Economic Time Series for Irish Industry and Services

John Bradley, John D Fitz Gerald and Ide Kearney
Table of Contents

1 Introduction .............................................................................................................. 1
2 Definition of Sectors ............................................................................................... 1
3 Data Sources and Methodology ............................................................................... 3
4 Model Mnemonics .................................................................................................... 6
5 The Investment Data ............................................................................................... 12
6 The Final Demand Data .......................................................................................... 17
7 The Cost of Capital Data ......................................................................................... 18
8 The Energy Data ...................................................................................................... 19
9 The Employment Data ............................................................................................ 24
10 World Variables .................................................................................................... 25
11 The Output Data ..................................................................................................... 27
12 The Wage Bill Data ............................................................................................... 31
13 References ............................................................................................................ 33
Appendix 1: Input Series ............................................................................................ 34
Appendix 2: Energy Data Series ............................................................................... 41
Appendix 3: Output Series ......................................................................................... 46
1 Introduction

The purpose of this paper is to describe certain new economic time series which have been constructed in the course of updating the HERMES-IRELAND model. The updating of the model involved *inter alia* the disaggregation of the industrial and services sectors. Data at this new disaggregated level is not available in Ireland from a single source. Therefore this disaggregation exercise involved the collection of a considerable amount of new data from a variety of sources.

The sources and methodology used to construct these new data are described in this paper. In the construction of the new data set, an overriding imperative was to maintain simplicity since the data set constructed has to be maintained and updated on a regular basis.

The paper is organised as follows. Section 2 defines the disaggregated industrial and services sectors. Section 3 describes the data sources and methodology used in constructing the time series. Section 4 outlines the mnemonic system used to identify the different variables. Sections 5-12 then describe each set of economic variables derived in turn, each of these sections includes the computer macro used to generate the variables. The appendices 1-3 give a complete listing of all the economic series input and derived in the course of this exercise.

2 Definition of Sectors

In the original version of HERMES-Ireland, four production branches were treated: aggregate industry, agriculture, marketed services and non-marketed services.¹ For the current disaggregation exercise the aggregate industry branch is divided into five industrial sectors - utilities, hi-tech, traditional, food, and building, the marketed services branch is divided into three sectors - distribution, transport & communication, and professional & financial services, and the non-marketed services branch is divided into two sectors - public administration & defence, and health & education services. The definition of these sectors is described in Section 2.1 and 2.2 below.

2.1 The Five Industrial Sectors

Table 2.1 below shows the classification of industrial statistics which has been used by the Central Statistics Office (CSO) since 1973.

Table 2.1: Classification of industrial establishments by major industrial sector.

Table 2.1 details that portion of industrial activity covered by the Census of Industrial Production. In addition to this, a fifth industrial sector - the **Building** sector - was defined in compiling the time series data for industry.
2.2 The Five Services Sectors.

The services data were disaggregated into five sectors as detailed in the following list.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketed Services:</td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>Wholesale and retail trade</td>
</tr>
<tr>
<td>Transport &amp; Communication</td>
<td>Transport, storage and communication. (including An Post.)</td>
</tr>
<tr>
<td>Professional &amp; Financial Services</td>
<td>Professional services, finance and insurance, personal services (private domestic service, hotels, restaurants, lodging and boarding houses, hairdressing, undertaking etc.), entertainment and sport (including Radio Telefis Eireann) etc.</td>
</tr>
<tr>
<td>Non-marketed Services:</td>
<td></td>
</tr>
<tr>
<td>Public Administration &amp; Defence</td>
<td>Central government and local authorities including the administrative departments and offices of government, the army and gardai and diplomatic and consular officials abroad. (excluding An Post)</td>
</tr>
<tr>
<td>Health and Educational Services</td>
<td></td>
</tr>
</tbody>
</table>

3 Data Sources and Methodology

Data on the major economic variables - investment, output, wages, employment - on a National Accounts basis are required for each of the disaggregated sectors described in Section 2 above in the new disaggregated HERMES-IRELAND model. In addition, the production block for the new model specifies a four factor demand system, this in turn requires data on material inputs and energy consumption for the industrial sectors which have not been previously compiled. There is no single source which provides consistent time-series data of this kind in Ireland, hence a number of sources other than the Irish National Accounts (NIE) - which is the reference framework for the construction of the HERMES-IRELAND data - were used.

---

2 These classifications are based as closely as possible on National Accounts definitions which in turn are based on ESA (European System of Accounts - NACE/CLIO Code) definitions.
3.1 National Income and Expenditure.

The NIE accounts form the basic framework for data used in HERMES-IRELAND. The data in the NIE accounts are available in computerised format in the ESRI - Department of Finance Databank. Where more disaggregated data were required at a sectoral level, the NIE provided the control totals at an aggregate level. In using the sources as listed below to acquire the more detailed data required for the new model, the objective was to generate series consistent with NIE definitions. Where this was not possible, the second-best solution was to generate an internally consistent set of data from an alternative source and to link these via an additive or multiplicative fixing factor to the NIE totals.

3.2 The Census of Industrial Production.

Most of the data on the individual industrial sectors were taken from the Census of Industrial Production (CIP). This includes data on employment, gross output, intermediate material inputs, energy inputs, wages and salaries, and industrial production which are all available from the CIP at the level of detail outlined in Table 2.1 above. In 1973 the CIP changed from the ISIC system of classification to the NACE system. The exact correspondence between the old ISIC system and the new NACE system has never been published. This is quite a serious problem since in many cases a discontinuity occurred in 1973 even at the two-digit NACE code level. In order to construct consistent time-series data from 1970 onwards, a computer macro (LINKSER3) was used to link the two series. This macro scales all of the old data by the ratio of the value of the new series to the old series in the overlap year (1973). The CIP covers approximately 90% of total industrial establishments in Ireland and, therefore, (there are also some definitional differences) does not have an exact correspondence with NIE aggregates.

3.3 The OECD National Accounts

These are available from 1970 onwards and give data on investment at a more disaggregated level than that available in NIE. Investment data on both the industrial and services sectors were sourced here. Volume data for earlier years had to be rebased, the macro LINKSER3 described above was used for this purpose.
3.4 The European System of Accounts

The ESA provide national accounts data at a more disaggregated level than that available in NIE. Value-added and wage-bill data at a more disaggregated level than that available in NIE were sourced here.

3.5 CSO

The CSO provided value-added data, both in current and constant prices, and wage bill data for the marketed services sectors, the utilities sector, the building sector and the manufacturing sector.

3.6 Employment Data

The Labour Force Survey (LFS) has been conducted on an annual basis since 1983. Prior to that date it was conducted every second year since its inception in 1975 except in Census years (1979 and 1981). Hence employment data from this source had to be supplemented by The Trend of Employment and Unemployment (CSO) which provides estimates of employment figures for earlier years. Data from the Census of Population in various years was also used where necessary to provide more disaggregated data. Industrial employment data was taken from the CIP. The Department of Finance provided estimates of employment in Health and Education and Sexton (1982) provides labour force estimates by sector over the period 1961-1980.

3.7 Energy Data

The OECD Energy Balances and the OECD Energy Statistics present data by fuel type on production and consumption of energy by sector. Data are given in physical quantities only and no price information is included. All these data are converted to TOE's using conversion factors from the Department of Energy\(^3\). Value data on the consumption of energy by industrial sector are available in the CIP. Data on energy prices were sourced in Scott.(1990)

ESB Consumption Data - These data give consumption of electricity by Economic Activity Code (EAC) from 1974 onwards. The data are computerised but have not been used in constructing the energy data used in the model.

---

\(^3\) Energy in Ireland. Department of Energy
3.8 Other Sources

The 1975 Input-Output Tables were used to weight certain variables e.g. the weighted final demand variables. The OECD Economic Outlook and OECD Economic Indicators were used to source data on exchange rates, prices and production in other countries. Most of these data are available in computerised format in the ESRI-Department of Finance databank.

3.9 Methodology

The economic time-series described in this paper were compiled in a two-stage process. The Irish National Accounts are available in computerised form, along with some other statistics for more recent years. However much of the data required for the disaggregation exercise were not available in computerised format. The first stage involved the computerisation of a substantial amount of data from a variety of sources which for convenience were split into two categories:

- Input Series: All data other than energy data, e.g. labour force data, industrial production indices, investment data, etc.
- Energy Series: All the energy data.

Appendices 1 and 2 give a complete listing of all of these variables and their sources.

The second stage of the process involved compiling a series of computer macros which take the Input Series and Energy Series as input and perform the transformations and mathematical operations necessary to generate from these the economic time-series required by the model. Appendix 3 gives a complete listing of all of these variables - the Output Series.

4 Model Mnemonics

This section describes the mnemonics devised for the model variables. The first three sub-sections describe the three separate parts which constitute a variable mnemonic. The mnemonics used for the energy-specific data are described in the final sub-section since these latter are constructed using a slightly different mnemonic system.

4.1 The economic variable

The first one or two letters define the economic variable, e.g. investment (I), employment (L), wage bill (YW), etc. The following is a list of the mnemonics used to identify the economic variable being defined.
FDW  Final Demand Weighted
I    Investment
K    Capital Stock
L    Employment
M    Imports
O    Value-added
OPR  Labour Productivity
P    Deflator, e.g. PI is deflator for investment, PM is deflator for imports
Q    Industrial Production Volume Index
QE   Energy Inputs
QG   Gross Output
QM   Materials Inputs (includes QE)
QN   Net Output (QG-QM)
QR   Rest of Inputs (QM-QE)
QW   Weighted Output Variable
UCL  Unit Labour Costs
W    Wage Rate
X    Exports
Y    Income
YC   Income from profits (Y-YW)
YW   Wage bill

4.2 The Sector

The second set of letters (usually two to four) define the relevant sector, e.g. food (F), distribution (DI), etc. The following is a list of the mnemonics used to identify the different sectors. It is divided into two parts for simplicity; the first part lists the mnemonics for those sectors which are actually used in the HERMES model, the second part lists the sectoral notation of the background data used to generate the model variables.

AG    Agriculture, Forestry and Fishing
A    Agriculture
AFF   Forestry and Fishing
I    Industry
IB    Building and Construction
IU    Utilities
IMT   Manufacturing
IMH   Hi-Tech
IMF   Food
IMD   Traditional
S    Services

Marketed Services
Distribution
Transport & Communication
Professional & Financial Services
Government Market Services (only for investment series)
Roads
Water Supply and Sewerage
Non-Market Services
Health and Education
Public Administration & Defence

The following is used in an alternative breakdown of total investment:

B
Building and Construction
H
Housing
BC
Other Building and Construction
ME
Machinery and Equipment

GOVERNMENT:
BG
Building and Construction
HG
Housing
BCG
Other Building and Construction
MEG
Machinery and Equipment

PRIVATE:
BP
Building and Construction
HP
Housing
BCP
Other Building and Construction
MEP
Machinery and Equipment

Mnemonics for background sectors used to generate model sectors:

AFOR
AFISH
IMCH
IMMM
IMDT
IMCL
IMTX
IMCF
IMWD
IMPP
IMGL
IMOT
IREF
IMMQ
IMFD
Forestry
Fishing
Chemicals
Metals and Engineering
Drink and Tobacco
Textiles, Clothing and Footwear
Textiles
Clothing and Footwear
Wood and Furniture
Paper and Printing
Glass and Ceramics
Other Manufacturing
Oil Refineries
Mining and Quarrying
Food, Drink and Tobacco
IMFBF Food: Bacon Factories. (pre-1973 CIP)
IMFDY Food: Dairy Products. (pre-1973 CIP)
IMFMT Food: Meat other than Bacon Factories. (pre-1973 CIP)
IMF412 Food: NACE 412 (post-1973 CIP)
IMF413 Food: NACE 413 (post-1973 CIP)
INFRES Food: Residual i.e. IMF-IMF412-IMF413 (post-1973 CIP)
SMDF Distribution and Finance
SMPH Professional Services (including Health and Education)
SMDT Distribution, Transport and Communication
SMFI Finance and Insurance Services
SMPS Other Professional (SMF-SMFI)
SNH Health Services
SNE Education Services
IUE Electricity
IUG Gas
IUW Water

4.3 Additional Information

The third set of letters, which are normally prefixed by an underscore, give additional information about the source of the data or the mathematical form of the variables (e.g. _OECD indicates that the data for the series was taken from an OECD data source or refer to the OECD area, _DOT indicates that the variable is in percentage change form, V indicates the data are in value - i.e. current price - form, etc.) The following is a list of these suffixes.

_B Building - E. Henry investment data
_CSOS Unpublished data from CSO
_CUR Capacity Utilisation Rate
_CURA Capacity Utilisation Rate
_C CIP data
_DIS Statistical Discrepancy
_DOT Percentage change form
_E Expected value (moving average)
_EC Data for EC countries
_F Fix relating CIP data to NIE data
_FIX Fix generated for the model's behavioural equations
_GER Data for Germany
_K Data in kilowatt hours (energy data)
_L Data in litres (energy data)
_LF Labour Force Survey data
The following examples illustrate the mnemonic system (See Appendix 1 for a complete list of all the variable mnemonics).

IIMBM80_OE  Manufacturing Investment: Basic Metal Industries in 1980 prices. Source: OECD National Accounts
QIUG_NC    Index of Volume of Output: Gas. Source: CIP New
QMIMCFV_OC Material Inputs: Clothing and Footwear Industries. Source: CIP Old
PQGIMT_UK  Price Deflator of UK Gross Output in Manufacturing Industries.
OSMPF_CUR_MEAN Mean Value of the Capacity Utilisation Rate for Value-added in Professional and Financial Services Industries.

4.4 The Energy Series Mnemonics

4.4.1 The OECD Data

The data series on consumption of energy from the OECD Energy Balances all begin with the letters EN. Immediately following this is a number denoting the type of fuel. (The price series for each fuel are denoted by PEN followed by one of the numbers below for each dif-
ferent fuel type.) The following are the numbers used:

1 Coal
3 Brut Crude Oil
4 Oil
41 Motor Gasoline
42 Diesel Oil
43 Residual Fuel Oil
6 Gas
7 Electricity
8 Turf
81 Turf Briquettes
82 Bagged Turf

The letters following these numbers describe the sector or economic use as follows:

C Residential Consumption
E Electricity Works Use of
FC Final Consumption
G Gas Works Use of
I Consumption
IB Construction Sector Consumption
IMCH Chemical Sector Consumption
IMCHF Chemical Sector Feedstocks from
IMFD Food and Tobacco Sector Consumption
IMMM Industrial Machinery Consumption
SMTC Transport Consumption
M Imports
QD Production
R Refineries Use of
TD Domestic Consumption
X Exports

4.4.2 The CIP Data

Data on total consumption of energy by ISIC category for the period 1970 to 1973 from the old CIP and by NACE category for the period 1973 to 1978 from the new CIP were previ-
ously compiled and coded by Bradley et al. (1983). The series listed in Appendix 2 coded ENGY followed by a two-digit number replicate the industry classification system adopted by Bradley et al. in computerising the CIP data.

From 1979 onwards, the CIP gives a breakdown of sectoral energy consumption by four fuel types. These different fuel types were coded using the following numbers:

1. Coal and Turf
2. Petroleum
3. Electricity
4. Other Fuels

Data from the ESB on consumption of electricity by sector based on Economic Activity Codes (EAC) are available in the databank. The mnemonics used for these data are EAC followed by a two-digit number describing the individual sector.

The following examples illustrate the energy mnemonic system (See Appendix 2 for a complete listing):

EN1C_T Residential Consumption of Coal in millions of TOE's.
EN42IMCH_M Chemical Sector Consumption of Diesel Oil in '000s of metric tons.
QEIMDT4V_NC Drink and Tobacco Sector Consumption of Coal and Turf

5 The Investment Data

Three basic sources were used in constructing the investment data - NIE, the OECD National Accounts and the CIP. This section will describe in detail only those series derived from sources other than the CSO National Accounts. Section 5.4 contains a listing of the macro (DBMAIN11) used to generate all of the investment series.

5.1 Sectoral Industrial Data

The OECD National Accounts have manufacturing investment data broken into the following nine sectoral classifications:

1. Food, beverages and tobacco
2. Textile, wearing apparel and leather industries
3. Wood and wood products, including furniture
4. Paper and paper products, printing and publishing.
Chemicals and chemical petroleum, coal, rubber and plastic products.
Non-metalllic mineral products except products of petroleum and coal.
Basic metal industries.
Fabricated metal products, machinery and equipment.
Other manufacturing industries.

Items 5, 7 and 8 were combined to define the hi-tech investment data. Food industries investment is not separately identified in the OECD Accounts, this item was taken from the CIP investment data for the food processing sector. Mining & Quarrying investment is also separately identified in the OECD Accounts, this is added to the residual item for manufacturing industries (net of hi-tech and food investment) to give the traditional sector's investment.

The OECD investment data for manufacturing are only available from 1970 onwards, the data prior to that date were taken from the CIP and linked to the OECD data.

The investment data in value terms for each manufacturing sector, as described above, were deflated by a common investment deflator (PIIMT - the implicit investment deflator in the National Accounts) to give investment data in volume terms.

The building and utilities sector data are both taken from the CSO National Accounts.

5.2 Sectoral Services Data

The services investment data is taken from the OECD Accounts and the NIE. These data were all available in computerised format with the exception of the health services data which had to be computerised. The total services investment data as given in the NIE was adjusted to exclude investment in housing which is identified separately. Transport and communications investment data as given in the OECD includes roads investment, this was also adjusted for. Community, social and personal services investment includes health, and water supply and sewerage investment, netting off these latter and adding on financial sector investment gave investment in the professional and financial services sector. Health investment was estimated from the detailed tables in the NIE on public authorities investment.

5.3 Capital Stock Data

The data on the capital stock for each sector was derived using an initial value, a flow series (investment series) and a depreciation rate. The initial values for the capital stock for each sector were estimated from Henry's(1989) data and the capital stock was generated using the macro CAPSTK. This generates the capital stock for sector i as follows:
\[ K_i = I_i + (1 - \delta)K_{i-1} \]

where

- \( K_i \) is the capital stock in sector \( i \)
- \( I_i \) is the investment series in sector \( i \)
- \( \delta \) is the depreciation rate of the capital stock.

