

COMMISSION OF THE EUROPEAN COMMUNITIES

STUDY

ON THE POSSIBLE PART PLAYED

BY CERTAIN PRIMARY NON-EMPLOYMENT

INCOMES IN THE INFLATIONARY PROCESS IN

THE NETHERLANDS

prepared for the
Commission of the European Communities
by

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At the request of the Commission, Professor A.H.J. Kolnaar has examined the possible influence of non-employment incomes on inflation.

This study consists of three parts. The first will be concerned with macroeconomic questions relevant to inflation. In passing, attention will also be paid to the extent to which profit-push inflation, in addition to the familiar forms of cost-push inflation, has contributed to the depreciation of money.

The ideas developed in the first part of the study are applied in the second part to the principal sectors of the Dutch economy. Particular attention is paid to supply factors.

The third part examines demand factors with special reference to the behaviour of consumers.

The final chapter presents a summary of the study and the main conclusions.

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Preface of the Commission

It is today generally accepted that action taken solely on prices and wages is insufficient to maintain a non-inflationary growth policy. For these reasons, the Commission has deemed it useful to have independent experts study, in the different member countries, the possible part played by certain primary non-employment incomes in the inflationary process.

Given that it is an important subject just as much from the economic viewpoints as the political, thereby justifying as wide a discussion as possible, the Commission is publishing in the current brochure the complete study presented by Professor A.M.H. KOLNAAR.

The opinions expressed are the sole responsibility of the author and should not be taken to be the attitude of the Commission concerning the many questions involved.

I. Summary :

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The ideas developed in the first part of the study are applied in the second part to the principal sectors of the Dutch economy. Particular attention is paid to supply factors.

The third part examines demand factors with special reference to the behaviour of consumers.

The final chapter presents a summary of the study and the main conclusions. It should be noted here that, although the theories advanced here have as far as possible been tested on their empirical merits, the extent to which this is possible is limited by the lack of adequate numerical statistics. Apart from this, one of the main limitations of this study lies in the fact that only separate relations have been investigated, and no attempt has been made to examine the merits and consistency of these relations within the framework of an integrated aggregate model of the Netherlands economy.

THE STUDY



Chapter I

Macroeconomic Considerations

§ 1. Introduction

This chapter considers the macroeconomic factors relevant to inflation in the Netherlands. To provide an understanding of the course of this inflationary process, a definition will first be given of the complete charging or passing on of rising costs. This definition is relevant to the understanding of other possible influences on inflation.

The chapter also presents an overall survey of the main features and developments of the macroeconomic situation in the Netherlands that are important to the present study. These form the basis for the further treatment of our subject, with all its complexities.

§ 2. Complete and incomplete passing on of cost

If wages rise as a result of increases in nominal wages and labour productivity, then profits and yields will decrease *ceteris paribus*. The relation between the percentage rise in nominal wages and the percentage rise in yields is given by the wage ratio.

If, on the other hand, *ceteris paribus* prices rise again, then nominal profits and yields go up. The relation between the percentage price change and the percentage change in nominal yield is determined here too by the wage ratio through its complement, that is to say the profit ratio.

The foregoing is illustrated in the numerical examples in Ia and Ib, and the total result is given in Ic. The wage ratio here is put at 0.8.

Example Ia: Rise of wages

	Old situation		Price change:	New situation
	volume x prixe = value			volume x price = value
Wages	80 x 1 = 80		10 %	80 x 1.1 = 88
Profit	200 x 0.1 = <u>20</u>		-40 %	200 x 0.06 = <u>12</u>
Production (factor cost)	100 x 1 = 100		0 %	100 x 1 = 100

Example Ib: Rise of prices

	Old situation		Price change:	New situation
	volume x price = value			volume x price = value
Wages	80 x 1 = 80		0 %	80 x 1 = 80
Profit	200 x 0.1 = <u>20</u>		50 %	200 x 0.15 = <u>30</u>
Production	100 x 1 = 100		10 %	100 x 1.1 = 110

Example Ic: Total result

	Old situation		Price change:	New situation
	volume x price = value			volume x price = value
Wages	80 x 1 = 80		10 %	80 x 1.1 = 88
Profit	200 x 0.1 = <u>20</u>		10 % = 50 % - 40 %	200 x 0.11 = <u>22</u>
Production	100 x 1 = 100		10 %	100 x 1.1 = 110

Example Ic shows that ultimately nominal wages, the nominal return on capital and the price of the end product have all risen by 10 %. There have not, however, been any real changes. Applied to the problem of the charging of costs this means that, provided that production and sales remain unchanged, an x% rise in wages will not cause any real decrease in the return on capital if prices are raised by the same percentage. This situation, in which the ratio between nominal cost and nominal change in price is equal to one, is referred to here as "complete passing on of cost".

The term complete passing on of cost might also be reserved for the case where a nominal rise in costs only leads to a rise in prices in proportion to the share of the relevant cost factor in the total value of production. Applied to example I with a 10 % rise in wages, this would then mean that prices would rise by the wage ratio (0.8) of this increase, i.e. by 8 %. The result, given unchanged production and sales, is presented in examples IIa and IIb.

Example IIa: Price rise

Old situation		Price change:		New situation	
volume x price = value				volume x price = value	
Wages	80 x 1 = 80	0 %		80 x 1 = 80	
Profit	200 x 0.1 = <u>20</u>	+40 %		200 x 0.14 = <u>28</u>	
Production	100 x 1 = 100	8 %		100 x 1.08 = 108	

Example IIb: Total result (Ia + IIa)

Old situation		Price change:		New situation	
Wages	80 x 1 = 80	10 %		80 x 1.1 = 88	
Profit	200 x 0.1 = <u>20</u>	0 = 40 % - 40 %		200 x 0.1 = 20	
Production	100 x 1 = 100	8 %		100 x 1.08 = 108	

This example shows that where the price increase reflects the higher cost only in the proportion of the share of that cost in the total production value, the nominal profit and hence, given the same production structure, the nominal return on capital remain in effect constant, but in real terms these quantities have decreased by 8 % (the extent of the monetary depreciation) whereas real wages have shown a net improvement of 2 % (10 % - 8 %). This is reflected in example IIa in a rise in wages and a complementary drop in the profit ratio of the production value at factor cost. Since real changes of this type will always occur where, as in example II, the ratio between the change of cost and the price adjustment based on it is less than one, we prefer in such cases to use the term incomplete passing on of cost. We refer to complete passing on of cost when the relevant ratio is equal to one, and

to more than complete passing on of cost if the ratio is greater than one. In line with the foregoing considerations, we shall treat all types of cost increase in the same way, including import costs and taxes.

Where more than complete passing on of cost is practised, then profit contributes its own share to the inflation. The situation is more difficult in the case of complete or less than complete passing on of cost. In general it can be said, however, that an inflation process set in motion under these circumstances will in the long run come to an end, unless it receives new impetus from outside, for example in the form of new wage or price increases. These outside influences may have many and various causes, as for example failed harvests, economic power, events abroad, miscalculations, to mention but a few. It is the manner in which they become assimilated in the economic process, however, that is responsible for the inflation spiral. It is therefore more important to study the systematics of the process than to analyse the initial impetus and the question of blame. The grounds for this view are presented in the next section.

§ 3. Passing on cost with or without a time lag, and indexation

From what has been said about example II in the previous section one might be inclined to conclude that the actual observation of a rising wage ratio constitutes empirical evidence of the less than complete passing on of the cost of nominal rises in wages. Any such conclusion, however, would be premature and possibly wrong. It may be due to various other reasons. In the first place, prices may lag behind nominal wage increases, even in the case of complete passing on of cost, if at the same time a downward trend appears in other parameters, for example in the cost of raw materials.

Another reason may be a time lag in passing on of increased costs. It is quite conceivable that higher costs may be passed on in selling prices in various stages, spread over a number of years. The overall result of the cost passing on process after a rise in cost is therefore not apparent until the process is at an end. However,

as long as the cost has not been fully passed on during the process, the wage ratio will be higher than it was originally, and so too will real wages. A problem incidental to the foregoing is encountered when a sliding wage scale is in operation. The leapfrog process of wages and prices when wages are tied to an index makes the whole process of passing on cost much more impenetrable. This is reflected in the following numerical example. Again assuming unchanged production and sales, this example gives a succession of different structures relating to indexation and passing on of cost. The symbol P_L stands for the percentage change in wages, P for the change in price level, and therefore $(p_L - p)$ for the real change in wages relative to the preceding period. In all cases it is assumed that P_L is 10 % in the first year and zero in the subsequent years.

Example III: Wages and prices

A. Complete passing on of cost without time lag.

a. Without wage indexation					Final	
Period	1	2	3	4	<u>total</u>	<u>Characteristic</u> Non-recurring
1. $P_L = P_L$	10	0	0	etc.	10	rise of wages
2. $P = P_L$	<u>10</u>	<u>0</u>	<u>0</u>		<u>10</u>	and prices
3. $P_L - P$	0	0	0		0	

Ab. With incomplete indexation and time lag.

1. $P_L = 1/2 P_{-1} + P_L$	10	5	2.5	etc.	20	Diminishing
2. $P = P_L$	<u>10</u>	<u>5</u>	<u>2.5</u>		<u>20</u>	inflation
3. $P_L - p$	0	0	0		0	

Ac. With complete indexation and time lag.

