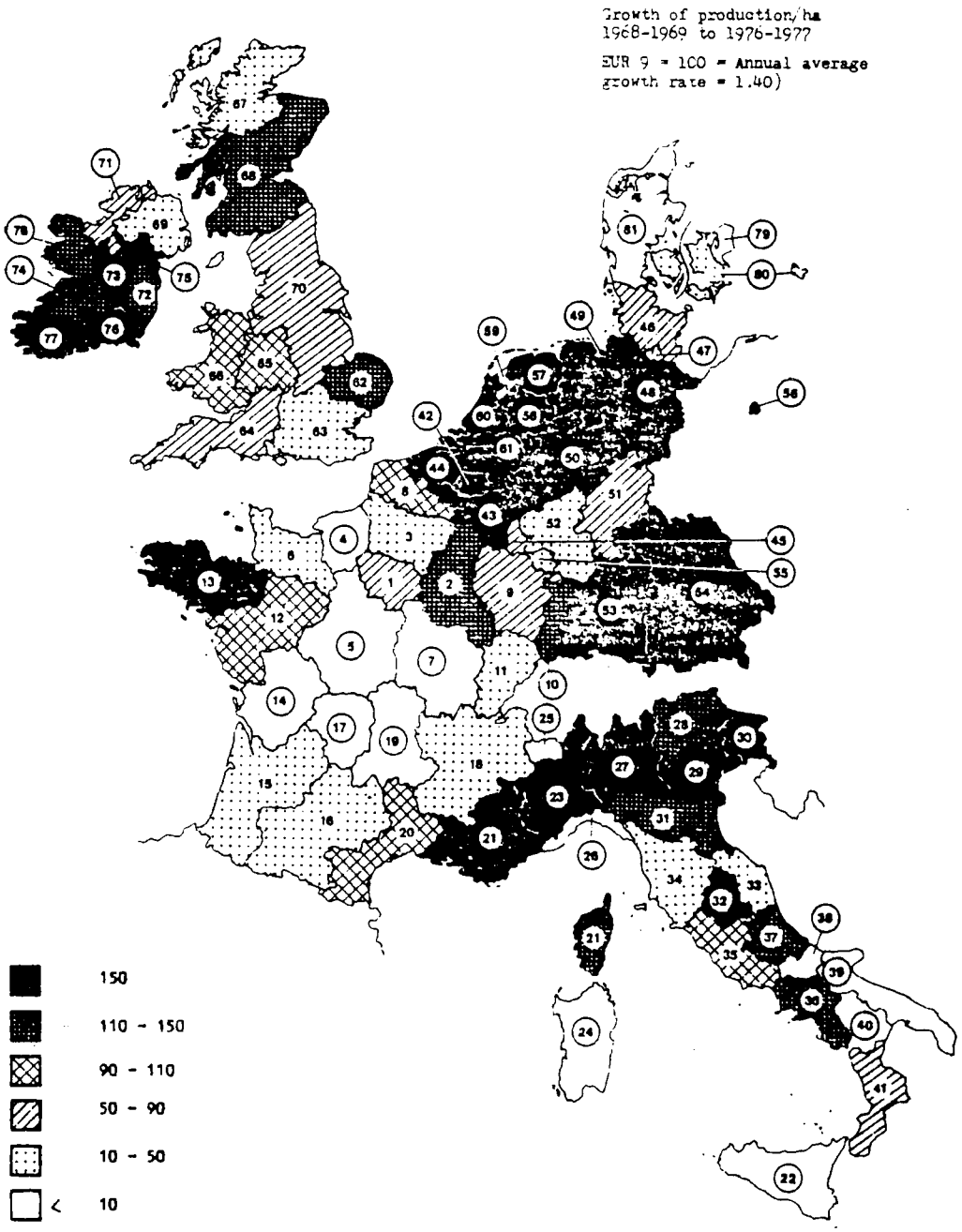
- somewhat glosses over regional production of beef and veal (interregional flows are accurately evaluated only in France)

- fails to take due account of variations in regional prices, Italy and France once again being exceptions.

(1) Particularly in the United Kingdom (see Table 2a)

TABLEAU n° 2a - - U.K. Regions - Counties correspondence

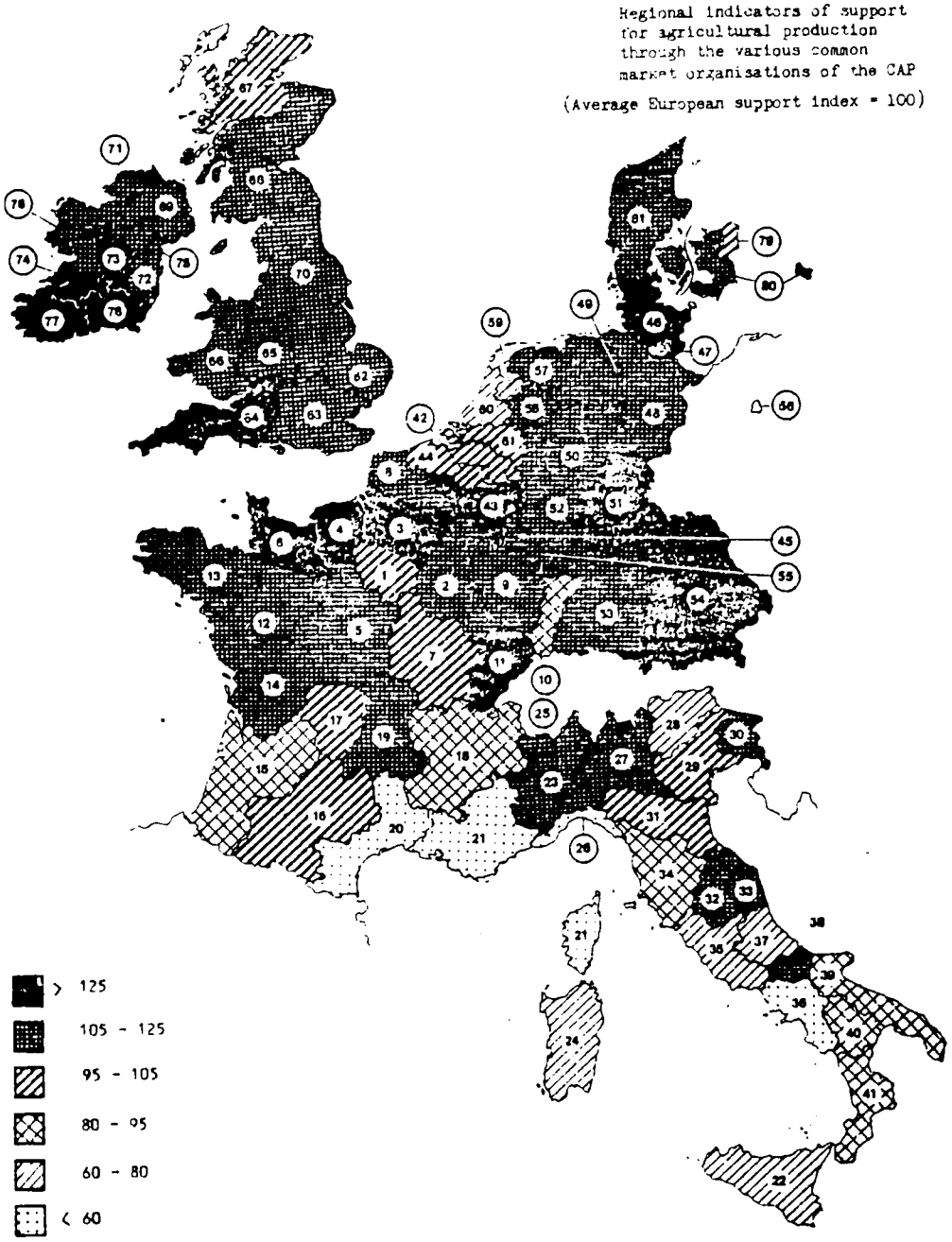
RICAP regions	Statistical Standard (programme regions)	M.A.F.F Regions	Counties (57)
WALES	Wales (total Wales)	. part West Midland . total North Wales . total South Wales	. Clwyd . Mid Glamorgan . Dyfed . Powys . Gwent . South Glamorgan . Gwynedd . West Glamorgan
SOUTH EAST	South East Region (total south eastern)	. part East Midlands . total Southern . total South Eastern	. Berkshire . Hampshire . Surrey . Essex . Buckinghamshire . Isle of Wight . West Sussex . Greater London SE . East Sussex . Kent . Hertfordshire . Greater London SE . Oxfordshire . Bedfordshire
SOUTH WEST	South West Region (total South Western region)	. part West Midland . total Mid Western . total far Western	. Avon . Gloucestershire . Cornwall . Isles of Scilly . Devon . Somerset . Dorset . Wiltshire
WEST MIDLAND	West Midland Region (part West Midland region)	. part North Western . part East Midland . part West Midland	. Hereford & Worcester . Warwickshire . Salop . West Midlands . Staffordshire
EAST ANGLIA	East Anglia (other part Eastern region)	. part Eastern	. Cambridgeshire . Norfolk . Suffolk
NORTHERN	Northern region Yorkshire North West Region East Midland Region	. totalité Northern . part North Western . part Eastern . part East Midland	Northen regions (part Northern region): . Cleveland . Cumbria . Durham . Northumberland . Tyne & Wear Yorkshire/Humberside (other part Northern + Yorks Lancs): . N'Yorks (N'Allerton) . Humberside . N/Yorks (Harrogate) . South Yorks . West Yorks North West Region (part West Midland + Yorks Lancs): . Cheshire . Greater . Lancashire . Merseyside East Midland Region (total East Midland): . Derbyshire . Leicestershire . Lincolnshire . Northamptonshire . Nottinghamshire
SCOTLAND	Lowland Scotland Highland Scotland		
NORTH IRELAND	North Ireland		


Growth of production/ha
1968-1969 to 1976-1977
EUR 9 = 100 = Annual average growth rate = 1.40)
150
110 - 150
90 - 110
50 - 90
10 - 50
< 10

MAP 1

Regional indicators of support for agricultural production through the various common market organisations of the CAP

(Average European support index = 100)



(1976-1977)

MAP 2

II.2 - Register of regional agricultural economic aggregates

The much smaller volume of this register (see Table 3) is a reflection of how difficult it is to obtain the relevant information for the regional level in the EEC.

II.2.1 - Regional value added figures are obtained either through existing regional agricultural accounts figures (France, Italy) or established by the group (Ireland[1]) or by ad hoc calculations for each country.

Table 4- The different ways of estimating gross value add in agriculture at regional level

	France	R.F.A.	Italy	Belgium	Luxembg	Netherl	United Kingdom	Ireland	Denmark
1 Methodology Regional agricultural accounts	x		x	Not published currently	x				
2 - Key for breaking down national gross value added.		SGM				equivlt SGM	Regional production	Key for regional product	SG Equivalent

SGM : Standard gross margin

II.2.2. - Agricultural labour force data

For the RICAP study, the group at first opted for the concept of agricultura workers. In practice, however, this definition proved too vague and did not admit of inter-country or interregional comparisons because of the differenc in working hours from one worker to another.

The group coordinator therefore endeavoured to standardize the labour units for the latest period

1968-1969 - 1976-1977

by using the concept of Community annual labour unit (ALU).

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(1) Work carried out by P. Cuddy of the University of Galway using methods based on the procedure used by M. Ross (methodology of personnel, income estimation by country).

TABLE 3 Register of regional economic aggregates

TAB

REGION	PERIOD 68-69			PERIOD 76-77			PERIOD 78			PERIOD 79		
	UAA	ALU	GVA	UAA	ALU	GVA	UAA	ALU	GVA	UAA	ALU	GVA
31011 - ILE DE FRANCE	529.0	40.2	385.2	600.0	29.1	543.1	589.0	28.6	584.4	587.0	29.2	574.3
32022 - CHAMPAGNE-ARDENNE	1524.0	70.3	329.5	1563.0	59.7	367.4	1563.0	59.1	881.5	1564.0	58.8	1152.0
32032 - PICARDIE	1376.0	74.4	400.0	1374.0	56.5	305.3	1370.0	55.2	815.5	1370.0	55.5	921.4
32042 - HTE NORMANDIE	833.0	56.3	195.4	820.0	41.6	365.2	814.0	40.5	384.8	812.0	39.8	458.1
32052 - CENTRE	2538.0	141.0	571.2	2490.0	100.0	943.7	2478.0	97.2	1171.3	2475.0	96.5	1132.1
32062 - BASSE NORMANDIE	1382.0	129.3	717.8	1360.0	95.4	583.3	1346.0	94.6	655.0	1342.0	94.0	770.3
32072 - BOURGOGNE	1851.0	103.2	282.4	1370.0	75.2	601.1	1369.0	74.4	768.1	1370.0	73.3	977.0
33081 - NORD-PAS DE CALAIS	914.0	93.0	721.8	900.0	65.9	628.2	895.0	64.7	622.0	893.0	63.3	640.8
34092 - LORRAINE	1131.0	66.4	191.3	1130.0	47.4	396.2	1130.0	47.0	424.1	1131.0	46.9	434.1
34102 - ALSACE	343.0	57.8	129.5	330.0	40.0	311.6	331.0	37.4	340.8	330.0	35.8	429.3
34112 - FRANCHE COMTE	719.0	50.5	168.2	718.0	38.3	218.1	719.0	37.3	254.5	719.0	36.6	227.2
35122 - PAYS DE LA LOIRE	2493.0	224.7	506.1	2430.0	170.0	1184.2	2420.0	163.2	1347.7	2415.0	168.7	1547.1
35132 - BRETAGNE	1898.0	252.5	593.0	1897.0	176.7	1125.3	1870.0	175.1	1192.8	1866.0	174.0	1771.2
35142 - POITOU-CHARENTE	1853.0	148.9	409.4	1840.0	109.2	730.1	1827.0	106.3	752.5	1827.0	104.4	884.6
36152 - AQUITAINE	1632.0	216.2	480.1	1600.0	161.7	837.0	1579.0	159.6	997.3	1579.0	158.3	1138.9
36162 - MIDI-PYRENEES	2517.0	213.5	423.6	2460.0	160.0	832.5	2440.0	156.3	907.9	2435.0	153.9	962.4
36172 - LIMOUSIN	920.0	35.2	136.5	929.0	56.7	293.8	910.0	54.5	292.2	911.0	53.0	321.1
37182 - RHONE ALPES	1837.0	199.6	330.6	1715.0	145.1	932.5	1701.0	142.2	981.6	1622.0	141.5	1073.4
37192 - AUVERGNE	1610.0	124.1	230.6	1570.0	94.5	445.3	1557.0	91.8	515.3	1555.0	90.0	542.0
38202 - LANGUEDOC-ROUSSILLON	1128.0	132.6	785.2	1090.0	110.1	899.1	1070.0	108.0	918.6	1064.0	106.7	1164.5
38212 - PROVENCE-COTE D'AZUR-CORSE	940.0	113.2	402.4	920.0	98.7	890.5	909.0	96.2	928.6	908.0	94.6	925.2
30222 - TOTAL FRANCE	29908.0	2525.5	7315.0	29592.0	1921.8	13402.0	29385.0	1887.3	15637.0	29345.0	1864.3	17423.0
510121 - SICILIA	1327.1	314.6	922.4	1292.0	217.2	1173.0	1204.0	208.3	[illegible]	1807.0	199.4	1748.0
511200 - PIEMONTE	1394.1	330.5	477.2	1213.0	206.7	377.0	1223.0	194.5	337.0	1230.0	184.0	1113.0
512301 - SARDEGNA	1303.1	111.4	251.0	1642.0	80.7	329.0	1662.0	79.1	362.0	1665.0	75.3	446.0
512300 - VAL AOSTE	36.0	10.6	5.3	36.0	7.5	15.0	37.0	7.3	16.0	37.0	7.0	19.0
513200 - LIGURIA	152.0	79.7	131.5	131.0	52.3	248.0	137.0	50.2	257.0	133.0	47.3	279.0
521400 - LOMBARDIE	1275.1	275.7	719.2	1177.0	159.9	1222.0	1191.0	158.3	1382.0	1193.0	149.3	1519.0
535200 - TRENTO	438.0	74.4	39.3	415.0	53.3	200.0	420.0	51.4	250.0	421.0	49.5	295.0
535200 - VENETO	1007.0	340.0	636.2	945.0	217.9	1220.0	957.0	206.0	1401.0	958.0	195.4	1595.0
537200 - FRIULI	322.3	39.5	101.5	297.0	53.5	209.0	290.0	49.2	225.0	291.0	46.9	253.0
548100 - EMILIE-ROMAGNA	1386.1	372.2	905.1	1326.0	251.1	1803.0	1343.0	239.0	2197.0	1345.0	227.6	2225.0
551020 - UMBRIA	424.0	38.3	38.3	408.0	58.6	196.0	413.0	54.7	217.0	413.0	51.4	255.0
551120 - MARCHE	571.0	101.2	200.2	603.0	107.2	381.0	610.0	98.3	423.0	611.0	92.1	481.0
559200 - TOSCANA	1062.0	243.1	752.5	1041.0	159.2	603.0	1054.0	151.1	707.0	1055.0	143.7	735.0
561210 - LAZIO	966.0	125.5	419.3	922.0	159.5	776.0	977.0	157.7	862.0	975.0	154.2	913.0
571310 - CAMPANIA	779.0	249.0	655.3	753.0	216.3	1275.0	772.0	237.6	1304.0	773.0	229.2	1506.0
581420 - ABRUZZI	601.0	152.5	213.6	562.0	96.6	410.0	570.0	90.2	478.0	571.0	84.7	501.0
591520 - MOLISE	275.0	40.2	66.7	257.0	39.2	39.0	260.0	37.2	111.0	260.0	35.5	123.0
591620 - PUGLIA	1553.1	255.6	686.3	1505.0	205.4	1174.0	1523.0	202.7	1304.0	1526.0	197.8	1377.0
591729 - BASILICATA	646.0	90.3	104.2	640.0	64.1	175.0	648.0	61.7	243.0	649.0	59.2	271.0
591820 - CALABRIA	818.0	188.8	243.9	792.0	128.7	488.0	802.0	123.0	503.0	803.0	117.7	535.0
500000 - TOTAL ITALIE	17551.1	3941.2	7300.0	16507.0	2574.3	12917.0	16710.0	2457.7	14692.0	16737.0	2346.5	16417.0
422 - BRABANT	184.0	31.5	111.9	165.0	19.7	195.1	165.0	18.8	206.3	162.0	18.2	209.8
202 - WALLONIE	756.0	63.3	229.1	734.0	41.1	492.2	729.0	39.6	539.7	723.0	38.6	536.7
999 - FLANDRES	605.0	103.1	500.5	557.0	73.4	1023.5	555.0	70.7	1096.0	547.0	69.0	1110.5
0 - TOTAL BELGIQUE	1555.0	198.2	811.5	1456.0	134.2	1711.5	1447.0	129.1	1842.0	1433.0	125.8	1857.0
99 - LUXEMBOURG	136.0	15.0	35.5	131.5	11.3	66.2	130.0	10.4	77.5	130.0	7.8	79.6
201011 - SCHLESWIG HOLSTEIN	1163.0	75.2	473.5	1133.0	54.8	897.5	1132.0	51.5	953.7	1103.0	49.4	899.0
202021 - HAMBURG	33.5	9.8	59.1	28.0	7.2	116.9	27.9	6.9	117.7	17.0	6.2	116.1
203002 - NIEDERSACHSEN	2911.1	252.7	1051.3	2905.1	179.5	2198.4	2902.9	168.0	2379.4	2772.3	160.8	2240.0
204111 - BREMEN	19.0	2.5	45.0	15.0	2.3	79.6	15.0	2.3	72.4	14.0	2.2	70.0
205002 - NORDRHEIN-WESTFALEN	1974.1	223.7	735.7	1843.1	143.0	1643.7	1930.2	131.2	1801.3	1677.3	123.5	1636.0
206002 - HESSEN	980.0	119.1	340.4	900.0	84.1	605.1	889.3	78.6	635.2	798.0	75.2	558.0
207002 - RHEINLAND PFALZ	360.0	148.4	375.4	379.0	115.0	565.5	375.0	109.4	598.1	766.0	105.8	557.0
208002 - BADEN WURTHENBERG	1857.1	157.1	650.6	1717.1	136.3	1371.4	1715.5	174.3	1486.7	1547.9	168.7	1399.0
209002 - BAYERN	3815.1	513.3	1232.0	3679.1	377.2	2440.3	3668.3	355.4	2614.8	3538.3	341.5	2461.0
210331 - SAARLAND	133.0	13.5	31.0	115.0	6.6	56.4	115.0	5.7	82.0	77.0	5.2	51.0
211741 - BERLIN	14.0	3.7	12.0	3.6	6.5	30.2	3.5	7.0	33.7	1.5	7.2	27.9
200000 - TOTAL ALLEMAGNE	13860.0	1625.0	5006.0	13213.0	1152.5	10064.9	13176.0	1096.3	10875.0	12314.0	1044.1	10209.0
701022 - NORTH NEDERLAND	613.0	56.3	277.2	586.0	41.3	739.8	581.0	39.5	813.3	577.1	38.4	793.2
702002 - EAST NEDERLAND	514.0	81.7	318.6	479.0	67.1	751.3	510.0	65.0	814.2	506.1	63.7	787.2
702052 - POLDER	75.0	5.3	31.3	57.0	5.5	54.4	58.0	5.6	107.1	57.5	5.7	103.3
703002 - WEST NEDERLAND	555.0	104.9	694.3	514.0	79.1	1551.8	506.0	77.6	1663.0	502.1	76.8	1609.0
705002 - SOUTH NEDERLAND	438.0	68.3	271.0	399.0	56.4	656.3	393.0	55.2	714.4	390.1	54.9	690.3
700000 - TOTAL PAYS BAS	2195.0	317.0	1593.0	2045.0	249.0	3794.0	2048.0	243.0	4118.0	2033.0	239.5	3984.0
904041 - EAST ANGLIA	1044.0	64.8	251.2	1015.9	51.5	476.3	1013.0	50.5	581.2	1015.0	49.3	657.4
905051 - SOUTH EAST	1713.0	82.4	371.1	1744.6	72.1	547.0	1735.0	70.6	740.7	1736.6	69.8	824.7
906061 - SOUTH WEST	1853.0	117.0	358.8	1858.0	111.0	629.3	1858.0	108.4	673.8	1857.0	107.5	761.2
907071 - WEST MIDLANDS	992.0	51.2	206.1	985.0	47.4	385.4	989.0	46.5	416.6	987.0	45.9	461.4
909091 - WALES	1512.0	56.0	175.3	1502.0	55.5	330.9	1499.0	54.4	334.4	1502.6	53.7	369.2
910111 - SCOTLAND	6660.0	63.6	700.4	6113.0	58.2	631.7	5571.0	57.8	571.1	5547.0	56.4	648.3
911111 - NORTHEN IRELAND	1092.0	59.8	182.5	1094.0	51.6	314.2	1097.0	50.6	318.5	1100.0	50.0	363.3
912000 - NORTHEN	3896.0	155.0	755.1	3885.0	126.7	1366.7	3873.0	163.0	1597.3	3874.0	161.0	1681.0
900000 - TOTAL ROYAUME UNI	13762.0	585.8	2593.0	18196.0	613.5	4792.0	17640.0	601.4	5144.0	17618.6	594.2	5767.0
401111 - DOEGAT NORTH WEST	418.0	45.4	72.1	394.0	29.2	70.5	354.0	27.3	75.8	343.1	26.5	65.3
401112 - EAST	543.0	35.4	59.7	521.0	26.9	129.1	464.0	24.8	133.6	464.1	23.9	115.7
401113 - MIDLANDS	721.0	52.1	50.3	710.0	38.1	122.4	679.0	37.0	175.1	671.2	36.9	147.8
401114 - MIDWEST	635.0	47.4	64.3	628.0	33.1	159.3	598.0	32.3	211.1	590.1	32.2	199.7
401116 - NORTH EAST	347.0	32.5	40.2	343.0	24.3	91.1	338.0	22.8	108.7	337.1	20.5	97.3
401117 - SOUTH EAST	794.0	55.5	33.0	776.0	44.2	226.3	748.0	39.8	291.4	740.2	35.3	261.5
401118 - SOUTH WEST	779.0	69.7	101.7	756.0	57.3	275.2	726.0	56.5	358.8	718.2	55.1	325.1
401119 - WEST	584.0	72.0	50.3	562.0	52.4	120.1	537.0	48.7	154.5	515.1	46.5	157.1
401110 - TOTAL IRLANDE	4811.0	410.0	482.0	4690.0	306.0	1195.5	4444.0	288.4	1509.0	4379.0	277.3	1370.0
101001 - STOR-KOBENHAVN	134.0	13.3	44.2	136.0	11.1	90.4	133.0	11.0	99.7	133.0	10.8	92.1
101002 - OOST FOR STOREBAELT	500.0	38.8	150.6	497.0	27.2	355.3	500.0	26.7	382.2	498.0	26.3	342.3
101003 - VEST FOR STOREBAELT	2290.0	164.2	646.2	2324.0	133.3	1370.3	2290.0	129.1	1676.1	2239.0	126.5	1535.1
101000 - TOTAL DANEMARK	2924.0	217.0	841.0	2957.0	171.6	1818.0	2923.0	166.8	2158.0	2920.0	163.6	1970.0

Table 5 lists the main statistical sources used: Community surveys of 1977 and 1975, national censuses. The calculations and data on labour by region are given in Table 6.

Uses

The regional agricultural gross value added figures per person engaged have often been used as an indicator of agricultural productivity, thus making it possible:

- to describe the characteristics of regional disparities within the EEC (map 4) and to assess, for composite indicators of the Gini coefficient type, the narrowing or intensifying of these disparities in Europe (Graph 2) during a given period;

- by breaking down the gross added value/person engaged into gross value added/a x a/person engaged, to highlight the two components of these very approximate indicators of agricultural income: at regional level during specific periods (see Graph 3).

Limitation

All analyses of these GVA indicators, and even more so in the case of GVA/person engaged, are naturally tricky, because of :

- the lack of precision of the estimation methods for the regional level of these two aggregates, owing to the lack of systematic regional work in this field;

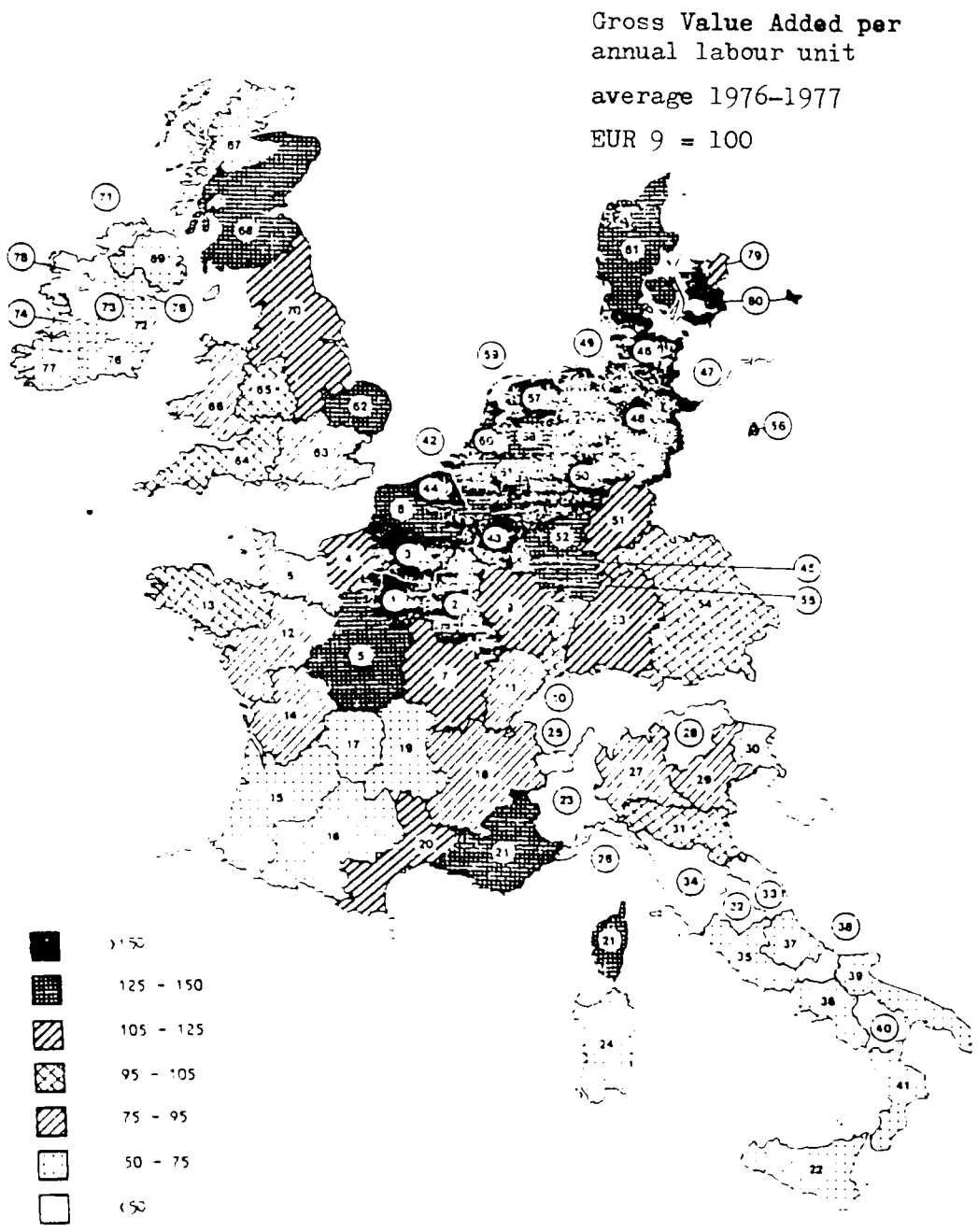
- the intrinsic nature of the GVA concept which is merely an approximate indicator of productivity (brought down to the scale of hectare or of person engaged), providing a poor indicator of agricultural income.

It takes no account of capital investment (net value added) or operating expenditure.

Table 5 - Labour force surveys used to compile RICAP regional data

	France	Germany	Italy	Belgium	Luxembourg	Netherlands	United Kingdom	Ireland	Denmark
1967 Community survey	x	x	x	x (Nation)	x	x (Nation)			
1970 general agric. census	x				x				
1975 Community survey	x	x	x	x (region)	x(N)	x (region)	x	x(N)	x(N)
1979-80 general agriculture census	x								
National results 1977 Community survey		x(N)		x (region)	x(N)	x (N)		x(N)	x(N)
Other national sources						C.B.S. Working Year Units		Labour force	Labour force

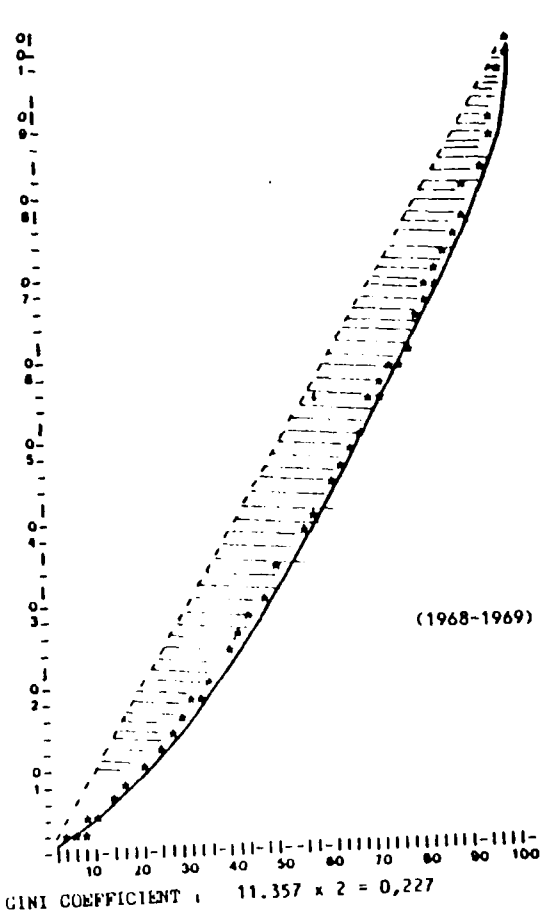
N: results available only at national level



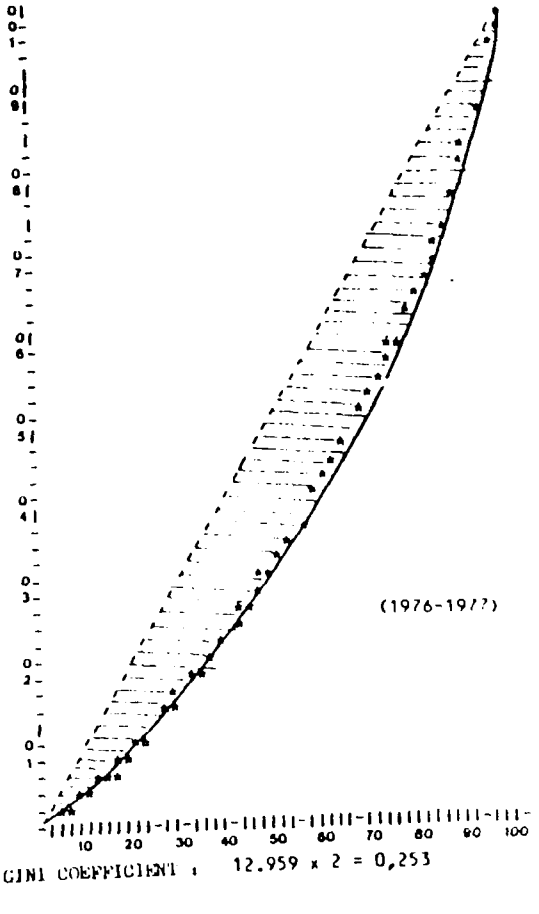
MAP 4 - Regional variations as on index of GVA/ person engaged

Indicator of growth in regional disparities between 1968-1969 and 1976-1977

TREND IN CONCENTRATION OF COMMUNITY VALUE ADDED PER REGIONAL AGRICULTURAL WORKER (ALU)



GINI COEFFICIENT : 11.357 x 2 = 0,227



GINI COEFFICIENT : 12.959 x 2 = 0,253

GRAPH N° 2

Trend GVA national worker (in real terms)

= Rates of annual growth per period GVA worker (64-76);

% structural component (growth of surface area in use per worker) (68-76)

% production component (growth by way of GVA ha in real terms)

	Period from 1964-1965 to 1976-1977			Period from 1968-1969 to 1976-1977		
	Growth rate GVA worker	% structure component	% production component	Growth rate	% structure component	% production component
FRANCE	5	91	9	4.2	112	- 12
ITALY	5	69	31	4.5	88	12
BELGIUM	5.5	54	10	5.7	87	13
LUXEMBURG	4.3	130	- 30	6.3	108	- 8
GERMANY	5.1	78	22	5.7	66	33
HOLLAND	6.7	20	80	6.5	34	66
EUROPE = 6	5.5	75	25			
IRELAND				6.7	56	44
DENMARK				1.9	175	- 75
UNITED KINGDOM				3.6	49	51
EUROPE = 9				5.5	75	25

Growth in GVA / national worker

impact of the structure and production components

Table 6 - Details of the calculation

The annual growth index of GVA/worker is obtained by multiplying the growth index for the area/worker by the growth index for the GVA/ha :

$$(1 + r\ \text{GVA/worker}) = (1 + r\ \text{UAA/worker} \times (1 + r\ \text{GVA/ha})$$

$$\log (1 + r\ \text{GVA/worker}) = \log (1 + r\ \text{GVA/worker}) + \log (1 + r\ \text{GVA/ha})$$

The % of the structure component in the growth of GVA/worker =

$$\frac{\log (1 + r\text{UAA/worker})}{\log (1 + r\text{GVA/worker})}$$

The % of the production component in the growth of GVA/worker =

$$\frac{\log (1 + r\ \text{GVA/ha})}{\log (1 + r\ \text{GVA/worker})}$$

Conclusions

The need to take increasing account of regional disparities in any CAP reforms means that work on regional agricultural accounts must be continued at Community level and in the individual Member States.