5.4 The Investment Macro

DBMAIN11 -

* THIS MACRO GENERATES THE INVESTMENT AND CAPITAL STOCK DATA. OTHER
* SERIES NEEDED AS INPUT:
* IM IIMV ISFI ISPIV ISTR IISDI IISDIV ISCP ISCIFV
* IPA IPAV IPAEM ISPFI ISPHE ISNH75_OE ISNH80_OE ISNH85_OE
* IIMFDV_OE IIMCLV_OE IIMWDV_OE IIMFPV_OE IIMKV_OE IIMGTV_OE
* IIMMV_OE IIMPV_NC IIMTV_NC IIMQV_OE
* THESE SERIES ARE FROM THE OECD INVESTMENT DATA.
*
* TEMPORARY RENAMING OF FILES
* DO
* ISNP=IPA,
* ISNPV=IPAV,
* ISNH=IPA,
* ISNHE=IPA,
* ISMFV=ISPFI,
* ISMFIV=ISPFI,
* IISDI=ISDI,
* IISDIV=ISDIV;
* *FILE
* IF THE BASE YEAR FOR CONSTANT PRICE DATA IS CHANGED THE STARTING
VALUES FOR THE CAPITAL STOCK SERIES NEED TO BE REBASED. END
* AGET
* 41"STARTING VALUE FOR KAG FOR 1952"
* 42"STARTING VALUE FOR KEB FOR 1949"
* 43"STARTING VALUE FOR KIU FOR 1949"
* 44"STARTING VALUE FOR KIMH FOR 1957"
* 45"STARTING VALUE FOR KIMN FOR 1957"
* 46"STARTING VALUE FOR KIMF FOR 1957"
* 47"STARTING VALUE FOR KSMDI FOR 1952"
* 48"STARTING VALUE FOR KSMTC FOR 1952"
* 49"STARTING VALUE FOR KSMFI FOR 1952"
* 50"STARTING VALUE FOR KSMPS FOR 1950"
* 51"STARTING VALUE FOR KSNF FOR 1950"
* 52"STARTING VALUE FOR KSNF FOR 1950"
* 53"STARTING VALUE FOR KSNF FOR 1950"
* 54"STARTING VALUE FOR KSNF FOR 1950"
* ERROR & IGNORE
* DO
* IM=B1701,
* IBC=B1702+B1703,
* IB=IM+IBC,
* IME=B1704+B1705+B1706,
* ITOT=IB+IME,
* IMV=B1501,
* IBCV=B1502+B1503,
IBV = IBV + IBCV,
IMGV = B1504 + B1505 + B1506,
IITOTV = IBV + IMEV,
IMCGV = GKIME,
IIBCV = GKI3C,
INIV = GKim,
IIMEFV = IMEV - IMEV,
IBCFV = IBCV - IBCGV,
IHPV = IHPV - IMGV,
PIBM = IBV/IB,
PIME = IMEV/IME,
PH = IMV/IM,
PIBC = IBCV/IBC,
PITOT = IITOTV/ITOT,
IHP = IHPV/PH,
IIBC = IBCPV/PIBC,
IMEP = IMEPV/PIME,
IIMEV = IMEV/IME,
PIH = IMV/IM,
IIBC = IBCGV/PIBC,
IMEG = IMEPV/PIME,
PIME.DOT = DEL(PIME)/PIME(-1) * 100,
PIM = DEL(PIM)/PIM(-1) * 100,
PIBC.DOT = DEL(PIBC)/PIBC(-1) * 100;
&LINKSER3 "(IIMFV_NC)" "(IIMFV_OC)" "(IIMFV)"
DO
IIMHV_OC = IIMHV_OC + IIMMV_OC,
IIMDV_OC = IIMDV_OC - IIMHV_OC - IIMFV_OC,
IIMHV_OC = IIMHV_OC - IIMMV_OC + IIMFV_OC,
IIMDV_OC = IIMDV_OC - IIMCV_OC + IIMCV_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
IIMDV_OC = IIMDV_OC - IIMDVC_OC + IIMDVC_OC,
DO PISCP=ISCPV/ISCP;
  &LINKSER3 "((B2517+B2449+B2450)/PISCP)" "(ISNH)"
  &LINKSER3 "((B1805+B1806-IH))" "(IS_X)" "(IS)"
  &LINKSER3 "((ISNH80_OE))" "(ISNH75_OE)" "(ISNH_XX)"
  &LINKSER3 "((ISNH55_OE))" "(ISNH_XX)" "(ISNH_X)"
  DO ISNHEV=ISNEV-ISNHY,
     ISNHIE=ISNE+ISNH,
     ISNPV=ISNPV,
     ISNP=ISNP,
     ISMTCV=ISTRV-B1502,
     ISMTC=ISTR-B1702,
     ISMDTV=ISMDIV+ISMTCV,
     ISMDT=ISMDI+ISMTC,
     ISMGTV=B1502,
     ISMG=BI703,
     ISMGE=B2518,
     ISMGE=B1703/B1503,
     ISMGE=ISMGNB+ISMGWV,
     ISMGE=ISMGWV,
     ISMGEV=ISMGEV+ISCPV-ISHNY-ISHNW,
     ISMGEV=ISMGEV+ISCPV-ISHNY-ISHNW,
     ISMGEV=ISMGEV+ISCPV-ISHNY-ISHNW,
     ISMGEV=ISMGEV+ISCPV-ISHNY-ISHNW,
     ISMGEV=ISMGEV+ISCPV-ISHNY-ISHNW,
     ISMGEV=ISMGEV+ISCPV-ISHNY-ISHNW,
     ITOTV_DIS=ITOTV-ISV-IIV-IAGV-IH,
     ITOT_DIS=ITOT-IS-IAG-IH,
     ITMT_DIS=ITMTV-IITMV-IIMDV-IIMFV,
     ITMT_DIS=ITMTV-IITMV-IIMDV-IIMFV,
     ITMV_DIS=ITMVV-IIMMV-IIMDV-IIMFV,
     ITMV_DIS=ITMVV-IIMMV-IIMDV-IIMFV,
     ITS_DIS=ITOT-IAG-IU+IB+I1803-IS,
     ITNW=ITNWV+ISNWV,
     ITNW=ITNWV+ISNWV,
     ITNHE=ISNHE-ISHNP,
     ITNHE=ISNHE-ISHNP,
     ISAT=ISATV/ISAT,
     PIAT=IAMV/IAM,
     PIAM=IAMV/IAM,
     PIAM=IAMV/IAM,
     PIAM=IAMV/IAM,
     PIAM=IAMV/IAM,
     PIAT=IAMV/IAM,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
     PIATE=IATE/IATE,
6 The Final Demand Data

The macro listed below - DBMAIN14 - generates a series of weighted final demand variables using weights from the 1975 Input-Output Table.

DBMAIN14 -

6* THIS MACRO CREATES A SERIES OF WEIGHTED FINAL DEMAND VARIABLES.
6* THE WEIGHTS ARE A SERIES OF MATRICES DERIVED FROM THE 1975 IO TABLE
6* THE WEIGHTING MATRICES ARE: WEIGHT1 .. WEIGHT5
ERROR & IGNORE
DOSAVE
Z.1'='LCOMBINE(<QMA>,<QRMIF>,<QRMHF>,<QRMIF>,<QGIU>,
<QMIW>,<QMIDT>,<QSMTC>,<QSMTP>,<QSMFP>,<QSMFG>,
<QSMFG>,<QMSE>,<QSMPS>,<QSMG>,<QSMP>),
Z.6'='LCOMBINE(<QOA>,<QGIMF>,<QGIMH>,<QGIMD>,<QGIU>,
<QMIW>,<QMIDT>,<QSMTC>,<QSMTP>,<QSMFP>,<QSMFG>,
<QSMFG>,<QMSE>,<QSMPS>,<QSMG>,<QSMP>),
Z.2'='LCOMBINE(<XTD>,<XT>,<XM>,<IME>,<STAPL>,<GECMP>,
<XAO>,<XSMO>,<CSNP>,<CGCGM>,<CGCGP>),
Z.3'='LCOMBINE(Z.1' ,Z.2'),
Z.4'='LABFORM('<FDW',A>,0,2.6'),
Z.5'='LABFORM('<FDX',A>,0,2.6'),
6* GENERATE A MATRIX OF THE GROSS OUTPUTS, MATERIAL INPUTS AND FINAL
6* DEMANDS.
X.1='COLMAT(Z.1' ,Z.2'),
6* WHERE THE OUTPUT SERIES ARE VALUE ADDED RATHER THAN GROSS OUTPUT
6* THEY MUST BE ADJUSTED BY THE RATIO OF VALUE ADDED TO GROSS OUTPUT
6* IN 1975.
6* WHERE THE OUTPUT SERIES ARE MATERIAL INPUTS RATHER THAN GROSS OUTPUT
6* THEY MUST BE ADJUSTED BY DIVIDING BY THE SUM OF THE INPUT COEFFICIENTS
6* IN 1975.
6* THE OUTPUT AND FINAL DEMAND SERIES USED:
6* PRINT THE OUTPUT AND FINAL DEMAND SERIES USED: END
PRINT(Z.6'),
6* ADJUST THE WEIGHTS TO TAKE ACCOUNT OF WHETHER THE SERIES USED ARE
7 The Cost of Capital Data

The cost of capital series are derived as a function of interest rates, a sector specific inflation rate, a sectoral depreciation rate, a grant rate and the corporate tax rate. The exact formula for sector \( i \) is as follows:

\[
PK_i = PI_{XXX} \cdot PK_i = \Pi_i(1 - g) \cdot (i - p + \delta)(1 - t)
\]

where

- \( PK_i \) is the derived cost of capital series
- \( \Pi_i \) is the investment deflator for sector \( i \)
- \( g \) is the rate of capital grant applying to sector \( i \)
- \( i \) is the nominal interest rate
\[ p \] is the percentage change in the output price deflator for sector \( i \)

\( \delta \) is the depreciation rate for sector \( i \)

\( t \) is the corporation tax rate applying to sector \( i \)

The macro DBMAIN15 and DBSUB7 as listed below generate the cost of capital series for each sector in the manner described above. The real interest rate (nominal rate adjusted for the inflation rate) is not allowed to fall below 2\% in any year.

**DBMAIN15**

```plaintext
&DBSUB7 IMH POMIH RPL .1 RCOP3 "GKTI/IIMTV"
&DBSUB7 IMF POMIF RPL .08 RCOP4 "GKTI/IIMTV"
&DBSUB7 IMD POMIMD RPL .08 RCOP4 "GKTI/IIMTV"
&DBSUB7 IMT POMIMT RPL .08 RCOP4 "GKTI/IIMTV"
&DBSUB7 IB PIB RPL .15 RCOP1 ;
&DBSUB7 IU POCIU RPL .05 RCOP1 ;
&DBSUB7 I POCIM RPL .08 RCOP4 "GKTI/IIMTV"
&DBSUB7 SMDI PC RPL .05 RCOP1 ;
&DBSUB7 SMTC POSMC RPL .1 RCOP1 ;
&DBSUB7 SMDF POMDF RPL .05 RCOP1 ;
&DBSUB7 SMPS POSMP RPL .05 RCOP1 ;
&DBSUB7 SMPS POSMP RPL .05 RCORP1 ;
&DBSUB7 SMPS POSMP RPL .05 RCOP1 ;
&DBSUB7 RMDT POSMDT RPL .05 RCORP1 ;
&DBSUB7 POSMT RPL .05 RCORP1 ;
&DBSUB7 POSMT RPL .05 RCOP1 ;
&DBSUB7 H PC RPL .01275 "RCORP10" RGKTH
```

**DBSUB7**

```plaintext
&GET 41 "SECTOR NAME E.G. IMH"
&GET 42 "NAME OF OUTPUT DEFLATOR FOR THE SECTOR"
&GET 43 "NAME OF INTEREST RATE SERIES"
&GET 44 "RATE OF DEPRECIATION, COEFFICIENT FORM E.G. 0.12"
&GET 45 "NAME OF CORPORATE TAX RATE SERIES"
&GET 46 "NAME OF RATE OF GRANT SERIES. IF NONE THEN ;" &END
&IF 46 CEQ ; &GOTO LABEL1 &IFEND
DOSAVE X.1=66;
&GOTO LABEL2
&LABEL1: DOSAVE X.1 = YEAR(PI41)+0;
&LABEL2: DOSAVE X.2= (X.2-43/100-DEL(42)/42(-1)),
X.2=IF X.2 LT .02 THEN .02 ELSE X.2;
DOSAVE (PI61*(1-X.1)*(X.2+44)/(1-45));
```

8 The Energy Data

The macro for generating the energy series - DBMAIN17 - is listed below. A series of operations is performed on the data from the Energy Balance Sheets to generate residual categories, to convert units, and to aggregate the data into consumption by the three manufacturing sectors by fuel type. The pre-1979 CIP data are aggregated into the three manufacturing sector categories and then linked to the post-1979 CIP data to give energy consumption by each manufacturing sector in current prices. The sub macro DBSUB8 uses the consumption data in physical units from the Energy Balance Sheets and the individual fuel prices to construct an energy price index for each of the manufacturing sectors. From
this, constant price energy consumption data can be derived. A weighted price index for other material inputs for each manufacturing sector is also constructed using weights from the 1975 Input-Output Tables.

```
DBMAIN17 -
* THIS MACRO GENERATES THE ENERGY INPUT DATA BY SECTOR. IT ALSO GENERATES
* THE REST OF MATERIALS INPUT BY SECTOR.
* NEW DATA REQUIRED AS INPUT
* DATA FROM THE OECD ENERGY BALANCE SHEETS
* EN4M_T = EN4M_T
* DATA FROM OECD ENERGY STATISTICS
*
* PRICE DATA: SOURCE S. SCOTT 1989 EXCEPT FOR
* ELECTRICITY IN INDUSTRY AND DIESEL.
* DATA ON TURF AND HYDRO PRODUCTION
*
* GET A"BASE YEAR FOR CONSTANT PRICE DATA :" END

DO
EN3M_T=EN3M_M/1000+1.007,
EN41M_T=EN41M_M+1.073/1000,
EN42M_T=EN42M_M+1.045/1000,
EN43M_T=EN43M_M+0.969/1000,
EN49M_T=EN4M_T-EN3M_T-EN41M_T-EN42M_T-EN43M_T,
EN41FC_T=EN41FC_M+1.073/1000,
EN42FC_T=EN42FC_M+1.045/1000,
EN43FC_T=EN43FC_M+0.969/1000,
EN49FC_T=EN4FC_T-EN41FC_T-EN42FC_T-EN43FC_T,
ENM_T=EN1M_T+EN4M_T,
M3_DIS-M3/ENM_T,
ENX_T=EN1X_T+EN4X_T,
X3_DIS=X1/PM3*ENX_T),
ENQD_T=EN1QD_T+EN8QD_T+EN6QD_T+EN7QD_T,
EN1BA_T=EN1TD_T-(EN1QD_T+EN1M_T-EN1X_T),
EN32D_T=EN33D_M+1.007/1000,
EN3BA_T=EN3TD_T-(EN3M_T-EN3X_M+1.007/1000),
EN4BA_T=EN4TD_T-(EN4M_T-EN4X_T),
EN6TD_T=EN6QD_T,
EN7TD_T=EN7QD_T,
EN6BA_T=EN6TD_T-(EN6QD_T),
EN7BA_T=EN7TD_T-(EN7QD_T),
EN8BA_T=EN8TD_T-(EN8QD_T),
ENTD_T=EN1TD_T+EN4TD_T+EN6TD_T+EN7TD_T+EN8TD_T,
ENBA_T=ENTD_T-(ENOD_T+ENM_T-ENX_T),
ENPC_T=EN1PC_T+EN4PC_T+EN6PC_T+EN7PC_T+EN8PC_T,
ENUL_T=(EN1E_T+EN8E_T+EN4E_T+EN6E_T+EN7E_T-(EN1G_T+EN4G_T)-EN4R_T,
ENOL_T=ENTD_T-ENPC_T-ENUL_T,
ENI_T=EN11_T=EN41_T+
EN61_T=EN71_T=EN81_T,
EN1MCH_T=EN41MCH_T+EN61MCH_T+EN71MCH_T,
EN1MCHF_T=EN41MCHF_T,
EN1IMM_T=EN41IMM_T+EN71IMM_T,
EN1IMFD_T=EN41IMFD_T+EN71IMFD_T,
EN1B_T=EN41B_T,
ENSMTC_T=EN45SMTC_T,
ENC_T=EN1C_T+EN4C_T+EN6C_T+EN7C_T+EN8C_T,
ENRES_T=ENPC_T-EN1_T-ENSMTC_T-ENC_T,
EN1MF_T=EN1MFD_T,
EN1M_T=EN1MCH_T+EN1IMM_T,
EN1MD_T=EN41T_T-ENIB_T-EN1MF_T-EN1M_T,
EN42IMF_T=EN42IMFD_M/1000+1.045,
EN42IMH_T=(EN42IMCH_M+EN42IMMM_M)+1.045/1000,
EN42IB_T=EN42IB_M+1.045/1000,
```
**CONVERT PRICES TO STANDARD UNITS (POUNDS PER TOE) AND GENERATE DIESEL PRICE

\[
\text{PEN42} = \text{PEN42_L} * \frac{1.199}{1.0344},
\]

\[
\text{PEN42} = \text{PEN42} \times (\text{REXOILIP} - \text{REXOILIP}) * 11.99 / 1.0344;
\]

\&LINESER3 PEN71 PEN77 PEN71
\&LINESER3 QEIMFV_XNC QEIMFV_XOC QEIMFV
\&LINESER3 QEIMHV_XNC QEIMHV_XOC QEIMHV
\&LINESER3 QEIHDV_XNC QEIHDV_XOC QEIHDV

\text{DO}

\text{QEIMFV-\text{OVERLAY}(QEIMFV_X, QEIMFV)},
\text{QEIMHV-\text{OVERLAY}(QEIMHV_X, QEIMHV)},
\text{QEIHDV-\text{OVERLAY}(QEIMDIV_X, QEIMDIV)},
\text{QEIMTV=QEIMFV+QEIMHV+QEIMDIV};

\&" GENERATE PRICE SERIES FOR ENERGY INPUT BY SECTOR
\&DBSUB8 &l IMD
\&DBSUB8 &l IMP
\&DBSUB8 &l IMH

\&" GENERATE CONSTANT PRICE SERIES FOR ENERGY INPUT BY SECTOR
\text{DO}

\text{QEIMF =QEIMFV/PQEMF},
\text{QEIMD =QEIMDV/PQEMD},
\text{QEIMH =QEIMHV/PQEMH},
\text{QEIMT =QEIMF+QEIMD+QEIMH},

\&" GENERATE REST OF MATERIALS SERIES BY SECTOR
\text{QRIMFV-QMIMFV-QEIMFV},
\text{QRIMDV-QMIMDV-QEIMDV},
\text{QRIMHV-QMIMHV-QEIMHV},
\text{QRIMTV=QRIMFV+QRIMDV+QRIMHV},
\text{PQMIB =EXP(0.008*LOG(PQGIMH)+0.195*LOG(PQGIMD)+0.014*LOG(PQGIME)+}
\text{0.083*LOG(PQGMDI)+0.021*LOG(PQGSTM)+0.053*LOG(PQGSMF)+}
\text{0.018*LOG(PH3)+0.142*LOG(PHGNM))/0.534},
\text{PQMIU =EXP(0.007*LOG(PQGIMH)+0.053*LOG(PQGIMD)+0.001*LOG(PQGIME)+}
\text{0.003*LOG(PQGMDI)+0.010*LOG(PQGSTM)+0.011*LOG(PQGSMF)+}
\text{0.487*LOG(PH3)+0.033*LOG(PHGNM))/0.603},
\text{PQRIMD=EXP(0.013*LOG(PQGQA)+0.013*LOG(POGIMF)+0.010*LOG(PQGIME)+}
\text{0.112*LOG(PQGMDI)+0.040*LOG(PQGSTM)+0.049*LOG(PQGSMF)+}
\text{0.304*LOG(PHGNM))/0.441},
\text{PQRIMH=EXP(0.003*LOG(PQGIMF)+0.069*LOG(PQGIMD)+}
\text{0.009*LOG(PQGMDI)+0.056*LOG(PQGSTM)+0.062*LOG(PQGSMF)+}
\text{0.434*LOG(PHGNM))/0.633},
\text{PQRIMF=EXP(0.029*LOG(PQGIMH)+0.018*LOG(PQGIMD)+}
\text{0.013*LOG(PQGMDI)+0.020*LOG(PQGSTM)+}
\text{0.133*LOG(PHGNM)+0.533*LOG(PQGQA))/0.756},
\text{PQMIB=PQMIB/VALUE(PQMIB,41),}
\text{PQMIU=PQMIU/VALUE(PQMIU,41),}
\text{PQRIMD=PQRIMD/VALUE(PQRIMD,41),}
\text{PQRIMH=PQRIMH/VALUE(PQRIMH,41),}
\text{PQRIMF=PQRIMF/VALUE(PQRIMF,41),}
\text{QMIB=QMIBV/PMIB,}
\text{QM1U=QM1UV/PM1U,}
\text{QRIMF=QRIMFV/QRIMF,}
\text{QRIMD=QRIMDV/QRIMD,}
\text{QRIMH=QRIMHV/QRIMH,}
\text{QRIMT=QRIMF+QRIMH+QRIMD,}
EXTRACTED TEXT