1. $P_L = P_{-1} + P_L$	10	10	10	etc.	∞	Runaway
2. $p = P_L$	<u>10</u>	<u>10</u>	<u>10</u>		<u>∞</u>	inflation
3. $P_L - p$	0	0	0		0	

A. With complete indexation and no time lag

1. $P_L = P + P_L$	∞	0	0	etc.	∞	Immediately explosive price system
2. $P = P_L$	<u>∞</u>	<u>0</u>	<u>0</u>		<u>∞</u>	
3. $P_L - P$	0	0	0		0	

B. Incomplete passing on of cost with no time lag

Ba. Without indexation

	Period	1	2	3	4	Final total	<u>Characteristic</u>
1. $P_L = P_L$		10	0	0	etc.	10	Non-recurring rise of wages and prices
2. $P = 1/2 P_L$		<u>5</u>	<u>0</u>	<u>0</u>		<u>5</u>	
3. $P_L - P$		5	0	0		5	

Bb. With incomplete indexation and time lag

1. $P_L = 1/2 P_{-1} + P_L$	10	5/2	5/8		40/3	Diminishing inflation
2. $P = 1/2 P_L$	<u>5</u>	<u>5/2</u>	<u>5/16</u>		<u>20/3</u>	
3. $P_L - P$	5	5/4	5/16		20/3	

Bc. With complete indexation and time lag

1. $P_L = P_{-1} + P_L$	10	5	5/2		20	Diminishing inflation
2. $P = 1/2 P_L$	<u>5</u>	<u>5/2</u>	<u>5/4</u>		<u>10</u>	
3. $P_L - P$	5	5/2	5/4		10	

Bd. With complete indexation and no time lag

1. $P_L = P + P_L$	20	10	5		40	Diminishing inflation
2. $P = 1/2 P_L$	<u>10</u>	<u>5</u>	<u>5/2</u>		<u>20</u>	
3. $P_L - P$	10	5	5/2		20	

C. Complete passing on of cost with time lag

Ca. Without indexation

Period	1	2	3	4	etc.	Final total	Characteristic
1. $P_L = 0_L$	10	0	0	0		10	Non-recurring rise of wages and prices
2. $P = 1/2P_L + 1/2P_{L-1}$	<u>5</u>	<u>5</u>	<u>0</u>	<u>0</u>		<u>10</u>	
3. $P_L - P$	5	-5	0	0		0	

Cb. With incomplete indexation and time lag

1. $P_L = 1/2P_{-1} + P_L$	10	5/2	2 5/8	45/32	20	Diminishing inflation
2. $P = 1/2P_L + 1/2P_{L-1}$	<u>5</u>	<u>2 5/4</u>	<u>4 5/16</u>	<u>145/64</u>	<u>20</u>	
3. $P_L - P$	5	-15/4	- 5/16	-55/64	0	

Cc. With complete indexation and time lag

1. $P_L = P_{-1} + P_L$	10	5	15/2	25/4	Creeping inflation
2. $P = 1/2P_L + 1/2P_{L-1}$	<u>5</u>	<u>15/2</u>	<u>25/4</u>	<u>55/8</u>	
3. $P_L - P$	5	-5/2	5/4	-5/8	

Cd. With complete indexation and no time lag

1. $P_L = P + P_L$	20	20	20	20	Runaway (galloping) inflation
2. $P = 1/2P_L + 1/2P_{L-1}$	<u>10</u>	<u>20</u>	<u>20</u>	<u>20</u>	
3. $P_L - P$	10	0	0	0	

The following comments may be made on the above examples.

- a. If cost increases are not fully passed on (the case of incomplete passing on of cost), either with or without a time lag, a real improvement of the remuneration for this cost factor may also ultimately be obtained.
- b. The rate of inflation is higher the faster and more completely the price rises are passed on to wage and/or the faster the wage cost increases are passed on to prices.
- c. As long as there is no complete indexation of wages, the originally provoked inflationary spiral comes to an end. The same applies to the case where costs are not fully passed on.
- d. Persistent inflation, either creeping or galloping, is to be expected in the case where costs are fully passed on (complete passing on of cost) together with indexation, with or without a time lag.
- e. Complete wage indexation, either with or without a time lag, offers in the long run - disregarding inflation - the prospect of a permanent real improvement in wages, since every increase in price is at once reflected in an equal increase in cost.

It should at once be said that these comments relate only to trends within the sphere of wages and prices. What would in fact happen in any given system of passing on costs therefore partly depends on the reactions of the other economic parameters to developments in nominal levels and the real changes to which they give rise (1). It will also be clear, however, that other factors in inflation than the costs and prices spiral, as for example profits, cannot be studied before the influence of this spiral has been isolated. The same applies to demand-pull inflation if this is to be kept outside those other factors. In this connection it is most important to obtain quantitative information on the passing on of costs to prices, and vice versa, and on the speed at which this is done. The results of an empirical study undertaken with this end in view are presented in the last section of this chapter.

(1) In this connection see the author's: "Inkomenspolitiek en afwenteling", published in Tijdschrift Economie, October-November 1970.

Before considering these results, we shall deal in the next section with the question of whether anything can be said on the basis of economic theory about the probable magnitude of the various "cost-transfer coefficients", i.e. the coefficients indicating the extent to which costs can be passed on. In the calculations given above it was assumed that there was only one triggering impulse. Whether this results in an inflation process depends on the system of passing on costs. As remarked in the foregoing section, the initial impulse may come from any quarter. The question of who or what is to blame for triggering the process off is therefore not one that can be adequately answered. How the process itself behaves is something that can, however, be analysed.

§ 4. Passing on the costs and the market system

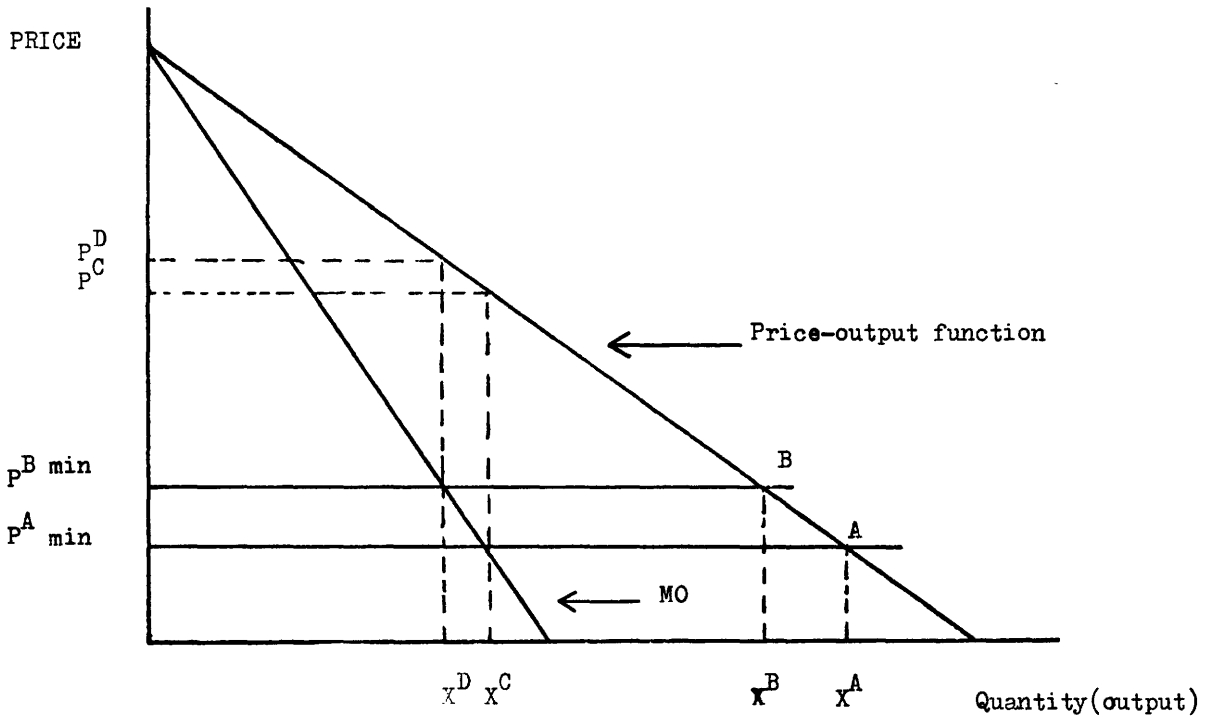
The course of the whole economic process, and not only the rate of inflation, depends essentially on the extent and speed at which costs are passed on. It is therefore appropriate to look for theories capable of giving a quantitative explanation of the coefficients involved.

Pointers in this direction might be found in market theory. This seems indicated, since the distinction between the various forms of market resides in a difference in economic power of firms operating in the market system. The more a form of market approaches that of a pure monopoly, the more one would suppose cost increases to be passed on to prices. Similarly, in the case of perfect competition there would be less opportunity for higher costs to be reflected in selling prices.

In my opinion the above idea is not easy to defend. It seems to be reasonable in so far as it suggests that, in the case of perfect competition, firms will not for competitive reasons pass on cost increases so quickly. There are certainly insufficient grounds, however, for suggesting that, for the same reason, the total ultimate passing on

of costs will be least in the case of perfect competition. This may be illustrated with the familiar textbook graph shown in Figure 1.