There are three ways of stepping up such work and each would merit a cost/benefit analysis in relation to the objectives set:

- general introduction in the Member States of standard regional agricultural accounts procedures such as the one submitted by Mr Greiner for France. Backed up by a Community programme, this is no doubt the most valid method, but also possibly the most expensive;

- an endeavour to reconstitute regional agricultural accounts from data supplied by the Farm Accountancy Data Network (FADN) if its statistical coverage at the regional level improves. This method of compiling accounts by aggregating individual results (operating account and balance sheet) would no doubt offer the advantage of yielding more economic data on production, operating, capital and financial accounts in agriculture, but would unfortunately require considerable adjustment calculations at the regional level;

- lastly, there exists a middle course which would possibly be the quickest to implement, viz. to develop and improve utilization of standard gross margins, provided they are updated each year for each product and that the Member States have an annual inventory of crops and livestock. An effort could then be made to reconstitute more standard approximate indicators of gross added value in agriculture. However, this method will be inadequate for dealing with more precise concepts such as net value added and gross and net operating income.

Annex 1

Crop products

a) Generally speaking, for cereals, sugar beet and potatoes, regional statistics in the different countries show areas sown, and therefore yield per hectare) (1).

b) This same type of information exists in respect of oilseeds, but the smaller scale of this crop means that this information:

- is provided in France (rape seed and sunflower), Germany, Italy and Belgium;
- has been reconstituted in the case of the Netherlands (rape seed, caraway);
- has not been collected for the periods 1968-69 and 1976-77 in the three new member countries, i.e. Ireland (which is only to be expected as there are no such crops) Denmark and the United Kingdom; and that
- when the bank was updated in 1978-79, the data on areas sown, yield, production by region (in the case of rape seed) were recalculated in the latter two countries.

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(1) Only France and Italy have data on regional harvests.

(2) Gernany and Denmark have supplied data for rye, while France, Italy and Belgium have supplied data for the heading "Other cereals".

c - Minor crop products

- hops (0.1% of final Community production in 1979): the relevant data are collected regionally in Germany, France and Belgium but not in the United Kingdom for the period 1968-69 - 1976-77, although they were reintroduced in 1978-79;

- the other headings covering flax, hemp and seeds could not generally be broken down correctly by region. These products will be incorporated in another heading entitled "Other crop products by region" for the 1978-79 period.

d - Wine

Only in France has a distinction been drawn between the two categories of table wine and quality wine. No distinction is made in Italy or in Germany (production is largely of quality wine).

e - Fruits covered by a CMO (common Market Organization) arrangement

The relevant regional data have been compiled in a number of ways:

- In France and Italy (which together account for the bulk of Community production) the National Statistical Yearbook provided data on areas sown by crop, total production, harvested production, marketed production. The concept of harvested production was selected;
- in the other countries, domestic production has been 'regionalized' according to areas sown by species (Belgium, Netherlands, United Kingdom in the case of apples);
- in Germany, only total fruit production at regional level has been given (for the 1978-79 period data on apples, pears and peaches were reintroduced on the basis of regional statistics);
- in Ireland, the heading "Fruit and vegetables" has not been covered (1% of Community production, 2-3% of total Irish production);

- the high degree of detail of the data supplied by Italy on fruit and vegetables should be stressed (see annual publications of the INEA - National Inst. of Agc. Economy).

ANALYSIS OF REGIONAL DATA ON FRUIT AND VEGETABLES (RICAP)

	1964-1965 - 1976-1977						1968-1969 - 1976-1977		
	France	R.F.A.	Italy	Belgium	Luxembourg	Netherland	United Kingdom	Ireland	Denmark
Apples	(1) S,R,P^{nr}	nr	(1)S,R,P^{n}	(2) P^{n}	(4)	(2) S P^{n}	(2) S,P^{n}	nr	(2)
Pears	"		"	"	"	"			"
Peaches	"		"	"	"	"			"
Plums	"		"	"	"	"			
Cherries	"		"	"	"	"			
Grapes	"		"	"	"	"			
Citrus fruits	"	∉	"	∉	∉	∉	∉	∉	∉
TOTAL FRUITS	(3) Values	(2)Production	Production	(2)	"	(2) Value	nr	nr	nr
Other fruits Tomatoes Cauliflowers			In value terms For details see T.4col.1	Straw berries			Raspberries		
TOTAL VEGETABLES	(1) S,R,P^{n}		(1) S,R,P^{n}	(2) P^{n}	(4)	(2)	(2)		
	"		"	(2) P^{n}	(4)	(2)	(2)		(2)
TOTAL VEGETABLES	(3) Values	(2)Values	(1)Values	(2)Values	(4)	(2)Values	nr	nr	nr
Ither vegetables			For details of other vegetables, see Table 4, column 1	Other outdoow vegetables, Other greenhouse vegetables					

(1): existing regional statistical data

(2): data on national production expressed in regional terms according to areas sown

(3): regional accounts data

(4): national accounts data

Conclusion

Regional fruit production is correctly covered in France, Italy and the Netherlands, and probably more or less correctly broken down by regional level in Belgium, these countries together accounting for 80-85% of Community production. The estimates of the German and British regional production figures will be improved for 1978-79.

f - Vegetables

The regional form was designed for collection of data on tomatoes and cauliflowers, and on the value of total vegetable production by region:

- tomatoes: production in France and Italy at regional level is covered by the regional statistics. In the case of Belgium, the Netherlands and the United Kingdom, national production has been broken down according to area under glass. The very small regional production in Ireland, Denmark and Germany has not been covered;

- cauliflowers: regional data exist in the case of Italy and France but are obtained by breaking down the national production according to areas sown in Belgium, the Netherlands, the United Kingdom and Denmark. They are not compiled in Germany, but will be for the 1978-79 period.

  Data on the value of total vegetable production should make it possible to analyse the role of these products in the regional production structure.
  The relevant figures are obtained
  - in France and in Italy, from the regional accounts;
  - in Belgium, the Netherlands and Germany, by breaking down the national accounts using appropriate keys.

  They are not calculated in the United Kingdom, Ireland or Denmark.

  For the 1978-79 period an effort will be made to bridge this gap, particularly in the United Kingdom since in certain regions (such as the South-East) production of vegetables is by no means negligible and to take account only of tomatoes and cauliflowers results in an underestimation of regional production and a distortion in the regional structure.

g - Animal procucts

Three types of methods have been used to calculate approximate regional animal product data.

- in France and in Italy, a regional accounting exercise is used to cover types of holding, regional herd size and inter-regional trade. The figures used in the RICAP are based on these regional accounts.
- in Germany, the national gross indigenous production figure has been broken down mainly on the basis of regional slaughtering statistics.
- in all the other Member States, national production figures were broken down according to the number of animals present at specific periods of the year (see table No 4).

The Member States do not break down cattle production into production of full-grown animals and calves (Italy, United Kingdom, Ireland and Denmark).

Moreover, poultry production was not given by Germany but was reconstituted by the coordinator.

Lsstly, other animal products were covered in France and Italy, incorporated into the heading 'Other products' in Belgium and the Netherlands, estimated in the United Kingdom in the case of wool, and not reported in the remaining countries.

Table 4 - ANALYSIS OF METHODS USED TO COMPILE REGIONAL ANIMAL PRODUCTS DATA - (RICAP)

	France	R.F.A.	Italy	Belgium	Luxembourg	Netherlands	United Kingdom	Ireland	Denmark
Beef	(1) Production	Production of slaughtered animals	(1) Production	(2) Year-old cattle Cull cows and year-old female animals for slaughter	(3)	(2) Total full-grown animals	Total bovine animals (2) Total	(2) Total	2) Total bovine animals (2) Total
Calves	"	"			"	(2) Total Calves			
Pigs	"	"	"	2) Pigs for fattening	"	(3) Pigs for fattening			(2) Total pigs
Sheep and goats	"	"	"		"	(2) Total sheep	(2) Lambs		(2) Total sheep
Poultry	" N.A.		"	(2) Broilers	"	(2) Broilers	(2) Broilers		(2) Total poultry
Eggs	"	"	"	(2) Laying hens	"	(2) Laying hens	(2) Laying hens		(2) Laying hens
Cowsmilk		Regional statistics	"	(2) Number of dairy cows	"	(2) Numbers of dairy cows	Number of dairy cows (2)		(2) Number of cows
Other animal products	(1) Values	NA	(1)	(2) Values	"	(2) Values	N.A.		N.A.

(1) Regional agricultural accounts which exist and provide data on production volumes and relevant values

(2) National production broken down according to the regional numbers quoted in the table

(3) National data: EUROSTAT

Other products

In order to determine the overall volume of regional agricultural production as comprehensively as possible, each expert was asked to calculate the residual heading 'Other products'.

- France: regional accounts data can be used to calculate the total financial volume of fruits (and therefore 'Other fruits'), vegetables (and therefore 'Other vegetables') and total animal products (and therefore 'Other animal products').

- Italy: the detailed classification used makes it possible to calculate the total regional production.

- Belgium and the Netherlands: a specific calculation was supplied by the experts for the years in question (Tables 5 and 6).

- Denmark: The heading 'Other products' was supplied by the expert.

- in the case of the United Kingdom, Germany and Ireland, the heading 'Other products' is estimated in part and should be covered more adequately for the 1968-69 period.

Document N° 17

INTER-CITY COMPARISON OF CONSUMER PRICES AND CONSUMERS' PURCHASING POWER PARITIES

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INTER-CITY COMPARISON OF CONSUMER PRICES AND CONSUMERS' PURCHASING POWER PARITIES

A price statistics contribution to the compilation of regional statistics in the light of a survey carried out in the Federal Republic of Germany in 1978.

Introduction

The official price statistics in the Federal Republic of Germany are geared first and foremost to reflecting price changes. This is true of all types of price statistics, ranging from producer, wholesale and external trade prices through construction prices to consumer price statistics.

This does not mean to say, however, that the German price statistics cannot be expected to yield any viable regional statistics. It would in fact be possible to calculate price changes for specific parts of the FRG, and, indeed, cost-of-living price indices and construction price indices (relating to specific types of structure) are calculated on a 'Land' basis by the provincial statistical offices (e.g. the City of Berlin and the Saarland). So the fact is that there are price indices for even relatively small geographical areas. However, over the relatively long term , the differences in the price indices calculated for individual 'Länder' are minimal. For instance, the North Rhine-Westphalia cost of living index (for an average manual worker's four-person household) on a 1976 base (= 100), with the highest figure in the 1981 annual average, was only 0.6% above the corresponding national index (at 122.8 for 1981), while the regional index with the lowest figure for the same period was only 0.6% below the national figure. The corresponding differences in the price index for residential buildings (1981 national index : 144.7) were + 2.8% and - 2.8% respectively *. In other words, the regional price indices all fluctuate within a very narrow range.

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* It should of course be borne in mind that the regional cost of living and construction price indices are both based on a standard weighting scheme (i.e. that used for the corresponding national index), which means that, in that respect, the indices are not authentic regional indices in the true sense of the word. However, this is not necessarily a negative factor, as it is only by using a standard index system that it is possible to identify, over a period of time, differences which are due solely to differences in price changes.

This explains why the German price statistics, being based on comparison over a period of time, are of relatively little interest from the point of view of regional statistics.

This would only be the case if they were capable of revealing (as a by-product, so to speak) differences in the absolute level of prices too. Generally speaking, though, this is not the case, and there are very specific reasons why not. It is, in a way, a special characteristic of the German price statistics that only in exceptional cases do they yield information on regional or local price differences. This phenomenon can be explained by the principle on which the representative prices are selected, i.e. the commodity variants which are the subject of ongoing price observation, the sum total of the resultant price series being taken as representative of trends in the price components of the value aggregate in question (e.g. expenditure on private consumption, total costs of residential buildings or domestic sales of commercial products). In the official German price statistics, these commodity variants are not normally dictated to the price reporting correspondents, which are instead free to choose them themselves. As a rule, the reporting correspondents are given only a general description of the type of commodity in question. (In some cases, only the catalogue number is given.) The criterion is that the reporting firm should select from its sales programme the commodity variant which is the current top-seller and is likely to remain so for the immediate future. To take an example, one of the items in the survey of consumer price statistics is entitled 'Washing machine, fully automatic with programme setting, drum system, for 4-5 kg dry washing'; no additional details are given. One reporting firm may select, for the purposes of the price statistics, an up-market appliance with a capacity of 5 kg and which may incorporate an integrated tumble dryer. Another firm (one which, for instance, specializes in simple and very cheap imported models sold and installed on a cash-and-carry basis with no guarantee) may base its price returns on an appliance which is of a substantially lower quality and may retail at only half the price of the other firm's representative model. The other reporting agents may have

selected models of a quality somewhere in between the above two variants. As a result, the average price is a mixed one which, in absolute terms, is highly dubious, but which may nonetheless be ideally suited as a basis for the calculation of relative price changes for washing machines, provided of course that the selected range of appliances remains unchanged. (The reason why it is an ideal solution is because, for a given amount of work on the survey, it yields a maximum degree of price representativeness) On the other hand, mixed prices and the methods used to obtain them are totally unsuitable for comparing the absolute price levels of washing machines (for instance, comparing two survey locations in the consumer price statistics). If the price returns for one place reflect relatively upmarket appliances, compared with a preponderance of simple models in the other place, the average prices for the respective places will reflect not genuine price differences (or at least not only genuine price differences), but rather differences in quality.

Price statistics along these lines are therefore unsuitable for bringing out local or regional price differences. This is a general rule, although in individual cases, price surveys based only on a time comparison can yield results which are a reliable reflection of the differences in price levels; this is true in the case of commodities for which there are no variants or where all sales outlets stock the specified variant. One example of this is the price of a specified monthly consumption of electricity by private households. All that is needed here is a brief description to enable price statistics to be compiled for a commodity for which all electricity-generating authorities can provide price data; the resultant prices are then exactly comparable (not only over a period of time).

This kind of thing occurs only very rarely in the private household sector, which means that the Federal Statistical Office has had to carry out a special, custom-made statistical survey for the purposes of ascertaining local differences in the cost of living as a whole, a description of which is given on the following pages.

Preparation of the comparison

There has always been a lively interest in information on differences in consumer price levels in the Federal Republic of Germany, the main interest being in whether - and if so, to what extent - there was a link between the size of a city or other area and the cost of living there. Other interested parties were anxious to know whether the cities generally regarded as having the highest cost of living (i.e. Hamburg, Düsseldorf, Frankfurt, Stuttgart, Munich and Berlin) were really such expensive places to live in, and which of the said cities had the highest cost of living of all. Many questions along these lines came from abroad, from official institutions and private companies with a presence in these cities (and especially in the Bonn-Cologne conurbation), and which wished to reflect the different costs of living in different areas in their employees' salaries. These sources harboured doubts, especially as regards the economic and monetary island of West Berlin, as to whether the cost of living in Berlin was the same as in other cities in the western part of the FRG.

The amount of interest in information on consumer price differences in the FRG has grown over recent years, especially the differences between Bonn and the other major cities, attention being concentrated on international consumer price comparisons and purchasing power calculations. Because of the amount and the expense of the work involved and the methodological and administrative problems, price surveys for such calculations are normally restricted to only a very few places within a currency area (in most cases the capital city). For many purposes, this kind of restricted coverage is perfectly reasonable, e.g. for the purposes of calculating purchasing power supplements or deductions for the diplomatic staff of a country which maintains an embassy at the seat of government of the host country (in most cases the capital city). However, for international purchasing power comparisons for other, more general purposes, it is unsatisfactory to have the requisite consumer price surveys conducted only in the capital city. This kind of thing is adequate, at best, in small,

densely-populated countries with a largely homogeneous economic structure. Within the European Community, for instance, the only such areas, apart from Luxembourg, where it would be sufficient to measure the level of consumer prices for the purposes of international comparison in the capital city or another central city are Belgium and the Netherlands. As far as the United Kingdom, France, Italy and the Federal Republic of Germany are concerned, on the other hand, the restriction to a single major city must be regarded as no more than a stop-gap remedy.

The Statistical Office of the European Communities (SOEC) has therefore called on these countries to investigate domestic variations in the level of consumer prices so that the prices monitored in the capital cities, and which are used to calculate the Community consumers' purchasing power parities (as a constituent part of the Community purchasing power parities in relation to the gross domestic product as a whole), can be converted to the respective national average. The fact that this is essential, and that it is not sufficient to calculate consumer parities by reference to related prices reflecting only the price differences between the capital cities, will be immediately apparent and acknowledged when one realises how important Community purchasing power parities really are. The intention is to use them in international comparisons of variables expressed in national currencies to convert these variables into a standard Community currency on the basis of the purchasing power parities vis-à-vis this standard currency. In other words, the aim is to find a substitute for exchange rates as a conversion factor in international comparisons, and there can be no doubt that the purchasing power parities to be used for this purpose must be calculated on as broad a basis as possible.

The Federal Statistical Office was therefore delighted to comply with the SOEC's wishes, particularly in view of the fact that requests for similar information have been received from national sources.

The surveys were planned for the second half of 1978, so that the results would be ready for the next calculation of up-to-date primary Community purchasing power parities planned for 1980.

It was thought important for the purposes of comparison and the requisite consumer price surveys to formulate a clear methodological system, the various elements of which are set out below.

a) The primary consideration was to be that only 'genuine' or 'pure' price differences would be recorded and identified as local consumer price differences.

b) As a result, the price surveys carried out at the various locations would have to be based on a standard list of commodities and services, with descriptions of commodities in such detail as to ensure that the commodities whose prices were to be compared from place to place would, wherever possible, be absolutely identical.

c) The concept of identicalness covers not only the quantity and quality of the goods, but also all other features affecting the price level. This means in particular the services performed by the retailer of a commodity constituting an essential part of the sale (e.g. the provision of an adequate range of goods, customer counselling by trained sales staff and other such services down to the packing of the goods and (e.g. in the case of furniture or large electrical appliances like washing machines or television sets) delivery to the customer's home and assembly or installation, along with such ancillary services as the provision of a guarantee and credit terms, etc.). After all, from the point of view of price statistics, a particular brand and model of dishwasher sold by a specialist shop is, generally speaking, a different article from the same appliance bought by a customer in a cash-and-carry warehouse at a correspondingly lower price.

A list of articles drawn up with the intention of bringing out only 'pure' price differences must therefore provide for a differentiation by type of retailing establishment and the various types of establishments must be covered in the same ratio at all locations.

d) Provided these principles are complied with, the principle of identicalness of goods can be guaranteed, although the question then is whether the equally important principle of the representativeness of goods is thereby violated, i.e. whether, by basing the survey on an entirely uniform list of commodities at all survey locations, coverage is extended to certain types of goods which do not sell sufficiently well in all places.

The fact is that there are certain commodity variants which sell only in certain parts of the Federal Republic of Germany (e.g. traditional regional costumes, certain special types of bread, cooked meats and ham, pasta, which takes the place of the staple potato, etc.). However, there is no reason why these special cases, reflecting purely regional consumer habits, should adversely affect a local or regional consumer price comparison in the Federal Republic of Germany, because in no geographical area do they account for a significant proportion of consumer expenditure and because such regional specialities are supplemented in all parts of the FRG by the more ubiquitous commodity variants for all types of consumer expenditure. In other words, there is no reason why the principle of commodity identicalness should, in any regional or local price comparison within the FRG, conflict with the principle of commodity representativeness *.

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* This constitutes an important difference vis-à-vis international consumer price comparisons which, even in the case of a comparison between two neighbouring countries, are adversely affected by this conflict, for which special precautionary measures have to be taken.

e) Nonetheless, it is not an easy matter to draw up a uniform list of articles which can be used without further ado in all parts of the FRG. Even if reliable information were available as to whether the three brands of toothpaste x^1, x^2 and x^3 were marketed throughout the FRG, the chances of coming across x^1 in <u>all</u> selected retail outlets might well be greater than of coming across x^2 everywhere. The manufacturers' domestic sales figures are not a reliable source of data in this respect. It is, for instance, conceivable that x^1, with the highest sales figures, is sold mainly by department and discount stores, but only rarely by specialist shops. It is therefore important to gather information on the commodity variants with maximum availability in the retail outlets selected for the surveys, and this is what the Federal Statistical Office has done. Unfortunately, finance and staff availability were insufficient to enable the FSO to adopt what, in this case, would have been the best means of preparing a comparison, and what should really be recommended to all statistical institutions planning to carry out such a comparison, i.e. a preliminary survey, on a sample basis at least, conducted in selected locations (e.g. in outlying areas ?) of the availability of certain commodity variants.

f) The identicalness of commodity variants from one survey location to another can best be guaranteed by including branded goods in the list for as many commodities as possible. In the actual survey of prices, it is then necessary only to specify the brand name (together with code number or the like), and the enumerator can then be sure that the various local prices are genuinely comparable (provided the reporting firms are similar and there are no discrepancies in any other price-related characteristics). Of course, even with brand goods, it is essential to ascertain whether the variants in question are universally available.

In fact, the list drawn up by the FSO for the 1975 regional consumer price comparison included a relatively large number of brand goods.

However, a problem has arisen in this respect in that it is difficult to know whether brand products really yield sufficiently representative prices for a comparison of this kind. They would be suitable if it could be assumed that the price of a brand product in a particular category was representative of other similar unbranded products on the market, in other words, if the price difference between unbranded products sold at different survey locations was the same as the price difference for the selected branded products.

Unfortunately, this assumption does not always hold water. On the contrary, the likelihood is that the retail prices for brand products differ from place to place rather less than the prices of similar unbranded products. This is true at least of those brand goods for which the manufacturers stipulate 'recommended prices'. While it is true that these are not binding on the retailer, the fact is that they do have the effect of leveling prices somewhat, at least in comparison with unbranded products, which are not so subject to such constraints.

As a result of all this, it may be thought that brand products should be included in the commodity list for local consumer price comparison only to the extent of their share of the market. However, the FSO decided to accord them much more significance in the commodity list after weighing up the advantages of guaranteed identicalness with the disadvantages of inadequate coverage.

g) Even with a high proportion of brand products (possibly too high ?), it is difficult enough to guarantee identicalness, and for that reason, special precautions have to be taken of a kind which are neither normal nor necessary in time-related price comparison statistics.

The most important such precaution has already been mentioned and is in fact the fullest possible description of the commodity in question in the commodity list (apart from brand products, where just the name is sufficient). However, there are certain price-determining characteristics, especially those of a complex nature (e.g. the type or quality of the retail outlet), to which full justice cannot possibly be done by a mere text. Samples (e.g. of material) and diagrams (e.g. of the various cuts of meat) may be the best means of supplementing a mere description of the article in question. The main thing, though, is that, as far as possible, the same people should be used at the same places for the purposes of price observation (one person for each specific section of the commodity list). Should this not be fully realizable, either because the total number of enumerators available for such price comparisons (particularly those with expert training in the commodities concerned) is not sufficient or the price observation period at all survey locations would be too long, an attempt should be made to achieve a compromise (e.g. by using the same people only for the more difficult items or for only some of the survey locations or only for assessing the quality of retail outlets). At any rate, prior and thorough training will be necessary, especially where there is a chance that the price comparison may be adversely affected by differences in the subjective assessment of a commodity or a retail outlet. Thought should also be given to what arrangements should be made for on-the-spot decision-making, should price comparison problems arise during the survey itself.

h) If the financial and staffing resources available for a local consumer price comparison are inadequate or the prescribed survey period too short, it would be better to limit the number of survey locations than to have recourse to easier methods. For instance, the FSO decided in 1978 to limit the number of survey locations to 31. To ensure that reliable results were obtained from this relatively small number of locations, it was decided to reduce the potential horizon somewhat and make the aims rather less ambitious.

As a result, it was decided not to conduct the surveys in such a way as to enable average prices to be calculated for the whole of the FRG including rural areas. Instead, the comparison was such that it yielded information on the consumer price levels in the FRG excluding rural areas. It was also decided to dispense with ascertaining differences in consumer prices between major geographical areas such as the federal 'Länder' and regions. The aim was to make the project more of a genuine local comparison between urban areas. The 31 survey locations were selected in such a way as to ensure that the links between the size of the survey unit and the level of consumer prices would be evident, and to facilitate comparison between Bonn and the other 30 locations to enable average prices in Bonn to be converted into an average for the FRG as a whole.

i) Under this system, the consumer price comparison would in fact be a comparison of households' purchasing prices, covering households in the 31 survey locations. However, it was hoped that the results would yield a more general picture without any strong links with the households themselves. The aim was that the geographical urban price indices should relate to the local level of consumer prices regardless of who the purchasers were and where they came from. In other words, the results were to be regarded as geographical selling price indices relating, so to speak, to the purchasers of goods for private consumption.

   To reflect this latter concept, the commodity list included hotels, the aim being to relate the prices of hotel services to the other prices observed at one of the survey locations (which would be pointless under the purchasing price concept as households resident in a particular city are unlikely to patronize hotels in that city).

j) As the comparison was regarded primarily as a comparison of private households' purchasing prices, it was intended to use the structure of household expenditure as a weighting scheme in aggregating the price relations for each article to form price indices for the cost of living as a whole. Given that (as was mentioned earlier with respect to the commodity list) regional or local peculiarities in the pattern of consumption of German households are of little significance, it seemed reasonable to use a standard expenditure pattern based on proven consumer behaviour for the population as a whole (excluding institutional and foreigners' households). The best means of deriving the individual weightings needed for the purposes of aggregation appeared to be the weighting system for the German cost-of-living price index for all private households.

It was decided not to update the weighting system (which reflected the structure of household expenditure in 1976) to an autumn 1978 base on the grounds that the net result of all the work would have been only a marginal change in the weightings.

The price components of the weighting system are average prices for the FRG as a whole. In other words, if the system were to have been used in its original form, the price relations for the individual items in the commodity list would have had to be put in the form '31 survey locations = 100', as a result of which the level of prices at a particular survey location would have been placed in relation to the average level of prices for all such locations.

However, there were two reasons why it was decided to choose a different form of presentation (i.e. the form 'Bonn = 100') for the price relations for the individual survey items and thus for the purposes of aggregation for the cost of living as a whole. For one thing, account was taken of the original reason for carrying out the comparison, and for another, basing the survey and computational result on a specific location (as opposed to

an abstract agglomeration of locations) seemed preferable in the interests of optimum comprehensibility and presentation of the results.

Of course, before the price relations could be based on Bonn = 100, the first step was to convert the weighting figures to the current level of prices in Bonn. The relative differences in the level of prices in the 31 towns and cities were not affected by the choice of presentation method. Any of the 31 places could have been selected as the presentation basis so long as the weighting figures were converted to the current level of prices in the place in question.

It should perhaps be mentioned in passing that the use of a weighting system which is fixed as regards the volume component for all points of observation accords with the Laspeyres concept for 'time' price indices.

j) The point should be made at the end of this section that the reason why aggregating the individual price relations cannot bring out the differences in prices for the cost of living as a whole is because no price relations whatsoever exist for one important budget item, namely the cost of rented accommodation. It was decided right at the outset to exclude the cost of accomodation in the 1978 local consumer price comparison because of the methodological and technical problems involved in a reliable comparison of rents and because of the resultant additional workload.

Conduct of the survey

Of the 31 survey locations, 8 (including Berlin) had more than 500 000 inhabitants, 9 (including Bonn) had between 200 000 and 300 000 inhabitants and 14 had between 40 000 and 60 000 inhabitants. Overall, the survey centres were geographically well distributed, most parts of the FRG being adequately covered and suitable weight being attached to the major conurbations with a high population density. The tables reproduced in the annex list the 31 survey centres.

The list of articles drawn up for the purposes of price relations for all survey locations vis-à-vis Bonn comprised a total of 399 commodities and services *. In fact, the total was as high as 425 when the surveys commenced in mid-September 1978, but the number was reduced over the five-week survey period and the subsequent processing stage once it was found that, for some of the articles which had originally been included, insufficient price data had been obtained or there was no guarantee as to the quality consistency of the articles in question.

The survey period was 18 September to 20 October 1978, during which time each of a number of survey teams comprising officials from the FSO and the provincial statistical institutes visited a number of survey locations, each visit to a particular location lasting some five working days. The reporting firms had been selected beforehand on the basis of agreed guidelines regarding the nature and the quality of the retail outlets to be covered by the survey. Generally speaking, five price observations were made at each location for each item on the commodity list, although substantially more observations were made for those articles with a wide range of prices. A total of some 60 000 price observations were made, care being taken to ensure that the method described above for ensuring identicalness of the goods in question was complied with.

Various means were used to exchange information between each of the groups of survey centres visited by each survey team to ensure that the price data collected were comparable. For instance, monitoring personnel accompanying various teams one after the other were responsible for ensuring that the survey methods and evaluation techniques were consistent, and a central telephone link was set up to receive information (e.g. on the replacement of a particular model by a replacement version in the list of articles) and pass it on immediately to all the survey teams.

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* Reproduced with all details of the commodity descriptions (albeit without brand names) on p. 436 of Vol. 6/1979 of 'Wirtschaft und Statistik' together with a commentary containing additional information.

Changes and additions to the list of articles which were found to be necessary at a subsequent stage rather than right at the beginning of the survey period have on occasion meant that additional price observations have had to be made at a later stage at the locations already visited during the survey proper. Only in very few cases did it prove impossible to fill gaps noticed right at the end of the process with actual observed prices; in such cases, recourse was had to purely arithmetical solutions based, for instance, on regression analysis.

Local consumer price comparisons within the FRG on this scale had never before been carried out by the FSO, which meant that there was no previous experience to go on. Having been through the procedure once, however, there is now a fund of experience which can be put to good use in future cases. Suggested improvements are as follows :

Preliminary survey of the availability of the articles planned for inclusion in the list.

Larger teams with more specialist knowledge, so that each enumerator has to deal with fewer types of goods and the survey period at each location can be reduced.

Smaller proportion of brand products, the over-representation of which tends to understate the real local consumer price differences.

Results of the comparison

The main results of the 1978 local consumer price comparison are set out in summary form in the tables in the annex.

It is an interesting fact that, although there are clear differences between the urban indices for the cost of living as a whole (excluding the cost of rented accomodation) - Stuttgart, with a higher cost of living than any of the other 30 survey locations, having a consumer price level 8% above that of the least expensive town, Nordhorn - the difference between the average figures for the three urban categories was not very marked at all (100.8 for the major cities, 99.3 for the medium-sized cities and 97.4 for the towns). It must be borne in mind, however, that these figures do not include the cost of rented accomodation, where the difference from category to category is bound to be much more pronounced, nor that 13% of the 'basket of commodities' on which the survey was based was accounted for by goods and services with uniform national prices. Still at the highest level of aggregation, it is an interesting fact that, contrary to popular opinion, Stuttgart is the city with the highest cost of living, and not Düsseldorf or Munich.