DELETE DATA * * * * * *  X';

DBSUBS -
&GET "2" "BASE YEAR FOR PRICES : "
&I "SECTOR NAME (E.G. IMD) : " &END
&* MACRO TO CALCULATE THE INDUSTRIAL ENERGY PRICES AND VOLUMES
&ERROR &IGNORE
DO
PEN44_X=PEN44/VALUE(PEN44,&(2)),
PEN43_X=PEN43/VALUE(PEN43,&(2)),
PEN1_X=PEN1/VALUE(PEN1,&(2)),
PENT_X=PEN7/VALUE(PEN7,&(2)),
EN4(1)42_<X>PEN44*EN4(1)42_<1>_T,
EN4(1)43_<X>PEN43*EN4(1)43_<1>_T,
EN4(1)4V_<X>EN4(1)42_<X>+EN4(1)43_<X>,
EN4(1)42_<X>EN4(1)42_<X>/PEN44_<X>,
EN4(1)43_<X>EN4(1)43_<X>/PEN44_<X>,
EN4(1)4_<X>EN4(1)42_<X>+EN4(1)43_<X>,
PEN4_<X>EN4(1)4V_<X>/EN4(1)4_<X>,
PEN4_<XX>VALUE(PEN4(1)42_<X>/PEN4(1)4_<X>,1978)*PEN44_<X>+
VALUE(PEN4(1)43_<X>/PEN4(1)4_<X>,1978)*PEN43_<X>;
&LINKSER3 "PEN4_X" "PEN4_<XX" "PEN4_X"
DO
X.1_X=QE4(1)1V/PEN1_X,
X.4_X=QE4(1)4V/PEN4_X,
X.6_X=QE4(1)6V/PEN6_X,
X.7_X=QE4(1)7V/PEN7_X,
X.T_X=X.1_X+X.4_X+X.6_X+X.7_X,
X.1_XX*X.1_X/X.T_X,
X.4_XX*X.4_X/X.T_X,
X.6_XX*X.6_X/X.T_X,
X.7_XX*X.7_X/X.T_X,
PENT_X=X.1_XX*PEN1_X+X.4_XX*PEN4_X+X.6_XX*PEN6_X+X.7_XX*PEN7_X,,
PENT_XX=VALUE(X.1_XX,1979)*PEN1_X+
VALUE(X.4_XX,1979)*PEN4_X+
VALUE(X.6_XX,1979)*PEN6_X+
VALUE(X.7_XX,1979)*PEN7_X;
&LINKSER3 "PENT_X" "PENT_XX" "PQSE(1)"
9 The Employment Data

The macro DBMAIN2 generates the employment data. The data for the three manufacturing sectors are taken from the CIP data on employment. From 1973 onwards these data are available from the CSO databank (prefix AIAA). These data are linked to the pre-1973 CIP employment data. The data for the services sectors are taken from the Labour Force Survey. The data before 1975 are scaled to sum to total services sector employment as derived residually, using each sector’s share of total services employment.

DBMAIN2

*THIS MACRO GENERATES THE LABOUR FORCE DATA. ADDITIONAL VARIABLES
*TO BE INPUT ARE: LSMTC_LF LSNP_LF LSMPS_LF LSMDF_LF LSMFI_LF LSNMI_LF
*LIMF_OC LIMDT_OC LIMTX_OC LIMCF_OC LIMWD_OC LIMPP_OC LIMCH_OC LIMGL_OC
*LIMH_OC LIMOT_OC LAFISH_LF LAFOR_LF LASHF
*LIMH_OC LIMLAG LS LITOT LF NT NLE14 NGE65 NLFD NLFMD
*POPPXNAE POPPNAE.
*FROM CSO DATABANK: AIAA762 AIAA766 AIAA773 AIAA799
*AIAA811 AIAA817 AIAA824 AIAA833 AIAA839 AIAA842 AIAA843
*
*ERROR &IGNORE

*TEMPORARY RENAMING OF FILES
DO L=LITOT,
LIMHOC=LIMH;
*********************************************************************************************
DO LINF_NC=AIAA799/1000,
LIMDT_NC=AIAA811/1000,
LIMFD_NC=LIMF_NC+LIMDT_NC,
LIMCL_NC=(AIAA817+AIAA824)/1000,
LIMWD_NC=AIAA833/1000,
LIMPP_NC=AIAA839/1000,
LIMCH_NC=AIAA766/1000,
LIMGL_NC=AIAA773/1000,
LIMMT_NC=AIAA842/1000,
LIREF_NC=AIAA843/1000,
LIMCL_OC=LIMTX_OC+LIMCF_OC;
LINKSER3 "(LIMF_NC)" "(LIMF_OC)" "(LIMF)"
LINKSER3 "(LIMDT_NC)" "(LIMDT_OC)" "(LIMDT)"
LINKSER3 "(LIMCL_NC)" "(LIMCL_OC)" "(LIMCL)"
LINKSER3 "(LIMWD_NC)" "(LIMWD_OC)" "(LIMWD)"
LINKSER3 "(LIMPP_NC)" "(LIMPP_OC)" "(LIMPP)"
LINKSER3 "(LIMCH_NC)" "(LIMCH_OC)" "(LIMCH)"
LINKSER3 "(LIMGL_NC)" "(LIMGL_OC)" "(LIMGL)"
LINKSER3 "(LIMMM_NC)" "(LIMMM_OC)" "(LIMMM)"
LINKSER3 "(LIMMT_NC)" "(LIMMT_OC)" "(LIMMT)"
DO LIMFD=LIMF+LIMDT,
LIMC=LIMCH+LIMM,
LIMD=LIMCL+LIMWD+LIMPP+LIMGL+LIMOT+LIMD+LIMQ,
LIMT=L=LIMC+LIMF,
LIMT=L=LIMQ,
LIMD=L=LIMC+LIMT,
LAFISH=NAINTERP(LAFISH_LF),
LAFOR=NAINTERP(LAFOR_LF),
LFAFF=LAFISH+LAFOR,
LAF=L=LAF.
LI=LI+LI+LIB,
LS=L=L-
LS=X=LSMTC_LF+LSHF_LF+LSMK_LF+LSMDLF_LF,
LSMTC1=OVERLAY(LIF YEAR(LSMTC_LF) LT 1975 THEN LS+(LSMTC_LF/LS_X)
ELSE LSMTC_LF),LSMTC_LF));
LSNP=OVERLAY((IF YEAR(LSNP_LF) LT 1975 THEN LS*(LSNP_LF/LS_X)
ELSE LSNP_LF),LSNP_LF),
LSMDF=OVERLAY((IF YEAR(LSMDF_LF) LT 1975 THEN LS*(LSMDF_LF/LS_X)
ELSE LSMDF_LF),LSMDF_LF),
LSMDF_X=LSMFI_LF+LSMDI_LF,
LSMFI_X=INTERP(LSMFI_LF/LSMDF_X),
LSMDF=LSMDF*LSMFI,
LSMDF+LSMDI+LSMFI,
LSMDF+LSMDI+LSMFI,
LSMDT=LSM+LSMDI,
LSM=LS+LSN,
LSO=LS-LSNP,
LSMPF=LSM+LSMDT,
LSMPS=LSMPF-LSMFI,
LNA=LI+LS,
LM=LSM+L.L+LA,
LM=LSM+L.L+LA,
U=LF-L,
N1564=NL+NGE65,
NDEP=NL1+NGE65,
NLF=N1564-LF,
N1564A=N1564+HLFD,
NLFD=N1564A+100,
LFR=LF/N1564A*100,
LFA=LF/N1564+100,
LFA=LF/N1564+100,
LRA=SUM(I=0 TO -3:UR(I))/4,
POPNAE=(NL1+NLFD)/POPMMEMP,
POPNAE=POPMMNAE/LNA,
POPNAE=POPMMNAE/LNA,
URBAR=(UR-UR(-1))/2.0;
LINKD DATA
LINT LIT LA LAG L LTOE LSNHE LSN P LNP LNM LIB LIB LIM LIM LIM
LIU LIU;
DELETE DATA ********_X;

10 World Variables
The macro DBMAIN27 generates data on the level of gross output in the hi-tech sector for the OECD countries. The macro DBMAIN28 generates series on output prices and exchange rates for the UK, Germany, the USA and the EC countries. It also generates certain other variables required by the model, e.g. capacity utilisation rates, time variables etc.

DBMAIN27 -
* THIS MACRO GENERATES THE LEVEL OF OECD OUTPUT OF CHEMICALS AND ENGINEERING. IT TAKES AS INPUT FOR THE YEARS UP TO 1975:
* QGIMCH_OECD QGIMCH1_OECD.
* FOR SUBSEQUENT YEARS THE DATA ARE TAKEN FROM THE OECD INDICATORS.
* OF INDUSTRIAL ACTIVITY DATABANK.
SEARCH SYSLIB_DATA OECDQIN;
DO QGIMCH_OECD=COMPACT(DEC_O_E9035000,0,1),
QGIMMM_OECD=COMPACT(DEC_O_E9030000,0,1),
QGIMCH_OECD=OVERLAY(QGIMCH_OECD,QGIMCH1_OECD),
QGIMMM_OECD=OVERLAY(QGIMMM_OECD,QGIMMM1_OECD),
QGIMCH_OECD=IF YEAR(QGIMCH_OECD) LT 1975 THEN QGIMCH_OECD*VALUE(QGIMCH_OECD/QGIMCH1_OECD,1975) ELSE QGIMCH_OECD,
QGIMMM_OECD=IF YEAR(QGIMMM_OECD) LT 1975 THEN QGIMMM_OECD*VALUE(QGIMMM_OECD/QGIMMM1_OECD,1975) ELSE QGIMMM_OECD,
QGIMCH_OECD =0.75*QGIMCH_OECD-0.75*QGIMMM_OECD;
DEDIT QGIMT_OECD; COMMENT FROM 1975 ONWARDS THIS SERIES IS DERIVED AS A WEIGHTED AVERAGE OF THE OUTPUT VOLUME SERIES FOR CHEMICALS AND METALS AND ENGINEERING FROM THE OECD QIN DATABASE. (THE WEIGHTS REPRESENT THE VALUE OF OUTPUT IN 1975 OF CHEMICALS (0.25) AND METALS AND ENGINEERING (0.75) FOR THE EC AND THE USA. PRIOR TO 1975 THE UN IND. STAT YEARBOOK INDECES FOR THE US AND THE EC ARE USED.; FILE;

DBMAIN28 -
& THIS MACRO GENERATES CERTAIN WORLD VARIABLES USING THE OECD & MAIN ECONOMIC INDICATORS, ECONOMIC OUTLOOK AND INDICATORS OF & INDUSTRIAL ACTIVITY DATABASES.
& GET $1 'YEAR FOR BASING INDECES' & END
DO WIMT_GER=DEU_Y_WRMAN,
    WIMT_UK=GBR_Y_WRMAN,
    WIMT_USA=USA_Y_WRMAN,
    PQGIMT_GER=COMPACT(GER_M_E947000P,0,1)/VALUE(COMPACT(GER_M_E947000P, 0,1),61),
    PQGIMT_UK =COMPACT( UK_M_E9471000,0,1)/VALUE(COMPACT( UK_M_E9471000, 0,1),61),
    PQGIMT_USA =COMPACT(USA_M_E9470000,0,1)/VALUE(COMPACT(USA_M_E9470000, 0,1),61),
    PQGIMT_UK =COMPACT( UK_M_E9471002,0,1)/VALUE(COMPACT( UK_M_E9471002, 0,1),61),
    PQGIMT_EC =COMPACT(EEE_M_H210000,0,1)/VALUE(COMPACT(EEE_M_H210000, 0,1),61),
    PQGIMT_UK =COMPACT(UK_M_E9471000,0,1)/VALUE(GER_Y_INDPHO,&I,
    PQGIMT_GER =DEU_Y_INDPHO/VALUE(DEU_Y_INDPHO,&I),
    PQGIMT_USA =USA_Y_INDPHO/VALUE(USA_Y_INDPHO,&I),
    X.1=COMPACT(OECDQIN_OEC M_E9030000,0,1),
    X.2=COMPACT(OECDQIM_OEC M_H210000,0,1),
    X.2=IF X.2 EQ 0 THEN NA ELSE X.2,
    REX_USA =COMPACT(1/I M E8101200,0,1),
    REX_GER =COMPACT(GER_M_EA571200/I M E8101200,0,1),
    REX_UK =COMPACT( UK_M_EA571200/I M E8101200,0,1),
    QGIMT_EC_CUR=QGIMT_EC/(QGIMT_EC+QGIMT_EC(-1)+QGIMT_EC(-2)+
    QGIMT_EC(-3))'4,
    QGIMT_EXP(0.607*LOG(FDWQGIMD/VALUE(FDWQGIMD,&I))+
    0.171*LOG(QGIMT_UK/VALUE(QGIMT_UK,&I))+
    0.097*LOG(QGIMT_USA/VALUE(QGIMT_USA,&I)) +
    0.125*LOG(QGIMT_GER/VALUE(QGIMT_GER,&I))),
    QGIMT_E=(QGIMT+QGIMT(-1)+QGIMT(-2)+QGIMT(-3))'3/3,
    QGIMT_CUR=QGIMT/VALUE(QGIMT,-1)+QGIMT(-2)+QGIMT(-3))'4,
    QGIMT_E=(QGIMT+QGIMT(-1)+QGIMT(-2)+QGIMT(-3))/3,
4 LINKSER X.1 X.2 "QGIMT_OECD"
DO QGIMT_OECD_E=(QGIMT_OECD+QGIMT_OECD(-1)+QGIMT_OECD(-2))/3,
QGIMT_OECD_CUR=QGIMT_OECD/(QGIMT_OECD+QGIMT_OECD(-1)+QGIMT_OECD(-2)+
QGIMT_OECD(-3))'4,
QGIMH_OECD_CUR=QGIMH_OECD/(QGIMH_OECD+QGIMH_OECD(-1)+QGIMH_OECD(-2)+
QGIMH_OECD(-3))'4,
OSMPF_STAR=(OSMPF+OSMPF(-1)+OSMPF(-2)+OSMPF(-3))/4,
OSMPF_CUR=OSMPF/OSMPF_STAR,
OSMDI_STAR=(OSMDI+OSMDI(-1)+OSMDI(-2)+OSMDI(-3))/4,
OSMDI_CUR=OSMDI/OSMDI_STAR,
OSMPF_CUR_MEAN=MEAN(OSMPF_CUR),
OSMPF_CUR_MEAN=EXPAND(OSMPF_CUR_MEAN,40,1,1970),
OSMDI_CUR_MEAN=MEAN(OSMDI_CUR),
OSMDI_CUR_MEAN=EXPAND(OSMDI_CUR_MEAN,40,1,1970),
T70=YEAR(T70)-1969,
D79=IF YEAR(T70) GT 1978 THEN 1 ELSE 0;
DELETE DATA X.1 X.2;
11 The Output Data

The output data are generated using the macro DBMAIN3. There is no source for value-added data for each of the disaggregated manufacturing sectors. CIP data on net output is used instead. Data for the services sectors, on the other hand, are only available in value-added terms.

The macro DBSUB3 is used to link "new" CIP gross output data from the CSO databank (file AIAA) to the "old" CIP gross output data. The volume production indices for each industrial sector are extended using production indices from the CSO databank (file MIAA) by the macro DBSUB4. Then the net output series are temporarily extrapolated forward using DBSUB5. The macro WINDEX is used to create a Linked Fisher Index for the volume of production indices for the utilities, hi-tech and food sectors using net output figures as weights. The volume production indices are used to generate constant price data on gross output for the industrial sectors. Oil refineries inputs are added to the gross output of the utilities sector and netted out of the traditional sector’s output.

Value-added data for the services sectors, the agricultural sector, the utilities sector and the building sector are obtained from the NIE, the CSO and the ESA accounts. The constant price data are unpublished data from the CSO for the building, utilities and services sectors. (denoted _CSO)