Figure 1
Price-output graph



On the axes are the price and the quantity, or output. The relation between them is given by the price-output function. The price P^A is the minimum long-term cost of producing the product x . In the case of perfect competition this is also the long-term selling price for an output x^A and zero net profit. The maximum profit of the monopolist is found from the point of intersection of the P^A -line with the marginal revenue line. In the long term the optimum output of the monopolist is therefore x^C ($\ll x^A$) at a higher selling price, namely P^C , giving a positive profit.

If costs now rise, the new minimum long-term cost could be P_{\min}^B . In perfect competition this is also the new selling price, because otherwise a loss would be made in the long run. Precisely because of the absence of profit and the resultant powerlessness of the entrepreneur, the costs in this case would therefore in the long run have to be fully passed on.

The monopolist, however, finds a maximum profit in the new situation at x^D, p^D . It is evident from the figure that there is no question here of any complete charging or passing on of costs to the selling price. The deeper underlying reason for this is that the price elasticity in terms of absolute value must be greater than one for a monopoly to operate. As far as this is concerned, then, the passing on of costs will be less than complete! It is now conceivable, of course, that the cost increases will cause an upward shift in the demand function, taking the marginal yields with it. For of course an increase in costs here often implies a rise in incomes elsewhere. The results of this demand-pull inflation, bound up with rising costs, will again ultimately depend on the elasticities of income and of indirect prices. Partly because of this, there is little to be said about the passing on of costs in the case of monopolies.

In terms of macroeconomics the following lesson may be drawn from these considerations. Under the influence of effective competition, the passing on of costs will at the beginning be a cautious process. If, however, net profit disappears in the long run as it does in the case of perfect competition, then the continuity of employment and of the firm can only be maintained by the complete passing on of cost increases. This brings us to the subject of the next section, namely a macro-analysis of the (net) profitability of Dutch business and industry in the last twenty years. For completeness the analysis is supplemented with an enquiry into the development of net wage incomes. The problems, implicit in this section, raised by income and price elasticities in the context of inflation and the passing on of costs, will be dealt with in part three.

§ 5. Profits and labour incomes in the Netherlands economy

In aggregate macro-economic terms, profits (excluding depreciation) may be calculated from the difference between the production of business enterprises at factor cost and labour incomes (including the incomes attributed to the self-employed). These profits are used for financing the bulk of the net investment in stocks and fixed assets. Wage and salary earners save little if anything, and the money they do save largely goes to the redemption of debts (mortgages, instalment credits) and are thus hardly if at all used for financing business investment. Although government does finance some of this investment itself, it does so with funds often obtained from the profits made by government enterprises (public utilities).

Business investment is necessary to maintain employment, to permit growth and/or to combat environmental pollution. In this sense such investment is to the benefit of everyone. Accordingly we define net profits as the difference between profits earned and net investment. Net profits are in principle freely disposable for consumption, at least after deduction of tax and foreign payments. These net profits therefore reflect the actual consumer remuneration of the owners of capital, after deduction of the costs involved in capital servicing and growth. If net profit is zero, investment is then no longer attractive to the owner of private capital: at the most he only gets back what he invested and receives nothing in return.

Table I presents some calculations of the kind referred to for a number of years from 1952 to 1972. They reveal a distinct downward trend in net profits, both as a percentage of value added and in an absolute sense, taking into account inflation and growth.

Table I: Net profitability of business enterprise in the Netherlands (1)

	1	2	3	4	5	6=4-5	7=6:1
	Value added to producers at factor cost (in thousand-millions of guilders)	Labour income percentage	Profit (in thousand-millions of guilders)	Profit after tax and foreign payments (in thousand-millions of guilders)	Net investment (in thousand-millions of guilders)	Net profit (in thousand-millions of guilders)	Idem, as % of 1
1952	15.55	72.3	4.31	2.93	0.60	2.33	15.0
1957	25.28	71.2	7.28	5.39	3.55	1.84	7.3
1962	33.94	73.5	8.99	6.39	4.11	2.28	6.7
1967	56.27	77.7	12.55	8.63	6.80	1.83	3.3
1970	79.81	79.3	16.52	9.57	11.93	-2.36	-3.0
1971	88.69	80.9	16.94	8.52	11.17	-2.65	-3.0
1972	100.75	79.2	20.96	12.44	9.97	2.47	2.5

(1) Sources: National Accounts 1958 to 1972 (1 - 4 - 5)
Central Economic Plan 1968 (2)

The above table shows that wage costs have risen since 1950 to such an extent that net profit has virtually disappeared by about 1970 (following an acceleration of this trend in about 1963). This fact in itself, having regard to the minimal profitability, makes it reasonable to expect that costs are increasingly passed on in prices. On this basis, then, it is an open question whether regression comparisons drawn up on the basis of statistics of the 1960's and 1950's can have any value for the 1970's.

Although the shrinking of profits indicated above may be attributable to the upward trend in the labour income percentage (wages ratio), there was no question of any proportional increase in real disposable income. This effect can be seen from Table II.

This table gives the average rates of growth over successive periods of five years.

Table II: Net incomes (average growth rates) (1)

	1953 to 1957	1958 to 1962	1963 to 1967	1968 to 1972	Total average
1. Production of firms (volume)	6.1	4.2	5.7	6.1	5.5
2. Labour productivity in firms	4.6	3.0	5.0	5.6	4.5
3. Employment in firms (including self-employed)	1.5	1.2	0.7	0.5	1.0
4. Real wages (2) in firms per employee	5.4	3.6	6.4	5.9	5.3
5. Real disposable wages (2), unit employee	3.5	3.5	4.5	4.1	3.9
6. Real social insurance premium (2) (3) per employee	11.0	4.5	12.8	8.4	9.2
7. Real direct taxes (2) (4) per employee	4.8	8.0	12.1	10.2	8.8

(1) Sources: Central Economic Plan 1972 and 1974.

(2) Deflation factor: price of private consumption.

(3) Including pension fund and life insurance premiums.

(4) Direct taxes on wage incomes, transaction basis.

Table II prompts some remarks that are relevant to our study. In the first place it shows that real wages consistently rose more than labour productivity. The resultant real wage increases are partly responsible for the above-mentioned shrinking of profits. The disposable real income of the unit employee, however, lagged behind the growth of productivity! (It is noticeable in this connection that a "structural break" took place in real wage costs in about 1963.) The steep rises in social insurance premiums and taxes per unit of labour have therefore not completely been passed on in earned incomes; it remains to be investigated in how far the levies referred to have in fact influenced the development of nominal wages and, by the same token, the development of inflation. At all events, the future would seem to hold substantial rises of premiums in store, if only because of the decline in the growth of population, implying a higher percentage of older employees and a decrease in the ratio between the productive and non-productive population in general.

The price increases that have taken place have not been sufficient to maintain the share of profits in national income. This makes it difficult to contend that the movement of profits has aided and abetted inflation. An inflationary spiral can be set in motion by many stimuli. In a situation where costs are passed on after a time lag and in which wages are tied to an index, one mistake is enough to trigger an accelerating movement of nominal increases of a permanent nature. An unmotivated prices and profits stimulus can have the same result. It is not feasible, however, to localize all such stimuli. A crucial problem of any empirical study is precisely the problem of distinguishing the exogenous from the endogenous effects. It cannot be said that the stimuli should be sought in the residues of, for example, regression comparisons, because they have already had their effects beforehand on the variables and values of the regression constants. It might perhaps be easier to separate endogenous and exogenous effects if an aggregate (total) model of the economy were to be built. No such model yet exists, however; with the present limited models the answer to the question as to the origin of a stimulus or normal development depends on the nature of the model itself.

We shall not therefore attempt in this study to trace the exogenous effects. On the contrary, we shall try to determine the extent to which macroparameters underlying the economic (inflationary) process stem from specific characteristics and movements of the Netherlands economy.

The answer to the question as to whether the movement of profits, through mistakes or through power, may have had its own influence on the inflationary process is therefore, in the context of the above considerations, as affirmative as it is non-informative. It is affirmative in the sense that price impulses are always possible from the angle of profits, either as a result of mistakes or of power. It is non-informative precisely because such causes are always present and always will be.

It is much more meaningful to enquire into the possible systematic influence of, say, profits on the course of the process. An influence of this kind is not reflected in impulses but in terms of its parameters. If there is more than complete passing on of labour costs, one may in principle conclude that the influence of profits is predominant (in principle, because the evaluation of the influence changes if the profits are too low). The less the costs are passed on, the smaller is the share of profit movements in inflation, which will in any case be reflected in a drop in real profitability. Indications in this direction were to be found in the foregoing tables.

It is interesting in this context to consider the situation with regard to individual categories of profit, particularly with a view to dividends. Table IIa shows their share in the production of firms at factor cost and their share in profits (excluding incomes of the self-employed and depreciation, and after corporation tax) on the basis of dividend tax data.