The difference in the level of the consumer prices from one urban category to another is more pronounced in the case of foodstuffs, tobacco and alcohol, etc. (excluding catering services) and clothing and footwear (excluding shoe repairs). As expected, the difference in prices between large and small towns and cities is even more pronounced in the case of services and repairs, where the average for the major cities was almost 11% above the average for towns category.

On the other hand, there are commodity categories where the average level of consumer prices is somewhat higher in the smaller urban areas than in the major cities, e.g. stoves, cookers and other household machines and appliances, radios, TV sets and audio equipment, photographic and cine film apparatus, furniture, detergents and cleaning agents and cosmetics - all articles where the greater pressure of competition in the cities and the potentially shorter and more rational supply lines more than compensate for the effect of certain higher unit prices (e.g. the higher cost of renting shop premises) and thus create a consumer price level which is somewhat lower in the cities than in the towns.

There are substantial differences in the sub-indices for certain minor goods. For instance, there was a 20 percentage point difference between Hamburg/Stuttgart (110.4) and Unna (90.4) in the index for fresh foodstuffs. Gas was found to be twice as expensive in the most expensive city (Berlin) compared with the cheapest location (Fulda). In the case of water the highest recorded price (Pirmasens) was as much as 2 3/4 times as high as the lowest price (Munich). As regards the really substantial differences, it is possible that shortcomings in the quality comparison and other survey errors played a part, although this is not necessarily the case as regards the latter two instances mentioned above which, however surprisingly, are simply a reflection of the facts.

The question of the reliability of the urban indices computed for small commodity categories on the one hand and the question of the significance of urban indices for larger categories on the other have given rise to various tricky problems and decisions. The users of the statistics yielded by the comparison of 31 towns and cities may regret the fact that evidence was compiled only for a very few commodities or for only a few small commodity categories. It is, on the other hand, conceivable that the urban indices computed and published for major commodity categories can be regarded as only of limited value because the category differentiations are of a systematic nature depending on the purpose of the commodities in question, which means in turn that the commodity categories may include articles of a widely differing physical nature. For instance, the main category entitled 'Goods and services related to education and entertainment' embraces such widely differing articles as compact hifi equipment, picture postcards, tickets for indoor swimming pools, children's toy cars, ballpoint pens and books. Even within the size of category of cities with more than 500 000 inhabitants, the indices for this category range from 91.3 in Essen to 105.1 in Stuttgart.

It is impossible to identify which individual prices for which commodities are responsible for this difference, as the only two category indices identified by 'of which' figures (for radios, TV sets and audio equipment on the one hand and photographic and cine film equipment on the other) are relatively high in the case of Essen and relatively low in the case of Stuttgart. So what is really needed here is more detailed

information. It should, however, be borne in mind that, below a certain level of aggregation, the urban indices may be affected by minor survey errors (e.g. shortcomings in quality comparison); while having virtually no effect on the significance of the main category indices (if only because any such errors tend to cancel each other out), they may have a very disruptive effect on the figures for individual commodities or commodity groups, and may result in the final figures being distorted.

This point can best be illustrated by reference to the representative price for tickets for indoor swimming pools. While it is true that the description of the article in question is precise enough ('Entry price in the morning for adults to a public, heated indoor swimming pool with a minimum pool area of 10 x 25 m, single ticket for one hour'), it is quite conceivable that the pools or the ticket pricing systems vary so much from town to town and from city to city that the prices actually observed and included in the urban indices cannot really be regarded as comparable. In publishing indices for individual commodities or small commodity categories, the Federal Statistical Office has therefore confined itself to those goods and services where there is no danger of such shortcomings occurring.

The discovery that, for certain smaller commodity categories and certain individual types of goods, the consumer prices differ quite substantially from town to town and from city to city is highly important and very useful in evaluating a variety of price statistical surveys, including SOEC surveys. For instance, the SOEC carried out an international (EUR 9) comparison of consumer prices of electricity and household gas whereby, as far as the Federal Republic of Germany was concerned, the prices paid for electricity and gas in a single city (Düsseldorf) were compared with the equivalent prices in single cities in the other Member States. However, there now seems to be a good deal of doubt as to whether Düsseldorf was well chosen as the German representative for an international comparison, bearing in mind that electricity is more expensive in Düsseldorf than in most of the other major cities with more than 500 000 inhabitants, but that the price paid in Düsseldorf is substantially below the average price paid in cities with between 200 000 and 500 000 inhabitants and in the medium-sized town and cities. On the other hand, the price paid for gas in Düsseldorf is higher than the average price in any of the three urban size categories.

It may therefore be concluded that the comparison involving 31 urban areas yielded valuable information with regard to the suitability of certain locations as a representative centre for the level of consumer prices in the FRG as a whole. It is worth recalling here how the SOEC came to commission the inter-urban comparison in the FRG in the first place. The SOEC wanted to know whether, in international consumer price comparisons within the Community, Bonn could reasonably be regarded as representative of the whole country, and what correcting factor (if any) should be applied to the Bonn prices.

On the other hand, the information value of the urban comparison exercise from the point of view of regional statistics is, in one respect, relatively low, in that little information was gleaned as to the consumer price level in geographically larger areas of the FRG, such as the federal Länder or regional sub-divisions of Länder. As was mentioned earlier, the main aim of the survey was to ensure that the 31 survey centres were well enough spread to be representative of all urban areas throughout the FRG. This aim was achieved, but unfortunately, it was not possible to ensure that specific regions were given adequately representative coverage. For this purpose, there were certainly not enough survey centres of the same size category in each individual region. However, bearing in mind the relation of each particular urban index vis-à-vis the relevant size category average, and disregarding the differences in the size of urban units, the urban indices do in fact have some significance as regards the consumer price levels of individual regions. At any rate, it is an interesting fact that the indices for all the survey centres in the west and south-west of the FRG (apart from Karlsruhe) and in all the northern centres were relatively high compared with the other indices in the relevant size categories. It may be concluded from this that the south-west and north of the FRG are relatively expensive areas compared with the east and the south-east and compared with the area between a line drawn through Aachen, Bonn and Siegen on the one hand and Hamburg on the other.

Otherwise, the inter-urban comparison has nothing of any importance to offer in terms of regional statistics as such. The fact is simply that it is, by its very nature, more closely related to urban statistics than

to regional statistics. Nor should one overestimate the value of the only real item of information from the point of view of regional statistics (i.e. the somewhat higher level of consumer prices in the south-west and the north of the FRG compared with the east and south-east). The difference is not very great, and it is difficult to find a plausible explanation for it. While it is certainly possible to explain the differences in respect of a few specific commodities and commodity groups, no explanation has yet been found for the differences in the overall level of consumer prices. It may be more promising to look for a possible explanation by reference to the lower level of prices in the east and south-east rather than the higher prices in the north and south-west, with special attention being devoted to the structural weaknesses of the economy in the areas adjacent to the East German and Czechoslovakian borders.

The fact that there are only minor differences in the cost of living in the Federal Republic of Germany is probably due to the pervasive effect of market forces in the German economy. Another significant factor may be the relative smallness of the geographical area or the relatively high population density; after all, the US economy is similarly, or even more, exposed to market forces, and here there are differences of 10% or more in the level of consumer prices between 'metropolitan areas' of roughly the same size (e.g. San Francisco and Detroit).

The differences in the level of consumer prices in the Federal Republic of Germany apply to 1978. Whether the urban indices drawn up at that time are still valid can only be ascertained by a repetition of the 1978 survey, and interest has been shown on a number of occasions (within the FRG alone) in a new inter-urban comparison of consumer prices.

Table 1 : Level of consumer prices in 31 towns and cities [1]
based on goods with uniform prices, brand products whose
recommended prices are very largely complied with
and other commodities
Bonn = 100

Survey Centre	Cost of living as a whole (excluding the cost of rented accommodation)	Goods and services with (apart from Berlin) uniform prices	Brand products whose recommended prices are very largely complied with	Other goods	Services and repairs
	1	2	3	4	5
Weighting proportion	1 000	130,91	62,20	629,58	177,31
		Size Category A (more than 500 000 inhabitants)			
Hamburg	101,7	100,0	101,0	100,7	106,9
Hannover	100,4	100,0	100,6	100,2	101,2
Düsseldorf	100,3	100,0	101,5	100,0	101,2
Essen	97,5	100,0	99,8	97,1	96,3
Frankfurt	101,6	100,0	102,8	101,3	103,2
Stuttgart	103,2	100,0	99,2	103,5	105,8
Munich	100,7	100,0	101,4	101,1	99,6
Berlin (West)	100,9	96,8	100,6	100,6	105,4
Average	100,8	99,6	100,9	100,6	102,5
		Size Category B (200 000 - 300 000 inhabitants)			
Kiel	99,7	100,0	100,6	99,7	98,7
Braunschweig	97,9	100,0	100,8	97,3	97,4
Bonn	100	100	100	100	100
Aachen	99,5	100,0	99,5	99,1	100,6
Kassel	99,1	100,0	100,8	99,7	95,5
Mainz	100,4	100,0	99,9	100,7	100,1
Karlsruhe	98,9	100,0	97,8	99,1	98,0
Augsburg	97,6	100,0	101,7	97,9	93,6
Saarbrücken	100,8	100,0	101,1	101,7	98,2
Average	99,3	100,0	100,2	99,5	98,0
		Size Category C (40 000 - 50 000 inhabitants)			
Cuxhaven	100,1	100,0	101,5	99,5	101,6
Nordhorn	95,5	100,0	100,3	95,1	91,6
Siegen	96,6	100,0	100,8	95,1	91,6
Herford	96,3	100,0	100,1	95,9	93,5
Unna	97,0	100,0	101,0	96,7	94,7
Fulda	95,8	100,0	99,1	96,9	87,6
Pirmasens	98,2	100,0	99,3	98,6	95,0
Friedrichshafen	99,9	100,0	100,6	101,1	95,3
Heidenheim	96,4	100,0	100,7	96,6	95,6
Offenburg	99,2	100,0	99,5	99,8	96,2
Schweinfurt	96,3	100,0	100,1	97,6	87,3
Weiden	96,0	100,0	100,2	96,5	89,9
Passau	97,0	100,0	101,1	96,0	89,9
Landshut	95,9	100,0	100,4	96,0	84,1
Average	97,4	100,0	100,4	97,7	92,5

1) As at Autumn 1978.

Source : Federal Statistical Office, "Wirtschaft und Statistik", Vol. 6/1979

Table 2 : Level of consumer prices in 31 towns and cities [1] by reference to main groups and selected groups of commodities

Bonn = 100

Survey Centre	Cost of living as a whole (excluding the cost of rented accommodation	Foodstuffs, alcohol, tobacco, etc.		Clothing and footwear	Electricity, gas, fuels, etc.				Other household goods and services				Goods and services related to transport and communications	Goods and services related to cosmetic and health care		Goods and services related to education and entertainment			Personal items : other goods and services
		combined	of which: fresh foodstuffs		combined	of which: electricity	gas	water	combined	of which: furniture	of which: stoves, cookers, electrical machines and appliances	of which: washing and cleaning articles		combined	of which: cosmetics	combined	of which: radios, T.V. sets and audio equipment	of which: photographic and cine film equipment	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Weighting proportion	1 000	297,82	57,55	100,15	62,53	39,11	9,56	5,17	114,10	34,85	12,60	5,15	169,21	49,31	13,22	95,87	20,51	3,72	110,93
Size Category A (more than 500 000 inhabitants)																			
Hamburg	101,1	100,3	110,4	100,1	100,6	102,3	86,9	95,1	101,6	.	104,5	98,8	104,2	109,4	94,0	99,4	101,4	96,9	102,5
Hannover	100,4	100,6	101,5	102,6	96,3	94,8	78,4	121,2	101,4	.	102,5	98,8	100,2	98,6	93,9	97,0	98,5	98,8	103,3
Düsseldorf	100,3	99,2	98,8	105,9	100,8	104,5	96,5	86,1	100,3	.	99,5	100,0	101,9	103,4	93,5	97,0	96,7	95,5	97,2
Essen	97,5	99,1	94,4	97,0	103,0	100,0	100,4	140,5	98,9	.	101,4	101,8	99,7	97,4	92,6	91,8	105,3	100,4	98,9
Frankfurt	101,6	99,7	105,1	103,0	100,1	103,5	91,0	79,8	101,4	.	106,6	98,0	103,2	101,0	97,5	98,3	100,7	94,4	102,3
Stuttgart	103,2	102,8	110,4	102,1	102,0	101,1	102,9	95,5	102,4	.	104,4	103,3	102,6	111,0	96,7	105,1	96,5	101,4	102,2
Munich	100,7	98,5	106,1	104,9	96,0	107,7	77,6	53,7	101,7	.	98,2	98,3	100,4	106,4	97,9	99,8	98,8	104,7	103,1
Berlin (West)	109,9	98,4	100,0	102,5	103,5	105,9	125,2	66,3	103,6	.	114,9	102,0	99,2	110,1	98,0	96,5	103,8	100,5	104,4
Average	103,8	99,5	103,3	102,9	100,3	102,5	94,9	92,3	101,4	99,6	104,0	100,1	101,4	104,7	95,8	98,1	99,7	99,1	101,7
Size Category B (200 000 - 500 000 inhabitants)																			
Kiel	99,1	97,0	97,6	102,2	101,1	106,6	89,7	91,0	101,7	.	104,3	98,4	101,4	102,0	96,0	101,3	104,8	100,4	96,5
Braunschweig	97,9	93,1	92,6	96,0	100,0	115,3	85,3	97,2	101,7	.	106,0	101,5	101,4	101,9	92,4	98,3	105,3	103,3	96,2
Bonn	100	100	100	100	100	100	100	100	100	.	100	100	100	100	100	100	100	100	100
Aachen	99,5	99,0	101,4	102,0	97,5	100,0	68,9	80,3	102,3	.	100,8	99,7	101,1	102,8	98,6	96,9	99,2	105,8	97,7
Kassel	99,1	96,1	100,5	98,8	106,1	114,9	86,7	92,8	101,0	.	106,1	100,3	100,7	103,9	101,0	102,5	103,5	103,9	93,4
Mainz	100,4	96,7	101,9	101,4	108,0	110,0	95,8	130,4	100,7	.	101,1	100,8	100,6	103,6	97,4	101,2	101,5	89,7	102,7
Karlsruhe	98,9	95,5	96,8	101,8	101,0	107,6	88,4	86,8	99,6	.	99,5	96,9	99,3	103,2	99,6	102,1	100,4	98,7	98,7
Augsburg	97,6	94,4	98,0	99,3	98,7	108,0	80,9	54,0	99,8	.	100,7	97,3	97,0	100,4	92,3	97,0	98,6	106,4	102,3
Saarbrücken	100,8	100,9	109,4	105,2	101,5	102,0	97,6	102,6	100,6	.	96,7	99,4	99,9	112,8	97,8	95,0	94,9	100,9	97,8
Average	99,3	96,9	100,0	100,7	102,2	107,2	90,4	92,8	100,8	99,5	101,7	99,4	100,2	103,4	97,2	99,4	100,9	101,0	96,4
Size Category C (40 000 - 60 000 inhabitants)																			
Cuxhaven	100,1	97,1	96,7	100,2	104,8	115,0	97,5	73,7	101,8	.	106,7	96,4	101,1	94,9	100,3	97,9	107,8	101,3	104,5
Nordhorn	95,5	91,6	90,7	99,5	95,5	99,6	80,1	99,6	96,8	.	104,4	92,2	96,7	97,2	97,4	91,6	101,8	98,3	101,5
Siegen	98,6	97,5	90,7	96,4	99,4	100,0	80,1	122,1	101,5	.	104,4	92,2	100,4	107,7	95,4	96,8	106,2	98,3	91,4
Herford	96,3	95,0	93,2	95,1	94,7	101,7	80,7	69,4	98,2	.	98,4	98,3	98,9	92,9	93,1	97,2	106,1	102,3	96,7
Duna	97,0	90,8	90,4	100,6	101,7	104,0	78,6	128,1	102,2	.	105,4	96,2	100,9	95,4	91,1	95,3	99,3	101,8	99,0
Fulda	95,6	92,5	96,5	99,5	99,8	110,5	66,8	92,9	98,1	.	103,8	93,1	97,9	89,1	94,9	98,3	102,4	102,0	94,4
Pirmasens	96,2	94,0	102,1	94,5	107,0	107,9	95,1	135,2	100,9	.	111,2	96,4	96,2	97,4	99,9	101,7	102,2	95,9	102,2
Friedrichshafen	99,9	99,2	109,2	101,5	100,2	103,2	80,9	89,9	105,7	.	111,2	110,4	100,2	94,2	96,4	99,0	102,7	97,3	97,0
Herdenheim	98,4	92,1	98,5	102,2	99,0	103,2	91,1	64,7	104,6	.	107,3	101,6	99,1	91,5	93,4	114,0	103,6	104,8	93,5
Offenburg	99,2	96,6	100,8	101,8	104,3	106,6	112,6	96,3	100,5	.	103,3	101,9	102,4	86,3	95,8	97,8	102,1	96,3	101,1
Schweinfurt	96,3	92,9	96,2	92,0	93,2	105,1	86,0	64,7	102,7	.	109,2	101,7	98,6	91,6	98,7	99,3	106,3	99,4	98,2
Werden	96,0	86,6	91,2	96,5	104,7	112,6	105,2	66,0	101,5	.	106,1	101,5	99,7	90,4	96,0	97,1	101,5	109,6	100,8
Passau	97,0	92,0	90,6	97,8	106,3	111,9	109,2	77,1	98,8	.	111,1	99,4	97,7	101,1	99,0	98,2	107,2	101,3	96,7
Landshut	95,9	93,3	99,6	99,0	101,5	112,6	80,3	80,6	96,4	.	102,5	102,5	97,3	93,1	95,1	94,7	100,8	103,7	94,1
Average	97,1	93,8	96,4	98,5	101,3	106,7	88,4	89,5	100,8	102,1	106,2	99,1	99,2	94,5	96,2	97,6	103,6	100,9	98,1

1) As at Autumn 1978.

Source : Federal Statistical Office, "Wirtschaft und Statistik", Vol. 6/1979

Table 1 : Level of consumer prices in 31 towns and cities [1] according to special commodity categories

Bonn = 100

Survey Centre	Cost of living as a whole (excluding the cost of rented accommodation	Goods and services with (apart from Berlin) uniform prices	Foodstuffs, alcohol, tobacco, etc. (excluding restaurants, etc.)	Clothing and footwear (excluding shoe repairs)	Specified durable items for household, educational and entertainment purposes, pharmaceutical products [2]	Other goods	Services and repairs
	1	2	3	4	5	6	7
Weighting proportion	1 000	130,91	237,93	96,32	92,35	262,66	177,31
Size Categorie A (more than 500 000 inhabitants)							
Hamburg	101,7	100,0	98,7	100,1	100,4	102,9	106,9
Hannover	100,4	100,0	96,4	102,6	98,7	101,6	101,2
Düsseldorf	100,3	100,0	98,1	105,8	97,5	100,6	101,2
Essen	97,5	100,0	93,5	97,1	97,9	100,7	96,3
Frankfurt	101,6	100,0	96,5	108,1	101,3	101,6	103,2
Stuttgart	103,2	100,0	102,3	102,0	98,5	105,8	105,8
Munich	100,7	100,0	98,4	104,9	99,3	102,8	99,6
Berlin (West)	100,9	96,8	96,7	102,4	103,8	102,2	105,4
Average	100,8	99,6	96,1	102,9	99,7	102,3	102,5
Size Categorie B (200 000 - 300 000 inhabitants)							
Kiel	99,7	100,0	94,2	102,1	101,2	103,6	98,7
Braunschweig	97,9	100,0	90,1	96,0	100,5	103,9	97,4
Bonn	100	100	100	100	100	100	100
Aachen	99,5	100,0	95,7	102,1	98,8	101,1	100,6
Kassel	99,1	100,0	95,5	98,9	101,4	103,4	95,5
Mainz	100,4	100,0	96,4	101,3	99,5	104,6	100,1
Karlsruhe	98,9	100,0	94,1	101,7	99,6	102,1	98,0
Augsburg	97,6	100,0	94,3	99,3	98,8	101,1	93,6
Saarbrücken	100,8	100,0	99,5	105,5	98,6	103,2	98,2
Average	99,3	100,0	95,5	100,8	99,8	102,6	98,0
Size Categorie C (40 000 - 60 000 inhabitants)							
Cuxhaven	100,1	100,0	94,1	100,2	102,9	103,5	101,6
Nordhorn	95,5	100,0	88,0	99,5	100,5	99,2	91,6
Siegen	96,6	100,0	88,0	99,5	100,5	99,2	91,6
Herford	96,3	100,0	92,1	95,1	100,3	99,2	93,5
Unna	97,0	100,0	90,0	100,6	100,2	101,1	94,7
Fulda	95,6	100,0	91,3	99,6	99,4	100,7	87,6
Pirmasens	96,2	100,0	92,9	95,1	102,1	103,6	95,0
Friedrichshafen	99,9	100,0	97,6	101,4	106,0	102,0	95,3
Heidenheim	98,4	100,0	92,1	102,1	104,2	101,7	95,6
Offenburg	99,2	100,0	95,5	101,9	102,0	102,1	96,2
Schweinfurt	96,3	100,0	93,4	92,0	103,5	102,1	87,8
Weiden	96,0	100,0	88,4	96,6	102,1	102,6	89,9
Passau	97,0	100,0	91,6	97,8	102,6	102,9	89,9
Landshut	95,9	100,0	94,1	99,0	99,1	101,2	84,1
Average	97,4	100,0	92,1	98,6	101,6	101,6	92,5

1) As at Autumn 1978.
2) Summarized data from Table 4, Columns 10,11,12,15,17 and 18.

Source : Federal Statistical Office, "Wirtschaft und Statistik", Vol. 6/1979.

Document N° 18

ADMINISTRATIVE REGIONS OR FUNCTIONAL REGIONS?

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I. The nature of the problem

The data contained in the national accounts are used not only for purposes of international comparisons, but also, and increasingly, in the context of regional diagnoses, where in particular they serve in the delimitation of regions which should be granted regional aid. A typical example is the framework planning carried out in the Federal Republic by the Bund and the various Länder under the Community project for the 'improvement of the regional economic structure'. Under this programme in 1981 (10th framework plan) the development areas were redefined, partly on the basis of the national accounts. These new areas were then also adopted for the 11th framework plan which applies to the year 1982[1]. For this purpose, the characteristics of gross domestic product were determined at market prices per head of population for 179 regions and condensed into an overall indicator (development indicator) on the basis of four further criteria[2].

Similarly, the Commission of the European Communities used the gross domestic product at market prices to assess the economic strength of the various regions in its first periodic report on the social and economic situation in the regions of the Community[3]. Other Community analyses preceded this report including, in particular, the Thomson report which dealt with regional problems in the enlarged Community of 1973[4].

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1) Cf. 10th framework plan under the Community action programme for the 'improvement of the regional economic structure', Bundestag document No 9/697, Bonn 1981, and the 11th framework plan under the same programme, Bundestag document No 9/1642, Bonn 1982.

2) Cf. P. Klemmer et al. Delimitation of development areas, appearing shortly.

3) Cf. Commission of the European Communities, the Regions of Europe (first periodic report on the social and economic situation in the regions of the Community), Luxembourg 1981 (Doc. COM (80) 816 fin.).

4) Cf. Doc. COM (73) 550 fin.

In all cases, the question of the type of territorial unit suitable for use in studies of this kind was of considerable relevance. A particularly intensive debate on this point developed in the Federal Republic of Germany, where several proposals were made and their suitability was considered over the period 1972 to 1979[1)].

Since in the Federal Republic of Germany much of the data used for analytical purposes were only available at the level of administrative units i.e. not for functional areas (lowest data level for administrative regions: districts ('Kreise') and cities of equivalent administrative status (kreisfreie Städte)), protracted attempts were made to approximate the functional areas which appeared suitable for these purposes by means of district aggregates (Kreisaggregate). However, as a result of the many instances in which the boundaries had been moved under the administrative reforms, it became necessary in the second half of the 1970s to query the extent to which administrative areas were still suitable for purposes of regional diagnosis. A solution was found in which functional areas took precedence over administrative areas, and this resulted in new calculations of the value of the gross domestic product at the level of intermeshing areas defined on the basis of local authority boundaries. The results of this inter-regional comparison between 179 territorial units, known as 'labour market regions' (Arbeitsmarktregionen) were used for defining the development areas under the 10th framework plan.

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1) Cf. P. Klemmer and D. Kraemer, Regionale Arbeitsmärkte (Regional labour markets), Bochum 1975; P. Lemmer and H. Schrumpf, Regionale Arbeitsmärkte gemeindescharf abgegrenzt und Diagnoseeinheiten (Kreisaggregate) für die Zwecke der Gemeinschaftsaufgabe 'Verbesserung der regionalen Wirtschaftsstruktur' - Gebietsstand 1979 (Regional labour markets (defined on the basis of local authority areas) and diagnostic units 'Kreis' aggregates for the purposes of the joint programme for the 'improvement of the regional economic structures', - of situation in 1979), Bochum 1979.

When drawing up its first periodical report, the Commission of the European Communities also saw the definition of the appropriate regional level as an important aspect. However there is no escaping the impression that the central significance of this regionalization problem has not been properly identified or - and this is another possibility - has been played down. At least it is unsatisfactory that the availability of data from the national accounts was taken as the primary guiding criterion and that inadequate regard was had for the diagnostic distortion which results from analysis of the regions at Level II. In its opinion on the first periodical report, the Economic and Social Committee of the European Community therefore drew particular attention to the question of the definition of regions used and stressed that the Level II analyses at best provide only approximate information and, in a number of cases, even exhibit serious distortions[1)]. The opinion reflects the preference of the Economic and Social Committee for functional regions.

It is intended in this paper to consider this question and show that the quality of interregional comparisons depends not only on the accuracy of the statistical material available at regional level (i.e. the national accounts), but also to a considerable extent on the regional units used. If the breakdown into regions is 'wrong' - the meaning of the terms 'wrong' and 'right' in this context is explained below - this can tend to result in diagnostic distortion effects for which even the highest possible degree of accuracy in the calculations cannot subsequently compensate. This in turn means that the delimitation of the regions even provides scope for manipulation on the part of local authorities who can make areas appear to be in need of development aid, where this is not or not entirely the case.

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1) Opinion of the Economic and Social Committee on the document entitled 'The Regions - first periodical report on the social and economic situation in the regions of the Community', 30 June 1982, Brussels (ESC 553/82). The report by Loebl is along the same lines (ESC 600/81 fin).

In practice, the question frequently comes down to the extent to which the existing administrative units are adequate for purposes of regional analyses or what reasons would favour the introduction of a system of regional units which does not correspond to the system of administrative units. Particularly in the light of the considerable attention being devoted to this question in the Federal Republic, the importance of the regionalization problem will again be reviewed and the reasons favouring functional areas will then be summarized with a view to answering these questions. This will be followed by a brief discussion of the regional level used in the first Commission periodic report and conclusions indicating how distortion effects in regional diagnoses based on administrative units can be detected, should the introduction of functional regions prove impossible in the short term.

II. The diagnostic significance of functional regions

Any division into regions involves a grouping together of neighbouring observation units for which information which can be evaluated is available. As a rule, the areas covered by a particular local authority (Gemeinde) can be used as the smallest element in solving this spatial aggregation problem. However, there are also studies in which the grouping of data at urban district (Stadtbezirk) level appears useful in extended areas with a high population density.

Regions are spatially closed units in which the possibility of enclaves or exclaves is ruled out. If the regionalization process is extended to cover the entire economic area, this yields a spatial observation grid in which each point in space is assigned to a particular territorial unit and which can be used for various analytical purposes, depending on the aggregation principle applied. There is, however, no single regionalization system which can adequately fulfil all analytical or diagnostic purposes. The answer to the question of which delimitation procedure is preferable in any particular case and which type of region can accordingly be regarded as 'wrong' or 'right' from the

analytical point of view depends, rather, on the purposes of the study or diagnosis in question.

Both in theory and in practice, the following distinction between homogeneous and functional regions as a delimitation principle has gained currency.

In homogeneous regions, neighbouring areas (such as areas covered by a particular local authority) which are similar or identical in certain respects (e.g. population density, industrialization, land use etc.) are grouped together to form an observation unit. Functional territorial units, on the other hand, are defined by their degree of interconnection which can be evaluated in terms of flows (e.g. commuting, migration of population, flows of goods and traffic and purchasing behaviour of the population from the geographical point of view etc.). These aggregates are known as 'functional' since they clarify the operational interrelationship of various areas from the point of view of certain functions (such as production or services) and hence make it possible to identify physically discrete areas which are distinguished by the close reciprocal interdependence of their constituent elements.

It will be clear from these definitions that the functional regions are of particular significance from the point of view of regional policy. In most cases, however, regional policy measures are aimed at equalization. For this purpose, indicators are used for determining regional deviations from an average or other comparison criterion which has been taken as a norm, and to grant aid to those areas which are found to be below this norm. The indicators used for the selection of development areas will in most cases relate to differences in economic strength and/or the labour market, the economic strength of the region generally speaking being quantified as far as possible on the basis of data taken from the national accounts.

An indicator to which particular importance is attached at both national and Community level is gross domestic product at market prices per head.

We shall not at this point go any further into the question of the extent to which this indicator is at all suitable for clarifying the differences in economic strength or relative prosperity, which is what interests us here, but shall rather merely consider to what extent the use of this parameter permits conclusions to be drawn regarding the type of region which is relevant for the diagnosis.

It would appear advisable, then, to calculate this indicator particularly for those groups of small production areas which made the greatest contribution to the gross domestic product. It is found that the most important production facilities are generally speaking concentrated in larger centres which command a catchment area with a commuting labour force. Only if the figures for the labour force living in this hinterland and in the centre are combined with the figures for physical capital, - which in most cases is concentrated in particular areas - does one obtain the production result, which can be evaluated as a contribution to the gross domestic product and hence as an expression of the economic strength of the area.

In order to identify the laws determining this economic strength, i.e. regional production functions, only those factors which can be interrelated on the basis of their spatial mobility should be included in the analysis.

If the gross domestic product is the result of such a functional synergy of production factors, the figure must be referred to that area which, as a result of the mobility of the labour force, has also made an effective contribution towards it. Thus if it is desired, in the context of prosperity studies, to ascertain who benefits from this product, the gross domestic product should be referred only to those sections of the population who are actual or potential beneficiaries in view of the situation as regards interrelationships and accessibility.

If connections of this kind are disregarded, considerable distortion can result. For example, if the gross domestic product of a city state such as Hamburg or Bremen is only divided by the population resident in these cities, as in the first periodical report by the Commission, those workers or inhabitants living in the extended hinterland and who were involved in producing or have a share in the result are automatically left out of account. This means that the indicator 'gross domestic product per head of resident population' is too high in the case of the city states and gives a distorted picture. In cases where the areas surrounding many major cities are predominantly rural in character with very little industrial activity, dealing with this hinterland in isolation will also lead to distortions, since, in this case, a low gross domestic product will be divided by a reference population figure which is too high. This can result in statistical indications of distress which does not exist in reality, since the population of the hinterland in fact find sufficient jobs in the neighbouring cities which provide them with an above-average income.

Similar problems occur in the case of the labour market indicators, since if one recalls that unemployment figures are based on the place of residence, above-average unemployment in a hinterland may in fact be a side effect of a fall in job availability in the neighbouring centres. If there has already for some time been a population drift from the centre to the hinterland as part of a shift of emphasis from the city to the country-side, the number of unemployed must increase, particularly in the districts covered by the labour offices in the hinterland, as a result of the existing interdependence. However, if one wishes to combat employment, it is advisable to do so in the production centres. This means that if the spatial intermeshing of the labour markets is disregarded, this too will result in distortions in the diagnosis.

It is clear from the foregoing that the function criterion is of crucial importance for the delimitation of the territorial units for purposes of calculating indicators on the basis of data contained in the national

accounts. In the interests of verification, the delimitation should be made on the basis of empirically determinable flow categories. In view of the interconnections described above, these flow categories should only cover commuters or short-range migration. In many countries, data of this kind are collected on a regular basis or in connection with the major censuses and published. In order to make the de facto situation as regards this intermeshing of areas - which can in some cases reflect commuting on a barely tolerable scale, - open to political influences, the empirically determinable picture of the situation can be corrected on the basis of normative considerations. However, corrections of this kind should be kept within strict limits with a view to avoiding manipulation.

It is also possible, using the analyses of intermeshing [1], to examine the extent to which certain administrative areas can be adopted as diagnosis units. If they are too small to take adequate account of all the various aspects of the intermeshing, they can be regrouped into larger units. For example, in the Federal Republic it was still quite possible before the reforms (i.e. early 1970s) to approximate labour market regions by means of district (Kreis) aggregates. However, this can no longer be done in all the Länder using the new subdivision into districts, since this has resulted in a number of large districts which cover several labour market regions. If these large districts were to be used for purposes of diagnosis, a substantial levelling effect would result in certain cases.