The macro DBSUB1 generates labour productivity indices.

```
DBMAIN3
* THIS MACRO GENERATES THE OUTPUT DATA. ADDITIONAL VARIABLES TO BE INPUT
* FROM OLD CIP UP TO 1973 (SUFFIX _OC):
* QGIMTV QGIMQV QGIMFV QGIMDTV QGIMTXV QGIMCFV QGIMGLV QGIMMV
* QGIMWDV QGIMPPV QGIMOYTV
* QMINTV QMIMQV QMIMFV QMIMDTV QMIMTXV QMIMCFV QMIMGLV QMIMMV
* QMIMMDV QMIMPPV QMIMTV
* QIMTV QIMQ QIMF QIMDT QIMTX QIMCF QIMCH QIMGL QIMMM
* QIMWDV QIMPP QIMOT QIM
* M333 : IMPORTS OF CRUDE OIL, TONNES, FOR FULL PERIOD.
* ONLY TO 1973: QIUE_OC QIUG_OC QIUW_OC QIUV_OC
* ONLY FROM 1973: QIUE
* SERIES NEEDED 1970 TO LATEST YEAR AVAILABLE FROM CSO (SUFFIX _CSO):
* QIB QIUE QIUM QSIUC QSIUC QSIUC QSIUC QSIUC
* SERIES NEEDED UP TO AT LEAST 1973:QIUEV QIUGQ QNIUV.
* FILES FROM THE CSO DATABANK:
* AIAA MIAA
* SERIES WHICH APPEARED PREVIOUSLY UNDER A DIFFERENT NAME:
* QNELECV QNQASV QNWATV QNQEC OGAS QNAT
* NOW CALLED
* QNIUEV QNIUGV QNIUVV QIUE QIUG QIUM
* ERROR IGNORE
* GET "BASE YEAR FOR INDICES:" END
DBSUB3
AIAA002 QGIMTV AIAA004 QGIMMVQ AIAA049 QGIMFV AIAA061 QGIMDTV
AIAA083 QGIMQV AIAA067 QGIMTXV AIAA074 QGIMCFV AIAA089 QGIMPPV
AIAA016 QGIMCHV AIAA012 QGIMGLV AIAA023 QGIMMVQ AIAA092 QGIMOTV

DBSUB3
AIAA152 QMINTV AIAA154 QMIMQV AIAA199 QMIMFV AIAA211 QMIMDTV
AIAA233 QMIMQV AIAA217 QMIMTXV AIAA224 QMIMCFV AIAA239 QMIMPPV
```
&* *********************************************************
&* REFINERIES ADJUSTMENT
&* *********************************************************
DO QNIMREFV_X=IF YEAR(QNIUV_X) LT 1973 THEN
    QNIUV_X*VALUE(QNIMREFV/QNIUV,1973) ELSE
    OVERLAY(QNIMREFV_X,QNIUV_X*0);
&INDEX QIU & 1"QIU_X" QU1EF ; "QNIUV_X" "QNIMREFV_X"
&* *********************************************************
DO QGIMH=VALUE(QGIMHV,&l) *QIMH,
QGIMD=VALUE(QGIMDV,&l) *QIMD,
QGIMF=VALUE(QGIMFV,&l) *QIMF,
QGIMT=QGIMH+QGIMD+QGIMF,
QGIV=BI701+BI702+BI703,
QGIU=QIU*VALUE(QGIUV/QGIU,&1),
PQGIMH=QGIMHV/QGIMH'VALUE(QGIMH/QGIMHV,&I),
PQGIMD=QGIMDV/QGIMD'VALUE(QGIMD/QGIMDV,&I),
PQGIMF=QGIMFV/QGIMF'VALUE(QGIMF/QGIMFV,&I),
PQGIMT=QGIMTV/QGIMT'VALUE(QGIMT/QGIMTV,&I),
PQGIU =QGIUV/QIU*VALUE(QGIU/QGIUV,&I),
PQGIMH=QGIMHV/QGIMH'VALUE(QGIMH/QGIMHV,&I),
QGIBCURA=QGB/((QGIB-QGIB(-1)*QGIB(-2)*QGIB(-3)*QGIB(-4)*QGIB(-5))
** (1/6)),
OIV=B0302,
OAW=B0301,
OSNPV=B0304,
OSMDTV=B0303,
OSMFLV=C03A69A,
OSNHEV=C03A86-OSNPV,
OSMTCV=C03A5165+C03A67,
OISO=B0303+B0305,
OIU=QI3A06,
OBW=C03A53,
OIMTV=OIV-OIUV-OIUV,
OSMDIV=B0303-OSMDTV,
OAG =B0401,
QI=B0402,
OSIP=B0404,
OSMDT=B0403,
OSO=B0403+B0405,
OIB-OIB_CSO*VALUE(OIBV/OIB_CSO,&I),
OIU=OIU_CSO*VALUE(OIU/OIU_CSO,&I),
OIMT=OIMT_CSO*VALUE(OIMTV/OIMT_CSO,&I),
OSN=OISMTR_CSO+OSMCO_CSO,
OSMTC=OSMTCV+OSMTCV/OIMT_CSO,+1,
OSMDI=OSMDI_CSO,
OSMDI=OSMDI VALUE(OSMDIV/OSMDI,+1),
OSMFI=OSMFI_CSO,
OSMFI=OSMFI*VALUE(OSMFLV/OSMFI,+1),
OSNHE=LSNHE*VALUE(OSNHEV/LSNHE,+1);
&LINKSER3 OIB "(BI701+BI702+BI703)" OIB
&LINKSER3 OIU QIU OIU
&LINKSER3 QIMT QIMT QIMT
&LINKSER3 OSN=OSMTC B0403 OSMT
&LINKSER3 OSMTBV B0303 OSMTBV
&LINKSER3 OSMDI B0403 OSMDI
&LINKSER3 OSMDIV B0303 OSMDIV
&LINKSER3 OSNHE LSNHE OSNHE
&LINKSER3 OIU QIU OIU
&LINKSER3 QIMTV QIMTV QIMTV
&LINKSER3 OSNHE "(LSNHE+OSNFPV/LSHP)" OSNHEV
DO QIMTV=QIMTV-OIU,
OSNPV=B0403-OSNHE,
OSNFPV=B0303-OSNHE,
OSMDIV=OSMDTV-OSMTBV,
OIBV -OIV-OIUV-OIMTV;
&LINKSER3 OSMFI OSMFV OSMFI
&LINKSER3 OSMFIV OSMFIV
DO OSMPS=OSMPF-OSMFI,
  OSMPSV=OSMPFV-OSMFIV,
  OI_DIS=O1-OIIMT-OIUI-OISB,
  OIIMT_DIS=O1IMT-OIIMT_CSO.VALUE(O1IMTV/O1IMT_CSO,1985),
  O1IMTV_DIS=O1IMTV-C03A0648+C03A06,
  OSMFT_DIS=B0403-OSMFI-OSMTC,
  OSMFTV_DIS=OSMFTV-C03A56,
  OSMPSV_DIS=OSMPSV-C03A59-C03A74,
  OSMV=B0303+B0305-OSRHEV,
  OSMV=OSRHEV+OSRNP,
  OSMV=OSRNP/OSRNP,
  OSMV=OSRNP/OSRNP,
  OSMV=OSRNP/OSRNP;
LDUILTIN A 1 IMT IU IB SM SMDI SMTC SMPP SMFI SMDT SMDT;
DO EOPR1=EOPR1,
  EOPRSM=EOPRSM;
DELETE DATA "" "" "" "" "" "" "" ""
LINKD OIMT OIT OSMF OPA PQGIMT PQGTP QNELECV
  QNIUGV QNGASV QNIUWV QNUTAT
  OSMFV OPAV OSMHE OSHE OSRHEV OSRHE PQGINT PQTI;

DBSUB1 -
* THIS MACRO GENERATES THE PRODUCTIVITY INDICES
&LABEL1:
&GET &1"NAME OF SECTOR (E.G. IMT) OR ';' t"
&IF &1 CEQ ; &RETURN &IFEND
DO OPR&1'=O&1/L&1,
  P0&1'-P0&1/V0&1;
&GOTO LABEL1

DBSUB3 -
* THIS MACRO LINKS SERIES TAKEN FROM THE CSO DATABANK CIP FILE TO
* INPUT SERIES FROM THE OLD CIP FILE TO PRODUCE A SINGLE LINKED SERIES
&LABEL1:
&GET &1"NAME OF SERIES IN CSO CIP FILE (E.G. AIAA002) OR ';' t"
&IF &1 CEQ ; &RETURN &IFEND
&GET &2"NAME OF OUTPUT SERIES :
&LABEL2:
&LINKSER3 &1 "OC" &2
&GOTO LABEL1

DBSUB4 -
* THIS MACRO LINKS OUTPUT SERIES FROM THE CIP, LINKS THEM, AND EXTENDS
* THEM USING THE MONTHLY OUTPUT SERIES TO PRODUCE A LINKED SERIES.
&GET &3"BASE YEAR FOR INDICES :
&LABEL1:
&GET &4"NAME OF OUTPUT SERIES IN CSO DATABANK (E.G. MIAA015) :
&IF &1 CEQ ; &RETURN &IFEND
&GET &2"NAME OF OUTPUT SERIES :
&LINKSER3 "OC" "OC" &2
&LINKSER3 &2 &1 &2
DO &2=42/VALUE(42,43);
&GOTO LABEL1

DBSUB5 -
12 The Wage Bill Data

The wage bill data for the services sectors are taken from the ESA accounts. The manufacturing sector's wage bill data from the CIP do not include PRSI contributions, therefore the data for these sectors are scaled up (based on each sector's share of the total manufacturing wage bill) to match the overall manufacturing sector's total wage bill as defined in the ESA. Wage rates are also calculated and some social insurance data. The sub macro DBSUB2 generates unit labour costs, wage rates and profits. The macro that generates these data - DBMAIN5 - is listed below.

DBMAIN5 -
\* THIS MACRO GENERATES THE WAGE BILL DATA. NEW SERIES NEEDED ARE:
\* FROM CSO DATABASE FILE AIAA
\* THIS MACRO ALSO GENERATES THE GOVERNMENT SOCIAL INSURANCE DATA.
\* DATA REQUIRED ARE: GTYSFR
\* THIS MACRO GENERATES THE WAGE BILL AND RATE DATA FOR THE
\* DISAGGREGATED INDUSTRIAL SECTOR.
\* IT TAKES AS INPUT FROM THE OLD CIP WITH SUFFIX _OC:
\* YWIMMQ YWIMF YWIMDT YWIMWD YWIMTX YWIMCF YWIMPP YWIMCH YWIMG YWIMH
\* YWIMDT YWIMREF YWIMRUB YWIMOC: PREVIOUSLY CALLED YWIMU
\* ERROR &IGNORE
\GET &1 "BASE YEAR FOR PRICES: " &END
DO YWI=B0203,
  YWSO=B0205+B0208,
  YWSNP=B0207,
  YWSMDT=B0205,
  YWAG =B0201,
  YVNA=YWI*YWSO*YWSNP,
  YWBS=C0353,
  YWSMDI=C0356,
  YWSMFI=C0368A,
  YWSNHE=C0386-YWSNP;
&LINKSER3 YWSMDI "[LSMDI*YWSMDT/LSMDT]" YWSMDI
&LINKSER3 YWSNHE "[LSNHE*YWSNP/LSNP]" YWSNHE
&LINKSER3 YWIB "[LIB "YWI/LI"]" YWIB
DO
  YWSMTC=YWSMDT-YWSMDI,
  YWSMPF=B0208-YWSNHE,
  YWSM=YWSMDT+YWSMPF;
&LINKSER3 YWSMFI "[LSMF1*YWSMPF/LSMFP]" YWSMFI
DO YWSMPF=YWSMPF-YWSMFI,
\* THIS SECTION DEALS WITH PAYROLL TAXES WHICH ARE INCLUDED IN WAGE BILL
GTYSL=B2209+B2210+B2212,
GTYS=B2212,
GTYSF=GTYSL-GTYSFR,
GTYS=80113,
13 References


Appendix 1: Input Series

C03A06  ESA:GROSS VALUE ADDED AT FACTOR COST: FUEL AND POWER PRODUCTS (DATA NOT AVAILABLE FROM 1981 ONWARDS) ........ $M, CURRENT PRICES

C03B06  ESA:COMPENSATION OF EMPLOYEES BY BRANCH: FUEL AND POWER PRODUCTS .... $M, CURRENT PRICES

IIIMMV_OE  TOTAL INVESTMENT BY KIND OF ACTIVITY OF OWNER: MANUFACTURING, BASIC METAL INDUSTRIES CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO

IIIMM75_OE  IIIMMV AT CONSTANT (1975) PRICES

IIIMM80_OE  IIIMMV AT CONSTANT (1980) PRICES

IIIMM85_OE  IIIMMV AT CONSTANT (1985) PRICES

IIIMCF_B  E. HENRY CLOTH. BUILD. 50 YRS. 50

IIIMCF_P  E. HENRY CLOTHING ETC. PLANT 20 YRS. 20

IIIMCF_V  E. HENRY CLOTH. VEH. + OTHER 10 YRS. 10

IIIMCH_B  E. HENRY CHEMICALS BUILD. 50 YRS. 50

IIIMCH_P  E. HENRY CHEMICALS PLANT 10 YRS. 10

IIIMCH_V  E. HENRY CHEM. VEH. + OTHER 10 YRS. 10

IIIMCIV_OE  INVESTMENT IN MANUFACTURING, CHEMICALS $ MILLION SOURCE: CIP OLD

IIIMCIV_OE  TOTAL INVESTMENT BY KIND OF ACTIVITY OF OWNER: MANUFACTURING, CHEMICALS AND CHEMICAL PETROLEUM, COAL RUBBER AND PLASTIC PRODUCTS CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO

IIIMCH75_OE  IIIMCIV AT CONSTANT (1975) PRICES

IIIMCH80_OE  IIIMCIV AT CONSTANT (1980) PRICES

IIIMCH85_OE  IIIMCIV AT CONSTANT (1985) PRICES

IIIMCIV_OE  TOTAL INVESTMENT BY KIND OF ACTIVITY OF OWNER: MANUFACTURING, TEXTILE, WEARING APPAREL AND LEATHER INDUSTRIES CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO

IIIMCL75_OE  IIIMCLV AT CONSTANT (1975) PRICES

IIIMCL80_OE  IIIMCLV AT CONSTANT (1980) PRICES

IIIMCL85_OE  IIIMCLV AT CONSTANT (1985) PRICES

IIIMDT_B  E. HENRY DRINK+TOB. BUILD. 50 YRS. 50

IIIMDT_P  E. HENRY DRINK+ TOB. PLANT 20 YRS. 20

IIIMDT_V  E. HENRY DRINK+ TOB. VEH.+OTHER, 10 YRS. 10

IIIMF_B  E. HENRY FOOD BUILD. 50 YRS. 50

IIIMF_P  FOOD PLANT 1951-85, 20 YRS. AV.LIFE, IGNORE 1985 RESULTS 20

IIIMF_V  E. HENRY FOOD VEH. + OTHER, 10 YRS. AV.LIFE 10

IIIMFRDV_OE  INVESTMENT IN MANUFACTURING, FOOD - BACON FACTORIES $ MILLION SOURCE: CIP OLD

IIIMFRDV_OE  TOTAL INVESTMENT BY KIND OF ACTIVITY OF OWNER: MANUFACTURING, FOOD, BEVERAGES AND TOBACCO, CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO

IIIMFRDV_OE  INVESTMENT IN MANUFACTURING, FOOD - CREAMERY BUTTER, CHEESE, CONDENSED MILK, CHOCOLATE CRUMB, ICE CREAM AND OTHER EDIBLE PRODUCTS $ MILLION SOURCE: CIP OLD

IIIMF75_OE  IIIMFRDV AT CONSTANT (1975) PRICES
<table>
<thead>
<tr>
<th>IMFDV_OE</th>
<th>IMFDV_OE AT CONSTANT (1980) PRICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMFV_OE</td>
<td>TOTAL INVESTMENT BY KIND OF ACTIVITY OF OWNER: MANUFACTURING, FABRICATED METAL PRODUCTS, MACHINERY AND EQUIPMENT CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, FOOD - SLAUGHTERING, PREPARATION AND PRESERVING OF MEAT OTHER THAN BY BACON FACTORIES million SOURCE: CIP OLD</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFDV_OE AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, FOOD $ MILLION SOURCE: CIP NEW</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, FOOD $ MILLION SOURCE: CIP NEW</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, FOOD NACE 412 $ MILLION SOURCE: CIP NEW</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, FOOD NACE 413 $ MILLION SOURCE: CIP NEW</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, FOOD NACE 414 $ MILLION SOURCE: CIP NEW</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, NON-METALLIC MINERAL PRODUCTS EXCEPT PRODUCTS OF PETROLEUM AND OIL CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, NON-METALLIC MINERAL PRODUCTS $ MILLION SOURCE: CIP OLD</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, MINING AND QUARRYING $ MILLION SOURCE: CIP OLD</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, MINING AND QUARRYING $ MILLION SOURCE: CIP OLD</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, PAPER AND PAPER PRODUCTS, PRINTING AND PUBLISHING CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO</td>
</tr>
<tr>
<td>IMFV_AT</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV75_OE</td>
<td>IMFV AT CONSTANT (1975) PRICES</td>
</tr>
<tr>
<td>IMFV80_OE</td>
<td>IMFV AT CONSTANT (1980) PRICES</td>
</tr>
<tr>
<td>IMFV85_OE</td>
<td>IMFV AT CONSTANT (1985) PRICES</td>
</tr>
<tr>
<td>IMFV_NC</td>
<td>INVESTMENT IN MANUFACTURING, PAPER AND PAPER PRODUCTS, PRINTING AND PUBLISHING CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO</td>
</tr>
</tbody>
</table>
RENT PRICES (#M) SOURCE: OECD DATA FROM CSO

$1MPP75 DE $1MPV AT CONSTANT (1975) PRICES
$1MPP80 DE $1MPV AT CONSTANT (1980) PRICES
$1MPP85 DE $1MPV AT CONSTANT (1985) PRICES

$1INTV OC INVESTMENT IN MANUFACTURING, TRANSPORTABLE GOODS INDUSTRIES $ MILLION SOURCE: CIP OLD

$1IMTX_B E.HENRY TEXT.BUILD. 50 YRS. 50
$1IMTX_P E.HENRY TEXTILES PLANT 20 YRS. 20
$1IMTX_V E.HENRY TEXT. VEH. OTHER 10 YRS. 10

$1IMWD_B E.HENRY WOOD ETC. BUILD. 50 YRS. 50
$1IMWD_P E.HENRY WOOD+FURN.PLANT 20 YRS. 20
$1IMWD_V E.HENRY WOOD ETC. VEH. OTHER 10 YRS. 10

$1IMWDV DE TOTAL INVESTMENT BY KIND OF ACTIVITY OF OWNER: MANUFACTURING, WOOD, AND WOOD PRODUCTS, INCLUDING FURNITURE CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO

$1IMWD75_DE $1IMWDV AT CONSTANT (1975) PRICES
$1IMWD80 DE $1IMWDV AT CONSTANT (1980) PRICES
$1IMWD85 DE $1IMWDV AT CONSTANT (1985) PRICES

$1ISNHV DE TOTAL INVESTMENT BY KIND OF ACTIVITY OF OWNER: SERVICES, MEDICAL, DENTAL, OTHER HEALTH AND VETERINARY SERVICES CURRENT PRICES (#M) SOURCE: OECD DATA FROM CSO

$1ISNH75 DE $1ISNHV AT CONSTANT (1975) PRICES
$1ISNH80 DE $1ISNHV AT CONSTANT (1980) PRICES
$1ISNH85 DE $1ISNHV AT CONSTANT (1985) PRICES

$1LAFISN LF EMPLOYMENT IN FISHING, (‘000s) - SOURCE: CSO CENSUS OF POPULATION

$1LAFOR LF EMPLOYMENT IN FORESTRY, (‘000s) - SOURCE: CSO CENSUS OF POPULATION

$1LMCF OC EMPLOYMENT IN MANUFACTURING, CLOTHING AND FOOTWEAR 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMCH LF EMPLOYMENT IN MANUF. 000’S, CHEMICAL, RUBBER AND PLASTIC PRODUCTS SOURCE: LABOUR FORCE SURVEYS AND 1981 CENSUS OF POPULATION

$1LIMCH OC EMPLOYMENT IN MANUFACTURING, CHEMICALS AND CHEMICAL PRODUCTS 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMCL LF EMPLOYMENT IN MANUF. 000’S, TEXTILES, CLOTHING, FOOTWEAR AND LEATHER SOURCE: LABOUR FORCE SURVEYS AND 1981 CENSUS OF POPULATION

$1LIMDT OC EMPLOYMENT IN MANUFACTURING, DRINK AND TOBACCO 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMP OC EMPLOYMENT IN MANUFACTURING, FOOD 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMFB OC EMPLOYMENT IN MANUFACTURING, FOOD - BACON FACTORIES 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMP B EMPLOYMENT IN MANUF. 000’S, FOOD BEVERAGES AND TOBACCO SOURCE: LABOUR FORCE SURVEYS AND 1981 CENSUS OF POPULATION

$1LIMPY OC EMPLOYMENT IN MANUFACTURING, FOOD - CREAMERY BUTTER, CHEESE, CONDENSED MILK, COCOA CRUNCH, ICE CREAM AND OTHER EDIBLE MILK PRODUCTS 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMP YE EMPLOYMENT IN MANUFACTURING, FOOD - SLAUGHTERING, PREPARATION AND PRESERVING OF MEAT OTHER THAN BY BACON FACTORIES 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMGL OC EMPLOYMENT IN MANUF. 000’S, GLASS, POTTERY AND CEMENT SOURCE: LABOUR FORCE SURVEYS AND 1981 CENSUS OF POPULATION

$1LIMGL LF EMPLOYMENT IN MANUF. 000’S, GLASS, POTTERY AND CEMENT SOURCE: LABOUR FORCE SURVEYS AND 1981 CENSUS OF POPULATION