Table IIA: Dividends in the Netherlands (1)

	Dividend tax (in millions of guilders) (1)	Tax rate (2)	Dividends (in millions of guilders) (1:2)	Idem, as a % of production at factor cost	Idem, as a % of net business profits
1954	93	15 %	620	3.3	12.9
1958	164	15 %	1093	4.3	18.8
1962	134	15 %	893	2.6	11.8
1966	384	25 %	1536	3.0	16.8
1970	492	25 %	1968	2.5	14.6
1973	506	25 %	2023	1.8	10.9

(1) Sources: National Accounts 1973 and 1962, CBS.

It can be seen that dividends and also net profits have decreased relative to production at factor cost. This category of incomes, then, does not appear to have fared well. This view is confirmed by the trend of the yield on shares shown in Table IIb. This table shows that the nominal yield before tax is maintained at a reasonable level, but the real yield - still before tax - has steadily decreased, and for some considerable time has even gone negative. It can thus be said that money capital in the form of shares has lost its real value as a source of income. In such circumstances it would be surprising to say that the least if anyone were to contend that profits and shares had systematically controlled the process of inflation.

Table IIb: The average yield on shares (1)

	Average market price	Dividends (over past financial year)	Average nominal yield (%)	Change in consumer goods prices	Real yield (2)
1954	255	11.3	4.4	3.9	0.5
1958	352	14.6	4.1	1.6	2.5
1962	502	18.1	3.6	2.6	1.0
1966	372	19.4	5.2	5.4	-0.2
1970	463	22.4	4.8	4.5	0.3
1971	-	-	4.7(3)	8.1	-3.4
1973	-	-	4.3(3)	9.0	-4.7

(1) Source: profit statistics 1964 and 1970, CBS.

(2) Difference between nominal yield and price change.

(3) Source: monthly financial statistics, August 1974, page 559, CBS.

After this introduction to the development of incomes, we shall consider in the next section the actual movement of prices.

§ 6. Macro-prices in the Netherlands economy

Having considered the development of incomes, the next step in our initial approach to the subject is to consider the aggregate movement of some macro-economic prices. We refer here to the price of the value added of firms at factor cost, the prices of the product of firms at net and gross market prices, the price level of private and government consumption, the price level of private and government investment in fixed assets, and export and import prices. Some figures are presented in Table III.

**Table III: Development of macro-prices: averages over five years
as percentages.**

	1953 to 1957	1958 to 1962	1963 to 1967	1968 to 1972	Total average
Production firms, factor cost	2.5	2.0	4.8	6.1	3.8
Idem net market prices	3.0	2.0	4.9	6.2	4.0
Idem gross market prices	2.7	2.0	4.8	6.0	3.9
Price level private consumption	2.9	2.0	4.6	6.0	3.9
Price level investments in fixed assets (incl. housing)	3.8	1.7	3.7	6.1	3.8
Price level private domestic expenditure	3.0	1.9	4.5	6.0	3.9
Price level net government expenditure	6.3	-0.1	5.5	8.1	4.9
Price level net domestic expenditure	3.1	1.7	4.6	5.9	3.8
Export prices (commodities)	-0.5	-1.6	1.2	1.5	0.1
Import prices (commodities)	-0.5	-2.3	0.8	2.1	0.03

Sources: CEP 1974, Annexes. Prices not mentioned therein have been calculated from stated changes in values and volumes.

The development of all these prices is seen to be characterized by an increasing rate of inflation, which, after 1968, has been extremely steep. In 1963 all prices show what is evidently a "structural break". There are also, however, differences of level. As regards the prices of value added at factor cost versus net market price, this is to be attributed to the fact that changes in indirect taxation, less subsidies in the first-mentioned quantity, have not completely or at least not immediately been passed on. In view of the picture shown by the first two lines in Table III, it would seem advisable to take this factor into account in any further analysis. The same can be said at first sight with regard to depreciation, which has a decisive bearing on the deviations between net and gross market prices.

The picture shown by the prices of the macro-economic demand categories is very much more differentiated than in the production sphere. Although the weighted total of these prices must approximately (1) be equal to the gross market price of the production of business enterprises, there are considerable mutual differences here over the whole period under consideration, both between individual prices and from year to year. This phenomenon presents us with a difficulty. It has already been stated that in order to ascertain the influence of other elements than cost-push and demand-pull inflation on the depreciation of money, it is necessary to isolate these precise quantities beforehand. It is therefore essential to determine in the first place the extent to which price changes in the production of firms depend on changes in costs and on the relationship between supply and demand. If this can be done more or less satisfactorily, that is to say if the results are acceptable both in theoretical and in econometric terms, it would seem superfluous to look for other factors in this context. The converse applies if the results of such an investigation are doubtful.

If the macro-economic production prices are largely attributable to costs and expenditure, it is certainly wrong to ascribe the above-mentioned deviations in price movements in the various demand categories to other factors. It is of course quite conceivable that such deviations may equally be due to different wage and productivity developments. First, then, the possible consequences are to be traced. If this can be done, an enquiry should finally be made into the difference in the behaviour as regards passing on the costs. An attempt will be made to establish in how far this can be coupled to differences of level in income and price elasticities.

(1) Approximately, because the influence of stocks formation and government depreciation is disregarded.

The latter idea defines the ultimate purpose of this study. Individual influences on price movements may be reflected in the level of the cost-transfer (passing on) coefficients. This is first and foremost what we wish to study. Although the content of the statistical figures required for this purpose is not particularly good, this method does not seem to be ruled out on that account.

The question that arises with regard to differences in the movements of wages and productivity is what causes these differences. The answer would provide a deeper insight into inflation. Providing such an answer, however, would call for an extensive study of the labour market as well as an analysis of production structures. The lack of appropriate statistics makes any attempt in this direction hopeless.

According to the latter two rules the differences between export and import prices remain very small, and so too, therefore, do the long-term gains in terms of trade. If a country has a strong (monopolistic) competitive position on the world market it can, in principle, achieve lasting terms of trade advantages. The additional profitability to which this gives rise can lead to positive inflationary impulses within that country by way of extra spending, investment or consumption. In view of the terms of trade gains in the Netherlands, this factor is apparently not particularly relevant here from the quantitative point of view. The extent to which such effects are basically present may be seen in the context of export prices. The less these prices are based on competitive domestic prices, the fewer the practical possibilities of achieving lasting gains in terms of trade.

It is perfectly evident that export prices are structurally in arrears compared with the prices of the home market product (1). This may be due to greater increases of productivity in the export industry. The level of competitive world market prices is also behind the level of domestic prices. This supports the supposition that only strong firms that have high increases of productivity and low prices increases can maintain a position on the world market.

(1) There are some minor exceptions to this. In the past year, partly because of restrictive domestic price control, export prices showed a far steeper increase (as also did world market prices), which had a positive influence on the relative profits position of the export industry.

§ 7. Demand factors

If the effective ex ante demand is greater than normal production, it is possible to satisfy the demand by means of over-utilization of capacity, by supplying from stocks or by extra imports. The sum of over-utilization of capacity, the forced consumption of stocks and a current account deficit on the balance of payments is thus equal to the surplus demand in an economy.

Surplus demand can have the effect of initiating demand-pull inflation. This may be a direct effect if prices are being raised in order to clear up the market. A rise of costs may possibly be passed on quicker in prices if goods are finding a ready market. In both cases the balance of supply and demand goes some way to explaining the movement of prices.

Simple though the relevant theory may be, it is nevertheless very difficult to gather any empirical evidence. First, there is a lack of data on normal production capacity and hence on the over-utilization of capacity. This applies to a lesser extent to the forced consumption of stocks. Secondly, there will often be a strong correlation in econometric terms between cost-push inflation and demand-pull inflation. For of course an extra wage rise that is honoured in real terms leads to a real rise of costs as well as to higher spending by wage and salary earners.

Anyone wishing, in spite of these problems, to say something about the inflationary process must have the courage to set about collecting figures himself relating to normal production capacity. We have done this on the basis of the development of private investment in industrial buildings and fixed assets. The validity of these figures can only be judged by their contribution to the total model of the Netherlands economy, providing an explanation not only for wages and prices but also for production, employment, sales and so on. As already remarked, the cardinal omission in this study is the lack of such a total model.

Some overall insight into the development of the principal categories of demand in the Netherlands can be obtained from the figures collected in Table IV.

Table IV: Main categories of demand: average growth rates (volumes) over five-year periods.

	1953 to 1957	1958 to 1962	1963 to 1967	1968 to 1972	Total
1. Private consumption	5.1	4.4	5.8	5.7	5.3
2. Private investment	13.4	5.6	6.9	4.0	7.5
3. Investment in housing	10.9	-1.3	13.3	6.0	7.2
4. Total private expenditure	6.8	4.2	6.4	5.3	5.7
5. Net government expenditure (1)	5.5	4.7	5.5	2.6	4.6
6. Total domestic expenditure (2)	6.7	4.2	6.4	5.1	5.6
7. Change in current account balance (3)	-1.3	0.2	-0.6	0.9	-0.2
8. Total net expenditure	5.4	4.4	5.8	6.0	5.4
9. Change in stocks (3)	0.7	-0.2	-0.1	0.1	0.1
10. Production of business enterprises	6.1	4.2	5.7	6.1	5.5

(1) Sum of net material government consumption and net government investment.

(2) In connection with (1), excluding the government consumption that is equal to the wages and salaries paid by government.

(3) As a percentage of the production of business enterprises at 1970 prices.