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1) The question of the statistical methods for the delimitation of functional regions will not be dealt with here. Cf. D. Kraemer, Funktionale Raumeinheiten für die regionale Wirtschaftspolitik (Functional territorial units for regional economic policy), Bochum 1975 and H.-Fr. Eckey, Zwei Methoden zur Abgrenzung und Unterteilung funktionaler Regionen: Die Faktoren- und die Input-Output-Analyse, Raumforschung und Raumordnung (two methods for the delimitation and subdivision of functional regions: factor and input-output analyses, regional study planning), 1976, pp. 33 ff.

Where possible, however, extensive use should be made of administrative areas, not only in view of the greater likelihood that data will be available for these areas, but also because administrative areas of this kind frequently form territories in which the regional development programmes can be put into action. In addition, resistance is often encountered in the administrative areas if the administrative borders are disregarded. Nevertheless the administrative breakdown becomes problematic when it leads to diagnostic distortions which can involve the risk of areas in need being ignored or relatively prosperous areas enjoying development aid which they scarcely merit.

III. Treatment of the regionalization problem by the Statistical Office of the European Communities

The Statistical Office of the European Communities has developed a system of territorial statistical units which was also used in the first periodical report by the Commission. It involved dividing up the individual Member States into a three-category hierarchical system in which a distinction is made between regionalization Levels I, II and III [1].

Level I consists of 51 regions known as 'Régions communautaires européennes'. These are highly aggregated spatial observation units which take considerable account of the federal structuring of the Member States or observe high-level administrative divisions. Thus, in the Federal Republic, for example, each Land or City State is interpreted as a region in its own right, thus making 11 territorial units. This figure is 8 in France, 11 in Italy, 4 in the Netherlands, 3 in Belgium

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1) Cf. Statistical Office of the European Communities, Regional Statistics, Population, Employment, Standard of Living 1973 - 1974 Luxembourg 1975, pp. 25 ff.

and 11 in the United Kingdom. Luxembourg, Ireland and Denmark are not further subdivided. The average population of these regions is approximately 5.6 million [1].

A relatively large amount of data is available at this level, but the data are such that only limited conclusions regarding geographical differentials in development or prosperity can be drawn from them. The phenomena intermeshing are totally disregarded and not reflected in any way at this level of aggregation. Consequently a considerable levelling effect can be detected in practically all cases, with the result that the particular problems of smaller areas are not apparent. It would not therefore appear possible to draw conclusions on matters of regional policy at this level, Level I. Level II makes use of the basic administrative units or 'Unités administratives de base'. A total of 108 units are distinguished, with an average population of approximately 2.4 million [2]. At this level, the Federal Republic of Germany is divided into 30 units, France into 22, Italy into 20, the Netherlands into 11, Belgium into 9, the United Kingdom into 11 and Denmark into 3. Luxembourg and Ireland are not further subdivided.

If this level of regionalization is considered in a critical light, it is found that in the majority of cases the extent of aggregation is still too great to take any account of the functionality criterion. Thus in the

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1) Cf. W. Gerss, Das deutsche Angebot an Regionaldaten der volkswirtschaftlichen Gesamtrechnungen für Zwecke der Europäischen Gemeinschaften (Regional Data available in the Federal Republic from the National Accounts for European Community Purposes), Statistische Rundschau für das Land NL (Statistical Review for the Land of Northrhine-Westphalia (May 1982, pp. 275 ff.)

2) Cf. W. Gerss, op. cit., p. 276.

Federal Republic of Germany the city states and governmental districts are used, with the result that, in the case of the city states, differentiation effects, leading to excessively high indicator values, are in evidence as a result of disregarding their extensive hinterlands. On the other hand, in the governmental districts, which in most cases cover several labour market regions, there is a levelling effect, which results in a statistical masking of the underdevelopment of peripheral rural areas or the adaptation problems of certain (older) industrial areas, since in most cases well and less well developed functional areas are grouped together. The lack of attention paid to intermeshing phenomena is very clear in the case of the Ruhr area, which is divided up into three governmental districts.

If one considers that for purposes of regional policy in the Federal Reupublic, 179 labour market regions for which gross domestic product figures are drawn up, are used as diagnostic units, the discrepancy compared with the division into only 30 units becomes particularly clear. Even if the 179 labour market regions were to be aggregated into higher central interlinking regions, with commuting distances which are already clearly excessive in some cases, this would still result in a subdivision of the Federal Republic into 65 or 70 regions[1].

It is not possible here, in view of the lack of information on the intermeshing of regions in the other Member States, to examine satisfactorily the reasons in favour of Level II regional subdivision for these countries too. However there is good reason to believe that in

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1) Cf. B. Bremicker and P. Klemmer, Die relative Position der Kernbereiche des Landes Nordrhein-Westfalen innerhalb der Bundesrepublik Deutschland - gemessen an den Arbeitsmarktkriterien der GRW (the relative position of the core areas of land North-Rhine Westphalia within the Federal Republic of Germany, measured on the basis of the labour market criteria of the GRW (National Accounts System), Bochum 1981.

France, Italy, the United Kingdom, Denmark and Ireland too, the area of the majority of regions is too great to reflect the contribution of functional synergy to the gross domestic product, or the specific dependence of the labour market. The Netherlands and Belgium would appear to have come closest to an appropriate subdivision.

Level III is not yet used in the national accounts of the Statistical Office of the European Communities, in spite of the urgent request made by the Economic and Social Committee in its opinion on the first periodic report. It is therefore, very difficult at present to make a critical assessment of the system of regionalization which is aimed at here, except perhaps in the case of the Federal Republic, where 237 districts (Landkreise) and 91 cities with equivalent administrative status (kreisfreie Städte) are involved. In-depth classification of this kind always involves problems, some of which can, however, be solved. In order to satisfy the requirements of the functionality criterion the cities with district status (kreisfreie Städte) must, for example be grouped together with their hinterland districts, and this is not always possible to a satisfactory extent, in view of the way the districts have been divided up. In addition, in the case of a number of large districts it would no longer be possible to isolate individual intermeshing labour market areas, which would be subject to a statistical levelling effect. Even with a broad interpretation of the intermeshing aspect a risk of incorrect diagnosis would consequently remain in some 30 % of the district aggregates. However this distortion would be considerably smaller than at Level II.

IV. Summary and conclusions

In order to determine the differential between various regions as regards economic strength and prosperity, on the basis of the data contained in the national accounts, with a view to obtaining starting-points for regional development policy, it is advisable to use functional regions, if possible, to avoid distortion effects. It is presumed that

the distortion effect produced by a problematic regional delimitation is many times greater than the margin of error in the statistical sources. If the gross domestic product at market prices per head of population or the unemployment rate is used, functional regions of this kind can only be labour market regions, since it is primarily the field of movement of the commuting labour force which permits the combination of production factors in the area. Regions of this kind could be defined on the basis of the occupational commuting or short-range migration flows of the resident population.

Finally, administrative areas are only suitable for use in drawing up national accounts data if they approximate to intermeshing areas. Administrative areas as used at Level I and II in the Nomenclature of statistical units of the Statistical Office of the European Communities are more problematic from the point of view of regional analysis than the categories used in Level III, which can, in dubious cases, be aggregated in such a way as to resemble approximate solutions. Thus it is vital that the use of Level III for the purposes of national accounts within the European Community be further extended.

Since - at least in the European Community's system of national accounts - it is still far from possible to use functional areas, understood as being intermeshing areas defined in terms of local authority boundaries, the results of data evaluation at Level III should be verified by means of a control variable, i.e. the migration balance of the resident population. In all cases where the interregional comparison of economic strength or prosperity indicators suggests regional deficiencies and are nevertheless characterised by an obvious influx of people, it is quite possible that the units used at Level III might in some cases represent hinterland regions and that the figures might therefore be distorted.

Document N° 19

CONSTRUCTION OF MULTIREGIONAL INPUT-OUTPUT TABLES

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CONSTRUCTION OF MULTIREGIONAL INPUT-OUTPUT TABLES

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At national level, the construction of input-output tables (I-O tables) constitutes a valuable instrument of national accounts, from both a statistical (calculation of the National Product from its components by branch and of statistics by product) and an economic point of view (analysis of consideration of sectorial interrelationships). The use of an I-O table constitutes an instrument of correlation and analysis and it is easy to understand why medium-term models - which aim to give a comprehensive picture of sectorial interdependences and specific qualities - nearly always introduce a breakdown by sector.

However, does the construction of I-O tables serve any purpose at regional level ? We shall try in Section 1 to give an answer to this preliminary question. Then in Section 2 we shall see that multiregional I-O tables have already been constructed for most of the Community countries.

Certain conceptual and statistical problems arise, however : how are production and demand by region to be defined (Section 3) ? How should multiregional enterprises be treated (Section 4) ? Can regional I-O tables be used to calculate the Regional Product and can such a calculation be reconciled with that based on distribution of income (Section 5) ? Finally, can multiregional I-O tables be constructed and what adaptation of the statistical system is necessary or desirable (Section 6) ?

1 - IS THE CONSTRUCTION OF A MULTIREGIONAL I-O TABLE USEFUL ?

We have already seen that at national level the construction of I-O tables is useful from both a statistical and an analytical point of view. Is this also true at regional level ?

At national level, the construction of an I-O table - regardless of its intrinsic statistical interest - makes it possible to use data available by branch or by product to determine the National Product in terms of both output (as the sum of the value added of all branches, the latter being calculated as the difference between output and intermediate consumption) and demand. It also makes it possible to cross check the estimates that can be obtained using an income-based approach, although this requires that all incomes, and therefore profits in particular, should be directly reconstitutable.

At regional level, the demand-based approach is very difficult because the estimation of interregional flows, and therefore of the external balance, constitutes a major problem (see Section 6). The income-based approach - which is frequently used (see e.g. the attempt made by the INSEE in 1966 for all the French regions in respect of 1962 or the series proposed for the North by DELEBECQUE in 1978) - also poses problems as regards the

regionalization of multiregional enterprises' profits (see Section 5 below). The construction of an I-O table provides - apart from an analysis of the regional structure of the productive system - another approach for calculating the Regional Product at current prices. It also lends itself more easily than the income-based approach to calculating a Regional Product series in terms of volume.

Is the construction of a regional or multiregional I-O table also useful for the construction of models ?

An analysis of the models that have been constructed at regional level, particularly in the United States, shows that in many cases they are overall models, in line with the proposals made by L. R. KLEIN in 1969. In models of this kind, demand - external (exports) or regional - constitutes the motive force of production (theory of the "economic basis"). This approach has, however, two limitations :

- it is first and foremost monoregional, i.e. it considers only a single region (in this respect it is entirely comparable to a "national" model which considers the development of its environment as a given datum). If on the other hand a multiregional approach is to be adopted, it is necessary to describe the interregional interdependences which exist as a result of trade between regions. This means that the output/demand balance must no longer be considered in overall terms and that a certain degree of breakdown by product must be introduced, if only because certain products are not transported or must, by their very nature, be used on the spot ;

- it represents a short-term approach which gives preference to demand (and markets) and neglects structural distortions and the influence of supply. The system of the "exporting base" is implicitly based on a distinction between export-orientated industries and industries geared to the local market ; however, the respective importance of these two groups of activities varies. In addition, there may be capacity limitations for certain branches,

for which supply then constitutes the determining factor of regional production. As the respective effects of supply and demand vary from one activity to another, a certain degree of breakdown must be introduced.

Consequently, it is important to break down output and demand by branch, in order to take account of both the effects of interregional flows of products and the specific nature of the various activities (and their differing degrees of localization as a function of demand or supply).

A multiregional system of input-output tables is a valuable instrument of correlation in this context. If there are regional markets and a high degree of regional specialization (e.g. as a result of short-term thinking), this system must at the same time be interregional, i.e. it must describe trade between regions. If on the other hand the markets are "national" and if supply has considerable influence as regards "freely localized" activities, it is possible to make do with multiregional tables which do not show the flows. The construction and use of regional input-output tables nevertheless still constitute a valuable tool, both for determining the output of activities localized as a result of demand and as a coherent framework for analysing output and demand ; such tables are also useful for analysing or calculating intermediate demand.

It is therefore easy to understand the value of a breakdown of the activity for the construction of "integrated" multiregional models. Those constructed for Western Europe (COURBIS, 1982) nearly always introduce a breakdown by activity. Although it is true that only the French models (REGINA or REGIS) explicitly introduce a multiregional input-output table (and interregional in the case of REGINA), this is in all probability more the consequence of statistical constraints than a completely "free" choice of the model constructor.

Even if the use of a regional or multiregional I-O table is not always necessary, it nevertheless constitutes a valuable instrument of correlation, in the same way as the I-O table of the Nation at national level.

2. - THE CONSTRUCTION OF MULTIREGIONAL I-O TABLES FOR THE COMMUNITY COUNTRIES : A BRIEF REVIEW

Although the construction of multiregional I-O tables is of more recent origin than that of national I-O tables (it goes back mainly to the beginning of the 1970s[1]), considerable work has already been carried out for various Community countries, namely Belgium, Germany, France, Italy, the Netherlands and the United Kingdom. With the exception of the tables for the Netherlands (compiled by that country's Central Bureau of Statistics), all these multiregional I-O tables have, however, been constructed outside the statistical offices, generally by university research centres. In many cases, this work has been carried out with a view to constructing models, either interregional input-output models(Belgium, Germany, United Kingdom) or integrated "national-regional" models (France).

Table 1 gives a synopsis of all this work. Except in the case of the Netherlands Central Bureau of Statistics, which introduces a "notional region" for sea and air transport (and for Government), the constructors of these tables have tried to regionalize all activities. The method adopted involves "regionalizing" a national table on the basis of various regional indicators ; even if a direct regional estimate can be obtained, the regional tables are still aligned on the national table, which is regarded as more reliable. In many cases the sources used represent a regional recast of statistical data collected for national use.

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(1) The construction of monoregional I-O tables, on the other hand, goes back further. For example, the table constructed by P. BAUCHET for Lorraine relates to 1952. This paper is only concerned, however, with multiregional I-O tables aimed at analysing all regions (if necessary, amalgamated to form "large regions"). In the case of France, an analysis of the work of constructing I-O tables at a regional or infraregional (i.e. "Département") level can be found in COURBIS (1980).

The number of data available varies from table to table. The tables prepared by the Central Bureau of Statistics for the Netherlands and that constructed by the GAMA for France seem to have been based on the largest number of data.

Apart from those for the Netherlands, which merely calculate in accounting terms the overall balance of external trade by region [1] ("Amsterdam method"), the various tables attempt to describe interregional flows. However, owing to the lack of statistical data, the flows are often calculated on the basis of theoretical models or systems [2]:

- use of a model of the gravity flows type for Germany and the United Kingdom, as well as for the SUIMEZ table for Italy ;

- calculation of flows based on the assumption that if there is a positive (negative) external balance for a given product, then there are only exports (imports). The region is assumed to be "served first". This rule makes it possible to reduce the number of unknowns to be calculated. An approach of this kind is used to a certain extent for Belgium by the CES and the Conseil Economique Régional pour le Brabant and by JEANNENEY et al. (1968/71) in his 1954 table for France. A calculation of this type can only be justified if it is carried out at a detailed level, as is done in the tables for Belgium constructed by the CES (which also uses direct data for certain products) and the Conseil Economique Régional pour le Brabant (which combines a method of this type and one based on a breakdown of each region's imports in proportion to the regional localization of production).

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(1) Some part works have, however, estimated trade at sub-region level : cf. LOCK (1976) and OOSTERHOVEN (1979).

(2) GLEJSER et al. (1976) also proposed an interesting approach based on prices.

On the other hand, the 1969 table for Italy compiled by the Cassa per il Mezzogiorno (FERRARA, 1976) and the 1969 and 1970 tables for France compiled by the GAMA (COURBIS and POMMIER, 1979) determine interregional flows directly through the use of transport statistics [1] and, for certain products, specific statistics. However, the Italian table covers only two regions, while the GAMA table for France covers five.

As the GAMA's work for France has shown, the value of direct calculation of interregional flows is considerable, as it can be used to test the reliability of estimates of demand and output by region. The regional balance for each product can in fact be calculated in two ways : (i) as the difference between regional output and regional demand ; (ii) as the balance of interregional flows, taking account of trade with other countries.

As far as France is concerned, this comparison (COURBIS and POMMIER, 1979, pp. 396-402) appears entirely satisfactory. It shows that a multi-and interregional I-O table can be constructed with a certain degree of reliability.

Although the quality of the basic data used is often not entirely sound if they have been collected for another purpose, the work on the construction of monoregional I-O tables on the basis of surveys [2] shows that direct acquisition of the information is a possibility : we shall come back to this towards the end of this report.

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(1) As the transport statistics are expressed in terms of tonnages carried, the unit values have, however, to be estimated.

(2) For France, a review of these studies can be found in COURBIS (1980).

TABLE 1

MULTIREGIONAL I-O TABLES FOR THE COMMUNITY COUNTRIES

Country	Author and institution (and reference)	Year	Number of regions	Number of branches	Interregional flows	Remarks
GERMANY (Federal Republic)	CARLBERG (1979) (University of Hamburg)	1970	6	12	Yes (calculated by means of a gravity flows model)	Compiled from existing tables for various regions (but for different years)
BELGIUM	(1) Centrum voor Economische Studien (University of Louvain)					
	- BRAUERS (1973)	1958	3			
	- VAN WATERSCHOOT et al. (1973)	1965	3	53	Yes (use of direct data + "differences" methods	
	- TEJANO (1976) and VAN WATERSCHOOT et al (1978)	1970	3	50		
	see also : BRAUERS (1979 and 1981)		(Brussels, Flanders, Wallonia.)			
	(2) Conseil Economique Régional pour le Brabant VANWYNSBERGHE (1973/74, 1976, 1979)	1965 1970	3 (Brabant, rest of Flanders, rest of Wallonia)	53	Yes (mechanical method based on a combination of the "differences method" and a breakdown of sources in proportion to the regional localiza-	For the regional I-O tables, use of the work carried out by the CES. The rows of the table were subsequently broken down by origin or destination. The breakdown shows Brabant separately.

TABLE 1 (cont'd)

MULTIREGIONAL I-O TABLES FOR THE COMMUNITY COUNTRIES

Country	Author and institution (and references)	Year	Number of regions	Number of branches	Interregional flows	Remarks
FRANCE	(1) Fondation des Sciences Politiques JEANNENEY et al. (1968/71)	1954	7 (variants with a more aggregated nomenclature or breaking down certain regions are also used)	16	Yes, based on a theoretical method (except in the case of a few products for which direct data were available)	Use of a small number of data; many variables are obtained by 'derivation' from the national values or structures.
	(2) GAMA:					
	- COURBIS and POMMIER (1979)	1969 and 1970	5	10	Yes. Direct estimation based on direct statistics and transport statistics	Use of a large number of basic data that have been cross-checked. Calculation of interregional flows permits comparison with the balance calculated from regional output and demand (taking account of trade with other countries).
	- ALBERGARIA (1981)	1970	7	10	No	Breakdown of the precedin table into 7 regions.

TABLE 1 (end)

MULTIREGIONAL I-O TABLES FOR THE COMMUNITY COUNTRIES

Country	Author and institution (and references)	Year	Number of regions	Number of branches	Interregional flows	Remarks
ITALY	(1) Cassa per il Mezzogiorno: FERRARA (1976)	1969	2 (North-Centre + Mezzogiorno)	35	Yes (transport and various other statistics)	
	(2) SUIMEZ (Rome) and North-Eastern University BOSTON: PILLOTON (1979) and SCHACHTER (1979)	1959, 1965, 1969 and 1972	9 (the 'North' + 8 regions of the South)	Rectangular Matrices 32 x 71	Yes; two-stage calculation: - estimate of total flows of imports and exports (from which trade with other countries can be separated); - estimate of interregional flows by means of a gravity flows model subject to certain constraints.	Work in progress
NETHERLANDS	(1) Netherlands Central Bureau of Statistics (1968 and 1970); STRANKINGA (1979); LOCK (1976)	1960	16		No (calculation of balances only: 'Amsterdam method'), but some attempts have been made for certain regions.	Introduction of 'notional' regi for sea and air transport and Central Governm
		1965	14			
		1970	14	23		
	(2) OOSTERHOVEN (1979) (University of Groningen)	1970	3		Yes	
UNITED KINGDOM	GORDON (1972, 1979): University of Kent	1963	11	40	Yes: calculation based on a gravity flows model (considered at the level of 62 sub-regions and 75 groups of goods transported)	

3. - HOW ARE PRODUCTION AND DEMAND BY REGION TO BE DEFINED ?

The construction of a multiregional system of regional I-O tables consistent with a national I-O table involves "regionalizing", i.e. breaking down by region, the total demand or output shown in the national table. When the place of production and the place of utilization can be recorded without ambiguity, this does not pose any conceptual problems, but it is not always the case.

Difficulties arise as regards output in particular when the factors of production used are mobile or the spatial materialization of the product is not fully explicit : the former applies in particular to transport, the latter to telecommunications.

One solution involves not considering and not regionalizing such activities, which is what the INSEE did (1966) in its attempt to regionalize the Economic Table for France. Another possible solution - which in the final analysis boils down to the same thing - is to take a notional (n + 1) th region (the "extra-region") for such activities, as is done in the Norwegian I-O tables by county.

A solution along these lines has, however, more drawbacks than advantages, since it distorts the calculation and analysis of the Regional Product. An attempt must therefore be made to define what is meant by "regional" output for such activities.

Let us consider the case of transport first of all. The transport service rendered by a lorry or a railway waggon is created continuously in each of the regions crossed. It could therefore be recorded as being created in each of the regions concerned, but such a solution raises two problems.

First of all, some regions are only transit regions ; secondly, in the system of accounts the region of production might be different from that in which the factors of production are acquired, managed and remunerated. If the analysis of regional output is to be consistent with that of the factors of production, this output should be recorded for the region of the local unit in which the factors of production are managed and remunerated (or exports and imports of factors' services would have to be charted). This is what was done in the multiregional table constructed for France by the GAMA (COURBIS and POMMIER, 1979) ; in this table, the output of rail and road services is attributed to the regional units and is therefore divided among the regions according to the localization of the transport equipment (a similar solution is proposed by BRAUERS - 1981- for Belgium). The various local units are thus deemed to export a certain proportion of their services (which are imported by the region on whose behalf the transport operations are carried out ; transit operations are not shown). Even though it poses a number of practical problems, such a solution leads to a coherent analysis of both output and the factors of production (uses, capital fund and investment) and value added and distributed income (we shall come back to this question in Section 5). However, this causes a minor statistical difficulty in that certain items of intermediate consumption (e.g. fuels) are acquired partly in the regions crossed and therefore included in these regions' intermediate demand.

A similar problem arises in the case of building and public works when the sites are situated outside the region of the local unit to which the factors of production used are attached. This problem only arises in fact for temporary sites, since a permanent site is treated as a local unit in which

the factors of production are recorded (in particular, employment; there is a statistical problem, however, with regard to machines). On the other hand, in the case of a temporary site the factors of production are recorded at the permanent unit. In order to be consistent with the analysis of the factors of production, the output must be attributed to the local unit (and demand to the region in which the site is located). Exports and imports of building and public works have then to be considered, as is done in the table constructed in France by P. CHOUTEAU for the Loire region.

The problem which arises in the case of "Posts and telecommunications" is even more complex, since the factors of production used are attached to several regions and the service rendered involves both the correspondents, who do not necessarily belong to the same region. A simplifying solution involves dividing it equally between the two regions concerned. If the return traffic is then assumed to be equal, then regional output is equal to regional demand.

The analysis of interregional flows poses similar problems in some cases. Thus, in France the authors of a table for Brittany considered that the region's energy deficit came from a notional region and they therefore recorded only the net energy balance and not the flows. However, even if the electricity and gas networks are interconnected, the movements (power and quantity transported) across the borders of each region can be charted from the maps of "movements". On this basis it is therefore possible to record a region's trade with the bordering regions and, step by step, all the flows, but in this case transit movements must also be recorded. This is the solution adopted in the multiregional I-O table constructed for France by the GAMA for 1969 and 1970.

The problem of charting external flows also raises that of demand. If there is to be a correlation between output, flow and demand, the latter must be described in internal terms. The external flows then record the outputs and inputs at the region's borders. This means that regional demand corresponds to the purchases made within the region.

If households' consumption is being considered account will have to be taken of domestic consumption and not the consumption of resident households. The latter (which is that recorded in the surveys conducted among the households in a region) does not in fact cover solely purchases made within the region : certain types of expenditure - such as tourism, mail-order purchases, rents for second residences, etc.- are effected outside the region of residence. An adjustment has to be made in order to record them with consumption expenditure in the region in which they are actually effected. Similarly, account must be taken of the expenditure effected in each region by foreign non-residents (in particular foreign tourists).

This changeover to the concept of domestic consumption is essential if the analysis of external flows is to be consistent with that of regional demand. While an I-O table could of course be constructed in terms of "residents", purchases from and sales to non-residents would have to be recorded with the external flows.

4. - THE PROBLEM OF MULTIREGIONAL ENTERPRISES

Multiregional enterprises pose a difficult statistical problem : how are their output and value added by region to be valued ?

While there are direct sources in "physical" terms for a number of branches, the only basic source available comprises either merely the data recorded in enterprises' accounts (which can either be gathered directly or be taken indirectly from the BIC and BNC tax statistics) or the results of surveys. By nature, both the overall and detailed accounts of enterprises do not show any breakdown by region, whereas the surveys generally have a limited regional dimension. Thus, in the case of France the 'local unit questionnaire' which accompanies the 'enterprise questionnaire' for the 'annual survey of enterprises' (EAE) records only a small number of regional data : the workforce (by activity) and investment (by type) for each local unit. On the other hand, no information is collected in respect of output (and sales) and purchases, which are recorded only in the enterprise questionnaire (but by activity) and consequently only at the level of the local units taken as a whole. If these belong to several regions, it is a problem to determine output and intermediate consumption from the EAE (the same problem arises if the BIC tax statistics are to be used). The solution adopted by the INSEE (from 1975 onwards) in its accounts for the branches of industry is to regionalize a multiregional enterprise's total sales and purchases (by activity) in proportion to the enterprise's workforce in the various regions (which is known from the local unit questionnaire).

The solution adopted by the INSEE to determine multiregional enterprises' output and value added by region from the EAE assumes that the average labour productivity of the various local units of the same enterprise is (in respect of the same activity) the same for all the local units (and therefore for all the regions). Statistically speaking, this introduces a bias into the valuation of regional output and value added.

At the same time, however, a calculation of this type distorts the regional uses-resources balances by product. Let us take, for example, the case of an enterprise whose registered office is in region i and market production activities in region j. Under the INSEE solution, the output is divided between the two regions. However, the output calculated in this way for region i corresponds to domestic services which are not shown in the national I-O table. Above all, however, this leads to a distortion of the uses/resources balances by product : as the registered office's services are not shown in demand, the INSEE solution increases the regional balance of region i and decreases that of region j. The output/demand/flow correlation between regions (and with other countries) is thus distorted, since the (non-market) services rendered by the registered office to the local unit are not entered with the trade flows in the branch's products.

In order to express output in physical terms and to ensure a demand/output/flow correlation, the solution to be adopted in the regional I-O tables is to consider, in the example quoted above, that output is located entirely in region j where the production units are situated. On the other hand, intermediate consumption must be attributed to the regions where it takes place, including consumption for the purposes of the registered office's activity.

This way of accounting maintains a "physical" dimension for output and has the advantage of not distorting the output/demand/flow balances. However, it leads to a different regional breakdown of the value added of the branch considered.

A problem arises, however, if the aim is to establish a link between the I-O table and the generation of the Regional Product by branch on the one hand and the distribution of regional income on the other. With the product-based approach, the registered office has a zero output and therefore a negative value added but pays out income. We shall come back to this question in Section 5, where we shall see that one solution involves showing enterprises' internal activities, in particular that of the registered office. Registered office' activity represents (non-market) output and there is therefore a positive value added ; in order to restore the balance between the regions, this output must be taken to correspond to services consumed by the production units.

5. - CALCULATION OF THE REGIONAL PRODUCT AND CONSTRUCTION OF AN I-O TABLE

The National Product can be calculated by three methods :

- by determining final domestic demand and the balance of external trade ("demand approach") ;

- as the sum of each branch's value added, which itself is calculated as the difference between output and intermediate consumption ("production approach") ;

- from its components in terms of income ("income approach").

By constructing an I-O table it is possible to calculate the Domestic (or National) Product on the basis of the second approach ; it also provides a framework for applying the first approach on the basis of statistics on products.

At regional level, any of these three approaches could in theory be used, but it is quite clear that the first method is in fact not very practicable. The regional economy is much more open than the national economy and the flows between regions are much more difficult to monitor (there are no regional Customs) than national flows with the rest of the world. Moreover, trade with other countries is not always regionalized ; not all the countries have, as France does, regional statistics on external trade (even if these statistics are not perfect in every way).

It is therefore virtually impossible to use the first method to calculate the Regional Product. This does not mean, however, that it is impossible to monitor interregional flows ; it is merely a lot trickier, given the present situation with regard to regional statistical information. Nevertheless, analysis of interregional flows (and flows with other countries) is very useful because it can be used to test the reliability of the statistics on output and demand. The regional balance can in fact be calculated in two ways : either as the balance of the region's trade with the other regions and the rest of the world or as the difference between the region's output and demand. In the case of the table constructed by the GAMA for France, this resulted in a useful comparison, the differences between the two estimates of the regional balance proving relatively slight (COURBIS and POMMIER, 1979, pp. 369-402). Adjustments were then made to the flows so as to ensure a total output/demand/flow correlation.

Even though it is theoretically feasible, the first method must therefore be regarded more as a validity test, owing to the quality of the data on flows. That leaves the other two methods :

- either to calculate value added from income ;

- or to calculate value added from the I-O table and the calculation of output and intermediate consumption.

The income approach is used very often, but it poses a problem : in order to use this method it is necessary to regionalize not only operating expenditure but also operating results. At national level, these can be determined from enterprises' accounts but, unless there are local unit accounts, this is not possible at regional level. The calculation of value added from its income components is therefore dependent on the convention used to regionalize the operating surplus, e.g. as a function of wages paid per region : this is what was generally done by the INSEE (1966) in respect of non-agricultural enterprises in its attempt to regionalize the Economic Table for 1962. This assumes, however, that the rates of capital appreciation are exactly equal in each region (for the same activity).

In calculations of value added based on the use of surveys of enterprises, the regional value added can be determined directly from all its components for monoregional enterprises, but the problem which arises in the case of multiregional enterprises has already been mentioned : the regionalization of the enterprise's total value added (for a given activity) on the basis of the workforce employed involves the assumption that (for an enterprise) the average labour productivity in respect of each of its activities is identical from one region to another. This distorts the calculation of value added.

The I-O table approach does not have these drawbacks but it presupposes that adequate regional statistical information on output and demand is available. Value added can be determined directly.

This method also poses certain problems, however. First of all, it is more cumbersome. Furthermore, while the problems as regards output are of a limited nature, the regional calculation of intermediate demand by branch often gives rise to problems, given the present state of statistical information.

No method is perfect, however, and it is best to try to use the different methods and reconcile them. The value - both statistical and economic - of a 'mixed' approach is obvious, namely that it provides a coherent picture of output, uses/resources balances and income. All the same, the income and I-O table approaches must be consistent.

As we have seen, the recording of multiregional enterprises' market output (so as to maintain the output/flow/demand correlation) raises the problem of the treatment of internal activities. These have costs and distribute incomes but their output is not shown in the national I-O tables. These costs and incomes cannot be attributed to the production activity but they cannot be ignored either. The solution we propose is, as already mentioned, to show such activities explicitly and to valorize their output. Internal services or intra-consumption will be shown in this way. The 'registered office', for example, will be assumed to produce services which will be consumed by its local units : the total value added (output + registered office) of the enterprise by region is then consistent with distributed income.

Conversely, if it is assumed that at the production stage the units of production 'consume' the services provided by the registered office, it will be an advantage in an integrated system of regional accounts for the producer regions to transfer their output to the region of the registered office (which will then pay both the taxes not based on production and the finance charges, pay out dividends and take care of the general financing of the enterprise [1]).

The registered office's activity would thus be regarded as an intermediate activity but on the other hand financial management would be centralized at the registered office.

The proposed accounting method takes into consideration the physical localization of the market products manufactured and is consistent with an analysis of the real flows between regions ; at the same time, it shows a localization of value added which is consistent with that of the workforce (and more generally with that of costs and factors of production). Moreover, for the industrial branches the distinction between production of goods and production of internal services is useful for the purposes of analysis, since the attachment of registered offices' employees to the industry (which has some meaning from a national point of view in that internal and external activities can then be consolidated) reduces the movement towards tertiarization of certain regions such as the Paris region.

A further advantage of this approach is to reconcile the calculations of value added and Regional Product made either by the income method or by the production method.

In a more general way, a comparable treatment could be adopted for internal activities as a whole. This would, moreover, be along the lines of the treatment adopted in the national I-O table in respect of certain own-account activities (in particular supplies).

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(1) The financing of production units' investment and working capital will likewise be shown as an internal transaction between the registered office and the various production units.