$1LIMGL OC EMPLOYMENT IN MANUFACTURING, CLAY PRODUCTS, GLASS, CEMENT, ETC. 000’S SOURCE: CENSUS OF INDUSTRIAL PRODUCTION

$1LIMGE LF EMPLOYMENT IN MANUF. 000’S, METALS, METAL PRODUCTS AND MACHINERY (INCL. INSTRUMENT ENGINEERING) SOURCE: LABOUR FORCE
<table>
<thead>
<tr>
<th>Source: CIP Old</th>
</tr>
</thead>
<tbody>
<tr>
<td>QIMP412_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING: FOOD - NACE 412</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMP413_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING: FOOD - NACE 413</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMGL_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, NON METALLIC MINERALS 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMGL_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, NON METALLIC MINERALS</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIMMO_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, METALS AND ENGINEERING 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMMO_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING, METALS AND</td>
</tr>
<tr>
<td>ENGINEERING</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIMMOQ_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, MINING AND QUARRYING 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMMOQ_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING, MINING AND</td>
</tr>
<tr>
<td>QUARRYING</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIMOT_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, MISCELM OTHER 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMOT_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING, MISCELM OTHER</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIMPP_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, PAPER AND PRINTING 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMPP_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING, PAPER AND</td>
</tr>
<tr>
<td>PRINTING</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIMRUB_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, PROCESSING OF RUBBER AND</td>
</tr>
<tr>
<td>PLASTICS 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMT_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, TRANSPORTABLE GOODS 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMT_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING, TRANSPORTABLE</td>
</tr>
<tr>
<td>GOODS</td>
</tr>
<tr>
<td>INDUSTRIES</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIMTX_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, TEXTILES 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMTX_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING, TEXTILES</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIMMDO_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, WOOD AND WOODEN</td>
</tr>
<tr>
<td>FURNITURE</td>
</tr>
<tr>
<td>1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIMMDO_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION 1980-100 MANUFACTURING, WOOD AND</td>
</tr>
<tr>
<td>WOODEN</td>
</tr>
<tr>
<td>FURNITURE</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIREF_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF IND. PRODUCTION MANUFACTURING, MINERAL OIL REFINING 1980-100</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIU_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF OUTPUT, UTILITIES</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIUE_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF OUTPUT, ELECTRICITY</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIUE_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF OUTPUT, ELECTRICITY</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QIUG_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF OUTPUT, GAS</td>
</tr>
<tr>
<td>SOURCE: CIP NEW, FILE</td>
</tr>
<tr>
<td>QIUG_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF OUTPUT, GAS</td>
</tr>
<tr>
<td>SOURCE: CIP OLD, FILE</td>
</tr>
<tr>
<td>QIURM_NC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF OUTPUT, WATER</td>
</tr>
<tr>
<td>SOURCE: CIP NEW</td>
</tr>
<tr>
<td>QIURM_OC</td>
</tr>
<tr>
<td>INDEX OF VOLUME OF OUTPUT, WATER</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QINMCFY_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) CLOTHING AND FOOTWEAR</td>
</tr>
<tr>
<td>SOURCE: CENSUS OF PRODUCTION</td>
</tr>
<tr>
<td>QINMCYV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) CHEMICALS AND CHEMICAL PRODUCTS</td>
</tr>
<tr>
<td>SOURCE: CENSUS OF PRODUCTION</td>
</tr>
<tr>
<td>QINMIDTV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) DRINK AND TOBACCO</td>
</tr>
<tr>
<td>SOURCE: CENSUS OF PRODUCTION</td>
</tr>
<tr>
<td>QINMFPSV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) MANUFACTURING FOOD - BACON FACTORIES</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QINMFPDYV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) MANUFACTURING FOOD - CREAMERY BUTTER CHEESE, CONDENSED</td>
</tr>
<tr>
<td>MILK, CHOCOLATE CRUMB, ICE CREAM AND</td>
</tr>
<tr>
<td>OTHER MILK PRODUCTS</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QINMFHVTV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) MANUFACTURING FOOD - SLAUGHTERING, PREPARATION AND</td>
</tr>
<tr>
<td>PRESERVING OF MEAT OTHER THAN BY</td>
</tr>
<tr>
<td>BACON FACTORIES</td>
</tr>
<tr>
<td>SOURCE: CIP OLD</td>
</tr>
<tr>
<td>QINMFFYV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) FOOD</td>
</tr>
<tr>
<td>SOURCE: CENSUS OF PRODUCTION</td>
</tr>
<tr>
<td>QINMGLV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) CLAY PRODUCTS, GLASS, CEMENT, ETC.</td>
</tr>
<tr>
<td>SOURCE: CENSUS OF PRODUCTION</td>
</tr>
<tr>
<td>QINMGOV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) METAL AND ENGINEERING</td>
</tr>
<tr>
<td>SOURCE: CENSUS OF PRODUCTION</td>
</tr>
<tr>
<td>QINMGOV_OC</td>
</tr>
<tr>
<td>MATERIAL INPUTS ($MILLIONS) MINING AND QUARRYING</td>
</tr>
<tr>
<td>SOURCE: CENSUS OF PRODUCTION</td>
</tr>
</tbody>
</table>
MATERIAL INPUTS ($MILLIONS) OTHER MANUFACTURING SOURCE: CENSUS OF PRODUCTION
MATERIAL INPUTS ($MILLIONS) PAPER AND PRINTING SOURCE: CENSUS OF PRODUCTION
MATERIAL INPUTS ($MILLIONS) TOTAL MANUFACTURING (INCL. MQ) SOURCE: CENSUS OF PRODUCTION
MATERIAL INPUTS ($MILLIONS) TEXTILES SOURCE: CENSUS OF PRODUCTION
MATERIAL INPUTS ($MILLIONS) WOOD AND FURNITURE SOURCE: CENSUS OF PRODUCTION
VALUE OF NET OUTPUT OF ELECTRICITY (NACE GROUP 161) ($M). SOURCE: CSO CENSUS OF IND. PROD. AND CSO ESTIMATES
VALUE OF NET OUTPUT OF GAS (NACE GROUP 162) ($M). SOURCE: CSO CENSUS OF IND. PROD. AND CSO ESTIMATES
VALUE OF NET OUTPUT OF WATER WORKS (NACE GROUP 170) ($M). SOURCE: CSO CENSUS OF IND. PROD. AND CSO ESTIMATES
SALARIES AND WAGES ($MILLIONS) CLOTHING AND FOOTWEAR SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) CHEMICALS AND CHEMICAL PRODUCTS SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) DRINK AND TOBACCO SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) FOOD SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) MANUFACTUR: FOOD — BACON FACTORIES SOURCE: CIP OLD
SALARIES AND WAGES ($MILLIONS) MANUFACTUR: FOOD — CREAMERY BUTTER CHEESE, CONDENSED MILK, CHOCOLATE CRUMB, ICE CREAM AND OTHER MILK PRODUCTS SOURCE: CIP OLD
SALARIES AND WAGES ($MILLIONS) MANUFACTUR: FOOD — SLAUGHTERING, PREPARATION AND PRESERVING OF MEAT OTHER THAN BY BACON FACTORIES SOURCE: CIP OLD
SALARIES AND WAGES ($MILLIONS) CLAY PRODUCTS, GLASS, CEMENT, ETC. SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) METAL AND ENGINEERING SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) MINING AND QUARRYING SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) OTHER MANUFACTURING SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) PAPER AND PRINTING SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) TOTAL MANUFACTURING (INCL. MQ) SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) TEXTILES SOURCE: CENSUS OF PRODUCTION
SALARIES AND WAGES ($MILLIONS) WOOD AND FURNITURE SOURCE: CENSUS OF PRODUCTION
WAGES AND SALARIES IN UTILITIES ($ MILLION. SOURCE: CIP
## Appendix 2: Energy Data Series

<table>
<thead>
<tr>
<th>EAC20-EAC30</th>
<th>ESB Data - Analysis of consumption by Economic Activity Code (EAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAC4043</td>
<td></td>
</tr>
<tr>
<td>EAC44-EAC46</td>
<td></td>
</tr>
<tr>
<td>EAC4748</td>
<td></td>
</tr>
<tr>
<td>EAC49-EAC50</td>
<td></td>
</tr>
<tr>
<td>EAC60-EAC78</td>
<td></td>
</tr>
</tbody>
</table>

| EGY01_OC | See Bradley et al. (1983) for a detailed description of these variables. |
| EGY57_OC |                                                               |

<p>| EN1C_T | RESIDENTIAL CONSUMPTION OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1E_T | ELECTRICITY WORKS USE OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1FC_T | FINAL CONSUMPTION OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1G_T | GAS WORKS USE OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1H_T | CONSUMPTION OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1M_T | IMPORTS OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1QD_T | PRODUCTION OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1TD_T | DOMESTIC CONSUMPTION OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN1X_T | IMPORTS OF COAL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN33_M | IMPORTS OF BRUT CRUDE OIL, IN '000S METRIC TONS. SOURCE: OECD ENERGY BALANCES |
| EN3D_M | DOMESTIC CONSUMPTION OF BRUT CRUDE OIL, IN '000S METRIC TONS. SOURCE: OECD ENERGY BALANCES |
| EN3X_M | IMPORTS OF BRUT CRUDE OIL, IN '000S METRIC TONS. SOURCE: OECD ENERGY BALANCES |
| EN4C_T | RESIDENTIAL CONSUMPTION OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4E_T | ELECTRICITY WORKS USE OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4FC_T | FINAL CONSUMPTION OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4G_T | GAS WORKS USE OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4I_T | INDUSTRY CONSUMPTION OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN418_T | CONSTRUCTION SECTOR CONSUMPTION OF OIL, IN '000S TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN41CH_T | CHEMICAL SECTOR CONSUMPTION OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4IMF_T | FOOD AND TOBACCO SECTOR CONSUMPTION OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4IMM_T | INDUSTRIAL MACHINERY CONSUMPTION OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4M_T | IMPORTS OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |
| EN4R_T | REFINERIES USE OF OIL, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN4SMTCT</td>
<td>Transport consumption of oil, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN4TD</td>
<td>Domestic consumption of oil, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN4X</td>
<td>Imports of oil, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN41FCH</td>
<td>Final consumption of motor gasoline, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN41MD</td>
<td>Imports of motor gasoline, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN41GMD</td>
<td>Production of motor gasoline, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN41XTM</td>
<td>Transport consumption of motor gasoline, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN41XMT</td>
<td>Domestic consumption of motor gasoline, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN41X</td>
<td>Imports of motor gasoline, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42C</td>
<td>Residential consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42E</td>
<td>Electricity works use of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42FH</td>
<td>Final consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42G</td>
<td>Gas works use of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42J</td>
<td>Industry consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42K</td>
<td>Construction sector consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42KHM</td>
<td>Chemical sector consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42KFD</td>
<td>Food and tobacco sector consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42KMM</td>
<td>Industrial machinery consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42M</td>
<td>Imports of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42QMD</td>
<td>Production of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42SMTCT</td>
<td>Transport consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42TMD</td>
<td>Domestic consumption of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN42X</td>
<td>Imports of diesel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43E</td>
<td>Electricity works use of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43F</td>
<td>Final consumption of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43G</td>
<td>Gas works use of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43I</td>
<td>Industry consumption of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43J</td>
<td>Construction sector consumption of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43KHM</td>
<td>Chemical sector consumption of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43KFD</td>
<td>Food and tobacco sector consumption of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43KMM</td>
<td>Industrial machinery consumption of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43QMD</td>
<td>Production of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43TMD</td>
<td>Domestic consumption of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN43X</td>
<td>Imports of residual fuel oil, in '000s metric tons. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46C</td>
<td>Residential consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46E</td>
<td>Electricity works use of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46FC</td>
<td>Final consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46G</td>
<td>Gas works use of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46I</td>
<td>Industry consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46J</td>
<td>Construction sector consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46K</td>
<td>Chemical sector consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46KFD</td>
<td>Food and tobacco sector consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46KMM</td>
<td>Industrial machinery consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46Q</td>
<td>Production of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46T</td>
<td>Domestic consumption of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46X</td>
<td>Imports of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
<tr>
<td>EN46X</td>
<td>Imports of gas, in millions toe's. Source: OECD Energy Balances</td>
<td></td>
</tr>
</tbody>
</table>
CHEMICAL SECTOR CONSUMPTION OF GAS, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

CHEMICAL SECTOR FEEDSTOCKS FROM GAS, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

FOOD AND TOBACCO SECTOR CONSUMPTION OF GAS, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

PRODUCTION OF GAS, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

RESIDENTIAL CONSUMPTION OF ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

ELECTRICITY WORKS USE OF ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

FINAL CONSUMPTION OF ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

INDUSTRY CONSUMPTION OF ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

CHEMICAL SECTOR CONSUMPTION OF ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

FOOD AND TOBACCO SECTOR CONSUMPTION OF ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

INDUSTRIAL MACHINERY CONSUMPTION OF ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

PRODUCTION OF HYDRO, GEOTHERM AND SOLAR ELECTRICITY, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

RESIDENTIAL CONSUMPTION OF TURF, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

ELECTRICITY WORKS USE OF TURF, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

FINAL CONSUMPTION OF TURF, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

INDUSTRY CONSUMPTION OF TURF, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES

DOMESTIC CONSUMPTION OF TURF, IN MILLIONS TOE'S. SOURCE: OECD ENERGY BALANCES


PRICE OF DIESEL, $ PER LITRE. SOURCE: OECD


PRICE OF LP GAS TO CONSUMERS, $ PER TOE. SOURCE: SCOTT, 1989.


PRICE OF ELECTRICITY TO INDUSTRY, $ PER KILOWATT HOUR. SOURCE: OECD


($000s) CLOTHING, FOOTWEAR AND LEATHER SECTOR TOTAL ENERGY CONSUMPTION

($000s) CLOTHING, FOOTWEAR AND LEATHER SECTOR TOTAL ENERGY CONSUMPTION OF COAL AND TURF

($000s) CLOTHING, FOOTWEAR AND LEATHER SECTOR CONSUMPTION OF PETROLEUM

($000s) CLOTHING, FOOTWEAR AND LEATHER SECTOR CONSUMPTION OF ELECTRICITY

($000s) CLOTHING, FOOTWEAR AND LEATHER SECTOR CONSUMPTION OF OTHER FUELS

($000s) CHEMICALS SECTOR TOTAL ENERGY CONSUMPTION

($000s) CHEMICALS SECTOR CONSUMPTION OF COAL AND TURF

($000s) CHEMICALS SECTOR CONSUMPTION OF PETROLEUM

($000s) CHEMICALS SECTOR CONSUMPTION OF ELECTRICITY

($000s) CHEMICALS SECTOR CONSUMPTION OF OTHER FUELS
DRINK AND TOBACCO SECTOR TOTAL ENERGY CONSUMPTION
DRINK AND TOBACCO SECTOR CONSUMPTION OF COAL AND TURF
DRINK AND TOBACCO SECTOR CONSUMPTION OF PETROLEUM
DRINK AND TOBACCO SECTOR CONSUMPTION OF ELECTRICITY
DRINK AND TOBACCO SECTOR CONSUMPTION OF OTHER FUELS
FOOD SECTOR TOTAL ENERGY CONSUMPTION
FOOD SECTOR CONSUMPTION OF COAL AND TURF
FOOD SECTOR CONSUMPTION OF PETROLEUM
FOOD SECTOR CONSUMPTION OF ELECTRICITY
FOOD SECTOR CONSUMPTION OF OTHER FUELS
MANUFACTURES OF NON-METALLIC PRODUCTS SECTOR TOTAL ENERGY CONSUMPTION
MANUFACTURES OF NON-METALLIC PRODUCTS SECTOR CONSUMPTION OF COAL AND TURF
MANUFACTURES OF NON-METALLIC PRODUCTS SECTOR CONSUMPTION OF PETROLEUM
MANUFACTURES OF NON-METALLIC PRODUCTS SECTOR CONSUMPTION OF ELECTRICITY
MANUFACTURES OF NON-METALLIC PRODUCTS SECTOR CONSUMPTION OF OTHER FUELS
METALS AND ENGINEERING SECTOR TOTAL ENERGY CONSUMPTION
METALS AND ENGINEERING SECTOR CONSUMPTION OF COAL AND TURF
METALS AND ENGINEERING SECTOR CONSUMPTION OF PETROLEUM
METALS AND ENGINEERING SECTOR CONSUMPTION OF ELECTRICITY
METALS AND ENGINEERING SECTOR CONSUMPTION OF OTHER FUELS
MINING, QUARRYING, TURF SECTOR TOTAL ENERGY CONSUMPTION
MINING, QUARRYING, TURF SECTOR CONSUMPTION OF COAL AND TURF
MINING, QUARRYING, TURF SECTOR CONSUMPTION OF PETROLEUM
MINING, QUARRYING, TURF SECTOR CONSUMPTION OF ELECTRICITY
MINING, QUARRYING, TURF SECTOR CONSUMPTION OF OTHER FUELS
OTHER MANUFACTURING SECTOR TOTAL ENERGY CONSUMPTION
OTHER MANUFACTURING SECTOR CONSUMPTION OF COAL AND TURF
OTHER MANUFACTURING SECTOR CONSUMPTION OF PETROLEUM
OTHER MANUFACTURING SECTOR CONSUMPTION OF ELECTRICITY
OTHER MANUFACTURING SECTOR CONSUMPTION OF OTHER FUELS
PAPER SECTOR TOTAL ENERGY CONSUMPTION
PAPER SECTOR CONSUMPTION OF COAL AND TURF
PAPER SECTOR CONSUMPTION OF PETROLEUM
PAPER SECTOR CONSUMPTION OF ELECTRICITY
PAPER SECTOR CONSUMPTION OF OTHER FUELS
TEXTILES SECTOR TOTAL ENERGY CONSUMPTION
TEXTILES SECTOR CONSUMPTION OF COAL AND TURF
TEXTILES SECTOR CONSUMPTION OF PETROLEUM
TEXTILES SECTOR CONSUMPTION OF ELECTRICITY
<table>
<thead>
<tr>
<th>Sector Description</th>
<th>Fiscal Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textiles Sector Consumption of Other Fuels</td>
<td>($000s)</td>
</tr>
<tr>
<td>NACE I-4 Less 13,16,17 Sector Consumption of Coal and Turf</td>
<td>($000s)</td>
</tr>
<tr>
<td>NACE I-4 Less 13,16,17 Sector Consumption of Petroleum</td>
<td>($000s)</td>
</tr>
<tr>
<td>NACE I-4 Less 11,13,16,17 Sector Total Energy Consumption</td>
<td>($000s)</td>
</tr>
<tr>
<td>NACE I-4 Less 11,13,16,17 Sector Consumption of Coal and Turf</td>
<td>($000s)</td>
</tr>
<tr>
<td>NACE I-4 Less 11,13,16,17 Sector Consumption of Petroleum</td>
<td>($000s)</td>
</tr>
<tr>
<td>NACE I-4 Less 11,13,16,17,21,23 Sector Consumption of Other Fuels</td>
<td>($000s)</td>
</tr>
<tr>
<td>Timber and Wooden Furniture Sector Total Energy Consumption</td>
<td>($000s)</td>
</tr>
<tr>
<td>Timber and Wooden Furniture Sector Consumption of Coal and Turf</td>
<td>($000s)</td>
</tr>
<tr>
<td>Timber and Wooden Furniture Sector Consumption of Petroleum</td>
<td>($000s)</td>
</tr>
<tr>
<td>Timber and Wooden Furniture Sector Consumption of Electricity</td>
<td>($000s)</td>
</tr>
<tr>
<td>Food - Slaughtering, Preparing and Preserving of Meat Total Energy Consumption</td>
<td>($000s)</td>
</tr>
<tr>
<td>Food - Manufacture of Dairy Products Total Energy Consumption</td>
<td>($000s)</td>
</tr>
<tr>
<td>NACE I-4 Less 11,13,16,17,21,23 Sector Consumption of Other Fuels</td>
<td>($000s)</td>
</tr>
<tr>
<td>Electricity, Gas, Water Sector Total Energy Consumption</td>
<td>($000s)</td>
</tr>
<tr>
<td>Electricity, Gas, Water Sector Consumption of Coal and Turf</td>
<td>($000s)</td>
</tr>
<tr>
<td>Electricity, Gas, Water Sector Consumption of Petroleum</td>
<td>($000s)</td>
</tr>
<tr>
<td>Electricity, Gas, Water Sector Consumption of Electricity</td>
<td>($000s)</td>
</tr>
<tr>
<td>Electricity, Gas, Water Sector Consumption of Other Fuels</td>
<td>($000s)</td>
</tr>
<tr>
<td>Oil Refining Sector Total Energy Consumption</td>
<td>($000s)</td>
</tr>
<tr>
<td>Oil Refining Sector Consumption of Coal and Turf</td>
<td>($000s)</td>
</tr>
<tr>
<td>Oil Refining Sector Consumption of Petroleum</td>
<td>($000s)</td>
</tr>
<tr>
<td>Oil Refining Sector Consumption of Electricity</td>
<td>($000s)</td>
</tr>
<tr>
<td>Oil Refining Sector Consumption of Other Fuels</td>
<td>($000s)</td>
</tr>
</tbody>
</table>
Appendix 3: Output Series