According to Table IV private spending, including in particular private investment, showed a tendency up to about 1967 to grow faster than actual production. In that period, however, the total demand effect was somewhat weakened by net government expenditure, though this was not sufficient to prevent a regression of the balance of payments position and therefore, in the long run, in the stocks position as well. After 1968, however, total domestic expenditure shows on average a lower rate of growth than production, with opposite trends in the changes of current account balances and stocks. Further empirical research is needed to determine the extent to which these developments may have left their mark on the rate of inflation.

This concludes the overall survey of some significant macro-economic key quantities and developments. In the next sections an attempt will be made to establish a link-up with some results of our empirical research and with the considerations discussed in the foregoing.

§ 8. Capacity considerations

In the foregoing several references have been made to a break in the trend of the Netherlands economy round about the year 1963. Inflation rates and also real wage costs have shown an accelerated rise since that year. The question arises as to what the cause of this may be. In our opinion the answer is to be sought in the development of production capacity and of the structural employment situation bound up with it.

We have made an estimate of production capacity in the Netherlands on the basis of gross industrial investment in machinery, after the write-off of obsolete machines. As regards volume we have assumed a relative increase, with accelerated discarding of production plant in use before the Second World War. Empirical quantitative indications are to be found in the work by Hartog and Tjan (1).

The results of these calculations are presented in the Table below, together with the changes in the utilization of production capacity arising out of a comparison between the growth of production capacity and the actual growth of production.

Table: Growth of capacity and utilization (averages over five-year periods)

	1953 to 1957	1958 to 1962	1963 to 1967	1968 to 1972	Total average
Growth of capacity	5.2	5.2	6.0	6.1	5.6
Change in degree of utilization	-0.9	0.9	0.2	0	0.0
Production growth	6.1	4.3	5.8	6.1	5.6
Labour productivity	4.6	3.2	5.0	5.6	4.6
Labour employment	1.5	1.1	0.8	0.5	1.0
Unemployment percentage	2.1	1.8	1.3	2.0	1.8

(1) "Investeringsen, lonen, prijzen en arbeidsplaatsen" (Investment, wages, prices and jobs), published by Centraal Planbureau (Occasional Paper CP 13), August 1974.

The accelerated discarding of obsolete machinery results in modern and better production machinery of greater capacity. This has the effect of increasing labour productivity but not the number of jobs. Labour employment does not rise until more jobs are created as a result of investment. In spite of the rising trend in the growth of capacity, the movement of labour employment is downward, as can be seen from Table I. Before 1963 the growth of employment, however, was sufficient to steadily reduce the level of unemployment. Indeed, round about 1963 a situation of hyper-employment arose, due to the structural creation of jobs. This was the cause of the accelerated real increases in labour costs which, from then on, brought out economy into a process of spiralling inflation. The consequence is even higher rises of productivity, leading to a decline in the structural growth of employment and hence to a rise in structural unemployment. This tended in fact to be somewhat concealed by the decreasing percentage of the total population engaged in the production process (the disabled, students, the super-annuated) and by the fall in the growth of population.

To sum up, the low real level of wages before 1963 resulted in a high level of job creation until a state of hyper-employment was reached. From then on, real wages rose too fast, which in the long run stimulated inflation but did not benefit the employment situation. The fact that both internally and externally (the pull of foreign demand) the level of wages and prices in the Netherlands was too low during the 1950's has therefore had a decisive bearing on the inflation process in later years.

§ 9. Empirical results

The true value of empirical results only appears from their contribution to larger models. In itself, the consideration of separate functions does not seem so very meaningful or convincingly useful. It can, however, offer some indications, and with that in view the following functions are presented.

The functions concerned relate to price formation and wage formation. As regards price formation the final result is:

$$p = 0,72(P_L - p) + 0,17(P_L - p)_{-2} + 0,05(P_m - p_m)_{-1} + 0,20(P_m - p_m) - 0,12s_b - 0,20(s_b - s_{b-1}) - 1,16$$

where: $R = 0.98$. Residual variance = 0.6

The symbols used in these expressions have the following meanings:

P : Annual change in the price level of gross industrial production (gross market price), excluding gains in terms of trade.

$P_L - p$: Annual change in nominal wage cost per unit product.

$P_m - p_m$: Annual change in nominal import costs.

s_b : Change in utilization of capacity, defined as change in under-utilization.

The following points are significant in the above relation:

- a) The time lag in the process of passing on costs, the wage costs of the previous year remaining out of the picture.
- b) The incompleteness of the passing on of costs: as regards wage costs the total is nearly 90 %, as regards import costs only 25 %.

The many other functions we investigated, but which will not be mentioned here, yielded in all cases a comparable picture. Indirect taxes were consistently found to have relatively little influence: the use of stocks formation as a yardstick for measuring demand-pull inflation instead of the under-utilization of capacity, which we have been using, did not yield meaningful results. We repeat, however, that the true value of studying separate functions like those mentioned above can only appear in a total model. Our extensive investigation of macro-price formation does show clearly, however, that wage costs, import cost as well as supply and demand relationships play a dominant role in this connection.

As regards nominal wage formation the dominant characteristics investigated by us are well represented by the relation:

$$P_L = 0.45P_{c-1} + 0.71P_c - 0.19S_{b-1} - 0.11S_b$$

$$+ 0.57 l_v + 0.50 \int_{L-1} + 1.99$$

$$R = 0.97$$

$$\text{Residual variance} = 1.10$$

The symbols used in this expression have the following meanings:

l_v : Industrial demand for labour, including open demand.

\int_L : The marginal burden of taxes and social security premiums on wage income.

This function, too, was chosen from many others because it illustrates the dominant effects of:

- a) The great extent to which wages are linked to the consumer prices index;
- b) a relation between wages and changes in the utilization of capacity (under-utilization);
- c) a relation between wages and labour demand;
- d) a relation between wage increases and the marginal burden of taxes and social security premiums.

As regards nominal wage increases, the structural decline in the demand for labour has evidently been over-compensated by spiralling prices and by the ever-increasing marginal burden of taxation and social security premiums.

§ 10. Conclusions

1. In terms of macro-economics the movement of prices may be adequately explained by wage and import costs and by the relations between supply and demand on the selling market.
2. Costs appear to have been passed on with a time lag and incompletely, which in itself moderates inflation.
3. Where import costs were already behind and where only passed on to a very limited extent, the principal motivating force in the inflationary process, disregarding the sales situation, lies in the wages and prices spiral.

4. Nominal wage rises are dictated first and foremost by price rises. The high degree of indexation is in itself highly inflationary. Other influential factors are the extent to which production capacity is utilized and the demand for labour, as well as the difference between gross and net wage rises as determined by the marginal burden of taxes and social security premiums.
5. As far as wages are concerned the structural decline in the growth of demand for labour is over-compensated by the effect of prices and the marginal burden of taxes and social security premiums. In this way government (through taxes and social legislation) has added fuel to the inflationary process at the expense of wage and salary earners.
6. The relatively low real wage costs in the 1950's have contributed to the accelerated expansion of production capacity (the pull of foreign demand due to the favourable competitive position and profitability of Dutch industry created a favourable investment climate) and led to a situation of hyper-employment at the beginning of the 1960's. This gave rise to the acceleration of wage increases and inflation, which entailed rising labour costs and a decline in the growth of demand for labour.
7. As a result of the incomplete passing on of costs, the wage income ratio in this inflationary process has increased and profitability has decreased.
8. Together with the decline in the demand for labour there was also a decrease in supply, due to longer compulsory schooling, to increases in the number of students in higher education, to the lowering of the retirement age qualifying for superannulation, and to a marked increase in the number of persons unfit for work. This process has made great demands on the national budget and on the transfers of income through the social insurance system, and has thus contributed to the above-mentioned increase in the burden of taxation and social security premiums. Both directly (through the labour market) and indirectly (through the shift of the marginal burden) we find here in macro-economic terms a second reason underlying the structural process of inflation.

Chapter II

Sectors and Inflation

§ 1. Introduction

The macroeconomic approach did not provide much basis for concluding as to whether other aspects, apart from costs and demand developments, are relevant to inflation in the Netherlands. In this chapter we shall consider the extent to which this approach stands up to a sectoral analysis. The underlying idea is obvious, inasmuch as any diversity determined between the principal factors may spring from specific causes that will not be evident in a macro-analysis.

The same line will be followed in this chapter as in the first one. An attempt will be made, with the aid of theoretical and overall empirical insights to arrive at the heart of the developments. In this case the difference between the sectors will be the central consideration. An obstacle in this connection is the lack of statistical figures on various points.

§ 2. Inflation in sectors of industry

In the past years the statistical classifications of sectors of economic activity have been changed several times. The figures before and after such a change are therefore not always comparable. This applies in particular to the year 1969. Furthermore, in the 1970's the figures in various sectors have not yet been fully updated. For this reason we had no choice but to confine the empirical research to the years before 1970.

Table V gives an insight into the share of the various sectors in national income. It can be seen that the share of agriculture is steadily diminishing. The same used to apply to mining and quarrying, but this situation has been changed by the natural gas finds in the middle of the 1960's. (The influence of natural gas on the one hand and of the closing of mines on the other presents an extremely fluctuating picture for this sector.). Manufacturing, although of dominant significance, shows a decrease which appears to be of a structural nature.