It would be possible for instance to treat private transport (for own account) in this way so as to distinguish it from public transport (for hire or reward). The advantage of showing private transport of goods - which is not done in the national I-O table - is obvious : it would be possible to correlate transport as a whole (private + public) and interregional flows of goods.

Another problem, which we have already mentioned in Section 3, is that presented by activities which are difficult to localize. If such activities are excluded from the regional I-O table, the calculation of the total Regional Product is distorted, but it is the same in the income-based calculation if - as in the regionalization of the French Economic Table carried out in respect of 1962 by the INSEE (1966)- the value added of these activities is not regionalized also. However, a regional breakdown in proportion to the size of the workforce (or wages paid), as is often done to calculate the Regional Product, comes to the same thing as implicitly considering the localization of production according to that of the factors of production [1]. From this point of view, the proposal we made with regard to this question in Section 3 makes it possible to localize production fully while at the same time ensuring compatibility between value added and distributed income.

It would therefore appear that, subject to an appropriate adaptation of the accounting framework, a regional I-O table can provide full coverage of all productive activities and can also be used to calculate the Regional Product in a way consistent with distributed income.

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(1) It is interesting to note here that in the case of activities whose localization is materially discernible without ambiguity there is also a correlation between output per region and the factors of production used and remunerated in each region (taking account of regional functions of production). The proposed regionalization criterion is therefore of general application, but regionalization must obviously be based on all the factors of production used (and not only labour) and make allowances for their possible under-utilization.

In theory, the two approaches (income-based and production-based) could thus lead to the same result ; in practice, it must be borne in mind that the income-based calculation raises the problem of the regionalization of operating results. To do this on the basis of the size of the workforce or wages paid by region cannot be regarded as acceptable since it would mean that the problems of profitability would be posed in the same terms for all the regions. The only solution would be one based on local unit accounts, but this is not possible in practice. On the other hand, the I-O table approach avoids this problem ; if it is a proper manner, value added by branch and the Regional Product can be calculated directly. If the distributed income per region at the production stage is then calculated, the difference is the regional operating surplus (or deficit).

Far from being conflicting, the two approaches based on production and income are therefore complementary. The I-O table can be used to calculate value added and the Regional Product ; the analysis of distributed income can then be used to deduce the operating surplus (or deficit) by region (and activity).

It is only if the regional operating surplus (or deficit) can be recorded directly that the two methods could be used simultaneously to calculate the Regional Product.

The use that can be made at present of the 'income method' can therefore be regarded only as a substitute. It nevertheless has the advantage of being much less cumbersome and it is the only one that can be used in the absence of any information (or if the statistical data available contain too many gaps) to construct a regional or multiregional I-O table.

6. - CONCLUSIONS FOR THE CONSTRUCTION OF MULTIREGIONAL I-O TABLES

As we saw earlier in Section 2, major efforts have been made over the past ten years to construct multiregional (and, in many cases, interregional) I-O tables for most of the Community countries. The construction of such tables is not only useful but also feasible.

A number of improvements are nevertheless called for from both a methodological and a statistical point of view.

From a methodological point of view, it appears that the framework used for the national I-O tables will have to be adapted to take account of certain specific regional features. This applies in particular, as we have seen, to the treatment of internal activities and the concept of output or demand at regional level.

From a statistical point of view, there is still considerable room for improvement, even though the information sources currently available are numerous and can be used for cross-checking purposes (as in the I-O tables constructed by the GAMA for France).

The work carried out so far is based in fact on as judicious a use as possible of the available statistical sources, but with one or two exceptions these comprise data which have been collected for other purposes. In many cases, they are data which have been acquired for some national purpose and are re-used at regional level. There is no guarantee, for example, in the case of data collected by inquiry or sample survey that the sampling fractions applicable at national level are also applicable at regional level, especially if a detailed regional breakdown is to be made. This is the case in France with the survey on households' living conditions (the sample design of which is not stratified by region) or the annual survey of enterprises (which does not cover small enterprises). However, these sources can be used for large regions.

The collection of direct data would unquestionably lead to an improvement in the quality of the work. While the construction of multiregional I-O tables is for the most part based on the use of data collected for other purposes, the construction of monoregional I-O tables has generally been based on the collection of direct data, particularly through specific surveys among enterprises in the region (cf. COURBIS /1980/ for France). The advantage of the 'surveys method' is that it provides a useful addition to the information available on output and intermediate consumption, as well as on the geographical origin or destination of purchases and sales.

It is , however, a cumbersome method, involving finding reliable questioners in each local unit, interviewing them or at the very least checking their progress directly if neccessary. Under these conditions the response rate can be satisfactory, as is shown by the example of the regions for which this method has been successfully used. There are, of course, difficulties (mobility of industrial activities : disappearance of local units, change of activities ; inaccurate recording of commercial activities ; business confidentiality, etc.), but these do not diminish the value of a survey approach.

An adaptation of the present surveys for regional purposes would be particularly desirable. Thus, in the case of France :

- the sample design of surveys such as those on households' living conditions should be stratified by region ;

- the 'local unit questionnaires' used in the 'annual survey of enterprises' should be more detailed - if not for each year, at least for certain years.

Questions could be included on output (turnover or output in physical units) and the main inputs (there could be a number of alternatives here depending on the local unit's activity).

This would lead to a considerable improvement in the information on regional demand (in particular, households' consumption and intermediate demand) and output.

An improvement of the breakdown of public demand by region, on which in many cases little information is available (especially as regards operating expenditure), would be equally desirable.

The use of a direct approach would lead to a considerable improvement in the quality of multiregional I-O tables. It could also facilitate parallel construction of I-O tables by region and the national I-O table, thus making it possible not only to solve the problem of consistency between the multiregional I-O tables and the national I-O table [1] but also to take account of the effects of differences in regional structures on the national I-O table.

If the aim is to construct a regionalized I-O table which is not only multiregional but also interregional, the problem of recording interregional flows (and flows with other countries) also arises. Their determination is often the least satisfactory part of the current work because in many cases this is done, as we have seen, by indirect methods gravity flow models ; calculation of trade on the basis of theoretical rules but at a detailed level). We have also seen , however , that for the French table constructed by the GAMA the flows were determined directly, thus making it possible (cf. above) to test the validity of the regional breakdown of demand and output. Except in the case of certain products for which the flows were known directly, the basic source was provided by the transport statistics, but the use of such statistics raises the problem of knowing the unit values of the goods transported.

Experience of contructing monoregional I-O tables on the basis of surveys of enterprises shows, however, that a considerable proportion of the flows could be determined from surveys.

All the above shows how advantageous it would be to have from time to time a fuller survey among enterprises, providing direct information on output, intermediate demand, productive investment and interregional flows.

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(1) At present, in view of the inferior quality of the regional I-O tables, the various components of a multiregional I-O table are 'aligned' on the corresponding components of the national I-O table.

Up to now, the work on both multiregional and monoregional I-O tables has in many cases been carried out not by statisticians and the statistical offices (the Netherlands is an exception among the Community countries) but by model constructors or analysts who needed them for their own work (in particular the construction of models).

The 'users' opened up the way by showing that the construction of such tables - which was clearly useful - was also feasible. The 'demand' for statistical data came before 'supply' [1] but it would be a good idea for the latter to follow from now on.

(1) This situation is not peculiar to multiregional I-O tables. In France, for example, the compilation fo enterprises' accounts by sector ('sector accounts') was initially carried out by constructors of models. The value of compiling such accounts and incorporating them in the national accounts gained recognition gradually and the sector accounts then became (in 1968) an integral part of the national accounts.

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DEVELOPMENT IN INTER-REGIONAL INPUT-OUTPUT ANALYSIS: THE EUROPEAN PERSPECTIVE OF RECENT DUTCH EXPERIENCES

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Development in Inter-regional Input-Output Analysis :

The European perspective of recent Dutch experiences.

Contents Page

1. Introduction 1

2. The construction of inter-regional tables 2

   2.1 Recent Dutch developments

   2.2 Rectangular, multi-regional tables

3. The neglect of the price model 6

4. The closing of the quantity model 7

   4.1 Consumption from labour incomes

   4.2 Dynamic applications

5. The treatment of supply effects 11

   5.1 Solution for impact studies

   5.2 Agricultural applications

6. Conclusion: the European perspective 16

References 18

Summary 21

1. Introduction

After a first, primarily academic start in the US (cf. Riefler, 1973) inter-regional input-output analysis is becoming an accepted tool in empirically based regional policy studies. The usefulness of inter-regional input-output analysis for regional policy questions is based on its two main characteristics.

First, it is an inter-sectoral approach and regional problems often imply sectorally unbalanced economic structures. Moreover, policy solutions are often geared to specific projects and sectors. So an intersectoral analysis is clearly superior to any macro, non-sectoral approach.

Secondly, regional policy is often formulated and at least partly executed by national governments (cf. Oosterhaven and Folmer, 1980, for the Netherlands). This aspect of regional policy implies that both regional and national impacts of policy proposals are of interest. This conclusion even holds for regional authorities as they have to defend their region's interests with national authorities (cf. Oosterhaven, 1982a, for a Dutch example). So, inter-regional analyses which serve both ends, are superior to single-region studies.

In this paper we aim at an evaluation of recent developments in inter-regional input-output analysis in the Netherlands. We will also try to indicate their significance for analyses for the European Community (EC).

We start, in section 2, with a discussion of some new ways of setting-up and constructing inter-regional tables. Part of these new ways might be usable in the construction of inter-regional EC-tables.

Next, some observations are made on the neglect of the price model in input-output studies and its possible use in inter-regional or international analyses is discussed.

In section 4 we review the Dutch experience with closing interregional input-output models with respect to households and applying the enlarged model to the relocation of government offices. In such truely dynamic applications, the functioning of regional labour markets and the social security system also has to be modelled explicitly if reliable empirical conclusions are aimed at.

In section 5 we discuss the limits of the demand-driven input-output model in the case of capacity constraints. A general supply- and demand-determined interindustry model seems unfeasible. For the more restricted class of impact studies, however, an operational method is developed in the context of some Dutch land-reclamation projects. The method is of obvious significance for agriculture and other sectors that are confronted with supply constraints.

Finally, these Dutch experiences are summarized with regard to the perspective they may offer for European applications.

2. The construction of inter-regional tables

Intra-regional input-output analysis has already a long history (thirty years) in the Netherlands (see Oosterhaven, 1980, for a review). The first inter-regional table was produced for the Rijnmond area for 1965 (OLR, 1972). This was done using detailed data about the regional use of national products from the Central Bureau of Statistics (CBS) and estimates of regional sales to national users. These data were combined with partially survey-based and partially ad hoc estimates of the regional origin and destination of these products. The methods used, varied from

subsector to subsector and were not reported upon.

Before and after this first inter-regional table, several intra-regional tables were produced, using methods comparable to those used in constructing the Rijnmond table. Later on these intra-regional tables were up-dated using ad hoc procedures or the RAS-method.

2.1 Recent Dutch developments

The first generation of regional input-output tables especially were very time consuming in their construction. Naturally, like elsewhere, methods demanding less data are looked for.

Muller (1979, ch. 2) applied four different non-survey methods to construct interregional tables of 1965 for the Rijnmond area. The results were compared with the official table (OLR, 1972). This comparison showed only small differences per sector if the best of the non-survey methods was taken. The principle question of how to select the best method a priori, however, was not answered.

A completely different approach was followed in the construction for 1970 of a three region table for the northern Netherlands, the Rijnmond area and the rest of the Netherlands (Oosterhaven, 1979 and 1981b). Here a step-wise method was used, based on the idea of the gravity model applied to input-output data (see Leontief and Strout, 1963, for the first version of such a model).

In the present case an intra-regional table for the North (FNEI, 1977b) and an inter-regional one for Rijnmond (OLR, 1977) were already known. So, two out of a total of nine (3x3) required sub-tables were available, as well as four tables with regional export or import data. So, the final table with nine subtables could be estimated in three steps.

The crucial element in the estimation procedure was the extrapolation of the so-called "distance sensitivities" which were implicitly given in the tables already known. These extrapolations were used for the correction of the spatial subdivision of the tables with regional exports and imports, which were in first instance made without taking account of the influence of distance costs.

The final estimate of the three central, unknown sub-tables, was made by taking the geometrical mean of two partial estimates. One was made by assigning regional destinations to export data by using demand-keys and extrapolated "output distance sensitivities". The other was made by regionalizing import data by means of regional supply-keys and extrapolated "input distance sensitivities" (see Oosterhaven, 1979, for all data).

This approach seems to be rather general and may also be applied simultaneously instead of step-wise (cf. Oosterhaven, 1979, appendix 1). By proceeding step by step, however, intermediate plausibility checks may be incorporated into the construction method. These checks proved to be valuable in the case at hand and, inter alia, showed deficiencies in the tables already known.

The weak point of the approach, however, is the extrapolation of distance sensitivities. Further research into different extrapolation methods seems sensible and becomes feasible if national series of input-output tables are used. In the latter case this research may easily lead to methods applicable to the construction of e.g. an EC-intermember table.

For the sake of completeness we have to mention the recent construction of five two-region tables, respectively for (the southern part of) the province of Limburg, (the northern part of) the province

of Overijssel and the northern Netherlands (see Wesseling and Meijering, 1982; SEO, 1982). These tables are estimated in two steps.

First, data on the regional use of national products from the Regional Accounts for 1970 (CBS, unpublished) were up-dated to 1977, using the RAS-method, national trends for final demand and Regional Economic Year-figures for 1977 (CBS, 1980). This was done with great care. Secondly, however, identical export quotas were used along each row of the table, making no distinction as regards sectoral destination or final users. Moreover, the export quotas were crude extrapolations of regression equations based on data from six intra-regional tables for 1965!

Currently, inter-regional tables for 1975 are being prepared for each of the three northern provinces. This is being done in a rather detailed survey orientedway using individual base data from the CBS. Staff-members of the Federation of Northern Economic Institutes (FNEI) are temporarily detached with the Dutch CBS to execute this project. This is a type of co-operation that proves to be very fruitful indeed. It will be reported upon in due time.

2.2 Rectangular, multi-regional tables

All the above mentioned tables are of the so-called "ideal type" (see Richardson, 1972, ch. 4, for a typology of inter-regional tables). For policy simulations in which several sectors are simultaneously being influenced, it is fortunately not necessary to use the ideal amount of statistical detail. In such cases, a differentiation of import quotas with regard to the users concerned, does not make much empirical difference. This implies that we may also use a table of the so-called "Chenery-Moses type", i.e. a multi-regional table instead of a full inter-regionalone (see Polenske, 1980, for a major effort to construct

such tables for the US).

Furthermore, from a statistical point of view, more reliable tables may be constructed if we skip the straight-jacket of ordinary industry by industry tables, and use commodity by industry and industry by commodity tables. Elsewhere (Oosterhaven, 1982b), it is shown that the latter pair of tables gives sufficient information to build models that answer the same research questions as the industry by industry type of input-output model.

If the multi-regional and rectangular lay-outs of input-output tables are combined with the inter-regional and square ones, a whole family of tables and related model may be specified. Each member of this family will have a different split between statistical and model assumptions. So, depending on the quality of the data, an optimal mix may be formulated (see Oosterhaven, 1982b, for details). In this way the responsibility for assumptions about unknown data need not to be hidden in statistical offices but may be placed upon model builders; where they in fact belong.

3. The neglect of the price model

Apart from some descriptive purposes, input-output tables are mainly constructed as empirical bases for input-output models. Surprisingly enough, most applications of national as well as of (inter)regional input-output models restrict themselves to the primal or quantity version of the model. The dual or price model is more or less neglected, at least empirically. The price model is based on the assumption that changes in the prices of primary costs are precisely passed on to intermediate and final users (see Oosterhaven, 1981, ch. 2, for the interregional price model).

So, empirically the price model is rather necessary to simulate the cumulative consequences of sector-specific and/or region-specific price changes. If household consumption is made endogenous (see the next section), the price-wage-price spiral may also be studied at a regional and sectoral level (see Oosterhaven, 1981, ch. 6, for an application to the cumulative structure of regional cost of living and regional cost of public consumption).

In an EC-context, applications of a dual inter-member model may e.g. involve the evaluation of EC inflationary processes, and their sectoral and national differences in pace; processes that might start off with import price rises (cf. Oosterhaven, 1981c, for a Dutch application). Other applications may involve the nationally and sectorally different, cumulative costs effects of pollution abatement programmes (cf. Muller, 1976 and 1979 for Dutch applications).

4. The closing of the quantity model

As shown elsewhere (Oosterhaven, 1981, ch. 6 and 7), it holds in general that the decision to take account of certain factors or not, is empirically more important than the detailed way in which this may be done. This holds good for the inclusion of exogenous effects in final demand, as well as for the type of endogenous effects built into the model.

In input-output analysis, private consumption is by far the most important single category of final demand that may be made endogenous. In the case of our inter-regional model for the Netherlands, the induced effects of endogenous consumption expenditures was comparable in size to the indirect effects of endogenous intermediate demand (cf. table 1).

4.1 Consumption from labour incomes

The classic way of making private consumption endogenous is by adding an household row and column to the matrix of intermediate transactions (see Richardson, 1972, ch. 3. for a review). This is a rather inadequate method especially when the household row is filled up with value added.

The main reason is the fact that value added represents income that is created in the region, i.e. the gross regional product (GRP). It does not represent regional spendable incomes for two reasons. First, primary incomes leave the region, and secondly, secondary incomes such as social security payments, enter the region*).

It is a better procedure to forget about capital incomes and to establish a consumption function for labour incomes, as these mainly stay in the region at hand. In the case of inter-regional models, especially when urban areas are involved, an inter-regional consumption function also has to reckon with commuting and shopping across regional borders.

The solution of the enlarged model is still rather simple. For value added it reads as follows (see Oosterhaven, 1981, ch. 6, for the derivation):

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* This means, by the way, that EC-data on GRP per capita is a rather poor means of measuring regional welfare differences. It might be a better indicator of regional exploitation, as it in fact measures mainly the regional contribution to national welfare, which is easily illustrated by the case of the Dutch province of Groningen.

$$v = \hat{c}\,(I-A-Q)^{-1}\,y^{ex} \quad ; \text{ in which:} \qquad (1)$$

v : a vector with sectoral levels of value added for the regions included into the model,

$\hat{c}$: a diagonal matrix with corresponding value added coefficients,

A : the well-known matrix with intra- and inter-regional intermediate input coefficients,

Q : an intra- and inter-regional consumption-production matrix, indicating expenditures on consumption goods and services per unit of production per regional sector,

y^{ex} : a vector with exogenous final demand levels, i.e. exclusive of consumption expenditures from labour incomes.

The empirical magnitudes of the indirect and induced income effects, due to respectively the matrices A and Q of our Dutch model, are shown in table 1.

Table 1 Direct, indirect and induced income effects of the (weighted) average sector in the North, the rest of the Netherlands and Rijnmond.

Type of income effect	the North	the Rest	Rijnmond
Direct effects	1.000	1.000	1.000
Intra-regional effects			
- indirect ones	.373	.444	.182
- induced ones	.301	.511	.224
Inter-regional spill-overs			
- indirect ones	.205	.069	.225
- induced ones	.274	.079	.285
Total national effects: direct, indirect and induced	2.154	2.002	2.915

Source: Oosterhaven, 1981, table 4.3 and 6.5.

4.2 Dynamic applications

The above mentioned model is static in character. To use it for impact studies or for general projections requires in most cases a dynamic version. Unfortunately, the problem of making the model behind (1) dynamic asks for more than a "simple" change of average into marginal coefficients, which might seem sufficient at first glance.

At least two other changes have to be made. First and foremost, we have to deal explicitly with the inter dependency between changes in labour incomes and social security payments. If this is not done, we will get too large estimates of the size of the induced effects, because the relation between labour incomes and social security payments is a negative one. The actual, dynamic effects may only have half the size of the static induced effects indicated in table 1.

Secondly, we have to model inter-regional migration, preferably in such a way that it is integrated with the above mentioned interdependency. This requires in fact a more or less complete inter-regional labour market model, in which only migrants get average consumption coefficients. The outlines of such an integrated labour market/input-output model are found in Oosterhaven (1981, ch. 6). Comparable results are reached by other authors under the appealing heading of "demo-economics" (cf. Madden and Batey, 1980; Gordon and Ledent, 1980).

A good example of the research problems to be solved, may be found in three Dutch impact studies of the economic effects of relocating government offices from The Hague to cities in peripheral problem regions (FNEI, 1975; Oosterhaven, 1981, ch. 7; SEO, 1982). To estimate these effects with an inter-regional input-output model, inter alia, the following questions had to be answered:

(1) How many employees will migrate with their offices?

(2) Will the rest of the employees be dismissed and get social security and damage payments or will they be absorbed elsewhere within the public service in the region of The Hague ?

(3) How large will be the difference between labour and non-labour incomes of those unemployed, school-leavers and married women who are prevented to enter government service because of these moves in The Hague?

(4) How many other migrants will be induced by the relocations and how many of them will take jobs with the new offices?

(5) How large will be the losses of non-labour incomes of those who enter the jobs with the relocated office and in which region will they occur?

(6) What will be the comparable pattern of income changes that will be caused by changes in intermediate and consumption demand for products of other sectors?

Despite differences in assumptions all studies estimate the employment impacts for the North to be in the range of 1.30-1.40 times the number of relocated working places. The effects in the region of The Hague are believed to be smaller, as is shown empirically in Oosterhaven (1981, ch. 7).

5. The treatment of supply effects

The model behind (1) is in essence a simple, but inter-sectoral and inter-regional, type of Keynesian expenditure model. As such it is completely demand-led. Supply is assumed to be perfectly elastic and has no influence on the working of the model. Such a description of reality may be adequate in many cases, but not in all. Especially, in regional applications we may encounter cases where regional production capacities are limited, e.g. because of limited amounts of a localized

input or because of labour shortages. In such cases it is primarily supply that determines the regional level of sectoral output.

5.1 Solution for impact studies

There are several approaches that claim to deal with supply effects in inter-sectoral models. These are the supply-driven input-output model (see e.g. Giarratani, 1981), the inter-sectoral flows model (see e.g. Lee et al., 1973) and the attraction model (see Klaassen, 1967 and 1974). Unfortunately, these models are inconsistent, theoretically implausible or both (cf. Oosterhaven, 1981, ch. 8 and 1981a, for the arguments used).

In our opinion an operational and theoretically plausible, inter-regional inter-industry model that integrates supply and demand effects would be unobtainable. This negative conclusion, however, does not imply that supply effects and endogenous forward linkages may not be dealt with in the case of impact studies of single projects, the expansion or contraction of single sectors, or the introduction of new technologies.

The solution to the incorporation of supply effects into impact studies is, however, project-specific. In Oosterhaven (1982 ch. 8) we give the general mathematical outlines of an iterative solution to the incorporation of supply effects. This solution proceeds in two main phases.

First, supply effects on production levels are determined by exogenous primary inputs and by endogenous forward linkages between sectors. Secondly, demand effects on production are determined by exogenous final demand, already fixed supply effects on production and endogenous intermediate and consumptive backward linkages.

In more detail, the procedure follows the following steps :

(1) Some primary inputs, such as land or labour, are fixed exogenously.

(2) These primary inputs determine part of the production levels of the sectors concerned, i.e. in accordance with their reciprocal primary input coefficients.

(3) Part of this production is being sold, interregionally and intersectorally, according to fixed output coefficients, i.e. these are the effective forward linkages.

(4) Part of the production level of the receiving sectors is determined by these forward linkages, i.e. in accordance with the corresponding reciprocal technical coefficients (so-called working-up coefficients).

(5) The steps (3)-(4) are repeated, reckoning with possible import substitution effects, until no further forward (i.e. supply-driven) production effects seem plausible anymore.

(6) Together with exogenously fixed final outputs, the total of forward production effects determines first round demand for intermediate inputs per regional sector and first round consumptive expenditures per worker.

(7) Next, already established effective forward linkages, i.e. intermediate outputs, and as yet not assigned remaining forward production are deducted to get the net backward production effect.

(8) This net backward production needs next round intermediate and consumptive inputs, i.c. in accordance with the matrices A and Q mentioned in section 4.1.

(9) The steps (7)-(8) are repeated, reckoning with possible export substitution, until net backward (i.e. demand-driven) production effects approach zero.

5.2 Agricultural applications

It will be clear that the above mentioned method is highly relevant for a consistent estimate of the (forward and backward) indirect and induced effects of agricultural projects. Both in the case of land-reclamation and in the case of new production techniques, agricultural production will rise exogenously, and will influence the production level of agricultural processing industries. Because of EC-arrangements demand may be considered as being close to perfectly elastic.

In the light of the above argument it is no coincidence that the skeleton of our method was developed in the case of a concrete land-reclamation project (FNEI, 1977b; Oosterhaven, 1977). Later on the method was generalized, made inter-regional instead of intra-regional and applied to the same project in the Frisian Shallows in the northern part of the Netherlands (Oosterhaven, 1981, ch. 9).

In the empirical studies we used in fact a simultaneous short-cut for the second phase, i.e. for the steps (6)-(9). The solution of this simultaneous short-cut reads as follows:

$$v = \tilde{c}(I-A^{c}-Q^{c})^{-1} \; (x^{ex} + B_{a}' x^{ex} + y^{ex}) \qquad (2)$$

The new symbols have the following meaning:

x^{ex} : a vector with exogenous production levels for regional sectors, i.e. filled up with zeros except for agriculture,

B_a' : a transposed matrix with effective intermediate output coefficients multiplied by corresponding reciprocal technical coefficients, which indicate the maximum amount of output produced per unit of input concerned.

So, $B_a' x^{ex}$ in fact indicated the forward production effects on agricultural processing sectors.

Furthermore:

A^c : a matrix with corrected intermediate input coefficients,

Q^c : a matrix with corrected consumption-production coefficients.

The corrections, i.e. putting coefficients equal to zero, are necessary to prevent double-counting backward effects and already established forward effects. In our application, they included zeros on the agricultural and food industry (animal products) rows.

To illustrate the type of empirical results obtainable with (2), table 2 shows the employment effects of the above mentioned land-reclamation plan. Very recently, this model was also used for an inter regional cost-benefit analysis of a new set of alternatives for the same area (Oosterhaven, 1982a).

Table 2 Direct and indirect employment effects of a land-reclamation project in the Frisian Shallows for the North and the rest of the Netherlands.

Type of employment effect in:	the North	the Rest
Direct agricultural effect	1.00	-
Forward processing effects	.74	.02
Backward intermediate and consumptive effects	.96	.65
Total project-specific multipliers for intra-regional and for spill-over employment	2.70	.68

Source: Oosterhaven, 1981, table 9.6.

6. Conclusion: the European perspective

To conclude about the European perspective of recent Dutch experiences in inter-regional input-output analyses, we first have to note the differences between the Netherlands and the EC. Furthermore, by far the most obvious inter-regional type of input-output analysis at the EC-level, will be an inter-EC-member type of analysis. So, we will base our conclusion on that spatial division of the EC.

First, we note that the EC is far larger than the Netherlands and far more heterogeneous. This implies that regional and sectoral differences are bound to be larger too. Furthermore, we note that EC-power is far smaller than national power and that questions of a "fair" intermember division of EC costs and benefits are more prominent than the question of the inter-regional division at a national level.

In our view, the above observations imply that inter regional input-output studies will in general be more relevant for policy analysis at the EC level because of larger regional and sectoral differences. Furthermore, they imply that there will be a special interest in questions of inter member economic spill-overs of all kinds of EC policy measures taken in specific member countries. These measures may include pricing policies, in which case the dual, price model has to be used. As the measurement of indirect effects is a special feature of input-output analysis this furthermore strengthens its case at the European level (cf. table 1).

Secondly, we note that intra-EC labour mobility, commuting and shopping across national borders is relatively small. Furthermore we note that EC policy is mainly a one sector policy, at least as regards financial expenditures. Finally, we know that supply effects are a principal feature of agriculture, the sector concerned. Therefore, the

study of supply-driven indirect effects will have to play an important role in the evaluation of the EC policy.

Demo-economic modelling is far less relevant to EC applications than the method of dealing in a consistent manner with single sector forward linkages (cf. table 2).

So, the latter method (see section 5. and Oosterhaven, 1981, ch. 8) is of extreme importance if indirect intermember spill-overs of EC agricultural policy are to be evaluated. It will be interesting to see if the total of indirect and induced EC policy effects will show the same inter-member division as does the direct division of the expenditures involved.

Finally, we note that the data situation is much better at the EC level than for any member of it. Intra-national tables are far more reliable than intra-regional ones, whereas inter member trade statistics contain data that are virtually non-existent at an inter regional level.

This means that the method of extrapolated distance sensitivities will be more applicable and will give far more reliable results than is possible at a national level. However, one should not try to jump to conclusions. The idea of looking for an optimal mix between statistical and model assumptions is worth investigating before starting to construct any table. The resulting conclusion may be that it is wise to opt for a more simple and more reliable data lay-out than the classic "ideal" inter-regional input-output lay-out.

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Document N° 21

POSSIBILITIES OF REGIONALIZING PUBLIC RECEIPTS AND EXPENDITURES

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Possibilities of regionalizing public receipts and expenditures

I. Preface

The central theme of this paper conforms with the general subject of this seminar in presenting ways of regionalizing public receipts and expenditures. However, before this question can be gone into, the reasoning in favour of regionalized receipts/expenditure accounts and the insights these can afford should be outlined. Subsequently, ways and means and the associated problems are dealt with. The paper concentrates on the conceptual aspects of this theme and only touches on technical problems occasionally.

II. The role of public receipts and expenditure in the regional development process

The main arguments in favour of regionalization of public receipts and expenditure are summed up in the claim that public receipts and expenditure are of considerable significance for regional development. The following considerations (in particular) support this view:

1. If one views regions in general as functional components of a national economy, the existence of a public sector and the fact that it levies taxes on the one hand and spends money on the other hand means that they are subjected to two types of financial flows: financial and monetary resources are withdrawn in the form of public levies, in particular taxation, and on the other hand they are provided with financial resources via public expenditure. If a regional budget including the budgets of its local authorities were territorially balanced in the sense that it was funded completely from receipts from within, then the moneys levied

within to cover own expenditure can be ignored. This then only leaves the receipts which are passed on to territorial authorities, i.e. Member State/Federal state/province, if, of course, the region is smaller than these and inasfar as funds are also transferred to a national or federal level. In the same way incoming funds then depend on the expenditure which flows in from the budgets of higher authorities. These incoming funds are not necessarily financed completely from taxation in other regions: funds flowing back into the region which, for example, were initially transferred to a higher budgetary level via a progressive taxation system would also be regarded as receipts. Since, however, one can assume in practice that regional budgets are not territorially balanced, one should also take into account the fact that part of the expenditure effected by authorities within a region is already funded by means of financial equalisation allocations and tax sharing and thus counts as an inflow. This problem is a familiar one in financial statistics. In a multilevel budgeting system, it is often solved by means of a correction on the receipt side and a correction on the expenditure side. In correcting the receipts account only that part of the expenditure which is funded completely by the authority involved is regarded as "self-financed".

This allows the expenditure funded from the authority's yield to be established. In correcting the expenditure account those items which are covered by incoming funds are deducted from the expenditure effected by the regional authority. If one views this purely in terms of financial streams, we are dealing here with a phenomenon which has in the past few years, particularly at Community and Member State level given rise to ceaseless discussion: The question of "net contributors" and "net recipients" - i.e. the position of a Member State with regard to the rest of the Community.

By creating net contributions and net recipients or influencing the net balances which have already arisen as a result of market transactions, the public sector acts as a distributing agent which,

on balance, transfers funds from one region to the other.[1] Just as we have an interest in finding out what influence the public sector has on interpersonal distribution, we should also be aware of the effect of public finance in interregional distribution. With respect to the European Community this is particularly important as the preamble to the Treaties of Rome gives considerable priority to the aim of regional convergence. The implicit financial adjustment effects of the present European Community financial system gave no account of this aim but, on the contrary, give rise to a form of "perverted" financial adjustment between the Member states. The reasons are that European Community resources are too heavily dependent upon regressive income and that the distributive effects of the dominating policy on expenditure do not conform with the aim of convergence - the common agricultural policy still accounts for approximately 66% of all expenditure. However, without more detailed knowledge of the interregional distributive effect of the national and Community budgets we have no solid foundation for policies leading to more regional convergence.