<table>
<thead>
<tr>
<th>Variable</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAEAGIMP</td>
<td>WAAGMP = YA/LA</td>
</tr>
<tr>
<td>AAEI</td>
<td>WI = WI/LI</td>
</tr>
<tr>
<td>AAE1DOT</td>
<td>WI_DOT = DEL(1 : WI)/WI(-1)*100.</td>
</tr>
<tr>
<td>AAENA</td>
<td>WNA = YWNA/LMA</td>
</tr>
<tr>
<td>AAESADOT</td>
<td>WNA_DOT = DEL(1 : WNA)/WNA(-1)*100.</td>
</tr>
<tr>
<td>AAEPA</td>
<td>WSNP = YWSNP/LSNP</td>
</tr>
<tr>
<td>AAESHE</td>
<td>WSNHE = YWSNHE/LSNHE</td>
</tr>
<tr>
<td>AAESEM</td>
<td>WSM = YWSM/LSM</td>
</tr>
<tr>
<td>AAESMDOT</td>
<td>WSM_DOT = DEL(1 : WSM)/WSM(-1)*100.</td>
</tr>
<tr>
<td>AAESO</td>
<td>WSO = YWSO/LSO</td>
</tr>
<tr>
<td>AAITA</td>
<td>AAITA = YPERT/LMA</td>
</tr>
<tr>
<td>BPPK</td>
<td>BPKR = DEL(1 : R)-BP-DDEL(1 : NFLB)-BPTKNG-GFBORD-GFBORD</td>
</tr>
<tr>
<td>BPTR</td>
<td>BPTR = 100*(BPT/GNPV)</td>
</tr>
<tr>
<td>CENERGY</td>
<td>CENERGY = CONB1405+CPET</td>
</tr>
<tr>
<td>CENERGY_DIS</td>
<td>CENERGY_DIS = CENERGY/ENC_T</td>
</tr>
<tr>
<td>CENERGYV</td>
<td>CENERGYV = CONB1305+CPETV</td>
</tr>
<tr>
<td>DEP</td>
<td>DEP = DEPAG+DEPI+DEPS</td>
</tr>
<tr>
<td>DEPAG</td>
<td>DEPAG = DEPA</td>
</tr>
<tr>
<td>DEPI</td>
<td>DEPI = B0217</td>
</tr>
<tr>
<td>DEPS</td>
<td>DEPS = B0218+B0219</td>
</tr>
<tr>
<td>DUMED</td>
<td>DUMED = IF YEAR() LT 1968 THEN 0 ELSE (IF YEAR() LT 1973 THEN 1-(1972-YEAR())/5 ELSE 1)</td>
</tr>
<tr>
<td>DUMH1</td>
<td>DUMH1 = IF T/YEAR LT 1970 THEN 0 ELSE 1</td>
</tr>
<tr>
<td>DUM73</td>
<td>DUM73 = IF T/YEAR EQ 1973 THEN 1 ELSE 0</td>
</tr>
<tr>
<td>DUM74</td>
<td>DUM74 = IF T/YEAR EQ 1974 THEN 1 ELSE 0</td>
</tr>
<tr>
<td>DUM75</td>
<td>DUM75 = IF T/YEAR EQ 1975 THEN 1 ELSE 0</td>
</tr>
<tr>
<td>D72</td>
<td>D72 = IF T/YEAR LT 1972 THEN 0 ELSE 1</td>
</tr>
<tr>
<td>D74</td>
<td>D74 = IF T/YEAR LT 1974 THEN 0 ELSE 1</td>
</tr>
<tr>
<td>D79</td>
<td>D79 = IF YEAR(T/YEAR) GT 1978 THEN 1 ELSE 0</td>
</tr>
<tr>
<td>EDIT</td>
<td>EDIT = UNITY</td>
</tr>
<tr>
<td>EECCBU</td>
<td>EECBU = IF YEAR(GTEVAT) LT 1973 THEN 0 ELSE (IF YEAR(GTEVAT) EQ 1974 THEN 5.647 ELSE (IF YEAR(GTEVAT) LT 1976 THEN (GTEVAT+GTECUSO+GTAGLEV-(B2218+B2219+B2220+B2221+B2222+B2223) ELSE GTEVAT+GTECUSO+GTAGLEV-(B2218+B2222+B2223) +ECCIC))</td>
</tr>
<tr>
<td>EECTE</td>
<td>EECTE = B2234</td>
</tr>
<tr>
<td>ENHA_T</td>
<td>ENHA_T = ENTD-(ENMD_T+ENH_T+ENX_T)</td>
</tr>
<tr>
<td>ENC_T</td>
<td>ENC_T = EN1C_T+EN4C_T+EN6C_T+EN7C_T+EN8C_T</td>
</tr>
<tr>
<td>ENFC_T</td>
<td>ENFC_T = EN1FC_T+EN4FC_T+EN6FC_T+EN7FC_T+EN8FC_T</td>
</tr>
<tr>
<td>EN1_T</td>
<td>EN1_T = EN11_T+EN41_T+EN61_T+EN71_T+EN81_T</td>
</tr>
<tr>
<td>EN1B_T</td>
<td>EN1B_T = EN41B_T</td>
</tr>
</tbody>
</table>
$$\begin{align*}
GCGOV &= \text{YWSMNE} - \text{GCTW} \\
GCGSHV &= \text{GCGSHH} = \text{GCC-%OSNP} \\
GCGSHEV &= \text{GCGSHEV} = \text{GCC-%OSNPV} \\
GCW &= \text{GCCV} = \text{B20502} \\
GCSN &= \text{OSNP} = \text{B2040} \\
GCGWV &= \text{YWSNP} = \text{B2027} \\
GCSA &= \text{IF YEAR(GCSA) LT 1973 THEN GCSA+B2310 ELSE GCSA} \\
GSC &= \text{GCSO} = \text{GCSCG+GCSC} \\
GCSCFD &= \text{GCSCFD} = \text{GCSCG-GCSCF+OW} \\
GCSG &= \text{GCSCG} = \text{B2321+B2322+GCSCF+OW+(IF YEAR(B2320) LT 1973 THEN 0 ELSE B2310)} \\
GCSCO &= \text{GCSCO} = \text{GCSCS-GCSC}+\text{GCSC} \\
GCSCS &= \text{GCSCS} = \text{B2326+B2328+B2331+B2333+B2332} \\
GCSCS2 &= \text{GCSCS} = \text{B2315+B2332}/2 \\
GCSCF &= \text{GCSCF} = \text{B2326+B2332} \\
GCSC &= \text{GCSC} = \text{B2326+B2332} \\
GCTABR &= \text{B2015+B2016-GCSC} \\
GCSONA &= \text{GCSONA} = \text{GCSC-GCSA} \\
GCTABR &= \text{B1927} \\
GCTED &= \text{B2041}\text{B2406+B2407+B2408} \\
GCTEMP &= \text{B2416+B2438+B2439} \\
GCTESO &= \text{GCTED+GCSTW} \\
GCTMT &= \text{GCTMT+GCSTW} \\
GCTNF &= \text{B2102} \\
GCTO &= \text{GCTO} = \text{GCTPER-(GCTED+GCSTW)} \\
GCTPER &= \text{B2016+B2019} \\
GCTPRB &= \text{B2423} \\
GCTREST &= \text{GCTPER-GCTUO+GCTPRB-GCTSTW} \\
GCTSW &= \text{B2409+B2410+B2411+B2412+B2413+B2414+B2415+B2416+B2417+B2418+B2419+B2420+B2421+B2422+B2423+B2430+B2431+B2432+B2433+B2434+B2435+B2436+B2437} \\
GCTUO &= \text{GCTUO} = \text{GCTUO+GCTUO+GCTPRB} \\
GCTUB &= \text{B2016+B2019} \\
GCTUP &= \text{GCTUP+GCTUO} \\
GCTW &= \text{B2041+B2405+B2406+B2407+B2408} \\
GK &= \text{GK1+GK2+GK2+CTABR} \\
GK1 &= \text{GK1+GK1+GK1+GK1} \\
GKIB &= \text{GK1+GK1+GK1+GK1} \\
GKIB &= \text{GK1+GK1+GK1+GK1} \\
GKIF &= \text{B2502+B2503+B2515} \\
GKIME &= \text{0.8072+B2502+B2515+B2513} \\
GKJ &= \text{GK1+GK1+GK1+GK1} \\
GKL &= \text{GK1+GK1+GK1+GK1} \\
\end{align*}$$
GTY = GTYC+GTYPER+GTYA+GTYSL+GTYDIRT+GTYMDP
GTYA = GTYPAG+B2208
GTYC = B2202+B2203+B2204-GTYPER-GTYDIRT-GTYPAG+B2207+B2211
GTYCSTOT = GTYC+GTYDIROC
GTYDIOTP = GTYDIRO-GTYDIROC
GTYIY = B2209+B2210
GTYMDP = B2205
GTYPER = GTYPAG-(B2204+GTYSL+GTYDIROC+GTYMDP+GTYTA+GTYDIROC)
GTYPTOT = GTYPAG+GTYSL+GTYDIROC
GTYRAT = 100*GTY/GTYTOT
GTY = GTY
GTYSAV = GTYSL-GTYSAF
GTYSE = B2212
GTYSL = B2209+B2210+B2212
GTYVSP = GTYSL-GTYSE
IAG = B1801
IAGV = B1601
IB = B1801+B1803
IBC = B1702+B1703
IBC = B1601+B1703
IIBC = B1502+B1503
IBV = B1601+B1703
IG = B1801
IIB = B1804
IIM = B1604
IIM = B1604
IIMD = IIMV/PIIM
IIMTV_OE = IIMPDI_OE-IIMPV
IIMDV = COMBINE(IIMDV, IIMDV_X)
IIMDV_OC = IIMTV_OC-IIMHV_OC-IIMPV_OC
IIMF = IIMFV/PINT
IIMFRES = IIMFV/PINT
IIMFRESV = IIMFV-IIMF412V-IIMF413V
IIMPV = IF YES(IIMFV) LT IFARG(2) THEN IIMFV+VALUE(IIMFV_NC/IIMFV_OE,IFARG(2)) ELSE IIMFV
IIMF412 = IIMF412V/PINT
IIMF412V = IF YES(IIMF412V) LT IFARG(2) THEN IIMF412V+VALUE(IIMF412V_NC/IIMF412V_X,IFARG(2)) ELSE IIMF412V
IIMF413 = IIMF413V/PINT
IIMF413V = IF YES(IIMF413V) LT IFARG(2) THEN IIMF413V+VALUE(IIMF413V_NC/IIMF413V_X,IFARG(2)) ELSE IIMF413V
IIMH = IIMHV/PINT
IIMHV = COMBINE(IIMHV,IIMHV_X)
IIMHV_OC = IIMHV_OE+IIMHV_X
IIMHV_OE = IIMHV_OE+IIMHV_OE+IIMFV_OE
IIMHO = IIMMOV/PINT
IIMMO = IIMMOV/PINT
IIMMOV = IF YES(IIMMOV) LT IFARG(2) THEN IIMMOV+VALUE(IIMMOV_OE/IIMMOV_OE,IFARG(2)) ELSE IIMMOV
IIMT = B1803
IIMT_DIS = IIMT-IIMH-IIMD-IIMF
IIMTV = B1603
IIMTV_DIS = IIMTV-IIMHV-IIMDV-IIMFV
IIMV = IIMTV-IIMMQ
IIV = IIV X B1802
IIV = IIV X B1602
IIV = IIV+IIV+IIMTV
IIME = IIME X B1704+B1705+B1706
IIMEG = IIMEV/PIME
IIMEG = GRIME
IIMEP = IIMEPV/PIME
IIMEPV = IIMEPV-IIMEGV
IIMEV = B1504+B1505+B1506
IINB = IINB X B1704+B1705+B1706
IPA = ISNP
IPAV = ISNPV = ISNPV
IS = IF YES(IS) GT IFARG(1) THEN IS*VALUE((B1805+B1806-18)/IS_X,IFARG(1)) ELSE IS
IS_DIS = ITOT-IAG-1H-I1U-I1B-B1803-IS
ISHE = ISNHE+ISNH
ISHEV = ISHEV+ISHV
ISH = ISHE+ISHE-1SNP
ISMO1 = ISMO1 = ISD1
ISMO1 = ISMO1 = ISDIV
ISMDT  =  ISMDI+ISMTC
ISMDTV =  ISMDIV+ISMTCV
ISMFI  =  ISFI
ISMFIV =  ISFIV
ISMG  =  ISMGR+ISMGW
ISMGW  =  B1702
ISMGRV =  B1502
ISMGV  =  ISMGRV+ISMGW
ISMGW  =  B2518*B1703/B1503
ISMGRV =  B2518
ISMFF  =  ISMFI+ISCW-ISHW-ISMGW
ISMFFV =  ISMFIV+ISCPV-ISHNV-ISMGW
ISMPS =  ISMFP-ISMFI
ISMPSV =  ISMFPV-ISMFIV
ISMTC  =  ISTR-B1702
ISMTCV =  ISTRV-B1502
ISMV  =  ISV-ISHHV-ISHNV
ISH  =  ISMP+ISHHV
ISHW  =  ISHE+IPAE
ISHV  =  ISHEV+IPAE
ISHH  =  IF YEAR(ISNH) LT IFARG(2) THEN ISNH*VALUE(ISNH_X/((B2517+B2549+B2450)/PISCP),IFARG(2)) ELSE ISNH
ISHHE  =  ISNE+ISHHV
ISHHEV =  ISNE+ISHHV
ISHHV =  IF YEAR(ISNH) LT IFARG(2) THEN ISNH*VALUE(ISNH_X/((B2517+B2549+B2450),IFARG(2)) ELSE ISNHV
ISNP =  ISNP
ISNPV =  ISNPV
ISNV  =  ISNVV+ISHHV
ISV  =  IF YEAR(ISV) GT IFARG(1) THEN ISV*VALUE((B1605+B1606-IHV)/ISV_X,IFARG(1)) ELSE ISV
ISV_DIS =  ITOV-IAGV-IINV-IINVV-IINVV-B1603-ISV
ITNG =  ITOV+IAG+ISM-ISMGR-ISMGW
ITOT =  IB+IME
ITOT_DIS =  ITOV-ISM-IME
ITOTV =  ITOV+IME
ITOTV_DIS =  ITOV-IAGV-IINV-IAGV-IME
RAG =  COMBINE(RAG,X.1)
KBPPK =  COMBINE(KBPPK,X.1)
KBPPK =  KBPPK*WORLD
RDRT =  UNITY
KNBB =  GNBB/(BLC+BACC+NFLB+BLO)
KNBP =  DEL(1;GNBP)/PFAQT
KGNSS = DEL(1 : GNSS) / FAQT
KI
XII = COMBINE(KH, X.1)
KI = KIHT + KIU + KIB
KID
KIB = COMBINE(KIB, X.1)
KIBAR
KIBAR = (KI + KI(-1)) / 2.
KIMO
KIMO = COMBINE(KIOM, X.1)
KIMF
KIMF = COMBINE(KIMP, X.1)
KIMFRES
KIMFRS = KIMF - KIMF412 - KIMF413
KIMF412
KIMF412 = COMBINE(KIMF412, X.1)
KIMF413
KIMF413 = COMBINE(KIMF413, X.1)
KIMF
KIMF = COMBINE(KIMF, X.1)
KIMT
KIMT = KIM + KIM + KMF
KIU
KIU = COMBINE(KI, X.1)
KS
KS = KSM + KSN
KSM
KSM = KSMID + KSMTC + KSMFP + KSMPS + KSMG
KSMID
KSMID = COMBINE(KSMID, X.1)
KSMTC
KSMTC = KSMID + KSMTC
KSMFI
KSMFI = COMBINE(KSMFI, X.1)
KSMG
KSMG = COMBINE(KSMG, X.1)
KSMGR
KSMGR = COMBINE(KSMGR, X.1)
KSMGW
KSMGW = KSMG - KSMGR
KSMFP
KSMFP = KSMFP + KSMPS
KSMPS
KSMPS = COMBINE(KSMPS, X.1)
KSMTC
KSMTC = COMBINE(KSMTC, X.1)
KSN
KSN = KSHNE + KSNP
KSHNE
KSHNE = COMBINE(KSHNE, X.1)
KSNP
KSNP = COMBINE(KSNP, X.1)
KYCSNE
KYCSNE = KYCSNE / OCSNEBE
KYFPO
KYFPO = YFPO / HMLP(-1)
KYSEAG
KYSEAG = 1 - YWA / YA
K2
K2 = GCTRB / (U'MNA(-1))
L
L = LTTV
LA
LA = LAA
LAF
LAF = LAF
LAFISH
LAFISH = MAINTERP(LAFISH, LF)
LAFOR
LAFOR = MAINTERP(LAFOR, LF)
LAG
LAG = LA
LFP
LFP = LF / 1564A * 100
LI
LI = LIMITL + LI
LIB
LIB = EMPLOYMENT IN BUILDING + CONSTRUCTION (000'S) SOURCE: 1956/60 TEU(CSO) 1961/70 ARTICLE BY JJ SEITON ESRI QEC AUGUST 1982 1979/85
EMPLOYMENT IN MANUFACTURING INDUSTRY (000'S). SOURCE:TEU(CSO).