The above-mentioned decreasing trends within the overall sector of manufacturing are contrasted first and foremost with a spectacular increase in the services sector and to a lesser extent in wholesale and retail trade (including restaurants and hotels and repair firms). The total share of the private sector, however, nevertheless showed a decrease due to the very marked expansion of the public sector.

The shifts referred to above are indicated in Table V by means of rank numbers by sector shares in 1960 and 1969. Regarded in purely quantitative terms, these shifts may be caused by deviations from the average in the growth rates of the volumes and/or of the prices of net value added at factor cost. For our purposes it is useful to go into this question at greater depth, and for this reason Tables Va and VI have been drawn up. Table Va shows the growth percentages of the volumes, comprised in averages over five-year periods. Where the annual percentages are not mentioned in CBS tables, we have made our own calculations, which are denoted by an *.

Table V: Shares of sectors of economic activity in national income (1)

Kinds of economic activity	1960	1963	1966	1969	Rank number	
					1960	1969
0. Agriculture and fishing	10.9	9.1	7.6	7.1	4	6
1. Mining and quarrying	1.9	1.5	1.2	1.5	7	8
2-3. Manufacturing	32.6	31.2	31.5	29.9	1	1
4. Public utilities	1.7	1.8	1.7	2.0	8	7
5. Construction and installation	7.4	7.2	8.7	8.2	6	4
6. Wholesale and retail trade, etc.	13.7	15.3	13.9	14.8	2	3
7. Transport, storage and communications	7.9	7.5	7.2	7.5	5	5
8.9 Other services	13.4	14.2	15.2	16.3	3	2
Interest margin of banks	-1.6	-1.7	-2.1	-2.4		
Value added for all sectors (net factor cost)	87.9	86.1	84.9	84.9		
Public sector (general government)	10.8	12.3	14.1	14.3		
Domestic product	98.7	98.4	99.0	99.2		
Foreign	1.3	1.6	1.0	0.8		
National income	100	100	100	100		

(1) Source: CBS, National Accounts 1972.

Table Va. Volume growth by sector. Averages over five years (1)

	1951 to 1955	1956 to 1960	1961 to 1965	1966 to 1970	Total average	Rank number
0. Agriculture etc.	3.1	4.9	0.7	3.9	3.1	8
1. Mining	0.9	2.4	1.8	16.6	5.4	6
2-3 Manufacturing	6.5	6.6	5.9	7.2	6.5	3
4. Public utilities	8.3	7.9	10.3	18.9	11.4	1
5. Construction	7.0(⌘)	3.8(⌘)	9.1	6.9	6.7(⌘)	2
6. Trade etc.	9.2	3.5	6.9	4.3	6.0	4
7. Transport etc.	6.0	5.5	4.9	5.7	5.5	5
8-9 Other services	5.3	2.1	2.6	2.7	3.2	7
Total private sector	5.3	4.3	5.6	6.1	5.3	
Public sector (2)	-	1.2	2.0	2.3	1.8	

(1) Sources: National Accounts CBS.

(⌘) Estimates on the basis of volume of investment in dwellings and business buildings as published by the Centraal Economisch Planbureau in CEP 1974 and 1968.

(2) Source: CEP 1974 Annex D2.

Table Va shows that manufacturing is among the faster growing sectors, although its nominal share in the total of the private sector is diminishing according to Table IV. The opposite applies to the sector of other services and very definitely to general government. The trend shown by the nominal share is confirmed by that shown by the volume growth rates for agriculture, mining, for public utilities and for trade.

The differentiated trends between nominal shares and volume growth in the sectors as described above give a strong indication of the trend of "factor prices" (the prices of the net value added at factor cost). By analogy with Table Va this price movement is represented in Table VI. The greatest inflation, according to this table, is in the services sector, the figure for which is surpassed only by government production. Agriculture and manufacturing appear to cause the least significant inflation. The fact that the nominal shares of these two sectors in the total show a decline is therefore due to this circumstance. Conversely, the growing share of services and of general government is attributable to price increases: in view of the real changes their share would decrease measured in constant prices.

We shall attempt to determine the extent to which the price trends in the sectors can be brought into relation with other factors than the movement of costs and expenditure. As already remarked, this is only justified if the price movements have first been cleared of these elements. The problems which this involves will be discussed in the following sections.

Table VI. Development of factor prices by sectors. Average growth percentages over five-year periods (1)

	1951 to 1955	1956 to 1960	1961 to 1965	1966 to 1970	Total average	Rank number
0. Agriculture etc.	2.0	2.0	4.6	0.1	2.2	8
1. Mining	9.9	2.3	0.2	3.0(*)	3.9(*)	4
2-3 Manufacturing	4.2	1.8	3.4	2.7	3.0	7
4. Public utilities	11.1	5.4	-0.1	-2.9	3.4	6
5. Construction	5.1	5.6	3.4	3.8(*)	4.5(*)	2
6. Trade etc.	2.8	3.1	3.8	6.2	4.0	3
7. Transport etc.	5.8	1.7	3.9	3.9	3.8	5
8-9 Other services	4.4	5.6	8.9	9.9	7.2	1
Total private sector	4.5	3.2	3.7	4.4	4.0	
Public sector (general government)	-	7.3	12.6	9.9	10.0	

(1) See footnotes to Table Va.

(*) Own estimates because of incomplete statistics.

§ 3. Wage cost trends per sector

It costs a great deal of time and effort to gather information about the trends of costs in individual sectors. We have based our calculations, at least mainly, on the National Accounts. This raises many difficulties in connection with changes in the definitions of such quantities as employment, or in the classification of sectors of economic activity. The available statistics are not sufficient to enable us to overcome the problems which this involved. Nevertheless, we believe we have managed to put together sufficient sets of figures to provide an adequate basis on which to build our argument.

The starting point is the average increase in aggregate wages per man per annum, in short the nominal annual increase of wages in the individual sectors. These figures (including social charges, etc.) are based on the annual growth percentages of average wages as the quotient of aggregate wages and total employed wage and salary earners. As in the foregoing, general government will also receive our attention.

As can be seen in Table VII, the development of wages differs from one sector to another. Peaks are shown by construction and general government (1) and to a lesser extent by manufacturing. Agriculture, other services and trade are conspicuous by their downward movement. Since it is customary in economic theory to seek a relationship between wages and employment, a further study of the development of the labour force per sector would be useful to lend substance to Table VII. Figures giving the employment per sector are collected in Table VIII. It can be seen in this table that the fastest growth of employment is shown in the sectors of trade and other services. According to Table VII, these sectors show the slowest growth as far as wages are concerned. Although on the other hand wages have shown the fastest growth in the sectors of construction and general government, this is not reflected in employment figures, certainly not as regards government. These facts throw a special light on the labour allocation processes in past years. As can be seen in Table VIII, labour shifts have taken place from such sectors as agriculture, mining and quarrying and from the self-employed towards construction, and above all towards the services and trade sectors.

(1) This is undoubtedly due to the "Toxopeus round" at the beginning of the 1960's, in which the salaries of all civil servants were raised.

Table VII. Wage rises per sector (averages over five-year periods in %)

	1951 to 1955	1965 to 1960	1961 to 1965	1966 to 1970	Total average	Rank number
0. Agriculture etc.	6.7	6.6	9.6	6.8	7.4	8
1. Mining	7.2	6.3	8.0	12.0	8.5(ж)	5
2-3 Manufacturing	8.9	6.3	10.3	11.0	9.1	3
4. Public utilities	7.1	8.1	12.0	9.7	9.2	2
5. Construction	12.0	7.0	9.2	13.5	10.4	1
6. Trade etc.	6.9	6.3	9.3	10.3	8.2	6
7. Transport etc.	7.6	7.0	10.5	9.4	8.6	4
8-9 Other services	6.5	4.9	8.6	11.0	7.7	7
Total private sector	7.6	6.9	9.6	11.1	8.8	
Public sector (general government)	7.2	7.6	13.7	10.4	9.7	

Agriculture and mining were moreover sectors in which wages lagged behind. So too, however, were the sectors to which these reallocation streams were directed.

This suggests that the decisive factor in the reallocation process was not so much the improvement of income but the necessity to find work elsewhere because of lost jobs or the shift in the availability of jobs. Other factors support this argument. The trends we are referring to took place during the whole period from 1950 to 1970, without the occurrence of any structure discontinuities. The question of the income motive underlying labour mobility may be elucidated with the aid of Table IX. This gives the average income per employee per sector in relation to the total average per employee over a period of years. As compared with the sectors of trade and other services it can be seen that agriculture and mining are high-wage sectors, whereas the reallocation process was moving in the opposite direction. Of course, an important point should be noted in this connection. It may be that the relationships between the higher and lower paid per sector may be roughly the same in each sector. In that case one can speak, as above, of high and low wage sectors. It is also possible, however, that the relationship between higher and lower paid employees differs considerably from one sector to another. This seems to be indicated by the different relative share of minimum wage earners in the total labour force per sector: in the services sector this number is comparatively high. As regards the first alternative in particular (identical relations between higher and lower paid) our figures indicate the absence of any relationship between labour mobility and income. In the second case one cannot immediately draw this conclusion: the lower paid from that sector could then be even better off by moving into another sector where they would be relatively somewhat better paid. There is not, however, much reason to assume that this is actually the case, having regard to the situation that appears from the figures in Table IX.