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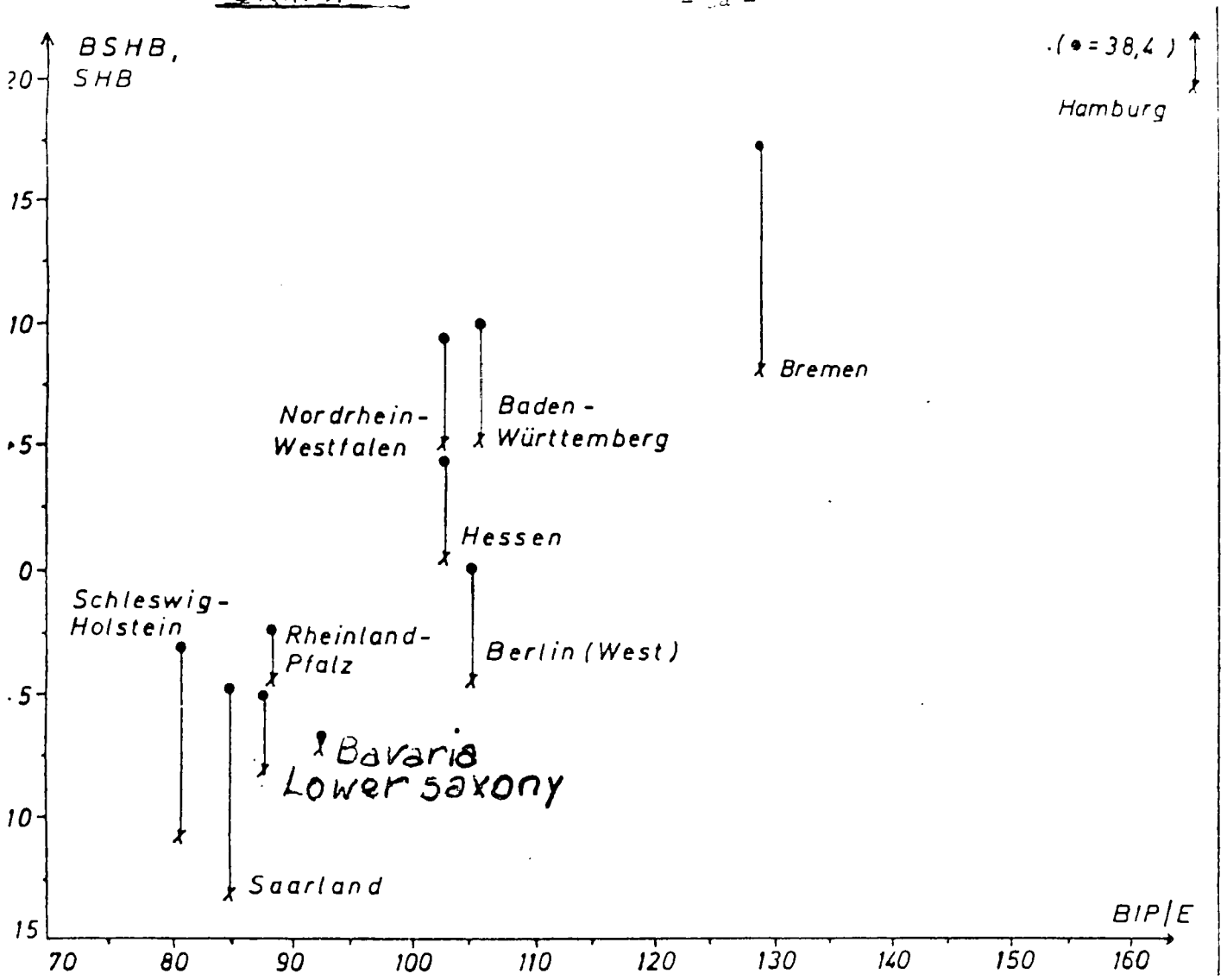
1) The Commission of the European Communities (Ed.) report of the Study Group on the Role of Public Financing European Integration, 2 vols., Studies, Economic and Financial Series, B 13, Brussels 1977 (called the "MacDougall report" after the Chairman, Sir Donald MacDougall). The illustration on page 3a and the table show the results of this distributing process for the federal states of the Federal Republic of Germany from 1964 to 1967.

The corrected balance of trade (BSHB) indicates that the wealthier states have transferred a part of their export surplus to the poorer states via public finances.

GRAPH



Explanatory notes

SHB ; Imports/exports balance (balance of trade) identified by ; •

BSHB : Balance of trade corrected for public receipts and expend iture, identified by : X

A plus sign (+) indicates : balance of trade surplus or deficit in public finances ;

A minus sign (-) indicates : balance of trade deficit or surplus in public finances

BIP/E : Index for BIP (gross domestic product) per inhabitant (100 = Federal average)

Source : Corrected results of an investigation carried out by H. Reichenbach (unpublished), reported on in: Dieter BIEHL Chap. 3 "Deutschland" in Commission of the European Communities (Ed.), Report by Committee of Experts on the Role of Public Finance in European Integration, tor. 11, Brussels, April 1977, Page 101.

Table B, relating to graph

Balances of trade (SHB), balances of trade corrected for net financial flows of public money (BSHB) and index of gross domestic product per inhabitant (BIP/E) by Federal State, 1964 - 1970

	SHB = X	BSHB = 0	BIP/E
Schleswig-Holstein	- 9,3	- 3,3	81,5
Lower Saxony	- 8,2	- 4,5	87,6
North-Rhine Westphalia	5,0	9,6	103,1
Hessen	1,2	4,9	103,4
Rheinland-Pfalz	- 4,9	- 2,6	87,7
Baden-Württemberg	5,3	10,1	105,8
Bavaria	- 2,0	- 1,9	92,6
Saarland	-13,3	- 4,9	85,0
Hamburg	20,1	38,4	166,2
Bremen	8,5	17,7	128,5
Berlin (West)	- 4,4	0,3	105,1

Source: Origin, distribution and use of social product in the federal states.
Standard tables from 1964 to 1970, published by the Statistical Offices of the federal states, 1974.
Statistisches Jahrbuch für die BRD, 1970
(Statistical Yearbook for the Federal Republic of Germany)

Note: The value for BIP/E is calculated from the sum of the BIP (GDP) for 1964-1970, divided by the sum of the population for 1964 - 1970.

2. An analysis purely in terms of financial flows and its result, the relative net contributors or net recipients of a region within a national economy or a community only has a bearing on what one might call formal incidence: the nominal value of the net income or outgoings. As usual in economics, the question immediately arises as to the effect of the formal incidence, the consequences of a change in the net contributor/net recipient position and the effective incidence of all these consequences and the follow-on effects. Clearly, adequate knowledge of the formal incidence of financial flows is necessary to provide a basis for analysing their effective incidence. The formal incidence with regard to both extent and structure of payment flows must therefore be established with sufficient precision before further analysis of effective incidence can be tackled.

   The effective incidence depends to a considerable extent on the fact that financial flows also have a specific structure, such as contributions to current expenditure (personnel and material expenditure, transfer expenditure) and to investment (in particular for infrastructure). In general it may be assumed that payments for investment purposes or tax sharing schemes which increase the investment volume have a higher multiplier effect and thus also a higher income effect than transfer expenditure which mainly flows into the consumer sector.

   If one assumes too that the infrastructure of a region, its economic and geographical situation, the degree of conurbation, and its housing and sectoral economic structure represent the most important criteria for the development potential of the region, it is evident that promoting investment mobilizes additional capacity and raises productivity, income and employment*; in the light of the high tax and debt ratios in the national economy and the enormous impact of public budgets, this mobilization factor is of vital importance.

*) Cf. Dieter BIEHL et al., Bestimmungsgründe des regionalen Entwicklungspotentials, Kieler Studien 133, Tübingen 1975; Dieter BIEHL, Determinants of Regional Disparities and the role of Public Infrastructure Study Group, The Contribution of Infrastructure to Regional Development (unpublished report), 1982.

3. The range of influence of state activities is not, however, covered fully by the financial instruments of receipts and expenditure. Although it is customary, for example when discussing State activity over the years, to use Wagner's Law and regard simplified receipt and expenditure ratios (for example for percentage of the national product represented by taxation and public expenditure) as indicators of public economic activity, one should not lose sight of the fact that the State's influence, which is felt in its legislative activity and can culminate in direct administrative intervention, is very considerable. The overall impact of public activity on the national and regional economy can only be appreciated if the purely financial policy is viewed in conjunction with an economic management policy. At present, however, we do not possess sufficiently selective and, more important, generally accepted assessment criteria to evaluate economic management policy. At the same time the budgetary and financial statistical data customarily used and included in the national accounts have come in for increasingly severe criticism since the 60's from people claiming that the limitations of the national accounting system causes large parts of economic activity, in particular welfare, to be ignored or even falsified.

Nevertheless, we can by no means dispense with tracing financial processess on account of the difficulties in recording economic management. Admittedly, on balance the beneficial affects on financial processes in a region can be outweighed by the adverse effects of economic management resulting in an adverse overall effect of public activity in a region; this, however represents an extreme case which will scarecely be the most frequent or predominant. It is far more likely that economic management by the state has developed to a great extent in parallel with its financial activities. If for example, one examines developments in social policy, the existence of legal provisions for continued payment in the event of sickness, as they exist in the Federal Republic of Germany, merely indicates that financial activity in the field of social policy has been extended: instead of demanding higher social security contributions from companies and possibly

from employees, the state obliges companies to bear the costs of this social measure. The flow of funds earmarked for social policy in public budgets does not thus record the full scope of state social policy; the effects of economic management must be added to it. The opposite case can also be found: if, for example, the extreme sensitivity to environmental problems which is prevalent today leads to more stringent requirements, causing additional costs in regions which possess basic materials industries (coal, steel, chemicals, etc.), the international competitiveness of these industries will certainly be impaired by comparison with producers in countries with lower environmental standards.

If this results in unemployment, it is possible that greater funds will be directed towards these regions to compensate for the disadvantages caused by economic management requirements. In terms of the overall volume and structure of public budgets, I doubt, however that cases such as these will have a major effect.

4. The theoretical considerations relating to the budgetary aspects and, in particular to the instruments of public receipts and expenditure can be suitably summarized under the heading 'theory of financial union'.This expression was coined subsequent to the report submitted by the MacDougall Committee which was commissioned to investigate the role of public finance in European integration in 1977 by the Commission of the European Communities. This term is intended to highlight the fact that the approach here is similar to that reflected in the well-known 'theory of the customs union' or 'the theory of the monetary reform' developed some time ago. From a normative point of view the question is how a financial union would have to be designed - for example with regard to a future European union - to achieve the customary aims of economic policy, namely efficiency in allocating funds and a distribution policy which offers fairness and stability. From a descriptive point of view the theory of financial union helps to determine the actual effects i.e. the advantages and disadvantages, a financial union would have.

Analysis of the regional effects of public receipts and expenditure is thus a part of the theory of financial union. This theory too must first be developed further and examined with respect to the light it should shed on this issue, irrespective of whether, at the same time, an answer to the same questions in the field of economic management can be found or not.

III. Ways of recording and regionalizing public receipts and expenditure

The most important results of the MacDougall Report with regard to the subject we are dealing with today can be summarized in the statement that a national finance system and thus a national financial union have a considerable contribution to make in integrating regional economies into the national economy. This contribution lies partly in the fact that the wealthier regions in the national economy transfer part of their export surpluses to the poorer regions via the public finance system. The financial union thus has the same distributive function with respect to the territorial economies involved as that which is familiar under a progressive taxation system and a corresponding system of expenditure in the field of social policy to distribute funds between persons and households. A distributive mechanism of this nature, however, depends upon sufficient solidarity among the territorial economies involved, without which a high level of distribution could probably never be achieved. The degree of political homogeneity or solidarity within a national (and the future European) community thus has a marked effect on the level and the structure of the distribution effects. The financial union also contributes to more efficient utilization of resources in as far as economies of scale can be achieved by means of transferring commitments, expenditure and receipts to the level of the next higher territorial authority (i.e. Community level in the case of European integration), or the external effects of national measures (spill-over effects) can be offset. The latter two aspects affect the efficiency with which a financial union can allocate funds: more effective distribution

of expenditure and receipts can lead to increased efficiency in utilizing the resources available and in turn to more prosperity.

With respect to a national financial union this applies to the relationship between local authorities and regions and the central/federal authorities; in a European context this also includes Community level (European Parliament, Commission and Council of Ministers). From a normative point of view a corresponding theory of financial union can give some indication of how a future European financial union and the associated distribution of commitments expenditure and receipts would have to be organized at the various levels to ensure as efficient utilization of resources as possible and a sufficient degree of European solidarity. From a practical point of view such a theory can contribute towards recording the effects of the present distribution of commitments, expenditure and receipts and assessing these with respect to the same objectives.

A prerequsite for applying the theory of financial union in the practical sense, i.e. explaining what actually happens, is that all expenditure and receipts are recorded and regionalized. At the same time, the principles of formal incidence and territorial allocation must be applied. Each payment must be allocated to the region in which the taxpayer (for taxes) or the authorized recipient (for expenditure) has his residence and/or domicile. The system must therefore cover payment transactions and first-round effects, and both payer and recipient must be recorded by territorial criteria defined in law. This would mean for instance that payments for persons employed in public services would have to be allocated to the region in which the person involved resided, if payments were made in cash, or the region in which the bank branch named was situated if payment was not made in cash. In the same way expenditure for the purchase of goods, for instance, would have to be allocated to the region in which the company has its domicile or the bank branch named by the company is situated.This also raises the problem of suitable division into regions. In the first place regions are usually larger

than local authorities, with the result that a region will always comprise a number of local authorities. However, in addition to the districts there are also, for example, administrative regions for the employment office, inland revenue, post office, railways, health insurance funds etc., which usually cover a number of municipalities but are not all the same.

If all receipts and expenditure could be allocated accurately to the respective local authorities there would be no problem, as each large region could be formed from the corresponding group of local authorities. For the other administrative authorities mentioned above, however, this is not usually the case. The only principle that can be applied here is to take the smallest administrative unit as a basic unit and to decide which regions can be formed from these modules; this would also have the advantage of showing that not only large official administrative units (e.g. governmental districts, arrondissements, provinces) but also other functional types of region (e.g. covering the labour market, planning and support, etc.) can be formed from the smallest modules.

A further problem arises because a large percentage of the expenditure, in particular for personnel and investments, which is transferred to large local authorities funds benefits not only for the local population but also for the entire area served by the infrastructure concerned. The logical result of this would be that a special infrastructure service would have to be formed for each category of infrastructure whose service area extended beyond the municipality. This would allow correct allocation of expenditure to specific categories but would cause problems when an attempt was made to aggregate the different areas covered by all public services to form a single region. In practice, the only solution is to use the smallestpossible units for collecting data and then to form regions which are relatively large and lend themselves fairly well to being put together like a mosaic. In any cases where receipts and expenditure are to be allocated for traditional administrative units it may be necessary to use codes, e.g. infrastructure serving

the population in accordance with the percentage of the population, access infrastructure - roads - in accordance with the percentage of the area covered.

The territorial formal incidence approach takes account of the fact that tax receipts drawn drom a region were not necessarily generated in the region, in the sense that they are based on net production or activity in the region.

If, for example, a multinational pays its corporation tax to the inland revenue office responsible for the area in which the company has its registered office a large or very large percentage of this tax could have been 'generated' outside this area, depending on the structure and distribution of the production units controlled by the company. For the tax yield to reflect actual performance it would have to be divided up amongst the regions at home and abroad which effectively participated in the company's production activities.

The same applies to expenditure. It is possible, for example, that payments for road construction made to a large building contractor are to a very large extent 'exported' from the region where the company has its registered office. Even under normal circumstances, i.e. when expenditure for personnel is incurred, a large percentage of these payments can be exported from the region in the second round, e.g. for purchasing high-quality consumer goods or for services (travel).

It should be borne in mind that the above considerations only apply with respect to the formal incidence of receipts and expenditure, and that, initially, it is also irrelevant to what extent infrastructure which has been created within a region is used by the residents of other regions. When examining interregional financial flows we are not initially concerned whether these fund activities will in turn, subsequently lead to considerable imports or exports. If, for example, some of the students living in one region are

educated in another region, because the former does not have sufficient facilities, this obviously leads to an import of goods and services. This could, however, be a result of the fact that the region concerned, firstly, cannot generate sufficient wealth to provide adequate support in the form of financial allocations and transfers from other regions to reduce the deficit in capacity. The use of the expressions 'capacity surplus' and 'deficit in capacity' alone indicates, however, that the size of the region concerned was optimum with respect to the public activity concerned.

With regard to university capacity there would therefore have to be a type of functional region which was demarcated in accordance with the catchment area of the university facilities. If one takes purely administrative regions, it is quite possible that a government area or an arrondissement or a district has none at all or very few university facilities, which is compensated for in the adjacent administrative unit where - either traditionally or as a result of regional planning decisions - there are correspondingly more extensive facilities. With respect to the regionalization of public receipts and expenditure a clear distinction must be made between a flow in payments and a flow in goods and services. Flows in goods and services can run counter to the flows in payments, as is normal when the flow in payments actually represents 'payment' for 'goods and services', such as delivery of material goods, whereas flows in payments can arise independently of flows in goods and services where the 'transaction' takes the form of credit or indebtedness. Steps must of course be taken to ensure that the formal incidence of flows in goods and services can be recorded if an overall picture of all economically relevant phenomena is to be formed. The analysis of flows in goods and services is, however, largely identical with the income and value added account in a corresponding system of national accounts. Both accounting systems, for recording payments and goods and services must be designed to allow them to be integrated later.

None of these considerations, however, distorts the territorial formal incidence of the first-round effects. Only when the payments have been made by the debtor or received by the authorized recipient can second-round effects come into place. These thus fall into

the category of the effective, not the formal, incidence.However, without knowing anything about the formal incidence it is impossible to comment on the effective incidence.

This does not mean that it is not extremely desirable to obtain information on these subsequent effects. This is of particular significance with respect to financial equalization in the narrower sense, i.e. regarding taxable capacity. If the tax yield is divided up to reflect in full the actual tax-generating activities, a percentage of this yield, measured in terms of added value, will be attributed to and also allocated to those regions in which numerous branches of multiregional and multinational companies are located. Companies can then no longer give the impression that the regions in which they have their registered office, which are generally wealthier, had waived their claim to a percentage of the tax yield they had generated in favour of the poorer regions in which the branches are located. Only after the tax yield has been divided up as above can there be any indication as to what extent a transfer from the wealthier to the poorer regions has taken place.

Technically speaking, a regionalized system for public receipts and expenditure could be set up in such a way that each administrative unit received a territorial allocation code. All payments by and to this administrative unit would be identified by this code and could then be recorded. This coding system would have to be used at all levels of the administrative apparatus. If, for example, the European Community transferred a specific sum for products in a region of a member State from the agricultural fund, regional fund, social fund or any other fund, this code would have to be used directly. If the payment were made to a Member State without the recipient region being identified, the Member State would have to supply an appropriate code or make the appropriate allocation when compiling the corresponding coverage statistics. Once these territorial allocation codes were being used in all instructions covering receipts of expenditure, the conditions for comprehensive coverage would be fulfilled. This method would, of course, involve an extra-

ordinary amount of work and less detailed and more selective methods would have to be worked out.

In view of the fact that recording expenditure for investments is of particular significance as it has an immmediate effect on the capital fund in the region and, in turn, on the development potential, a first attempt could be made in this area. Several main investment categories could be distinguished (e.g. investment in material assets, investments in human capital, financial investment, subsidies to private companies for investment purposes) and each of these categories subdivided once more.

For investments in infrastructure, which are mainly devoted to material assets, the category list drawn up by the infrastructure group could be used. This would allow the results from the infrastructure inventory account compiled by the infrastructure study group for two cross-section years (1968/70 and 1978/80) to be combined with the results from the survey on financial flows in an attempt to estimate to what extent the particularly poorly equipped regions could make progress with the aid of current investments.

Another field which could be given priority with respect to regionalization would be the labour market policy. This would involve isolating amongst total financial expenditure the expenditure earmarked for policy activities in the labour market and for vocational training and regionalizing it. This would allow improved assessment of the effectiveness of regional activities and more rapid identification of projects which are particularly promising or particularly ineffective.

On the receipts side, consideration could be given to recording receipts of local and regional administrative units from allocations for general and specific purposes or from participation in a tax-sharing system. This would allow the authorities concerned to compare their own receipts with allocations and use additional investigations based on these figures to determine the degree of 'self-financing'

and 'outside financing' of communal and regional functions. A comparative survey on the differences in the distribution of functions, which in turn entail differences in the distribution of expenditure and receipts and make it difficult to draw comparisons, in particular between regions of different Member States, would also be useful.

For all these receipts and expenditure categories the criteria for territorial formal incidence should first be applied and an attempt made subsequently to establish the second-round effects in the case of expenditure, questioning the first-round receipients. Corresponding information on receipts would only be required if the aim was to tackle the more ambitious task of breaking down local and regional tax yields.

Document N° 22

FINANCIAL FLOWS IN THE REGIONAL CONTEXT: THE EXPERIENCES OF THE UNITED KINGDOM

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Introduction

The purpose of this paper is to examine financial flows for the regions of the United Kingdom by looking at the problems involved in their construction. These are both of a methodological and statistical nature. In addition, conclusions regarding the scope and nature of future studies, both in the UK and elsewhere are provided. As such, data on regional financial flows are not presented as they are well documented elsewhere.[1]

Before proceeding, it is useful to describe the brief history of the work as it links in with the general discussion on users taking place in the seminar.

The Northern Region Strategy Team (NRST) was set up in 1974 with the objective of producing a plan for the economic regeneration of the Northern Region of England. The terms of reference given to the Team differed quite substantially from those of previous similar regional teams insofar as the study was not to concentrate on land use and physical planning, but was to take economic factors as its main preoccupation. One of the approaches which the Team developed was concerned with a better use of existing resources in the public sector geared to the region's specific needs, rather than pleading for additional resources. However, details of existing and past levels of public expenditure were not known as such information was not published. Consequently the Team took it upon itself to collect and collate data on the level and distribution of public expenditure by spending programme for each of the regions of Great Britain.[2] These figures were used to place recommended spending in the context of past levels in the Northern Region, as well as in relation to levels in other regions. Thus the reasonability and practicability in expenditure terms of the Strategic Plan for the Northern Region (1977) could be assessed.

As a result of this work, the UK Department of the Environment, the government department charged with regional planning, commissioned research into overall money flows in the regions of the UK. The objective of this research was to produce a model which would classify the various types of money flows between the sectors of a national economy into regions in a consistent manner and secondly to produce data relating to these flows for the regions of the United Kingdom identifying the sources of these data and discussing the methodology used in their production.

1) See Short and Nicholas (1981)

2) Public Expenditure in the Northern Region and Other British Regions 1969/70-1973/74, Northern Region Strategy Team Technical Paper No. 12.

The study was financed for a period of two years by the Department of the Environment and subsequently by the Social Science Research Council for six months. The research was carried out in the Department of Economics at the University of Durham, England, by the author with research help from David Nicholas.

The remainder of the paper is organised as follows. A model for classifying data for regional money flows is outlined in the next section. The methodological problems involved in deriving regional financial flows are then examined. This is followed by a discussion on the data and then sources in the regional context. The conclusion draws upon these, and recommendations regarding research in the field are proposed.

An Accounting Framework for Regional Financial Flows

The economic units of an economy are conventionally classified into various sectors in economic accounting models. Typically, various units are classed together according to behavioural characteristics. Homogeneous units are grouped together in line with their involvement in economic transactions to form manageable numbers of units amenable for analysis.

Generally speaking, national accounting models group together households, unincorporated businesses and private non-profit making bodies (such as charities) in the personal sector; commercial, business and financial institutions as the company sector; and central government, local authorities and public corporations as general government. Further subdivisions are often generated. The company sector is often subdivided into private and public ownership and the financial sector into banking, insurance and other financial institutions.

Each sector has a current account (or in the case of the company sector, an appropriation account) and this is linked to its capital account by savings. Each sector is linked to each other through the financial accounts where money is borrowed or lent between sectors. Thus for each sector, the transactions through the financial sector are the difference between incomings and outgoings on the capital account.

Such a classification system is useful for the development of an accounting framework of all money flows between regions of an economy. The transactions that each of the sectors undertake are grouped together in a way that reflects the main inter-regional flows. Flows between homogeneous groups within regions are consolidated so that inter-sectoral inter-regional flows and intra-sectoral inter-regional flows only are measured.

Given this broad classification system, the flows which should be measured are the transactions made by each final transacting sector as in conventional national accounting. For each sector, the revenue flows and the expenditure flows which are subsequently generated are examined for both capital and current accounts (where appropriate). Financial institutions are analysed in their role as financial intermediaries channelling money to final spenders from savers. Each transaction appears twice in the accounting system as a credit to one transactor and a debit to another.

Financial flows can therefore be measured in two ways. They appear as a totality for each sector as the residual outcome of all transactions, and also as the sum of dealings in different types of financial assets and liabilities. It is possible to produce a matrix showing inter-sectoral holdings of individual assets and liabilities. Such a matrix forms the basis of national financial accounts.

This framework of an economy into various sectors as final spenders with current and capital accounts linked together by savings, and each sector linked through its acquisition of financial assets provides a base for a model of regional flows. Nevertheless this classification system though comprehensive for a national economy, does need modification for a full description of regional money flows.

There are two major problems. The first is that some institutions, as transactors (notably central government), cannot be assigend to any particular region even though the transactions they carry out can: the central government covers the whole nation. In addition, many institutions - banks, building societies, companies, and indeed the government, receive money from regions as deposits, profits, or taxes which are pooled in a central fund at 'headquarters'. These funds are distributed in the form of loans, capital expenditure, transfer payments etc. These institutions have a residency outside of any particular region with respect to decision-making. Inter-regional flows cannot be directly measured.

For organisations like these, one solution is to create an intermediate geographical residency for these flows and classify then to a supra-regional entity which is outwith any particular region. Flows to and from the government or those institutions which operate on a country-wide basis can be analysed in the form of transactions which take place in regions by a transactor outside the region by examining the flows from the supra-region to the regions and vice versa.

Thus for a complete regional flow model, there would be a matrix comprising each region, multi-regional companies, multi-regional financial institutions and central government to describe flows within the country. In addition, non-domestic flows would be added; in the research carried out for the UK, the EEC was given a separate row and column, in addition to all other overseas transactions. For each separate flow category, it would be possible to produce such a matrix. In reality, most, if not all, the entries are likely to be diagonal, ie intra-regional flows,

or flows to and from regions to a supra-region.

Thus in the regional context, financial flows can be analysed either from the top down, as the outcome of sectoral transactions, or from the bottom up as a tracing through of the regional dimentions of each separate asset or liability. Each method is now examined.

Financial Flows as the Aggregation of Sectoral Transactions

Sectors have been classified to regions according to the concept of residency.

The personal sector has been assigned to a region according to the domestic residency of persons (rather than workplace) or the actual location of unincorporated businesses and non-profit making institutions which are classified to the sector.

The point of production or location of an office is the guiding factor for classifying companies to regions. Thus a multi-region company with various points of production and an overall headquarters is in more than one region according to wherever the individual unit is physically located.

In these two instances the aggregate financial flows relating to each region are the outcome of the various transactions on both current and capital account made by the residents of that region, either persons or companies. The net acquisition of financial assets for persons or companies in a region as this residual relates to those assets or liabilities acquired by residents given the definition of residency.

While attributing financial flows to the companies and personal sectors by region is conceptually relatively straightforward, it is not so easy when the government sector is considered. Although central government itself cannot be assigned to a region, the transactions it carries out can, whether it is in its revenue or expenditure functions, nevertheless even these pose problems. The difficulty lies in the treatment of central government expenditure in the regional context. Public expenditure can be analysed in the regional context in two related but distinct ways. Expenditure, classed as in a region, comprises all expenditures made within the geographical boundary of a region irrespective of where the benefits which accrue from the expenditures occur. These represent the cash flows to regions associated with public programmes. On the other hand public expenditures in regions can be classed according to these self same spending programmes e.g. education, health, defence etc. However, in the regional context some

such programmes cannot be attributed to any particular region as they are indivisible with respect to the services which they provide. Defence spending, for example, is for the whole country irrespective of where the personnel are located or the equipment is produced. (These do have regional impacts in the cash flow sense). Only expenditures which are regionally relevant with respect to the services they provide are included in the benefit category.

The other side of the fiscal equation relates to taxation. Taxes in the regional context can be related to the region from where tax is paid or to the region in which the liability to pay taxes is generated. Headquarters of multi-regional companies pay taxes for the whole company although the liability to pay these taxes (such as profits) may occur in various regions other than the region in which the headquarters are located. In an analytical sense in considering regions, the first of these, the actual flow is rather meaningless; an accumulation of headquarters in any region will swell the tax payments of that region beyond its economic capability. The second method of measurement has economic realism as it is directly related to the capability of a regional tax base. Thus the concept of taxation relating to regions is concerned with regions' generation of tax payment rather than the actual flow of cash as taxes from regions.

Thus in the regional context the outcome of the government sector activities can be measured in two ways. The first relating to the benefits from the services provided by the government is not complete in its coverage with respect to regions. The second, the cash flows emanating from total public expenditure is complete in its regional (and overseas) coverage. Tax payments (as defined) are complete with respect to regions (and overseas).

The outcome from this for financial flows relating to regions resulting from the activities of government is that it is possible to match total regional taxes paid against total cash expenditure flows and to estimate the overall shortfall or surplus which either has to be met by acquiring liabilities or adding to assets in order to finance these levels of expenditures in each region. These show each region's contribution to public sector borrowing requirement (increasing or decreasing it) in relation to the regional cash flows from public expenditure.

In the benefit sense of public expenditure, such a regional equation could not be directly reached because regions benefit from national expenditures, and have to contribute to their cost. It would be possible to create a notional budget for each region by adjusting regional tax yields to account for payments for these notional expenditures. The residual tax yield would be used to finance these regionally relevant public expenditures. Then regionally relevant expenditure could be related to the adjusted tax yield and the surplus or deficit would be the region's contribution to the public sector borrowing requirement to finance

public expenditures which benefit the region itself.

This problem of classifying public expenditures to regions arises from central government. The other components of general government can be placed directly in regions: local authorities are regional in their decision-making as are most public corporations (such as new towns). It would be possible to deconsolidate the public sector and show the resultant financial flows for each part relating to programme expenditures.

This methodology of creating regional financial flows is centred around the transactions of each region's sectors: the personal and company sectors' incomings and outgoings based on the region of residency, and the transactions of the government in a region even though residency may be outwith the region. What do these financial flows in regions mean for each sector when measured in this way?

Personal Sector

Net financial flows - the overall increase in assets or decrease in liabilities held by the residents of each region. The results for the UK show the personal sector in each region increases its holding of assets or decreases its liabilities.

Company Sector

Net financial flows - the overall increase in liabilities held on behalf of producing units in each region to finance their expenditures. The results for the UK show that the company sector in each year increases its liabilities on behalf of each region.

Government Sector

1. Programme benefit measurement of public expenditure

Net financial flows - the overall reduction in liabilities held by the government sector as a result of its spending on regionally relevant programmes in each region, if positive; or the overall increase in liabilities, if negative. This figure represents net fiscal flows between regions and government. The results for the UK show that the government sector increases liabilities in relation to its expenditure in the main. However, for one year, the West Midlands contributed to a reduction in public sector borrowing requirement.

2. Cash flow measurement of public expenditure

Net financial flows - the overall increase in liabilities held by the government sector as a result of its spending in regions. This represents the net cash flows to regions from government. The results for the UK show that the government increases its liabilities to finance its expenditure in regions.

However, how meaningful are these in relation to the measurement of financial flows in regions? The figures for the public sector show how much the government sector has to borrow to finance its activities in each region. The region is not an active element in the decision process as the decision-making on the whole lies in the centre. A similar situation arises for companies. As the company sector has been allocated to regions according to the location of each productive unit, the figures for financial flows outlined here show the amount that has to be borrowed to finance expenditure in the regions by companies. The decision-making unit - the actual borrower - may be outside the region which would benefit from the associated expenditure (except for companies in only one region). However, in relation to these sectors, the figures do indicate the demand for financial assets irrespective of the actual location of the decision-makers in relation to regional need.

The third sector, the personal sector, the size of units mean that the decision-makers are located in the region itself. The personal sector can be assumed to exist in a single region and not transcend regional boundaries. As such, the figure for the net increases in assets represents what the region actually holds, rather than what is held on its behalf by someone else.

Overall, aggregating the three sectors, the net figure shows the ability of each region to finance expenditure within that region; or in most cases whether the personal sector saves enough overall to finance the other sectors' expenditure in excess of their incomings. For the nation as a whole the net balance does not have to be zero because the overseas sector also comes into the picture. Each region could be in deficit overall to overseas.

It is to the individual assets or liabilities, the second way of tracing financial flows to regions, that we now turn.

Regional Financial Flows: Assets and Liabilities

This second method of assigning financial flows to regions is by examining each asset and liability and tracing its regional incidence. Deposits with banks and building societies, for example, can be assigned to regions as can their counterparts, liabilities: loans. And yet can they? Certainly, deposits from the personal sector and single region companies and loans to them can be directly assigned to a region. But loans to or deposits from multi-regional companies fall into the notional region, the supra-region of the accounting model. The problem is that many of the financial instruments in operation are flows between these supra-regions. Once cash gets into the system, say as a deposit in a bank, the flow of

this deposit may be between the banks as supra-regional units and government if the bank purchase gilts or treasury bills, or multi-regional companies if the bank gives them overdraft facilities'. Of course, flows into supra-regional entities also exit into regions directly as financial flows; they also exit to regions in the form of expenditure by supra-regional entities as shown in the previous section.

The model outlined for the analysis of financial flows is able to show all the flows in an economy comprehensively, rather than just those flows starting in a region, and ending as a flow to a region. However, for the most part, the personal sector is the only complete sector amenable to analysis of individual assets and liabilities in the regional context as it is the only sector which can be unequivocally assigned to a single region. Local authorities and single region companies are the same if deconsolidated within their sector.