R & O (1986---). NOTE:ESTIMATES REVISED BY CSO FOR 1971/74

TO GIVE A CONSISTENT SERIES \FROM 1971

LIMCH = IF YEAR(LIMCH) LT IFARG(2) THEN LIMCH*VALUE(LIMCH_NC/LIMCH_OC,IFARG(2)) ELSE LIMCH
LIMCH_NC = AIAA766/1000
LIMCL = IF YEAR(LIMCL) LT IFARG(2) THEN LIMCL*VALUE(LIMCL_NC/LIMCL_OC,IFARG(2)) ELSE LIMCL
LIMCL_NC = (AIAA817+AIAA824)/1000
LIMCL_OC = LIMTX_OC+LIMCP_OC
LIMD = LIMCL+LIMWD+LIMPP+LIMGL+LIMOT+LIMH
LIMDT = IF YEAR(LIMDT) LT IFARG(2) THEN LIMDT*VALUE(LIMDT_NC/LIMDT_OC,IFARG(2)) ELSE LIMDT
LIMDT_NC = AIAA811/1000
LIMF = IF YEAR(LIMF) LT IFARG(2) THEN LIMF*VALUE(LIMF_NC/LIMF_OC,IFARG(2)) ELSE LIMF
LIMF_NC = AIAA799/1000
LIMFD = LIMF+LIMDT
LIMFD_NC = LIMFD_NC+LIMDT_NC
LIMFRES = LIMFRES = LIM-LIM412-LIM413
LIM412 = IF YEAR(LIM412) LT IFARG(2) THEN LIM412*VALUE(AIAA801/1000/ ELSE LIM412
LIM413 = IF YEAR(LIM413) LT IFARG(2) THEN LIM413*VALUE(AIAA802/1000/ LIMF412,IFARG(2)) ELSE LIMF413
LIMCL = IF YEAR(LIMCL) LT IFARG(2) THEN LIMCL*VALUE(LIMCL_NC/LIMCL_OC,IFARG(2)) ELSE LIMCL
LIMCL_NC = AIAA762/1000
LIMH = LIMH = LIMCH+LIMM
LIMMM = IF YEAR(LIMMM) LT IFARG(2) THEN LIMMM*VALUE(LIMMM_NC/LIMMM_OC,IFARG(2)) ELSE LIMMM
LIMMM_NC = AIAA773/1000
LIMMQ = LIMMQ = LIM
LIMOT = IF YEAR(LIMOT) LT IFARG(2) THEN LIMOT*VALUE(LIMOT_NC/LIMOT_OC,IFARG(2)) ELSE LIMOT
LIMOT_NC = AIAA842/1000
LIMP = IF YEAR(LIMP) LT IFARG(2) THEN LIMP*VALUE(LIMP_NC/LIMP_OC,IFARG(2)) ELSE LIMP
LIMP_NC = AIAA839/1000
LIMT = LIMT = LIM+LIMMQ
LIMT_C = LIMT_C = LIMH+LIMD+LIMF
LIMT_F = LIMT_F = LIMT/LIMT_C
LIMWD = IF YEAR(LIMWD) LT IFARG(2) THEN LIMWD*VALUE(LIMWD_NC/LIMWD_OC,IFARG(2)) ELSE LIMWD
LIMWD_NC = AIAA833/1000
LIREF_NC = AIAA843/1000
LIT = LIT = LIMLIMMQ
LINV = LINV = LIMN+LIMF
LNN = LNN = LNAV+LIM
LIT = LIT = LIM+LIMMQ

ECONOMIC REVIEW AND OUTLOOK (1986---)
OPA = OAG/LAG
OPRA = OAG/LAG
OPRI = OI/LI
OPRIB = OIB/LIB
OPRINT = OIMT/LIMT
OPRIU = OIU/LIU
OPRSM = OSM/LSM
OPRSMDI = OSMDI/LSMDI
OPRSMDT = OSMDT/LSMDT
OPRSMFI = OSMFI/LSMFI
OPRSMFV = OSMFV/LSMFP
OPRSMPS = OSMPS/LSMPS
OPRSMTC = OSMTC/LSMTC
OSHDEV = OVERLAY(OSHDEV,LSHDEV)
OSHDEV = IF YEAR(OSHDEV) GT IFARG(1) THEN OSHDEV*VALUE(OSHDEV/OSHPFV,LSHDEV)*IFARG(1)) ELSE OSHDEV
OSM = OS0403+BS0405-OSHDEV
OSMDI = OSMDI - IF YEAR(OSMDI) LT IFARG(2) THEN OSMDI*VALUE(OSMDI/BS0403,IFARG(2)) ELSE OSMDI
OSMDI_CUR = OSMDI/OSMDI CUR
OSMDI_CUR = EXPAND(OSMDI_CUR,40,1,1970)
OSMDI_CUR = (OSMDI+OSMDI(-1)+OSMDI(-2)+OSMDI(-3))/4
OSMDIV = OSMDIV = OSMDIV/OSMDIV
OSMDIV DIS = OSMDIV DIS = OSMDIV DIS +03A56
OSMDT = OSMDT = BS0403-OSMDI-OSMDT
OSMDTV = OSMDTV = BS0303
OSMF = OSMF = IF YEAR(OSMF) LT IFARG(2) THEN OSMF*VALUE(OSMF/OSMF,IFARG(2)) ELSE OSMF
OSMFV = OSMFV = IF YEAR(OSMFV) GT IFARG(1) THEN OSMFV*VALUE(OSMFV/OSMFV,IFARG(1)) ELSE OSMFV
OSMP = OSMF = BS0405-OSHDEV
OSMPCUR = OSMF CUR = OSMF CUR osmfp cur
OSMPCUR = EXPAND(OSMF CUR,40,1,1970)
OSMPCUR = (OSMFP+OSMFP(-1)+OSMFP(-2)+OSMFP(-3))/4
OSMPFV = OSMPFV = BS0305-OSHDEV
OSMPS = OSMPS = OSMPS-OSMPS
OSMPSV = OSMPSV = OSMPSV-OSMPSV
OSMPSV DIS = OSMPSV DIS = OSMPSV DIS + C03A59-C03A74
OSMTC = OSMTC = IF YEAR(OSMTC) LT IFARG(2) THEN OSMTC*VALUE(OSMTC/BS0403,IFARG(2)) ELSE OSMTC
OSMTCV = OSMTCV = IF YEAR(OSMTCV) GT IFARG(1) THEN OSMTCV*VALUE(OSMTCV/0303,IFARG(1)) ELSE OSMTCV
OSMV = OSMV = BS0305+BS0305-OSHDEV
OSN = OSMN=OSMPS
OSHEV = OVERLAY(OSNHE,LSNHE)
OSNHE = IF YEAR(OSNHEV) GT IFARG(1) THEN OSNHEV*VALUE(OSNHEV/(LSNHE+OSNPV/LSNP),1FARG(1)) ELSE OSNHEV
OSNP = B0404
OSNPV = B0304
OSNV = OSNV - OSNHEV+OSNPV
OSO = OSO = B0403+B0405
OSOV = OSOV = B0303+B0305
PEN42 = PEN42 = IF YEAR(PEN42) GT IFARG(1) THEN PEN42*VALUE(PEN42/PEN42_X,1FARG(1)) ELSE PEN42
PEN71 = PEN71 = IF YEAR(PEN71) GT IFARG(1) THEN PEN71*VALUE(PEN71/PEN71,1FARG(1)) ELSE PEN71
PCCG = PCCG = GCV/GCC
PCCGDOT = PCCGDOT = DEL(1 : PCCG)/PCCG(-1)*100
PCCGNP = PCCGNP = GCGNP/GCGNP
PCCGW = PCCGW = WSNHE/VALUE(WSNHE,1985)
PCCGSHE = PCCGSHE = GCGSHE/GCCSHE
PCCGSHEDOT = PCCGSHEDOT = DEL(1 : PCCGSHE)/PCCGSHEDOT(-1)*100
PCCGW = PCCGNP = GCGNP/GCCNP
PIAG = PIAG = IAGV/1AG
PIB = PIB = IIV/1B
PIBC = PIBC = IBCV/1BC
PIBCDOT = PIBCDOT = DEL(1 : PIBC)/PIBC(-1)*100
PIH = PIH = IIV/1H
PIHDOT = PIHDOT = DEL(1 : PIH)/PIH(-1)*100
PII = PII = IIV/II
PIIB = PIIB = IIV/II
PIIM = PIIM = IIV/1IM
PIIMD = PIIMD = IIV/1IMD
PIIMP = PIIMP = IIV/1IMP
PIIMH = PIIMH = IIV/1IMH
PIIMIT = PIIMIT = IIV/1IMIT
PIIU = PIIU = IIV/1IU
PIME = PIEM = IIV/E
PIMEDOT = PIMEDOT = DEL(1 : PIEM)/PIEM(-1)*100
PIPA = PIPIA = ISNPV/1SNP
PIIS = PIIS = ISV/IS
PISCP = PISCP = ISCP/1SCP
PISNHE = PISSNHE = ISNHEV/ISNHE
PISM = PIISM = ISM/ISM
PISMIO = PIISMIO = ISMOV/1SMO
PISMTP = PISMTP = ISMOV/1SMTP
PISNI = PIISNI = ISMOV/1SMI
PISMG  =  ISMGV/ISMG
PISMGW =  ISMGVW/ISMGW
PISMPF  =  ISMPFV/ISMPF
PISMPS  =  ISMPSV/ISMPS
PISNTC  =  ISNTCV/ISNTC
PISN  =  ISNV/ISN
PISNE  =  ISNEV/ISNE
PISNH  =  ISNHV/ISNH
PISNIE =  ISNIEV/ISNIE
PITOT  =  ITOTV/ITOT
PKH  =  PII*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKI  =  PII*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKIB  =  PII*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKIMD =  PIIMD*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKIMF =  PIIMF*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKIMT =  PIIMT*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKIU  =  PIIU*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKSM  =  PISM*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKSMFI =  PISMFI*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKSMPS =  PISMPS*(1-X.1)*(X.2+0.08)/(1-RCORP1)
PKSMTC =  PISMTC*(1-X.1)*(X.2+0.08)/(1-RCORP1)
POAG  =  POA
POI  =  OIV/OI
POIB  =  OIBV/OIB
POINT  =  OIMTV/OIMT
POIU  =  OIU/V/IU
POPCNWE =  POPCNAE/POPWE
POPMNAE =  POPMNAE/LNA
POSM  =  OSMV/OSM
POSMDI =  OSMDIV/OSMDI
POSMDT =  OSMDTV/OSMDT
POSMFI =  OSMPFV/OSMFI
POSMPP =  OSMPFV/OSMPF
POSMPS = OSMPSV/OSMPS
POSMTC = OSMTCV/OSMTC
POSMTCM = (OSHTCV-CCSCT)/OSMTC*VALUE(OSMTC/(OSHTCV-CCSCT), 1985)
POSNHE = OSNHEV/OSNHE
POSNP = OSPNPV/OSNP
POSO = OSOV/OSO
PQEIMD = IF YEAR(PQEMID) GT IFARG(1) THEN PQEIMD*VALUE(PENT_X/PENT_XX,IFARG(1)) ELSE PQEIMD
PQEIMF = IF YEAR(PQEMIF) GT IFARG(1) THEN PQEIMF*VALUE(PENT_X/PENT_XX,IFARG(1)) ELSE PQEIMF
PQEIMH = IF YEAR(PQEMIH) GT IFARG(1) THEN PQEIMH*VALUE(PENT_X/PENT_XX,IFARG(1)) ELSE PQEIMH
POGIB = OQGIBV/OQGIB*VALUE(OGIBV/OGIBV,1985)
POGIMD = OQGIMDV/OQIMD*VALUE(OQIMD/OQIMDV,1985)
POGIMF = OQGIMFV/OQIMF*VALUE(OQIMF/OQIMFV,1985)
POGIMF_UK = COMPACT(UK_M_E9471000,0,1)/VALUE(COMPACT(UK_M_E9471000,0,1),1985)
POGIMRES = OQGIMRESV/OQIMRES*VALUE(OQIMRES/OQIMRESV,1985)
POGIMT = OQGIMTV/OQIMT*VALUE(OQIMT/OQIMTV,1985)
POGIMT_GER = COMPACT(GER_M_E947000,0,1)/VALUE(COMPACT(GER_M_E947000,0,1),1985)
POGIMT_UK = COMPACT(UK_M_E9471000,0,1)/VALUE(COMPACT(UK_M_E9471000,0,1),1985)
POGIMT_USA = COMPACT(USA_M_E9470000,0,1)/VALUE(COMPACT(USA_M_E9470000,0,1),1985)
POGIMT_UK = COMPACT(UK_M_E9471000,0,1)/VALUE(COMPACT(UK_M_E9471000,0,1),1985)
POGIMF = OQGIMFV/OQIMF*VALUE(OQIMF/OQIMFV,1985)
PQIUP = OQIUV/OQIQ*VALUE(OQIQ/OQUV,1985)
<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PYAFS</td>
<td>PYAFS = YAFS/YRAFS</td>
</tr>
<tr>
<td>QEIMD</td>
<td>QEIMD = QEIMDV/PQEIMD</td>
</tr>
<tr>
<td>QEIMDV</td>
<td>QEIMDV = OVERLAY(QEIMDV_X, QEIMDV)</td>
</tr>
<tr>
<td>QEIMD4V</td>
<td>QEIMD4V = (QEIMD4V_NC<em>QEIMC4V_NC</em>QEIMT4V_NC<em>QEIMF4V_NC + QEIMGL4V_NC</em>QEIMOT4V_NC*QEIMMQ4V_NC)/10**3</td>
</tr>
<tr>
<td>QEIMD7V</td>
<td>QEIMD7V = (QEIMD7V_NC<em>QEIMC7V_NC</em>QEIMT7V_NC<em>QEIMF7V_NC + QEIMGL7V_NC</em>QEIMOT7V_NC*QEIMMQ7V_NC)/10**3</td>
</tr>
<tr>
<td>QEIMD9V</td>
<td>QEIMD9V = QEIMD4V_X<em>QEIMD4V</em>QEIMD7V</td>
</tr>
<tr>
<td>QEIMF</td>
<td>QEIMF = QEIMFV/PQEIMF</td>
</tr>
<tr>
<td>QEIMFV</td>
<td>QEIMFV = OVERLAY(QEIMFV_X, QEIMFV)</td>
</tr>
<tr>
<td>QEIMF4V</td>
<td>QEIMF4V = QEIMF4V_NC/10**3</td>
</tr>
<tr>
<td>QEIMF7V</td>
<td>QEIMF7V = QEIMF7V_NC/10**3</td>
</tr>
<tr>
<td>QEIMF9V</td>
<td>QEIMF9V = QEIMF4V_X<em>QEIMF4V</em>QEIMF7V</td>
</tr>
<tr>
<td>QEIMH</td>
<td>QEIMH = QEIMHV/PQEIMH</td>
</tr>
<tr>
<td>QEIMHV</td>
<td>QEIMHV = OVERLAY(QEIMHV_X, QEIMHV)</td>
</tr>
<tr>
<td>QEIMH4V</td>
<td>QEIMH4V = (QEIMH4V_NC<em>QEIMC4V_HC</em>QEIMT4V_NC<em>QEIMF4V_NC + QEIMGL4V_NC</em>QEIMOT4V_NC*QEIMMQ4V_NC)/10**3</td>
</tr>
<tr>
<td>QEIMH7V</td>
<td>QEIMH7V = (QEIMH7V_NC<em>QEIMC7V_HC</em>QEIMT7V_NC<em>QEIMF7V_NC + QEIMGL7V_HC</em>QEIMOT7V_NC*QEIMMQ7V_NC)/10**3</td>
</tr>
<tr>
<td>QEIMH9V</td>
<td>QEIMH9V = QEIMHV_X<em>QEIMHV</em>QEIMH7V</td>
</tr>
<tr>
<td>QEIMRESV</td>
<td>QEIMRESV = OVERLAY(QEIMRESV_X, QEIMRESV)</td>
</tr>
<tr>
<td>QEIMRESV_OC</td>
<td>QEIMRESV_OC = QEIMFV_XOC<em>QEIMH12V_OC</em>QEIM413V_OC</td>
</tr>
<tr>
<td>QEIMT</td>
<td>QEIMT = QEIMF+QEIMD+QEIMH</td>
</tr>
<tr>
<td>QEIMTV</td>
<td>QEIMTV = QEIMFV+QEIMHV+QEIMDV</td>
</tr>
<tr>
<td>QEIMI4V</td>
<td>QEIMI4V = QEIMF4V+QEIMH14V+QEIMD4V</td>
</tr>
<tr>
<td>QEIMI42</td>
<td>QEIMI42 = QEIMI42V/PQEIMF</td>
</tr>
<tr>
<td>QEIMI42V</td>
<td>QEIMI42V = OVERLAY(QEIMI42V_X, QEIMI42V)</td>
</tr>
<tr>
<td>QEIMI42V_OC</td>
<td>QEIMI42V_OC = (ENG04_OC+ENG05_OC)/10**6</td>
</tr>
<tr>
<td>QEIMI43</td>
<td>QEIMI43 = QEIMI43V/PQEIMF</td>
</tr>
<tr>
<td>QEIMI43V</td>
<td>QEIMI43V = OVERLAY(QEIMI43V_X, QEIMI43V)</td>
</tr>
<tr>
<td>QEIMI43V_OC</td>
<td>QEIMI43V_OC = ENG06_OC/10**6</td>
</tr>
<tr>
<td>QEIM7V</td>
<td>QEIM7V = QEIMF7V<em>QEIMH7V</em>QEIMD7V</td>
</tr>
<tr>
<td>QEIM9V</td>
<td>QEIM9V = QEIMF9V+QEIMH9V+QEIMD9V</td>
</tr>
<tr>
<td>OGIC_CURA</td>
<td>OGIC_CURA = OGIC/OGIC*QGIB(-1)+OGIB(-3)+QGIB(-4)QGIB(-5)**(1/6)</td>
</tr>
<tr>
<td>OGIC</td>
<td>OGIC = B1701+B1702+B1703</td>
</tr>
<tr>
<td>OGIC_CURA</td>
<td>OGIC_CURA = OGIC/OGIC*QGIB(-1)+OGIB(-3)+QGIB(-4)QGIB(-5)**(1/6)</td>
</tr>
<tr>
<td>OGICB</td>
<td>OGICB = B1501+B1502+B1503</td>
</tr>
<tr>
<td>QGICMFV</td>
<td>QGICMFV = IF YEAR(QGICMFV) LT IFARG(2) THEN QGICMFV*VALUE(A1AA074/QGICMFV_OC, ELSE QGICMFV</td>
</tr>
<tr>
<td>QGICH_OEC</td>
<td>QGICH_OEC = IF YEAR(QGICH_OEC) LT 1975 THEN QGICH_OEC*VALUE(QGICH_OEC/QGICH1_OEC,1975) ELSE QGICH_OEC</td>
</tr>
</tbody>
</table>
QGIMCHV = IF YEAR(QGIMCHV) LT IFARG(2) THEN QGIMCHV*VALUE(A1A016/QGIMCHV_OC, IFARG(2)) ELSE QGIMCHV
QGIMD = VALUE(QGIMD, 1985) * QGIMD
QGIMDTV = IF YEAR(QGIMDTV) LT IFARG(2) THEN QGIMDTV*VALUE(A1A061/QGIMDTV_OC, IFARG(2)) ELSE QGIMDTV
QGIMDV = QGIMDV = QGIMTV+QGICNPV+QGIMDV+QGIMPPV*QGIMGAVL+QGIMTVG+QGIMDV+QGIMCPV* QGIMREFV
QGIMF = VALUE(QGIMF, 1985) / QGIMF
QGIMFPV = IF YEAR(QGIMFPV) LT IFARG(2) THEN QGIMFPV*VALUE(A1A0049/QGIMFPV_OC, IFARG(2)) ELSE QGIMFPV
QGIMGAVL = IF YEAR(QGIMGAVL) LT IFARG(2) THEN QGIMGAVL*VALUE(A1A012/QGIMGAVL_OC, IFARG(2)) ELSE QGIMGAVL
QGIMH = VALUE(QGIMH, 1985) * QGIMH
QGIMM_OECD = FROM 1975 ON THIS SERIES IS DERIVED AS A WEIGHTED AVG OF THE OUTPUT VOLUME SERIES FOR CHEM. AND MET & ENG. FROM THE OECDQIN DBASE. (THE WEIGHTS REPRESENT THE VALUE OF OUTPUT IN 1975 OF CHEM (0.25) AND MET & ENG (0.75). FOR EC AND USA.
QGIMM_OECD_CUR = QGIMM_OECD/(QGIMM_OECD+QGIMM_OECD(-1)+QGIMM_OECD(-2)+QGIMM_OECD(-3))**4
QGIMHV = QGIMHV = QGIMCV+QGIMMV
QGIMMV = IF YEAR(QGIMMV) LT 1975 THEN QGIMMV*VALUE(QGIMMV, QGIMMV_OECD, 1975) ELSE QGIMMV
QGIMMV = IF YEAR(QGIMMV) LT IFARG(2) THEN QGIMMV*VALUE(A1A023/QGIMMV_OC, IFARG(2)) ELSE QGIMMV
QGIMQV = IF YEAR(QGIMQV) LT IFARG(2) THEN QGIMQV*VALUE(A1A004/QGIMQV_OC, IFARG(2)) ELSE QGIMQV
QGIMQV = IF YEAR(QGIMQV) LT IFARG(2) THEN QGIMQV*VALUE(A1A004/QGIMQV_OC, IFARG(2)) ELSE QGIMQV
QGIMQV = IF YEAR(QGIMQV) LT IFARG(2) THEN QGIMQV*VALUE(A1A004/QGIMQV_OC, IFARG(2)) ELSE QGIMQV
QGIMPV = IF YEAR(QGIMPV) LT IFARG(2) THEN QGIMPV*VALUE(A1A092/QGIMPV_OC, IFARG(2)) ELSE QGIMPV
QGIMPPV = IF YEAR(QGIMPPV) LT IFARG(2) THEN QGIMPPV*VALUE(A1A008/QGIMPPV_OC, IFARG(2)) ELSE QGIMPPV
QGIMREFV = A1A093
QGIMREFV = QGIMREFV = QGIMF-QGIM412V-QGIM413V
QGINT = QGINT = QGIMHV*QGIMIDC*QGIMF
QGINT_EC = VALUE(QGINT_EC) / (QGINT_EC+QGINT_EC(-1)+QGINT_EC(-2)+QGINT_EC(-3))**4
QGINT_G = DEU_Y_INDPRO/VALUE(DEU_Y_INDPRO, 1985)
QGINT_OECDC = IF YEAR(QGINT_OECD) LT IFARG(2) THEN QGINT_OECDC*VALUE(X1/Y1, 2, IFARG(2)) ELSE QGINT_OECD
QGINT_OECD_CUR = QGINT_OECD/(QGINT_OECD+QGINT_OECD(-1)+QGINT_OECD(-2)+QGINT_OECD(-3))**4
QGINT_OECD_R = QGINT_OECD/(QGINT_OECD+QGINT_OECD(-1)+QGINT_OECD(-2)+QGINT_OECD(-3))**4
QGINT_UK = GBR_Y_INDPRO/VALUE(GBR_Y_INDPRO, 1985)
QGINT_USA = USA_Y_INDPRO/VALUE(USA_Y_INDPRO, 1985)
QGINTV = QGINTV = QGIMTV+QGIMDTV+QGIMF
QGINTV = IF YEAR(QGINTV) LT IFARG(2) THEN QGINTV*VALUE(A1A067/QGINTV_OC, IFARG(2)) ELSE QGINTV
QGIV = QGIV = QGIV+QGIMREV
QGIV = QGIV = QGIV*VALUE(A1A003/QGIV_OC, IFARG(2)) ELSE QGIV
QGIM12V = IF YEAR(QGIM12V) LT IFARG(2) THEN QGIM12V*VALUE(A1A051/QGIM12V_OC, IFARG(2)) ELSE QGIM12V
QGIM12V_OC = QGIM12V_OC = QGIM12V_OC+QGIM12V_OC
QGIM13V = IF YEAR(QGIM13V) LT IFARG(2) THEN QGIM13V*VALUE(A1A052/QGIM13V_OC, IFARG(2)) ELSE QGIM13V
QGIM13V_OC = QGIM13V_OC = QGIM13V_OC+QGIM13V_OC
QGIU = QGIU = QGIU+QGIMREV
QGIU = QGIU = QGIU+QGIMREV
QIM = QIM = QIM/VALUE(QIM, 1985)
QIMCP = QIMCP = QIMCP/VALUE(QIMCP, 1985)
QIMCH = QIMCH/VALUE(QIMCH, 1985)
QIMD = QIMD/VALUE(QIMD, 1985)
QIMDT = QIMDT/VALUE(QIMDT, 1985)
QIMP = QIMP/VALUE(QIMP, 1985)
QIMFRES = QIMFRES/VALUE(QIMFRES, 1985)
QIMF412 = QIMF412/VALUE(QIMF412, 1985)
QIMF412_OC = QIMF412_OC/VALUE(QIMF412_OC, 1973)
QIMF413 = QIMF413/VALUE(QIMF413, 1985)
QIMF413_OC = QIMF413_OC/VALUE(QIMF413_OC, 1985)
QIMGL = QIMGL/VALUE(QIMGL, 1985)
QIMH = QIMH/VALUE(QIMH, 1985)
QIMM = QIMM/VALUE(QIMM, 1985)
QIMQ = QIMQ/VALUE(QIMQ, 1985)
QIMOT = QIMOT/VALUE(QIMOT, 1985)
QIMPP = QIMPP/VALUE(QIMPP, 1985)
QIMT = QIMT/VALUE(QIMT, 1985)
QIMTX = QIMTX/VALUE(QIMTX, 1985)
QIMWD = QIMWD/VALUE(QIMWD, 1985)
QIREF = QIREF/OVERLAY(QIREF, MIAA038)
QIU = QIU/VALUE(QIU, 1985)
QMIB = QMIB/VALUE(QMIB, 1985)
QMIBV = QMIBV/VALUE(QMIBV, 1985)
QHMCFV = QHMCFV/VALUE(QHMCFV, 1985)
QIMCFV = QIMCFV/VALUE(QIMCFV, 1985)
QIMCHV = QIMCHV/VALUE(QIMCHV, 1985)
QIMDFV = QIMDFV/VALUE(QIMDFV, 1985)
QIMGLV = QIMGLV/VALUE(QIMGLV, 1985)
QIMHV = QIMHV/VALUE(QIMHV, 1985)
QIMMV = QIMMV/VALUE(QIMMV, 1985)
QIMMVV = QIMMVV/VALUE(QIMMVV, 1985)
QIMQV = QIMQV/VALUE(QIMQV, 1985)
QIMQVV = QIMQVV/VALUE(QIMQVV, 1985)
QIMOTV = QIMOTV/VALUE(QIMOTV, 1985)
QIMPPV = QIMPPV/VALUE(QIMPPV, 1985)
QIMQTV = QIMQTV/VALUE(QIMQTV, 1985)
QIMQTVV = QIMQTVV/VALUE(QIMQTVV, 1985)
QIMTIV = QIMTIV/VALUE(QIMTIV, 1985)
QIMTV = QIMTV/VALUE(QIMTV, 1985)
QIMTVV = QIMTVV/VALUE(QIMTVV, 1985)
QIMWDV = QIMWDV/VALUE(QIMWDV, 1985)
QIM412 = QIM412/VALUE(QIM412, 1985)
QIM412V = QIM412V/VALUE(QIM412V, 1985)
QMWD\_TV = QNIUW = IF YEAR(QNIUW) LT IFARG(2) THEN QNIUW+VALUE(A1AA311/QNIUW\_OC,IFARG(2)) ELSE QNIUW