This view seems to validate the starting point that the reallocation had to do with lost jobs and new employment elsewhere and not with equalities in the rates of remuneration. Since this reallocation was in the direction of fast-inflating sectors with a consequently

Table VIII. Employment per sector (average growth rates over five-year periods as a % of wage and salary earners)

	1951 to 1955	1956 to 1960	1961 to 1965	1966 to 1970	Total average	Rank number
0. Agriculture etc.	-1.5	-2.8	-5.0	-3.4	-3.2	7
1. Mining	2.1	-1.0	-2.9	-17.4	-4.8	8
2-3 Manufacturing	0.9	2.6	1.7	0.0	1.3	4
4. Public utilities	1.2	0.6	2.6	0.5	1.2	5
5. Construction	3.9	1.7	4.9	1.3	3.0	3
6. Trade etc.	4.0	4.2	4.5	4.4	4.3	1
7. Transport etc.	1.7	1.7	0.8	0.2	1.1	6
8-9 Other services	2.3	3.3	3.5	3.6	3.2	2
Total private sector	2.1	1.7	2.4	1.3	1.9	
Public sector (general government)	3.7	0.9	1.0	1.9	1.9	
Total wage and salary earners	2.1	1.6	2.2	1.4	1.9	
Self-employed	-1.2	-1.7	-1.4	-1.6	-1.5	

Table IX. Average wage per employee and per sector
 (in proportion to the total average)

	1951	1955	1960	1965	1970
0. Agriculture	1.125	1.06	1.05	1.05	0.87
1. Mining	1.58	1.57	1.53	1.42	1.55
2-3 Manufacturing	1.00	1.06	1.04	1.07	1.07
4. Public utilities	1.28	1.25	1.33	1.47	1.38
5. Construction	1.00	0.94	0.94	0.92	1.03
6. Trade etc.	1.06	1.02	1.00	0.98	0.95
7. Transport etc.	1.26	1.26	1.27	1.32	1.23
8-9 Other services	0.84	0.81	0.74	0.71	0.72

rising share in the total nominal production in the Netherlands, this may reveal a possible stereotype factor of inflation in this country. The reallocation process concerned was good for employment but bad for the national monetary depreciation rate! The influence of this has been moderated by the fact that wages remained for the time being a relatively smaller cost factor in the expanding sector, although this did not have the effect of stopping the reallocation. This moderating influence is lost, however, when a policy of income-leveling is pursued in the form of an accelerated upgrading of the remuneration of the lower paid. This has been the case during the last two years in the Netherlands, and if it may be assumed that the expanding sectors are relatively "low-wage intensive", such a policy will increase inflation or, if price rises are not possible, will increase the number of factory shutdowns and unemployment.

It is conceivable that the reallocation as described above is connected with the considerable problems of retraining or conversion training in the other sectors. Better retraining opportunities, resulting in greater availability of labour in other sectors, would moderate the trend of wages in those sectors.

The element of wage cost increases has still, however, to be studied in greater depth. Apart from the development of nominal wages, the evolution of labour productivity should be brought into the picture. The situation in this respect is elucidated with the aid of Table X, compiled on the same lines as the previous one. Mining is the sector with the fastest growing labour productivity, but this is mainly due to the natural gas finds of recent years. Trade and other services are again seen to be lagging, whereas agriculture, manufacturing and public utilities show relatively high growth percentages in labour productivity. The trend in the growth of employment is consequently more or less the opposite of that in labour productivity: the reallocation process was directed at sectors with a lower level of labour-saving technological sophistication. This trend has become more marked since 1955. In macro-economic terms, the average increase of labour productivity should *ceteris paribus* start decreasing as a consequence. If nevertheless

the nominal wage increases were to continue, the result would be an extra increase in labour costs. In itself this supports the postulate that the sectoral shifts are adding force to inflation in the Netherlands.

To form a complete picture of the sectoral aspects it is important to consider labour costs as the resultant of wages and labour productivity. Table X presented labour productivity in terms of total employment, including the self-employed, per sector. The wage increases according to Table VII, however, refer to wage and salary earners among the gainfully employed population. Assuming that the self-employed earn an income corresponding to the average wage of the employee (the actual differences may then be treated as profits or losses in the business) the labour costs are to be found from the differences between Tables VII and X. The results are listed in Table XI. In the mining, public utilities and of course the general government sectors the question touched on here is not relevant, since the number of self-employed in those sectors is negligibly small. The relatively largest number of self-employed is found in the agriculture and trade sectors. This number, incidentally, shows a general decrease, with the exception of that in the agricultural sector.

In view of what has gone before, Table XI holds few surprises for us. The greatest rise of labour costs is shown in the Other Services sector. These percentages are also high in the construction and trade etc. sectors. Low percentages are found in agriculture and public utilities, and also in the mining and quarrying sector, although here again natural gas spoils the comparison.

Beside the rank numbers, figures are placed between brackets that indicate the ranking of the price of production at factor cost (see Table VI). Apart from mining as a disturbing element, qualitatively good agreement is found between these prices and wage costs. In spite of the fact that nominal wage rises, according to Table VII, have lagged behind owing to the low growth of productivity, both wage costs and prices at factor cost are high in the services and trade sectors. The construction sector owes its considerable increase of costs to

Table X. Growth of labour productivity per sector (in % averaged over periods of five years) (1)

	1951 to 1955	1956 to 1960	1961 to 1965	1966 to 1970	Total average	Rank number
0. Agriculture etc.	4.7	7.6	4.4	7.4	6.0	3
1. Mining	-1.1	3.4	4.9	41.1	12.1	1
2-3 Manufacturing	4.9	5.5	4.4	7.5	5.6	4
4. Public utilities	7.1	7.3	7.6	16.0	9.5	2
5. Construction	4.0	2.3	4.7	5.8	4.2	6
6. Trade etc.	7.1	1.0	3.8	1.4	3.3	7
7. Transport etc.	4.7	4.1	4.4	5.8	5.1	5
8-9 Other services	3.4	0.1	-0.2	-0.4	0.8	8
Total private sector	4.3	3.4	4.0	5.4	4.3	
Public sector (general government)	-0.4	1.1	0.6	0.7	0.5	

(1) Calculated from production and employment data (including self-employed).
For sources, see under preceding Tables.

Table XI. Rise of wage costs (as % averaged over periods of five years)

	1951 to 1955	1956 to 1960	1961 to 1965	1966 to 1970	Total average	Rank number
0. Agriculture etc.	2.0	-1.0	5.2	-0.6	1.4	6 (8)
1. Mining	8.3	2.9	3.1	-9.1	-3.6	8 (4)
2-3 Manufacturing	4.0	0.8	5.9	3.5	3.5	4-5 (7)
4. Public utilities	0.0	0.8	4.4	-6.3	-0.3	7 (6)
5. Construction	6.0	4.7	4.5	7.7	6.2	2 (2)
6. Trade etc.	-0.2	5.3	5.5	8.9	4.9	3 (3)
7. Transport etc.	2.9	2.9	6.1	3.6	3.5	4-5 (5)
8-9 Other services	3.1	4.8	8.8	11.4	6.9	1 (1)
Total private sector	2.9	3.5	5.6	5.5	4.5	
Public sector (general government)	-	7.2	12.6	9.8	10.0	

relatively high wage increases coupled with relatively poor improvements of productivity. In agriculture the opposite situation is found. As regards productivity in particular this may be due to agricultural policy within the framework of the EEC (land reform and reorganization) and also to mutual competition on a large selling market. Seen in this way, the policy referred to may have mitigated inflation in this sector. However, the resultant reallocation of labour in the direction of rapidly inflating sectors of the economy will considerably modify the influence of lagging agricultural prices on the national price level.

There has been no question of any long-term and controlled policy in regard to the sectors of manufacturing and transport etc. In these sectors normal wage increases, compared with the national average, have more or less been offset by reasonably high increases of productivity. In view of the development in the volume of production and sales, this growth of productivity has tended to reduce the growth of employment, and this, as already remarked, was compensated in the period under consideration by the extra demand for labour in the trade, services and construction sectors. There have also, however, been relatively low price increases in the manufacturing and transport sectors, again in contrast to the services, construction and trade sectors.

What was already apparent from the macroeconomic analysis now becomes even clearer. Under the surface of macroeconomic events we find in the mutual relations between these sectors the familiar dilemma of full employment versus inflation. It is evident that a rigid prices policy, in particular with regard to the passing on of labour costs with a view to curbing inflation, will be felt most keenly in the services, trade and construction sectors, and will bring firms in these sectors into difficulties. This would run counter to the reallocation process described above, with all its consequences for employment. A prices policy of this kind has in fact been pursued in the Netherlands in the past year.

General government deserves separate attention. It should be remarked in advance that the figures for labour costs and prices turn out relatively high because no production or productivity data were available for the period from 1951 to 1955. The years of faster inflation therefore receive greater weight in the total averages than in the individual sectors of economic activity. Nevertheless, it cannot be denied that general government, through its production, contributes substantially to inflation due to relatively high increases of labour costs which in this sector, by definition, are completely passed on in the price at factor cost. Labour costs themselves are the result of relatively very steep wage increases (see Table VII) and very low rises of productivity. Compared with private business and industry, general government sets a bad example as a creator of inflation.