The personal sector does of course have dealings with other sectors, so by examining the assets and liabilities flow for the personal sector in each region, the regional relationships for other sectors will emerge. For example, national savings are flows from the personal sector to the government, and personal savings are amenable to regionalisation (in theory anyway!) Most of the government's other financial flows have to be assigned to the supra regional category, such as gilts and treasury bills. (The government can also print money - this of course is held by persons and companies and as such could be regionalised). Building society deposits are flows to the financial sector from the personal sector, and building society loans are flows back to the personal sector. Of course, regional loans do not have to equal regional deposits - and economic and political interest is created by this (if measurable!) Bank lending to multi-regional companies is an intra supra-regional flow, while bank lending to persons is a flow to a region.

The individual assets and liabilities which can be regionalised are shown in the matrix following showing the sectors which are concerned (Figure 1).

The Data

The most obvious problem facing the researcher in the field of regional money flows is the availability of data. Given the objective of this study as outlined earlier, there were little published data to fall back on, so new approaches had to be initiated in order to put some figures on the flows.

Four main sources of data can be identified in relation to the two methodologies for measuring regional financial flows. The residual method necessitates the production of regional accounts for each sector separately; the analysis of each individual asset and liability requires details of their regional incidence. The sources for these are summarised in Figure 2.

Figure 1

Financial Assets and Liabilities Flows Between Sectors

	Personal	Public	Banking	Other Financial Institutions	Companie
Notes and coin		XY	A		
Treasury bills		YO	A	A	
Government securities		XYO	A	A	
National savings		X			
Tax instruments		XY	A		
Net govt. indebtedness to Bank of England			A		
N.I. govt. debt		X	A		
Local authority borrowing	Z	XYZO	ZA	ZA	Z
Bank deposits			XYAO	A	A
Building Society deposits				XYAO	
Financial Inst. deposits				XYA	
Bank lending			XYAO	A	
Other loans		Y		A	
Credit by retailers	Y				X
Trade credit	Y				X
Loans for house purchase		X	X	X	
Other loans		X	X	X	
Unit trusts					X
Commercial bills			A		
Company and overseas securities		Y	YA	YA	XO
Life assurance and superannuation funds				X	
Official reserves		O			
Foreign currency borrowing by government		O			
Official reserves		O			
Inter-govt. loans		O			

X = flows with personal Sector
Y = flows with company Sector
Z = flows with public Sector
O = flows with overseas
A = supra-regional flows

Figure 2

Data Availability Matrix

(all figures %)

SOURCE	CSO	Published	Approaches to producers of data	Proxy
SECTOR				
Private	100			
Company	100			
Public Expenditure				
Economic category [1]		12	58	30
Functional [2]		11	71	18
Revenue				
Central Government				
Current [3]		72		28
Capital [4]				
Local authority				
Current			100	
Capital			100	
Financial [4]				
Banks				100
Building Societies			100	
Life Assurances				100
National Savings				100
Trustee Savings Bank			100	
Special Finance Agencies			100	
Shares, unit trusts				100
Finance house, leasing				100
Other				100
EEC			100	

1) Wages and salaries
2) Education, health, etc.
3) 72% relates to adjusted published estimates
4) Some flows are supra-regional flows and do not enter the matrix (government and banks). Some government financing comes from the Financial Sector and can be regionalised (National Savings).

The existing CSO work on the personal and company sectors was used to form the basis of data for these sectors. As such any limitation of these CSO data were repeated. Where definitions relating to money flows differed from the CSO, the CSO data were adjusted to conform to money flows. The benefit of using the CSO data was great: it would have been impossible to produce the quality and quantity of data which the CSO publish in the time available, even if this was contemplated.

The second source of data was the published information on certain government activities. These covered such items as social security payments in Regional Statistics, roads expenditure in Transport Statistics and expenditure made under the 1972 Industry Act, published in its annual report. In addition many of the government revenues were regionalised in publications such as the Survey of Personal Incomes and these were used to produce the data on a money flows basis.

The third source of data, and on which the major concentration of effort was expended, was the direct approach to producers of data involved in the transactions which were being measured. Some organisations were able to produce data which they had assembled for their own internal use, but were not published; others, where they had not the data, initiated special exercises in order to produce the data. Data on the government sectors were greatly enhanced by obtaining data by this method. The individual assets and liabilities which were regionalised followed this method - and these will be expanded in greater detail.

The fourth method used was to assign all the remaining data to regions by the use of some proxy: a physical indicator of the likely distribution of the money flow. In some cases regional rates of appropriate items were used as in the case of food subsidies; in other cases, no correspondence between a flow and a physical variable could be found, so population was used to assign the flow to the regions. However, it should be said that the use of proxies in the government sector was a smaller proportion of total expenditure compared to the other methods.

The assignment of the individual financial flows to the region was carried out either by direct approachs to the individual groups responsible for the data, and by proxy where the direct approach failed. These individual groupings are examined in turn.

The banking sector

The coverage of the banking sector's activities relevant to regions was poor. While much of the activities of the banking sector can be allocated to the supra-regional sector, there are considerable flows which are important in the single region context. Some data are available for Scotland and Northern Ireland directly from published sources, but nothing is produced for the English regions and Wales. The organisations which represent the banking sector in their dealings

with the central authorities were approached regarding data availability. The overall conclusion from the discussions was that data on the banking sector's operations in regions do not readily exist and a special exercise would have to be set up to obtain the information, but such a request would have to be judged along with the other demands for data put on the banking sector.

National Savings

Part of National Savings in the period studied incorporated the Trustee Savings Banks which are now part of the banking sector.

The Trustee Savings Bank was approached for information on the incidence of regional deposits. At the time of the study the great majority of its outflow was to Central Government. However, it was possible to obtain the regional distribution of deposits.

The remainder of National Savings is the responsibility of the Department for National Savings; funds are collected and these go to meet the government's borrowing requirement. The Department for National Savings was approached for data, but it was unable to supply any figures. The data produced in the study for this sector were based on the now defunct voluntary savings organisations which were organised on a regional basis. However, for any future study, the increasing use of computers for data storage in this Department should help in assembling data on a regional basis.

Building Societies

Each of the building societies was approached for data on the regional deposits and lending. Data representing around 35 per cent of total assets were generated and the exercise suggested that the collection of data on building societies is a feasible exercise; this could be simplified by concentrating on the largest building societies which cover about 90 per cent of assets.

Assurance Companies and Superannuation Funds

The associations which look after the general interests of the assurance companies and superannuation funds were initially approached, and eventually it was decided to survey the individual companies. This, however, did not prove successful as the vast majority could not analyse their returns on a regional basis, or did not respond. As a result, data on payments to life assurance and superannuation funds by region from the Family Expenditure Survey were used to obtain regional figures.

Special Finance Agencies

The special finance agencies assist companies where for some reason they cannot obtain capital for growth, or operate in a market where specialist financing is needed. The data which were generated on the agencies provided a good example of the money flows model operating in the regional context. Data were obtained for lending to regions (by Standard Industrial Classification at the level of Minimum List Heading) as well as the lending to the larger multi-regional company. Thus the interaction between single region companies and the larger multi-region companies and supra-regional organisations was highlighted.

Other Flows

Many of the activities of the other financial institutions are assigned as flows between the supra-regional sector (purchase of company shares, government securities etc). Those flows which have a relevance to a single region and where data were not generated directly, proxies have had to be used. These cover items such as notes and coins, finance houses, unit trusts.

Conclusions

The evidence from the study suggests that it is possible to trace money flows in the regional context. But as not all money flows are regional, ie they can be supra-regional, it needs a complex system to account for all the flows involved.

This suggests then that it may be possible to telescope the research effort, by concentrating on only the flows which are centred around each region and eliminating the inter supra-regional flows. The focal point of the research on individual assets and liabilities would centre on the personal sector and its interaction with the other sectors as outlined earlier. In addition, it would be useful to deconsolidate small businesses from the company sector and the money flows relating to these. Local authorities could also be treated separately from government. This would be complemented by drawing up the net balances (net acquisition of financial assets) for each sector in regions. This would show the demand for financial assets and liabilities by region's economy.

Not all assets and liabilities for the personal sector should be regionalised. Some flows even at the national level are allocated to the personal sector as a residual. So at the regional level, it would make sense only to concentrate on the main flows such as for banks, building societies, national savings and assurance funds. Indeed even at the

national level there is always an unidentified category. This is the difference between the sum of liabilities and assets, and the sectoral balances. In essence accounting errors creep in!! Mirroring this at the regional level, even if it were possible to estimate the regional incidence of each flow directly, there would still be an unidentified category. The truth of the matter is, if it cannot be completely measured nationally, what chance is there of doing a similar operation regionally. So it would seem that a shortened version, concentrating on what is essential rather than everything would be sensible.

However, such an outline for a work programme still poses substantial problems. The data have still to be collected. From the evidence of the present study, this is not insubstantial! Certainly for the aggregate sector, it would seem that the combination of sources and methods available provide enough information for a reasonably accurate statistical picture to be painted. However, the collection of data for each asset and liability is not at all sound at present. Certainly it is possible to produce the regional data given the co-operation of the organisations concerned. Data aggregated from individual units to regions appear possible as the work on Building Societies and the Trustee Savings Banks show. The greater use of computers for data storage and retrieval also should facilitate the operation. However, the co-operation of those concerned is essential, and this would depend on no small part on the way the research is organised and presented.

It would seem then that a study of regional money flows sufficient to provide enough detail so that policy conclusions for a variety of institutions could be formulated. Whether figures on each and every flow can be produced depends on the goodwill and co-operation of many outside of the normal government statistical services.

Document N° 23

REGIONAL ACCOUNTS IN SPAIN:
PAST EXPERIENCE, CURRENT SITUATION AND FUTURE WORK PROGRAMME

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LIST OF CONTENTS

INTRODUCTION 1

PAST EXPERIENCE 2

CURRENT STATE OF REGIONAL ACCOUNTS IN SPAIN 6

FUTURE OUTLOOK FOR REGIONAL ACCOUNTS IN SPAIN 10

TABLES 13

INTRODUCTION

This paper sets out to describe in very broad terms the development of regional accounts in Spain over the last few years. It also outlines the current situation resulting from the rapid political developments consequent upon approval of the Spanish Constitution in 1978, setting out a new pattern for the nation, which henceforth consists of a group of Autonomous Communities. Lastly, it refers to the basic principles which will be followed in the field of official statistics, and in particular to regional accounts, over the next five years, in an endeavour to cater for the growing demand from the public, central and autonomous authorities for more and better statistical information.

PAST EXPERIENCE

Spain is perhaps the European nation which has witnessed the greatest proliferation of regional economic studies in the last fifteen years. Work on regional accounts including regional input-output tables has been carried out for almost all of what are now the autonomous regions, at different times and using a wide variety of methods. Since 1955 regular studies, carried out on a two-yearly basis (odd years) have even been made to estimate income in the 50 provinces that make up the Spanish State. All this work has been carried out by private agencies (banks, specialized offices, etc).

As it would take too long to describe here all the different methods used in this work, I shall merely mention their common features. It should be stressed right away that the explanatory methodological notes to these studies generally deal far too briefly with the theoretical and the practical (processing) aspects, as well as the statistical sources used.

The regional accounting method used relied on mechanical extrapolation of the current model used for national accounts. Thus at the time when Spanish national accounts were based on the OECD's standard method, the regional and provincial accounts were compiled as just described. When the INE (Spanish Statistical Institute) switched over partly to the ESA system in mid 1975, the private agencies responsible for compiling regional accounts automatically switched over to the ESA, ie the national version of the ESA.

Comprehensive application of the national accounting system to the regional accounts evidently implies that the pattern of regional accounts, tables, transactions, institutional sectors, aggregates etc must follow that of the national accounts, disregarding the fact that in addition to it being statistically impossible to quantify certain regional flows, certain of these flows are devoid of any significance in a regional analysis.

This carbon-copy identity of methodology for regional and national accounts has given rise to the paradoxical situation, that as national Spanish accounts do not for the time being cover financial accounts, the regional accounts published do not include these accounts and operations either.

Only in one region of Spain in fact, can the national methods be applied more or less directly to the regional accounts, albeit with certain major reservations. I refer to the Canary Islands, a region which, since it enjoys certain fiscal advantages, has its own customs system - and what is more, its own external trade flows can be quantified by means of the corresponding customs statistics.

What has been said so far on the regional accounts work carried out would seem to be dismissive of these studies. However, I must stress that this is by no means my intention. There is no doubt that some of the estimates included in those studies are perfectly exploitable and provide acceptable information on certain regional or provincial parameters. My criticism of the regional studies carried out in Spain can be summarized as follows:

a) From the methodological as well as from the statistical standpoint, it is simply not feasible to apply national methods across-the-board to regional studies.

b) Even if one should decide to go along with the procedure just refuted in the previous paragraph, the fact remains that the basic statistical information available in Spain is simply insufficient to enable such a procedure to be followed in practice. One need only observe the shortcomings in Spain's national accounts in order to appreciate this. These shortcomings mean that a substantial part of the regional estimations have had to be effected regionally and provincially, with varying degrees of success, on the basis of breakdowns or distributions.

c) The adoption of national methods out of hand has prevented the statisticians concerned from getting to grips with the real problems involved in regional analysis, as a first step towards constructing a methodology capable of being applied regionally and of offering guarantees of methodological and practical reliability.

d) Lastly, in view of the multiplicity of statistical teams and of methods which, although basically very similar, differ in certain aspects, as well as of the different periods to which the data refer, the feasibility of inter-regional economic analysis can be ruled out immediately.

After this very brief analysis of the different kinds of work carried out in Spain, it is appropriate to take a look at the role played in recent years in the field of regional statistics by the Spanish Statistical Office, ie the INE.

Well before the various official bodies and public authorities began to feel the need to measure regional economic developments, the INE set out, albeit purely from a theoretical point of view, to reflect on future methods of regional analysis, while at the same time the nation-wide statistical surveys began to be conceived in a form enabling basic statistical data of an acceptable quality and covering areas smaller than the national territory, to be obtained.

Such projects and studies were conducted as subsidiary activities until 1980, whereafter as will be explained, they acquired a fundamental priority among the INE's plans.

There are three basic reasons why regional analysis received but little consideration: (i) the overwhelming need to modify and consolidate the system of national accounts, (ii) the lack of demand for regional information from public authorities, (iii) the inadequacy of such regional statistics as were available. In the meantime, throughout the 1970's the INE departments responsible for national accounts focussed their efforts on updating the Spanish national accounts within the limits of the Spanish statistical system.

Until the 1972 accounting year, the INE applied the old OECD system of national accounts. Thereafter, concomitantly with the conducting of major statistical surveys, a process of change in the methods and bases used for the Spanish national accounts began. The system chosen was, as is known, the European System of Integrated National Accounts, which was however used only in part, because of the statistical limitations present, and was adapted to fit the specific features of the Spanish institutions. In the 1970's, therefore, the INE set out to improve its national accounts system and it currently has available a substantial series ranging from 1964 to 1980.

In the meantime the corresponding departments of the INE have kept abreast of the methodological progress accomplished in the field of regional accounts. In this connection, since the only international organizatio

which has devoted substantial resources to the development and improvement of regional accounts is the SOEC, INE statisticians have, whenever possible taken part in practically all the meetings of the Working Party on Regional Accounts organized by the SOEC.

CURRENT STATE OF REGIONAL ACCOUNTS IN SPAIN

The aforegoing comments bring us to the present-day situation, which in many respects is very different to that which existed a decade ago. In this part of my paper, I shall refer only to questions relating to official statistics, although the private bodies I mentioned earlier are continuing to conduct studies and projects concerning regional accounts.

As has already pointed out, there is no doubt that the fresh impetus given to regional accounts arises from the need felt by both central and regional government for statistical information so as to be better informed about regional economic realities and to have objective data to hand, particularly with an eye to distributing certain regional development funds.

Recent years have witnessed the gradual establishment of the Autonomous Communities; this process will probably be completed this year. A total of 17 Communities will thus be set up; to these must be added two small territorial enclaves, Ceuta and Melilla, situated in North Africa and administratively dependent on the provinces of Cadiz and Malaga respectively. The composition of the regions has been dictated by political and historical criteria, resulting in major disparities between the regions from the points of view of area (eg Andalusia's 87 268 km^2 compared with Rioja's 5 034 km^2), population (eg Andalusia's 6 million inhabitants compared with Rioja's 241 132) or per capita income (Ptas 412 648 in Navarra compared with Ptas 213 467 in Extremadura).

Moreover, some regions consist of a single province, such as Madrid, the Balearic Islands, Rioja, Navarra, Asturias, Murcia and Cantabria, whereas others comprise two or more provinces. These facts, which the reader can also see from the tables attached indicate clearly that historical and political criteria were the only ones taken into account when the map of Spain's autonomous regions was drawn. The economic territory of the Autonomous Communities has always been established on the basis of the provincial administrative division of the country, in other words, the provinces have never been partitioned off; at most, existing provinces have been aggregated. This is significant for reasons of a statistical nature, as will be explained below.

Once these Autonomous Communities have been established, the next step is to give them their autonomous status, a sort of legal document setting out the administering entities of each Community, together with their fields of responsibility and obligations vis à vis central government. In this way, the Communities are given both a geographical and a political configuration. In parallel with this, one finds a series of legal texts: a law on the financing of the Autonomous Communities, another (at present before the Parliament) derived from the former - the law on the Inter-territorial Compensation Fund - which places the INE under the obligation to compile a series of economic and population indicators enabling the above mentioned legal texts to be implemented as objectively as possible. It should be pointed out that certain laws to supplement those just quoted are pending, which will no doubt result in increased demand for information. This being so, the INE is attempting to give fresh impetus to the tentative programmes of regional analysis mentioned above. This is being done in two ways:

- Firstly, the compilation of basic economic indicators for 1977 (Table II) has been tackled, in a very limited manner, mainly because of the lack of statistical information. Estimates were again carried out in 1981, this time in respect of income (basically gross value added at factor cost) for 1979 (Tables III and IV), with a greater amount of statistical information;

- Secondly, the INE is in the process of drawing up a statistical plan covering a period of five years, in order to comply with legal requirements. This statistical plan, which was recently approved by government decree and is summarized below, involves the institution of a series of surveys on specific economic activities which will make it possible to improve the information available at regional level. Moreover, this plan reorganizes the basic structure of the INE, in particular by allocating staff to the departments responsible for national and regional accounts.

As mentioned earlier, the regions of Spain consist either of a single province or of a group of provinces. This will no doubt make statistical study easier in that the INE's decentralised agencies are organized at the provincial level.

The description which follows covers the statistical plan to be implemented, the time-table to be obeyed and the collaboration which, as appropriate, may or must be obtained from other official institutions. The relevant departments

of the INE, as already mentioned, have worked out different regional estimates for 1977 and 1979. The methodological basis for the 1979 estimates can be summarized as follows.

The estimate of the regional income aggregate relates to the gross value added at factor cost and at regional level. The definition and method adopted were in the main those of the SOEC as outlined in its ESA-Reg publication and the supplements to this basic document. The ESA-Reg has been implemented within the strict limits imposed by the available statistical information.

Only 12 branches of activity could be taken into consideration for the estimation of regional value added. Furthermore, the publication of the estimates made will be limited simply to four major branches of activity, since the information available does not admit of a more detailed breakdown of regional value added. This information will be accompanied by data on total population, working population and wages and salaries, employees in employment - data which make certain comparative analyses possible at the regional level.

Obviously, much remains to be done before all the regional economic indicators quoted in the ESA-Reg can be covered. Compiling these indicators will depend on the implementation of the statistical plan. These problems will be dealt with in the final section of this paper.

To complete this outline of the current situation of regional analysis in Spain, certain aspects of the role which the INE will play in this field of statistical activity should be explained. Two very different aspects have to be stressed. On the one hand, there is the type of analysis which could be called inter-regional, while on the other hand we have intra-regional analysis.

Inter-regional analysis is carried out by comparing the available indicators for each region with one another and with the average of the same indicators at the national level. It is absolutely essential for this type of inquiry to be carried out exclusively by the INE, perhaps with the cooperation of other organisations and of the Autonomous Communities. The justification for the INE's exclusive role is primarily that it ensures:

a) a standard methodology for all regional estimates

b) uniform practical application of the methods concerned
c) identical sources of basic statistical information
d) objectivity of estimates
e) and, as a consequence of the first four points, comparability of the estimates.

Nevertheless, the other type of analysis - intra-regional analysis - can offer a better knowledge of the region in question and the internal disparities that may exist. The statistical data for this second type of analysis are inevitably more complex to compile and may possibly differ from region to region. Consequently, and quite logically, for this field of investigation the INE merely undertakes the methodological coordination, and may possibly cooperate in its implementation by the Autonomous Communities. Such cooperation for instance, could take the form of increasing sample size in nation-wide surveys since this would make it possible to obtain information which would be acceptable at a smaller territorial level. The remainder of the micro-territorial surveys will be conducted, where appropriate, by the Autonomous Communities' own departments and using their own resources. It must be borne in mind that the need for statistical information on small territorial units is growing significantly, and the INE will never have the means to cater for this demand.

Summing up, the INE will retain responsibility for all official statistics at the regional level and will leave the Autonomous Communities free to conduct surveys relating exclusively to their economic territory.

FUTURE OUTLOOK FOR REGIONAL ACCOUNTS IN SPAIN

In the previous section I gave a brief description of the current state of regional accounts in Spain. The information which can currently be obtained falls well below the level required both in terms of quantity and, in certain respects, of quality. Clearly therefore, in pursuing its policy for the development of regional statistics, the INE must concentrate on improving these two aspects.

Since regional accounts like the national accounts, will be based, conceptually speaking, on the ESA in its regional version, efforts to upgrade the regional system will focus on achieving the highest level of investigation implicit in the ESA-Reg, in terms of operations, aggregates and accounts.

For the time being, the resources of the national accounts department must be directed towards improving Spain's national accounts and her regional indicators. Thus a three-year working plan for national accounts has already been drawn up. This plan embraces the following major projects:

- changeover of the national accounts base year to 1980;
- extending the estimation of certain operations and of the various accounts of certain institutional sectors;
- compilation of an input-output table;
- compilation of financial accounts.

In parallel with these substantial improvements to the national accounts, it is hoped to improve the regional accounts as described above.

What can be done in this direction will obviously depend on the progress made in applying the statistical plan mentioned in the previous section of this paper. Nevertheless, as the implementation of this plan will take considerable time, the improvements resulting from the new basic statistical information obtained will be introduced gradually. This stepwise improvement will rule out comparisons in time between certain estimates; in other words, certain series of regional economic indicators will not be homogeneous until a sufficiently acceptable set of estimates can be considered to have been achieved; this date will mark the starting-point of a basis of comparison which is accurate over time.

For the reasons outlined above, it is difficult to say at this stage to what

extent the regional data or indicators will be expanded, so I shall merely mention what it is hoped to do by June 1983.

- As regards value added by branch of activity, an estimation will be carried out for five major branches and at the regional level. The reference year for this estimation will be 1980.

- An estimation will be made of household consumption at the regional level, and if possible at the provincial level, for nine consumption functions in the first case and a more aggregated level in the second case. The reference year will be 1980.

- The disposable income of households will be calculated at the regional level, again with 1980 as the reference year.

- A regional calculation will be made of investment by type of goods and by purchaser branch of industrial activity.

Lastly, an attempt will be made to quantify the gross value added in industry for certain industrial branches and at the provincial level.

As regards demographic data, when the results of the latest population census (1981) are to hand, the available estimates could be improved and expanded in certain respects. Similarly, the results of the housing census will provide significant structural data at the regional level about the standard of housing of Spanish households. The improvements mentioned will provide a better knowledge of the actual situation at regional level.

In the context of the short-term and medium-term plan of work, it should be pointed out that in addition to the INE there are other organizations to which certain aspects of regional inquiry are entrusted. In order not to make this paper unduly long, I shall merely mention that the Ministry of Finance is responsible for compiling the regional accounts of general government, also along the methodological lines laid down by the ESA-Reg. This work, in which great headway has been made in many respects, is subdivided into two very different types of studies. On the one hand, we have the compilation of the accounts, in the strict sense of the institutional subsector constituted by local and regional government. This subsector

will include those institutional departments whose activity is bounded by the regional economic territory, ie mainly municipalities, provincial government and autonomous or regional government. Towards this end an exhaustive survey of the 8 000 Spanish municipalities and the Provincial and Regional Governments was started at the beginning of 1982 (the reference years being 1980 - 1981). The information obtained from this will enable the regional accounts of this institutional subsector to be compiled. In addition, as regards the activity of central government at the regional level, the aspects which are significant and relevant to regional analysis will be quantified. The same methodological approach will be followed for those aspects of the social security system's operations which have to do with the regions. These are the short-term plans for improving and expanding regional accounts.

The task is obviously a major one and the human and financial resources available are limited. Nevertheless, great interest is currently being shown in Spain for a more detailed knowledge of the actual economic situation in the regions; this interest is shared at all levels by central as well as regional government authorities, and this fact will no doubt encourage the INE in its endeavours to implement the statistical plan outlined. In this respect, the INE has even begun to conclude bilateral agreements with certain bodies in some of the more developed Autonomous Communities, which have offered to make staff and funds available for the conduct of certain statistical surveys. In conclusion, it can therefore be said that although we are still far from producing a comprehensive corpus of macro-economic statistical information at the regional and national level, the outlook for the future is very encouraging.

1. LAS COMUNIDADES AUTONOMAS

TABLE I-B

PROVINCES	AUTONOMOUS REGIONS
1 Alava	1 Andalusia: Almeria, Cadiz, Cordoba, Granada, Huelva, Jaen, Malaga, Seville.
2 Albacete	
3 Alicante	
4 Almeria	2 Aragon: Huesca, Teruel, Saragossa.
5 Avila	
6 Badajoz	3 Asturias: Oviedo.
7 Balearics	
8 Barcelona	4 Balearics
9 Burgos	
10 Caceres	5 Canaries: Las Palmas, Santa Cruz de Tenerife.
11 Cadiz	
12 Castellon	6 Cantabria: Santander.
13 Ciudad Real	
14 Cordoba	7 Castile-Leon: Avila, Burgos, Leon, Patencia Salamanca, Segovia, Soria, Valladolid, Zamora.
15 Coruna	
16 Cuenca	
17 Gerona	8 Castile-La Mancha: Albacete, Ciudad Real, Cuenca, Guadalajara, Toledo.
18 Granada	
19 Guadalajara	
20 Guipuzcoa	9 Catalonia: Barcelona, Gerona, Lerida and Tarragona.
21 Huelva	
22 Huesca	10 Extremadura: Badajoz, Caceres.
23 Jaen	
24 Leon	11 Galicia: La Coruna, Lugo, Orense, Pontevedra.
25 Lerida	
26 Logrono	12 Madrid
27 Lugo	
28 Madrid	13 Murcia
29 Malaga	
30 Murcia	
31 Navarra	14 Navarra: Pamplona.
32 Orense	
33 Oviedo	15 Pais Valenciano: Alicante, Castellon de la Plana, Valencia.

PROVINCES	AUTONOMOUS REGIONS
34 Valencia	
35 Las Palmas	16 Pais Vasco: Alava, Guipuzcoa, Biscay.
36 Pontevedra	
37 Salamanca	
38 Santa Cruz de Tenerife	17 Rioja: Logrono.
39 Santander	Ceuta and Melilla.
40 Segovia	
41 Seville	
42 Soria	
43 Tarragona	
44 Teruel	
45 Toledo	
46 Valencia	
47 Valladolid	
48 Biscay	
49 Zamora	
50 Saragosa	
Ceuta	
Melilla	

TABLE II

BASIC INFORMATION USED FOR THE DISTRIBUTION OF THE INTERTERRITORIAL COMPENSATION FUND

Regions	Per capita income 1977 Pesetas	Population of each Community (1)	Migration (2)	Unemployment rate (3)	Area km^2	Island distance km
Madrid	301.614	4.420.115	- 12.273	14,21	7.995	
Catalonia	284.565	5.768.654	- 22.529	13,75	31.930	
Vascongadas	276.347	2.116.817	- 2.082	14,49	7.261	
Cantabria	270.929	493.279	541	8,54	5.289	
Balearics	270.358	651.855	- 554	8,91	5.014	548
Aragon	257.757	1.171.048	1.251	10,21	47.669	
Navarra	257.079	485.637	- 352	12,41	10.421	
Rioja	255.092	240.247	- 260	6,58	5.034	
Valencia	235.327	3.490.978	- 9.228	11,43	23.305	
Murcia	226.542	892.742	1.088	11,55	11.317	
Asturias	224.624	1.106.850	1.775	10,31	10.565	
Castile-La Mancha	217.561	1.605.731	12.662	12,71	79.226	
Castile-Leon	212.798	2.492.612	15.295	9,60	94.147	
Galicia	211.504	2.694.290	18.067	5,39	29.434	
Andalusia	192.178	6.131.689	35.058	19,10	87.268	
Canaries	190.311	1.457.421	- 485	15,05	7.273	1.746
Extremadura	149.000	1.035.272	11.882	15,49	41.602	
Ceuta	192.178	60.067	107	9,64	18	
Melilla	192.178	51.681	274	6,48	14	
TOTAL.....		36.336.985			504.782	

(1) Actual population as at 1 July 1977.
(2) Average over the years 1971-80.
(3) Average for the third and fourth quarters of 1980 and the first and second quarters of 1981.

Sources: "Per capita income", "Migration" and "Unemployment rate": National Statistical Institute
"Area": National Geographic Institute, published in the Spanish Statistical Yearbook.
"Island distance": National Statistical Institute.

TABLE III

BASIC INFORMATION USED FOR THE DISTRIBUTION OF THE INTERTERRITORIAL COMPENSATION FUND

Regions	Per capita income 1979 Pesetas	Population of each Community (1)	Migration (2)	Unemployment rate (3)	Area km²	Island distance km
Madrid	406.653	4.623.545	+13.273	15,43	7.995	
Catalonia	398.066	5.998.979	+22.528	15,44	31.930	
Vascongadas	395.776	2.191.575	+ 2.082	16,29	7.261	
Cantabria	392.081	500.524	- 541	10,15	5.289	
Balearics	391.679	682.195	+ 654	9,82	5.014	548
Aragon	381.109	1.175.304	- 1.251	12,03	47.669	
Navarra	412.648	491.136	+ 352	13,08	10.421	
Rioja	391.648	241.132	+ 260	7,59	5.034	
Valencia	349.149	3.623.678	+ 9.238	13,66	23.305	
Murcia	317.376	910.214	- 1.088	12,92	11.317	
Asturias	340.910	1.123.955	- 1.776	11,84	10.565	
Castille-La Mancha	301.112	1.573.095	-12.662	14,29	79.226	
Castille-Leon	309.257	2.451.343	-15.395	10,54	94.147	
Galicia	276.354	2.725.180	-18.067	5,91	29.434	
Andalusia	262.166	6.170.566	-35.058	20,31	87.268	
Canaries	279.514	1.556.173	+ 489	16,95	7.273	1.746
Extremadura	213.469	1.001.384	-11.682	16,58	41.602	
Ceuta	224.075	59.874	- 107	9,64	18	
Melilla	224.075	49.790	- 274	6,48	14	
TOTAL		37.149.642			504.782	

(1) Actual population as at 1 July 1979

(2) Average over the years 1971-80

(3) Annual average for the four quarters of 1981.