QMWD\_MD = QIND = QIMDV/POR\_MD

QMIMDV = QIMDV-QEIMDV

QIMF\_MD = QIMF\_MD = QIMF\_MD/PORMF

QIMF\_PM = QIMF\_PM = QIMF\_PM-PORMF

QIMF\_MDV = QIMF\_MDV-QEIMF\_MDV

QIMF\_TV = QIMF\_TV = QIMF\_TV-PORMF

QIMF\_12 = QIMF\_12 = QIMF\_12\_TV=QIMF\_12\_TV

QIMF\_13 = QIMF\_13 = QIMF\_13\_TV=QIMF\_13\_TV

QIMF\_13\_V = QIMF\_13\_V = QIMF\_13\_V-QEIMF\_13\_V

QIMT\_MD = QIMT\_MD = EXP[0.607\_LOG(FDWQGIMD/VALUE(FDWQGIMD, 1985))+0.171\_LOG(QGIMT\_UK/VALUE(QGIMT\_UK,1985))+0.097\_LOG(QGIMT\_USA/VALUE(QGIMT\_USA,1985))+0.125\_LOG(QGIMT\_GER/VALUE(QGIMT\_GER,1985))]

QIMD\_MD\_TV = QIMD\_MD\_TV = QIMD\_MD\_TV/QPMND

RATWI = RATWI = W\_RET\_PC

RAWSM = RAWSM = WSM\_RET\_PC

RDFBT = RDFBT = GNT/GNP\_100

RDFBT\_F = RDFBT\_F = 100\_GNT/GNP

RDFBT\_FL = RDFBT\_FL = 1000\_GNT/LTOT

RDFBT\_FF = RDFBT\_FF = 100\_GNT/XGSV

RDFBT\_H = RDFBT\_H = 1000\_GNT/XTOT

RDFBT\_X = RDFBT\_X = 100\_GNT/XGSV

RDFBT\_N = RDFBT\_N = 100\_GNT/XTOT

RDFBT\_F = RDFBT\_F = 100\_GNT/XGSV

RDFBTF = RDFBTF = 100*GNT/GNP+GNS

RE = RE = (1-UR/100)/(1-URUK/100)

RETRAT = RETRAT = 1-RET\_TOT

RE\_GER = REX\_GER = COMPACT(GER\_M\_EA571200/I\_IRL\_M\_EA571200,0,1)

RE\_UK = REX\_UK = COMPACT(UK\_M\_EA571200/I\_IRL\_M\_EA571200,0,1)

RE\_USA = REX\_USA = COMPACT(1/I\_IRL\_M\_EA571200,0,1)

RFFAQC = RFFAQC = 100*(FFAQC/FFSC)

RFFAQH = RFFAQH = 100*(FFAQH/FFSH)

RFFAQT = RFFAQT = 100*(FFAQT/(FFSH+FFSC))
RGC = GC/GNPV*100
RTTAX = [CTE+GTY+CTW]/GNP*100
RTTOT = GTTOT/GNPV*100
RTTC = GTTC/GTYV(-1)
RTTSE = GTTSE/(YTV+YWI)
RTTS = GTTSL*RTTSP
RTTSP = GTTSP/(YTV+YWI)
RU = RN*100*(R/MTV)
RTYPER = GTYPER/YPERT
RTYPERM = DEL(1 : GTYPER)/DEL(1 : YPERT)
RTYPTOT = RTYPTOT = RTYPER+RTTSP
RW = WIR/VALUE(WIR,1985)/WIRUK
RMN = RMN = REPRAT+RM
RYCSM = RYCSM = PGMN/UCLSM
SAV = SAV = YPERD-CV
SARC = SARC = YU-GTYC
SAC = SAVC = SAVACC+DEP+BPT tolerate
SAST = SAVT = SAVT+YASA
SARAT = SAVRAT = 100*(1-CV/YPERD)
SASAVT = SAVT = SAV+SAV+GBC
TOTRAGE = TOTRADE = FXT/PMT
TTEAR = TTEAR = YEAR(1)
T70 = T70 = YEAR(TTEAR)-1969
U = U = LF-L
UCLI = UCLI = TIC+01
UCLI_DOT = UCLI_DOT = DEL(1 : UCLI)/UCLI(-1)*100
UCLib = UCLIB = YWIB/01B
UCLIDOT = UCLIDOT = DEL(1 : UCLI)/UCLI(-1)*100
UCLIMT = UCLIMT = YNMT/OIMT
UCLIU = UCLIU = YWU/01U
UCLSN = UCLSN = YTVG/OSM
UCLSNMDI = UCLSNMDI = YTVG/OSMMDI
UCLSNMDT = UCLSNMDT = YTVG/OSMMDT
UCLSNMP = UCLSNMP = YTVG/OSMMP
UCLSNMP = UCLSNMP = YTVG/OSMMP
UCLSNPS = UCLSNPS = YTVG/OSMPS
UCLSNMTC = UCLSNMTC = YTVG/OSMNTC
UCLSNHUE = UCLSNHUE = YTVG/OSMHE
UCLSNP = UCLSNP = YTVG/OSMNP
UCLSO = UCLSO = YTVG/OSO
UR
URNAT
URNAT = SUM(I = -3 TO 0 : UR(I))/4
WAIMP
WAIMP = YA/LA
WEDGE
WEDGE = PC/POQ1+1+RGTYS2)/(1-RTPTOT)
WI
WI = WI/LI
WI_DOT
WI_DOT = DEL(I : WI)/WI(-1)*100.
WIB
WIB = TWIB/LIB
WIMD
WIMD = YWIMD/LIMD
WIMF
WIMF = YWIMF/LIMF
WIMFRES
WIMFRES = YWIMFRES/LIMFRES
WIMF412
WIMF412 = YWIMF412/LIMF412
WIMF413
WIMF413 = YWIMF413/LIMF413
WIMH
WIMH = YWIMH/LIMH
WINT
WINT = YWINT/LIMT
WINT_GER
WINT_GER = DEU_Y_WRMAN
WINT_UK
WINT_UK = GBR_Y_WRMAN
WINT_USA
WINT_USA = USA_Y_WRMAN
WIR
WIR = WI/PC
WIRDOT
WIRDOT = DEL(I : WIR)/WIR(-1)*100
WIU
WIU = YWIU/LIU
WK1
WK1 = GTYSE/GTYSL
WL1
WL1 = GTHVDC/GTHVD
WNA
WNA = YWNA/LNA
WNA_DOT
WNA_DOT = DEL(I : WNA)/WNA(-1)*100.
WRELPA
WRELPA = WSNP/WI
WRELPH
WRELPH = WSNH/WSNP
WSM
WSM = YWSM/LSM
WSM_DOT
WSM_DOT = DEL(I : WSM)/WSM(-1)*100.
WSNDI
WSNDI = YWSNDI/LSMDI
WSNDF
WSNDF = YWSNDF/LSNDF
WSMPI
WSMPI = YWSMPI/LSMPI
WSMPF
WSMPF = YWSMPF/LSMPI
WSMPS
WSMPS = YWSMPS/LSMPS
WSMTC
WSMTC = YWSMT/LSMTC
WSNHE
WSNHE = YWSNHE/LSNHE
WSNP
WSNP = YWSNP/LSNP
WSO
WSO = YWSO/LSO
WTIME
WTIME = IME/(1/TOT-1H)
X3_DIS
X3_DIS = X3V/(PM3*ENK_T)
YAFS  \[ YAFS = -B0114 \]
YAG  \[ YAG = YA \]
YC  \[ YC = YCIN+YCSON+YASA \]
YCI  \[ YCI = OIV-YWI \]
YCIWB  \[ YCIWB = O1IV-YWIB \]
YCIDM_NC  \[ YCIDM_NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM_NC  \[ YCIDM_NC = QNIMPV-YWINFP \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM_NC  \[ YCIDM_NC = QNIMDV-YWINMD \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM_NC  \[ YCIDM_NC = QNIMDV-YWINMD \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF_NC  \[ YCIDF_NC = QNIMPV-YWINFP \]
YCIDFRES_NC  \[ YCIDFRES_NC = QNIMRESV-YWINMRES \]
YCIDF412_NC  \[ YCIDF412_NC = QNIM412V-YWINF412 \]
YCIDF413_NC  \[ YCIDF413_NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF NC  \[ YCIDF NC = QNIMPV-YWINFP \]
YCIDFRES NC  \[ YCIDFRES NC = QNIMRESV-YWINMRES \]
YCIDF412 NC  \[ YCIDF412 NC = QNIM412V-YWINF412 \]
YCIDF413 NC  \[ YCIDF413 NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF NC  \[ YCIDF NC = QNIMPV-YWINFP \]
YCIDFRES NC  \[ YCIDFRES NC = QNIMRESV-YWINMRES \]
YCIDF412 NC  \[ YCIDF412 NC = QNIM412V-YWINF412 \]
YCIDF413 NC  \[ YCIDF413 NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF NC  \[ YCIDF NC = QNIMPV-YWINFP \]
YCIDFRES NC  \[ YCIDFRES NC = QNIMRESV-YWINMRES \]
YCIDF412 NC  \[ YCIDF412 NC = QNIM412V-YWINF412 \]
YCIDF413 NC  \[ YCIDF413 NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YCIDF NC  \[ YCIDF NC = QNIMPV-YWINFP \]
YCIDFRES NC  \[ YCIDFRES NC = QNIMRESV-YWINMRES \]
YCIDF412 NC  \[ YCIDF412 NC = QNIM412V-YWINF412 \]
YCIDF413 NC  \[ YCIDF413 NC = QNIM413V-YWINF413 \]
YCIDM NC  \[ YCIDM NC = QNIMDV-YWINMD \]
YWIMF NC  = YWIMF
YWIMFRES = YWIMFRES_NC*YWIMF_X
YWIMFRES_NC = YWIMFRES-YWIMF412-YWIMF413
YWIMF412 = YWIMF412_NC*YWIMF_X
YWIMF412_NC = YWIMF412
YWIMF412_OC = YWINF412_OC*YWIMF412
YWIMF413 = YWIMF413_NC*YWIMF_X
YWIMF413_NC = YWIMF413
YWIMF413_OC = YWINF413_OC*YWIMF413
YWIMGL = IF YEAR(YWIMGL) LT IFARG(2) THEN YWIMGL * VALUE(AIAA462/YWIMGL_OC,IFARG(2)), ELSE YWIMGL
YWIMH NC  = YWINH_NC*YWIMT_X
YWIMH = YWINH_NC*YWIMM
YWIMH = IF YEAR(YWIMH) LT IFARG(2) THEN YWIMM*VALUE(AIAA473/YWIMM_OC,IFARG(2)) ELSE YWIMM
YWIMMO = IF YEAR(YWIMMO) LT IFARG(2) THEN YWIMO*VALUE(AIAA454/YWIMM_OC,IFARG(2)) ELSE YWIMO
YWIMOT = IF YEAR(YWIMOT) LT IFARG(2) THEN YWIMOT*VALUE(AIAA454/YWIMOTT_OC,IFARG(2)) ELSE YWIMOT
YWIMPP = IF YEAR(YWIMPP) LT IFARG(2) THEN YWIMPP*VALUE(AIAA539/YWIMPP_OC,IFARG(2)) ELSE YWIMPP
YWIMT = IF YEAR(YWIMT) LT IFARG(2) THEN YWIMT*VALUE(C03857/(YWIMT_NC/(1-RGTYSE)),IFARG(2)) ELSE YWIMT
YWIMT_DIS = YWIMT-YWIMF-YWIMD-YWIMH
YWIMT_NC  = YWINH_NC+YWIMD_NC+YWIMF_NC
YWIMTX = IF YEAR(YWIMTX) LT IFARG(2) THEN YWIMTX*VALUE(AIAA517/YWIMTX_OC,IFARG(2)) ELSE YWIMTX
YWIMWD = IF YEAR(YWIMWD) LT IFARG(2) THEN YWIMWD*VALUE(AIAA533/YWIMWD_OC,IFARG(2)) ELSE YWIMWD
YWIU = IF YEAR(YWIU) LT IFARG(2) THEN YWIU*VALUE(C03860/(YWIU_NC/(1-RGTYSE)),IFARG(2)) ELSE YWIU
YWIU_DIS = YWIU-YWIU_NC
YWUS NC  = YWINUS_NC
YWUS = YWINUS_NC*YWUSN
YWUSH = IF YEAR(YWUSHE) GT IFARG(1) THEN YWUSHE*VALUE(YWUSHE/LWSHE*YWUSN/LSNP),IFARG(1)) ELSE YWUSHE
YWUSH = YWSHDT+YWUSN
YWUSMDI = IF YEAR(YWUSMDI) LT IFARG(2) THEN YWUSMDI*VALUE(YWUSMDI/LWSMDI*YWSMDT/LSNP),IFARG(2)) ELSE YWUSMDI
YWUSMDT = C03857
YWUSMDT_DIS = YWSMDT-YWSMDI-C03861-C03863-C03865-C03867
YWUSHP = YWSHPT-YWSMDI
YWUSHP = IF YEAR(YWUSHP) LT IFARG(2) THEN YWUSHP*VALUE(YWUSHP/LWSHP*YWSMDT/LSNP),IFARG(2)) ELSE YWUSHP
YWUSHP = YWSHPT+YWUSN
YWUSHP_DIS = YWSHPT-YWSMDI-C03859-C03863-C03865-C03867