TABLE IV - A

INTERNAL REGIONAL STRUCTURE AND PERCENTAGE REGIONAL SHARE OF THE NATIONAL TOTAL BROKEN DOWN BY SECTOR OF ACTIVITY

Branches of activity	Agriculture and fisheries	Industry	Services	Total	Agriculture and fisheries	Industry	Services	Total
Regions								
Andalusia	14,6	27,1	58,3	100,0	23,8	9,6	13,5	12,88
Aragon	12,4	37,3	50,3	100,0	5,6	3,7	3,2	3,57
Asturias	5,6	46,2	48,2	100,0	2,2	3,9	2,6	3,06
Balearics	4,4	27,6	68,0	100,0	1,2	1,6	2,6	2,12
Canaries	8,2	22,3	69,5	100,0	3,6	2,1	4,3	3,47
Cantabria	6,7	45,1	48,2	100,0	1,3	1,9	1,3	1,56
Castile-Leon	13,6	33,2	53,2	100,0	10,4	5,5	5,8	6,04
Castile-Mancha. . . .	19,5	33,6	46,9	100,0	9,3	3,5	3,2	3,77
Catalonia	3,5	45,4	51,1	100,0	8,4	23,8	17,4	19,02
Extremadura.	19,7	21,2	59,1	100,0	4,2	1,0	1,8	1,70
Galicia	14,2	32,6	53,2	100,0	10,8	5,4	5,7	6,00
Madrid	0,7	29,7	69,6	100,0	1,2	12,3	18,7	14,98
Murcia	12,4	32,6	55,0	100,0	3,6	2,1	2,2	2,30
Navarra	9,9	41,9	48,2	100,0	2,0	1,9	1,4	1,61
Pais Valenciano . . .	6,5	41,3	52,2	100,0	8,3	11,5	9,4	10,07
Pais Vasco	3,0	48,7	48,3	100,0	2,7	9,2	6,0	6,91
Rioja	13,6	42,4	44,0	100,0	1,3	0,9	0,6	0,75
Ceuta and Melilla . .	1,4	13,6	85,0	100,0	0,1	0,1	0,3	0,19
SPAIN	7,9	36,3	55,8	100,0	100,0	100,0	100,0	100,00

TABLE IV - B

GROSS REGIONAL PRODUCT BY MAJOR BRANCH OF ACTIVITY IN 1979 (in 000,000 pesetas)

Branches of activity	Agriculture and fisheries	Industry	Services	Total
Regions				
Andalusia	235.923,6	438.889,5	942.901,7	1.617.714,8
Aragon	55.577,2	167.248,7	225.093,6	447.919,5
Asturias	21.451,9	176.919,3	184,796,6	383.167,8
Balearics	11.946,6	73.568,4	181.686,6	267.201,6
Canaries	35.719,1	97.191,7	302.060,7	434.971,5
Cantabria	13.171,2	88.484,0	94.590,7	196.245,9
Castile-Leon	102.954,4	252.057,9	403.083,6	758.095,9
Castile-Mancha	92.112,3	159.330,4	222.249,3	473.698,0
Catalonia	83.435,8	1.084.010,0	1.220.542,8	2.387.988,6
Extremadura	42.001,8	45.540,5	126.222,1	213.764,4
Galicia	106.924,9	245.779,1	400.409,1	753.113,1
Madrid	12.664,3	558.324,0	1.309.189,4	1.880.177,7
Murcia	35.881,0	94.332,8	158.666,5	288.880,3
Navarra	19.953,1	85.094,2	97.618,8	202.666,1
Pais Valenciano	82.449,9	522.538,7	660.214,5	1.265.203,1
Pais Vasco	26.448,4	421.995,7	418.928,5	867.372,6
Rioja	12.846,5	40.078,1	41.514,3	94.438,9
Ceuta and Melilla	341,7	3.339,7	20.891,6	24.573,0
SPAIN	991.803,7	4.554.722,7	7.010.660,4	12.557.186,8

TABLE V

STATISTICAL PLAN

Summary of Projects

No	Description	Aims	Timetable	Implementation
1	Registers a) of industrial enterprises and undertakings b) census of enterprises and total occupied population c) register of agricultural holdings	Institution and upkeep	In progress Implementation: 1st half of 1982 Updating annual implementation: 4th quarter of 1983 Updating: annual	INE in conjunction with the Ministries of Industry, Agriculture and Finance, IMAC, social security and local authorities.
2	Regional agricultural accounts	Value added and investment by region	Month of May of year t+1 until end of April of year t+2	Ministry of Agriculture and Fisheries
3	Annual industrial survey	Value added and investment by region	Collection of data: March - July Publication: t+16 months	INE and Ministries of Industry and Agriculture
4	Building construction statistics	Flows and value added and investment by region	a) Structural: data collection in Feb-June Publication: t+1 b) Short-term: Monthly	INE and Ministry of Public Works and Urban Planning
5	Trade surveys	Flows and value added and investment by region	Pilot survey: 2nd half of 1982 annual survey starting in 1983 Data collection Jan-April Publication: December Quarterly statistics: starting in 1984	INE in conjunction with the Ministry of Economy and Trade and the Autonomous Communities

No	Description	Aims	Timetable	Implementation
6	Transport surveys	Flows and value added and investment by region	a) Traffic survey: annually starting in 1984 b) Economic survey: pilot survey in 1982 annual survey starting in 1983	Traffic survey: INE and the Ministry of Transport Economic survey: INE in conjunction with the Autonomous Communities
7	Statistics on tourism	Flows and value added and investment by region	a) Survey on the movement of travellers: change in project 1982: implementation 1983 b) Economic survey: 1984 for the hotel trade and 1985 for bars and restaurants	Secretariat of State for Tourism in conjunction with the Autonomous Communities
8	Statistics on banks and insurance enterprises	Value added and investment by region Financial accounts	Study report: 1982 Implementation: 1983	INE, Bank of Spain, Ministries of Finance, Economy and Trade
9	Company taxes	Annual survey	Four last months of each year	INE
10	General government statistics	Regional accounts of the Autonomous Communities and local authorities	Preparation in 1982 and implementation in 1983	INE, various Ministries, Autonomous Communities and local authorities
11	Survey of the financing and cost of private education	Value added and investment by region	Two-yearly as from the 1st quarter of 1982	INE, Ministry of Education and Science, Autonomous Communities
12	Statistics on health care establishments with in-patient facilities	Flows, value added and investment by region	Annual as from the first quarter of 1982	INE, Ministry of Health, Autonomous Communities
13	Survey of household budgets	Pattern of consumption	Every five years	INE
14	Ongoing survey of consumption	Variations in consumption per quarter	Quarterly already implemented	INE

No	Description	Aims	Timetable	Implementation
15	Survey of household income	Disposable income of households	Preparatory methodological studies as from 1982; institution in 1985	INE
16	Migration statistics	Interregional flows	Quarterly data on the basis of the EPA	INE
17	Statistics on social infrastructures	situation of the municipalities	1st and 2nd phases throughout 1982 3rd phase: introduction and trial run in autumn 1982	INE, various Ministries, Autonomous Communities
18	Survey of wages and salaries	Monthly variations in earnings and annual variations in the wage bill, by region.	Variations in earnings: quarterly Wage bill: annually along with the industrial survey	INE, Ministry of Industry and Ministry of Public Works and Urban Planning
19	Industrial production indices	Monthly variation. Improvement of quality and punctuality	Monthly	INE, Ministry of Industry
20	Industrial price indices	Monthly variation. Improvement of quality and punctuality	Monthly	INE

Document N° 24

REGIONAL ACCOUNTS IN PORTUGAL:
PRESENT SITUATION AND FUTURE PROSPECTS

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REGIONAL ACCOUNTS IN PORTUGAL: PRESENT SITUATION AND FUTURE PROSPECTS

1. The present administrative system in Portugal is divided up as follows:

   a) central government
   b) regional government
   c) local government

   Regional government is a recently-created legal entity in the Portuguese administrative system laid down in the 1976 Portuguese Constitution and retained in the bill to revise the Constitution placed before the National Assembly this year.

   The link between the administrative system and the regional accounts arises from the probable territorial identity between one of the system's components, viz.the regional breakdown,and the geographical units which will be covered by the proposed regional accounts.This principle has already been applied to some extent.

2. The abovementioned constitutional principle has so far been applied only to two areas of Portuguese territory, namely, the "autonomous regions" of Madeira and the Azores.

   In physical terms, these two regions consist of groups of islands situated many hundreds of kilometres from mainland Portugal, and contain about 5% of the resident population on Portuguese territory. As regards mainland Portugal, regional divisions already existed several years ago, mainly for planning purposes, but they were not used widely for other purposes and, generally speaking are at present more or less ignored. It is expected that the National Assembly will examine this matter at some time in the future and revive the regional divisions throughout Portugal.

3. The above-mentioned legal and factual aspects relating to the administrative system in Portugal and its probable connections with the territorial units to be used when the regional accounts are introduced, must be made clear before analyzing the present situation regarding regional accounts in Portugal.

Before looking at the subject of regional accounts in Portugal, it should be pointed out that, in theory, the figures in the Portuguese national accounts refer always and exclusively to economic activity in mainland Portugal and therefore do not cover economic activity in the autonomous regions of Madeira and the Azores. To fill this gap, the National Statistical Institute is studying ways of introducing the system of economic accounts in these two autonomous regions. This has already led to the introduction of a system of regional accounts in Madeira, the first figures produced relating to the years 1976 and 1977. Figures are now being prepared for subsequent years, the only difference being that the administrative work needed to ensure that estimates continue to be produced has been transferred to the Regional Statistical Services (Serviços Regionais de Estatistica) with technical assistance still being provided by the National Statistical Institute.

On the other hand, it was possible to continue with the work aimed at introducing regional accounts in the Azores, which was started in conjunction with and at the same time as similar work in Madeira. However, this project has recently been revived, with technical assistance from the National Statistical Institute and administrative assistance from the Regional Statistical Services.

4. The model chosen to serve as a theoretical basis for the system of economic accounts for the two autonomous regions mentioned was the Standardized System of National Accounts (OECD version).

Initially it was planned to use as a reference model a system which was halfway between the system mentioned and the European System of Integrated Economic Accounts (ESA). This plan had to be abandoned, basically because the existing regional Statistics are unable to provide even the minimum basic data which are essential if one is to produce accounts which show non-financial transactions in every sector. It was therefore decided to adopt an accounting model -the SNA- which is less ambitious and demanding as regards the need for basic data and which, at the same time, provides the information which is indispensable for regional economic planning, i.e. details on the structure of production, the structure of capital investment, savings in each sector, the complete system of accounts in the non-market public sector, GDP in terms of internal and external demand, the capacity/need for external financing, etc.

It is thought that, in general, the methods adopted have enabled figures to be produced which, except in certain individual cases, provide a reasonably accurate picture of regional economic activity.

The most notable of these exceptions are the figures for the flows contained in the external transactions account. These figures are unreliable mainly because there are no regional balance of payments figures except for those relating to transactions with other countries, which of course do not cover transactions with other parts of Portugal. Some figures are compiled on these transactions, although they are limited to flows of goods in and out of ports. Nevertheless, it is generally thought that the resulting figures show, in a very approximate way, the type, quantity and value of goods entering and leaving the regions. In the Azores, a regional body has prepared a table to show basic balance of payments figures; this is thought to be inaccurate since there is no machinery in the Azores for monitoring transactions with other parts of Portugal.

It is expected that the imminent introduction of regional accounts will cause the statistical systems of the regions to change and grow considerably, thus allowing the gradual introduction of the ESA, coordinated and linked with the accounts of mainland Portugal.

5. As regards the prospects for regional accounts, apart from the steps already described, it is not expected in the short term that they will be extended to mainland Portugal, partly because the "regions" still have to be defined.

ANNEX TO DOCUMENT ON " REGIONAL ACCOUNTS IN PORTUGAL; PRESENT SITUATION AND FUTURE PROSPECTS"

1. The strategy used when introducing a draft system of economic accounts for the region of Madeira was as follows:

   1) Selecting the accounting system to be adopted as a reference model.

   2) Examining the basic data available in the Regional Statistical System (RSS) and comparing them with the basic data needed for the system selected.

   3) Studying additional sources of data able to fill the gaps found in the RSS.

   4) Designing ways of filling the gaps in basic data not filled by the measures mentioned above.

2. As stated above, the model for the economic accounts selected at that time was the Standardized System of National Accounts (OECD). Apart from the abovementioned reasons for choosing this model, it was also recognized that this system was not incompatible with the ESA and could be used prior to the introduction of the SNA in the general system of Portuguese economic accounts.

3. The types of basic information which are available were identified by analysing the information produced by the Portuguese statistical system. They are listed in the following tables in terms not of flows but of basic units, viz. branches of activity (establishments) and sectors (institutional units).

TABLE 1: BRANCHES OF ACTIVITY

Symbols:

X - not collected by the RSS
. - incomplete data
.. - complete data

Branches of activity	Aggregates		Remarks
	GVA	GFCF	
1.a Agriculture	.	X	1.a) The RSS has certain production and price data only
1.b Livestock production	.	X	1.b) The RSS has only slaughtering data for certain animal species and a limited amount of price data
1.c Forestry	X	X	
1.d Fishing	.	X	1.d) The RSS only provides data on quantities, species and values of fish landed.
2. Mining and quarrying	X	X	
3. Manufacturing industries	.	.	3) The RSS provides complete data on manufacturing industries with the exception of some of the more important industries.
4. Electricity, gas and water	X	X	
5. Construction and public works	..	..	5) There are inconsistencies in the data collected by the RSS.
6. Wholesale and retail trade, restaurants and hotels	X	X	
7. Transport, warehousing and communications	X	X	
8. Banks and other financial institutions, insurance, property transactions and business services	X	X	
9. The Community, social and personal services:			
a) public	.	.	9a Only town and parish councils. Although the RSS has figures from the Regional Government and the social security organizations, these had to be revised for use in the regional accounts.
b) private profit-making institutions	X	X	
c) private non-profit making institutions	X	X	

TABLE II: INSTITUTIONAL SECTORS

SECTORS AND SUBSECTORS	ACCOUNTS		REMARKS
	Current	Capital	
1. Non-financial corporate entreprises			
1.1. Public	X	X	
1.2. Private	..	..	
2. Non-financial quasi-corporate (enterprises)			
2.1 Public	X	X	
2.2. Private	X	X	
3. Financial corporate enterprises			
3.1 Public	X	X	
3.2 Private	..	..	
4. Financial quasi-corporate enterprises			
4.1 Public	X	X	
4.2 Private	X	X	
5. Non-market public sector			
5.1 Regional government	.	.	5.1 The figures had to be revised for use in the regional accounts
5.2 Autonomous services	X	X	
5.3 Autonomous funds	X	X	
5.4 Central government departments working in the region	X	X	
5.5 Semi-public services (officially-approved non-profit institutions)	X	X	
5.6 Town councils	..	..	5.6 Figures for SNA flows
5.7 Parish councils	..	..	5.7 As above
5.8 Social security institutions	.	.	
6. Private non-profit-making institutions	X	X	5.8 The figures had to be revised for use in the regional accounts
7. Private institutions			
7.1 Consumer units	X	X	
7.2 Unincorporated businesses	X	X	
8. Rest of the world	.	.	8. Only data on the balance of trade with other countries are available

TABLE III: INDICES

The RSS produces consumer price indices only.

4. If one examines the tables given above, it is clear that the Portuguese system of regional statistics is quite unable to provide the basic data which are essential if the plan is to be implemented. At the same time, the RSS was unable, in a short time, to adapt and develop sufficiently quickly to satisfy even the minimum requirements.

In order to get the project under way, it was decided to examine possible sources of a non-institutional nature which collected basic data not considered by the RSS. The examination produced the following results:

a) Tax system

This source was examined mainly to fill the gaps in the data on the sector comprising private profit-making services located in the region. Although these units provide insufficient information, they were used to meet the need for data broken down by branch of activity.

b) Market and non-market public sector

First, a list was made of the regional and non-regional government services active in the region, which were then asked to forward their operating accounts. With the exception of a few organizations, the relevant data were then included in the figures. Furthermore, data on the activities of the few organizations mentioned were also included in the estimates although, in this case, they were obtained indirectly.

c) Sector comprising private non-profit making institutions

The activities of the organizations in this sector, whether or not they belonged to the non-market public sector, were not taken into account and were not included in the figures. The main problem was the difficulty in compiling a list of these organizations.

d) Sector comprising private individuals (consumer units)

Data on the part played by these units in the regional economy were obtained indirectly and included in the estimates.

e) The following figures were used to prepare the external transactions accounts: inward and outward movements of goods (both Portuguese and foreign), estimates of the amounts remitted by immigrants, as recorded by the Banco de Portugal, estimates of expenditure by non-residents prepared by the organization responsible for regional tourism, and the various transactions with other areas and countries carried out by the market and non-market public sectors (via the accounts prepared for these sectors).

5.- Although the area for which basic data could not be found was very limited, gaps remained in important areas of regional activity- namely, in the primary sector. For these areas suitable methods had to be found. Some of these are described briefly below:

a) Agriculture.

The estimates of agricultural production were arrived at as follows:

1) by using data made available by the RSS and the regional agricultural organization;
2) as regards the remaining production, apparent production was determined.
This was done by examining consumption of individuals as shown in the results of the 1973 family expenditure survey, the inward and outward movements of agricultural products in each region, and the intermediate consumption of manufacturing industry. The results obtained were subsequently scrutinized by experts from the regional agricultural services. It is worth noting that the figure for agricultural production obtained from the RSS was 50% lower than the final total.

The estimates of intermediate consumption were based mainly on inward movements into each region of fertilizers, pesticides, etc. and products provided by the stockbreeding sector.

The estimates of gross fixed capital formation were based on inward flows into each region of materials specifically intended for agricultural purposes and on the statistics for the construction industry, which included the value of construction work carried out for agricultural and livestock production purposes.

d) Livestock production

The R S S has data only on the slaughtering of certain species of animals. As regards cattle, beef and veal production, a mathematical formula was worked out to provide the required figures, using slaughtering figures and also making certain assumptions. For the remaining animal species and livestock products, appropriate methods were used for each species and type of product.

For intermediate consumption, animal feedstuffs and products provided for agricultural activities were taken into account.

Gross fixed capital formation was calculated using figures for the equipment entering the region, and for the value of the cattle intended for milk production or reproduction obtained by the mathematical formula mentioned above.

c) Fishing

The 'branches of activity' table given above shows that the RSS records only the quantities and values of species of fish unloaded at fishing ports. The value of the output of the fishing industry was equated with the total value of the fish unloaded.

As there are no data for intermediate consumption, use was made of a technical coefficient calculated from the routine data in the publication "Estatisticas das Sociedades" (statistics on corporate enterprises), in the section dealing with fishing activities.

In order to calculate gross fixed capital formation, the routine statistics in the abovementioned publication were used.

d) Mining and quarrying.

The value of production in this area was estimated using data on the intermediate consumption of these products by manufacturing industries and the construction and public works sectors. These data were supplied by the RSS.

Intermediate consumption was calculated by using the special coefficients obtained during the Census of Industries in 1971.

The figure for gross fixed capital formation was based on the values in the publication "Statistics on Corporate Entreprises" (in the section dealing with mining and quarrying) and was grossed up using the figures for GVA kept by corporate and non-corporate enterprises.

6- The RSS did not take into account of the main regional industries such as embroidery, wine growing and basketwork.

The figures for production, intermediate consumption and gross fixed capital formation were obtained using the statistics on corporate enterprises and by examining the tax data on unincorporated businesses.

7- The preparation of figures based on constant prices was also a very complex task. Special indices were produced for the various aggregates, sometimes on the basis of a minimum amount of information.

8- The main tables containing the figures obtained are appended to this document. Because of their size, we have not included the tables showing trends in gross domestic product by branch of activity and gross fixed capital formation by branch of activity and type of fixed asset, or the tables showing the current and capital receipts and expenditure of the public subsectors in the regions.

Table 1 A: Origin and use of resources

Current prices — Unit: 100 contos (= 1 million escudos)

	1976	1977			
1. Consumer expenditure on goods and services.....	4034	5429			
2. Current expenditure of non-market public sector on goods and services.....	1230	1720			
a) Defence	65	82			
b) Civilian.....	1165	1683			
3. Gross fixed capital formation	969	1804			
4. Changes in stocks.....	268	724			
5. Export of goods and services	2721	3989			
6. Minus: import of goods and services.....	3366	5073			
7. Equals: gross domestic product at market prices	5856	8611			
8. Plus: income from the rest of the world	97	221			
9. Minus: income to the rest of the world.....	84	118			
10. Equals: gross domestic product at market prices	5869	8714			
11. Minus: indirect taxes	105	1016			
12. Plus: subsidies.....	..	46			
13. Equals: gross regional product at factor cost	5764	7744			
14. Minus: consumption of fixed capital	197	245			
15. Equals: net regional product at factor cost.....	5566	7499			

Table 1 B: Origin and use of resources

1976 constant prices — Unit: 1000 contos (= 1 Million escudos)

	1976	1977			
1. Consumer expenditure on goods and services	4034	4362			
2. Current expenditure of non-market public sector on goods and services	1230	1437			
a) Defence	65	68			
b) Civilian	1165	1369			
3. Gross fixed capital formation	969	1479			
4. Changes in stocks.....	268	585			
5. Export of goods and services	2721	3195			
6. Minus: import of goods and services.....	3366	4217			
7. Equals: gross domestic product at market prices.....	5856	6841			
8. Plus: income from the rest of the world.....	97	177			
9. Minus: income to the rest of the world	84	94			
10. Equals: gross regional product at market prices	5869	6924			
11. Minus: consumption of fixed capital	197	201			
12. Equals: net regional product at market prices	5672	6723			

Table 2 A: Breakdown of gross domestic capital formation

Current prices — Units: 1000 contos (=1 million escudos)

A.	Breakdown by product	1976	1977		
	1.				
	a) Construction	662	1291		
	b) Transport equipment	35	101		
	c) Other equipment	272	412		
	TOTAL	969	1804		
	2. Changes in stocks:				
	a) raw materials	X	X		
	b) intermediate products	X	X		
	c) final products	X	X		
	TOTAL	268	742		
	Gross domestic capital formation	1237	2546		
B.	Breakdown by branch of activity				
	1. Gross fixed capital formation				
	a) agriculture, livestock production, forestry and fishing	77	142		
	b) mining and quarrying	1	2		
	c) manufacturing industries	47	121		
	d) electricity, gas and water	138	380		
	e) construction	13	12		
	f) wholesale and retail trade, restaurants and hotels	136	114		
	g) transport, warehousing and communications	49	71		
	h) banks and other financial institutions, insurance, property transactions, etc.	215	413		
	i) Community, social and personal services	293	549		
	i) general government	202	343		
	ii) health and education services	45	121		
	iii) other services	46	85		
	TOTAL	969	1804		
	2. Changes in stocks	268	742		
	Gross domestic capital formation	1237	2546		
C.	Breakdown by sector				
	1) Gross fixed capital formation				
	a) private enterprises	503	721		
	b) public enterprises	200	487		
	c) non-market public sector	266	596		
	2. Change in stocks	268	742		
	Gross domestic capital formation	1237	2546		

Table 2 B: Breakdown of gross domestic capital formation

1976 constant prices

Units: 1000 contos (=1 million escudos)

	1976	1977			
A. Breakdown by product					
1.					
a) Construction	662	1074			
b) Transport equipment.....	35	79			
c) Other equipment.....	272	326			
TOTAL	969	1479			
2. Changes in stocks:					
a) raw materials.....	X	X			
b) intermediate products...	X	X			
c) final products	X	X			
TOTAL	268	585			
Gross domestic capital formation.....	1237	2064			
B. Breakdown by branch of activity					
1. Gross fixed capital formation:					
a) agriculture, livestock production, forestry and fishing.....	77	115			
b) mining and quarrying	1	2			
c) manufacturing industries	47	96			
d) electricity, gas and water	138	311			
e) construction	13	10			
f) wholesale and retail trade restaurants and hotels	136	91			
g) transport, warehousing and communications	49	59			
h) banks and other financial institutions, insurance, property transactions, etc.	215	343			
i) Community, social and personal services	293	452			
i) general government ...	202	281			
ii) health and education services	45	99			
iii) other services.....	46	72			
TOTAL	969	1479			
2. Changes in stocks	268	585			
Gross domestic capital formation	1237	2064			
C. Breakdown by sector					
1. Gross fixed capital formation					
a) private enterprises	503	589			
b) public enterprises	200	400			
c) non-market public sector	266	490			
2. Changes in stocks	268	585			
Gross domestic capital formation	1237	2064			

Table 3 A: Origin of gross regional product at market prices, by branch of activity

Current prices

Unit: 1000 contos (1= mio. escudos)

	1976	1977		
1. Agriculture, forestry and fishing	1561	2153		
a) agriculture	1213	1783		
b) livestock production	153	90		
c) forestry and hunting	95	143		
d) fishing	101	137		
2. Mining and quarrying	31	48		
3. Manufacturing industries:	704	978		
a) food, beverages and tobacco	332	488		
b) textiles, clothing and leather goods	163	226		
c) timber and cork, including furniture industry	96	121		
d) paper, printing and publishing	28	47		
e) chemicals and related activities	16	18		
f) non-metallic mineral products	25	33		
g) basic metal industries	0	0		
h) metal products, machinery and equipment, including transport equipment	44	44		
i) other manufacturing industries	0	1		
4. Electricity, gas and water	43	125		
5. Construction and public works	294	797		
6. Wholesale and retail trade, restaurants and hotels	1260	1863		
7. Transport, warehousing and communications	374	549		
8. Banks and other financial institutions, insurance, property transactions, and business services	377	425		
9. Community, social and personal services	1212	1673		
a) general government and defence	420	609		
b) health and education services	628	790		
c) other services	164	274		
13. Gross domestic product at market prices	5556	8611		
14. Net factor income from the rest of the world	13	103		
15. Gross regional product at market prices	5869	8714		

Table 3B: Origin of gross regional product at market prices, by branch of activity

1976 constant prices — Unit: 1000 contos (= 1 mio. escudos)

	1976	1977
1. Agriculture, livestock production, forestry and fishing	1561	1583
a) agriculture	1212	1256
b) livestock production	153	147
c) forestry and hunting	95	95
d) fishing	101	84
2. Mining and quarrying	31	37
3. Manufacturing industries:	704	777
a) food, beverages and tobacco	332	393
b) textiles, clothing and leather goods	163	174
c) timber and cork, including furniture industry	96	97
d) paper, printing and publishing	28	33
e) chemicals and related activities	16	19
f) non-metallic mineral products	25	20
g) basic metal industries	0	0
h) metal products, machinery and equipment, including transport equipment	44	42
i) other manufacturing industries	0	0
4. Electricity, gas and water	43	54
5. Construction and public works	294	664
6. Wholesale and retail trade, restaurants and hotels	1200	1546
7. Transport, warehousing and communications	374	455
8. Banks and other financial institutions, insurance, property transactions, and business services	377	316
9. Community, social and personal services	1212	1409
a) general government and defence.....	420	516
b) health and education services	628	670
c) other services.....	164	223
13. Gross domestic product at market prices	5856	6841
14. Net factor income from the rest of the world.....	13	83
15. Gross regional product at market prices	5869	6924

Table 4: Breakdown of regional income (at factor cost)

Current prices

Unit: 1000 contos (=1 mio escudos)

	1976	1977			
1. Compensation of employees	3378	4429			
a) wages and salaries ...	2175	2678			
b) remuneration for armed forces	53	84			
c) remuneration for civilian personnel in the public sector	950	1269			
d) employers' social security contributions	200	398			
2. Property and entrepreneurial income of individuals	2029	2472			
3. Transfers from corporate entreprises to private individuals	0	0			
4. Corporate saving	99	516			
a) public	15	- 11			
b) private (corporate enterprises)	84	527			
5. Direct taxes on corporate enterprises	40	70			
6. Property and entrepreneurial income of the non-market sector	22	15			
7. Minus: interest on public debt	2	3			
8. Minus: interest on consumer debt	X	X			
9. Regional income	5566	7499			

Table 5: Capital transactions

Current prices — Unit: 1000 contos(= 1 mio escudos)

	1976	1977
1. Consumption of fixed capital	197	245
a) non market public sector	0	..
i) regional government	X	X
ii) local government	X	X
iii) social security funds	X	X
b) public enterprises.....	23	31
c) private corporate enterprises	163	207
d) private enterprises other than corporate entreprises	11	7
2. Net saving	2191	3434
a) non-market public sector	31	709
i) regional government	114	217
ii) local government ...	25	276
iii) social security funds	-108	216
b) enterprises.....	99	516
i) public	15	-11
ii) private (corporate enterprises).....	84	527
c) private individuals and private non-profit institutions	2061	3679
3. Gross saving.....	2388	3679
4. Net capital transfers from the rest of the world....	445	580
a) capital transfers from the rest of the world..	445	580
b) minus: capital transfers to the rest of the world	..	0
i) regulating flow	322	316
5. Gross national capital formation	3155	4575
6. Minus: gross domestic capital formation	1237	2546
a) gross fixed capital formation.....	969	1804
b) changes in stocks	268	742
7. Net lending to the rest of the world	1918	2029

i) The counterpart, for national public enterprises working in the region concerned, of current transfers from the rest of the world.

ECONOMIC ACCOUNTS OF THE AUTONOMOUS REGION OF MADEIRA
EXPENDITURE OF THE NON-MARKET PUBLIC SECTOR

Data compiled in September 1980 — Unit: 1000 escudos

	1976	1977
A - CURRENT TRANSACTIONS		
A.1 - Receipts		
1. Direct taxes on private individuals	505 258	1 03[illegible] 165
2. Direct taxes on corporate enterprises		
3. Indirect taxes	105 441	1 015 559
4. Property and entrepreneurial income	22 466	14 922
a) Net operating surplus of non-autonomous public enterprises	17 176	12 796
b) Other	5 290	2 126
5. Other current transfers within the region	34 569	87 622
a) From other public subsectors	..	..
b) From individuals and private non-profit institutions	34 569	87 622
6. Current transfers from outside the region	1 415 307	1 645 694
a) Public sector (mainland)	1 412 543	1 643 004
b) Other sectors	2 758	2 685
c) Other countries	6	5
7. TOTAL CURRENT RECEIPTS	2 083 041	3 790 362
A.2 Expenditure		
8. Current expenditure on goods and services	1 230 152	1 720 332
a) Defence	65 069	81 801
b) Civilian	1 165 083	1 638 531
of which:		
i) Health	303 994	430 368
ii) Education	384 918	478 589
9. Subsidies	..	46 126
a) To public enterprises	..	..
b) To private enterprises		46 126
10. Interest paid on public debt	2 345	2 736
a) Internal debt : i) regional	2 303	1 941
ii) national	42	795
b) External debt	..	..
11. Current transfers	819 730	1 312 210
a) To other public subsectors in the region	..	..
b) To individuals and private non-profit institutions in the region	412 547	539 825
of which:		
i) Health	109 737	144 767
ii) Education	33 410	35 068
c) Outside the region	407 183	772 385
i) Public sector (mainland)	406 830	771 947
ii) Other sectors	353	438
iii) Other countries	..	..
12. TOTAL CURRENT EXPENDITURE	2052 227	3 081 404
13. Current net saving	30 814	708 958
14. Depreciation and other operating reserves	494	X
15. Current gross saving	31 308	708 958

ECONOMIC ACCOUNTS OF THE AUTONOMOUS REGION OF MADEIRA
EXPENDITURE OF THE NON-MARKET PUBLIC SECTOR

DATA COMPILED IN SEPTEMBER 1980 — Unit : 1 000 escudos

B - CAPITAL TRANSACTIONS	1976	1977			
	1	2	3	4	5
B.1- Receipts					
16. Capitaltransfers from other sector	214 416	337 899			
a) From other public subsectors in the region	..	..			
b) From autonomous public enterprises in the region	..	..			
c) From other economic sectors in the region	68	74 471			
d) From outside the region	214 348	263 428			
i) Public sector (mainland)	209 570	251 042			
ii) Other sector	4 778	12 386			
iii) Other countries	..	..			
17. Loans raised (net of repayments)	- 9 869	6 410			
a) By other public subsectors in the region	..	..			
b) By autonomous public enterprises in the region	- 7 566	7 077			
c) In other sectors in the region	35	87			
d) Outside the region	- 2 338	- 754			
i) Public sector (mainland)	- 2 338	- 754			
ii) Other sectors	..	..			
iii) Other countries	..	..			
18. TOTAL CAPITAL RECEIPTS	204 547	344 309			
B.2- Expenditure					
19. Gross fixed capital formation	282 986	648 281			
20. Changes in stocks	..	..			
21. Capital transfer to other sectors	12	11 892			
a) To other public sectors in the region	..	..			
b) To autonomous public enterprises in the region	..	..			
c) To other sectors in the region	12	11 887			
d) To outside the region	..	5			
i) Public sector(mainland)	..	5			
ii) Other sectors	..	..			
iii) Other countries	..	..			
22. Loans granted (net of repayments)	6 800	-3 566			
a) To other public subsectors in the region	..	..			
b) To autonomous public enterprises in the region	..	- 910			
c) To other sectors in the regional economy	10 000	-2 656			
d) To outside the region	- 3 200	..			
i) Public sector(mainland)	..	..			
ii) Other sectors	- 3 200	..			
iii) Other countries	..	..			
23. Adjustments	-53 943	396 660			
24. TOTAL CAPITAL EXPENDITURE	235 855	1 053 267			

Table 7: Income and Expenditure of private individuals and private non-profit-making institutions

Current prices — Unit: 1000 contos

	1976	1977		
1. Compensation of employees....	3 378	4 429		
2. Property and entrepreneurial income of private individuals	2 029	2 472		
3. Minus: interest on consumer debt.....	X	X		
4. Current transfers from non-market public sector.....	413	540		
5. Current transfers from the rest of the world	775	1 242		
6. Income of individuals and private non-profit-making institutions	6 595	1 683		
7. Minus: Direct taxes on individuals and private non-profit-making institutions.....	465	597		
a) Total social security contributions.....	200	398		
b) Other direct taxes.....	265	559		
8. Available income.....	6 130	7 726		
9. Minus: Current transfers to non-market public sector....	35	88		
10. Minus: Current transfers to the rest of the world.....	X	X		
11. Minus: Consumers' expenditure on goods and services.....	4 034	5 429		
12. Savings of individuals and private non-profit-making institutions.....	2 061	2 209		

Table 8: External transactions (in outline)

Current prices — Unit: 1 000 contos

	1976	1977
1. Exports of goods and services...	2 721	3 989
a) Merchandise.....	968	1 362
b) Other.....	X	X
of which: Tourism.....	1 753	2 627
2. Minus: imports of goods and services	3 366	5 073
a) Merchandise	X	X
b) Other		
of which: tourism.....	X	X
3. Balance of goods and services ..	- 645	- 1 084
4. Income from the rest of the world	97	221
5. Minus: income from the rest of the world	84	118
6. Current transfers from the rest of the world	2 515	3 206
7. Minus: current transfers to the rest of the world	410	776
8. Balance of goods and services and current transfers.....	1 473	1 449
9. Capital transfers from the rest of the world	445	580
10. Minus: transfers to the rest of the world.....	..	0
11. Net lending by the Region to the rest of the world	1 918	2 029

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