In the chapter on macroeconomic considerations, empirical studies pointed in the direction of a high total labour cost transfer in prices, amounting to more than the national wage ratio. Following along the same lines, Table XII presents a survey of this ratio per sector for a number of years, together with figures representing the labour income ratio (wage ratio plus the imputed incomes of self-employed based on the average wage per sector). With the exception of agriculture and mining, there is a general rising trend, which is particularly marked after 1960 (1). The highest labour income ratios and wage ratios are found in the construction and transport sectors, followed by the services sector.

(1) The year 1960 shows a rather low wage ratio compared with that in the neighbouring years.

Table XII. Wage ratios and labour income ratios per sector
(as a % of production at factor cost)

	1951		1960		1970	
	Wage ratio	Labour income ratio	Wage ratio	Labour income ratio	Wage ratio	Labour income ratio
0. Agriculture	21.5	82.5	19.2	74.5	18.0	78.1
1. Mining	81.2	81.2	79.6	79.6	27.0(※)	27.0(※)
2-3 Manufacturing	61.2	69.0	60.6	66.2	71.6	76.8
4. Public utilities	105.0	105.0	48.7	48.7	50.3	50.3
5. Construction	74.5	94.7	66.9	80.4	88.0	101.2(※)
6. Trade etc.	33.0	59.2	38.9	59.8	54.8	72.2
7. Transport	64.3	75.0	70.4	79.8	78.5	87.1
8-9 Other services	62.7	85.4	60.8	75.8	69.6	82.6
Total private sector	50.8	73.2	52.9	69.6	64.7	79.3

This gives a new dimension to the reallocation process. It also moves in the direction of sub-sectors of economic activity in which profit ratios are low, and which in this respect are therefore vulnerable. If such sub-sectors are to hold their own, relatively more of the cost increases will have to be passed on. The trading conditions must also allow this, however. In so far as this was the case in the period under consideration, the considerable passing on of costs to prices will push up the macroeconomic cost-transfer coefficients in quantitative terms, and because of their growing share they will do so to an ever increasing extent. Even if the coefficients per sector remain constant, the macro result of the aggregates will nevertheless rise. The selling market problems touched on in the foregoing will be dealt with in more detail in the next chapter. At this stage the relation between inflation and the weak sectors, which however play such an important part in the structural reallocation process, is once again particularly apparent.

§ 4. Movement of import costs per sector

At first sight the analysis of import costs presents some difficulties, since no data are available on individual import prices per sector. On closer consideration, however, it is seen that this has little if any relevance for our purposes. For of course the nominal change in import costs per sector can also be calculated from the change in the import ratio as a percentage of production at factor cost, deflated to allow for the price change of this production. The change calculated in this way is built up by definition from the components of price changes less possible savings in volume, both in respect of the imported commodity, although these two are not now separately known.

Table XIII presents the result of this calculation, and Table XIIIa gives the absolute level of the import ratio over a number of years, as a percentage of the value added at factor cost. An important point to be noted in this connection is that the official statistics are not complete and moreover, owing to changes in definitions, are in

Table XIII. Import costs per sector (averages over five-year periods of percentage changes)

	1951 to 1955	1956 to 1960	1961 to 1965	1966 to 1970	Total average	Rank number
0. Agriculture	-5.4	3.7	1.4	8.7	2.1	3-4
1. Mining	17.2	2.0	6.0	-1.5	6.0	2
2-3 Manufacturing	2.6	0.3	1.5	4.2	2.1	3-4
4. Public utilities	8.2	-6.6	-14.7	-11.4	-6.1	7
5. Construction	9.0	4.3	3.5	7.6	6.1	1
6. Trade etc.	3.7	-0.7	-7.3	-5.4	-2.4	6
7. Transport etc.	8.7	-0.2	-3.5	0.8	1.4	5
8-9 Other services	-	-	-4.6	1.9	-	-
Total private sector	4.0	3.6	3.3	5.9	4.2	

Table XIIIa. Import ratios per sector (as a % of production at factor cost)

	1951	1960	1970
0. Agriculture	5.1	4.7	5.6
1. Mining	11.2	10.9	12.0(※)
2-3 Manufacturing	28.9	93.6	92.2
4. Public utilities	117.4	35.8	9.5
5. Construction	50.2	42.5	44.5(※)
6. Trade etc.	6.1	7.8	6.4
7. Transport etc.	57.0	51.6	30.3
8-9 Other services	-	2.8	6.4
Total private sector	72.6	66.7	70.4

some cases not comparable. This applies in particular to the transport and other services sectors, for which the import figures of before 1958 are only known collectively. It is reasonable, however, to impute them to transport etc. alone, inasmuch as the share of other services in those years may be regarded as having been very small. Owing to the lack of statistics, however, we dropped the original plan to carry out empirical sectoral analyses as in Chapter I, § 7, as being impracticable. The most fundamental approach, namely the analysis of possible differences in behaviour parameters with regard to wages and prices between the sectors, is therefore ruled out.

On the basis of the two tables, however, some overall conclusion may be drawn. Import costs are by far the highest in the manufacturing sector, followed by the construction sector. Their significance is very small in Agriculture, in Trade etc. and in Other Services. In Public Utilities and Trade nominal import costs show on average a decrease. Owing to lack of figures, however, it cannot be determined whether these trends are attributable to the import prices or to real savings in production.

The sectors with the highest inflation (see Table VI, § 2) are Other Services, Construction and Trade. It may be said that this is not to be blamed on the import costs, certainly not as regards Other Services and Trade: domestic conditions, that is to say labour costs, are the decisive factors here. Construction, however, has undoubtedly suffered much more from foreign influences through imports.

§ 5. Exports and export prices

Export prices have been lower than the prices of home products. This has already been pointed out in Chapter I. We shall now take a look at the principal exporting sectors in the Netherlands. We shall do this on the basis of Tables XIV and XIVa, which give for a number of past years the nominal values of exports per sector as a percentage of the total value of Netherlands exports, both for goods and for services. For one year, moreover, namely 1970, the ratios are given between exports and the net value added per sector, likewise as a percentage. The dashes indicate that the relevant ratios are negligibly small.

Table XIV. Export shares: Goods (1)

	Share as a % of "total" export value				Idem, as % of net value added per sector
	1955	1960	1965	1970	1970
0. Agriculture	12.6	11.2	10.8	6.9	49.8
1. Mining	1.0	1.4	1.3	1.8	53.5
2-3 Manufacturing	78.1	79.6	80.0	82.5	120.9
4. Public utilities	-	-	-	-	-
5. Construction	-	-	-	-	-
6. Trade etc.	1.7	1.2	2.6	2.5	7.5
7. Transport etc. } 8-9 Other services }	2.6	3.5	-	-	-

Table XIVa. Export shares: Services (1)

	Share as a % of "total" export value				Idem, as % of net value added per sector
	1955	1960	1965	1970	1970
0. Agriculture	-	-	-	-	-
1. Mining	-	-	-	-	-
2-3 Manufacturing	4.7	6.0	5.3	7.7	2.6
4. Public utilities	-	-	-	-	-
5. Construction	0.9	1.9	1.5	3.1	4.4
6. Trade etc.	18.2	13.2	10.3	8.4	6.2
7. Transport etc. } 8-9 Other services }	88.4	72.7	59.0	57.8	85.7
			4.7	5.8	3.9

(1) The totals are not equal to 100 % since the Tables do not include re-exports and exports not imputable to sectors.

As regards the goods trade, the manufacturing sector is by far the most important exporter. Transport is most important in the services sector. Table VI shows that the sectors of economic activity involved in exports are those with a relatively lower inflation rate and also with lower than average wage cost increases (Table XI), largely due to improvements of labour productivity. The specific connection of exports with particularly strong sectors explains the difference between the export price and the price of national production. At least it explains the possibility of such a difference. Competition and rising prices on the world market have in fact made this theoretical possibility a reality.

Price policy in the last two or three years is partly responsible for the present opposite development, in which export prices in 1974 rose significantly more than domestic prices. This made exports more attractive for many firms. This partly accounts for the considerable current account surplus on the balance of payments.

Apart from this, it can be said of the post-war period that competition and the movement of prices on the world market have tended to keep down the rate of inflation in the Netherlands. Higher prices on the world market would have led to higher export prices, to extra profits and hence to extra business activity, more employment and higher wage claims at home, and in this way have caused considerable domestic inflation, at least with stable exchange rates. In a situation of flexible exchange rates it would in theory be possible to keep imported inflation largely under control.

§ 6. Conclusions

1. A sectoral analysis reveals an increase in the share of sectors of economic activity subject to accelerating inflation in the post-war period, such as the Trade, Other Services and Construction sectors. This has had a positive effect on the trend of the national price level.

2. Inflation has been moderated inasmuch as nominal wage increases in the fast-inflating sectors (Trade, Other Services) have been lower than the national average.
3. On the other hand, inflation has been stimulated by the fact that the growth of productivity in the same sectors was much lower, as it also was in the Construction sector. In these sectors, then, wage cost increases have been highest.
4. These have been the very sectors with the greatest impact on employment: the problems of full employment and inflation are thus clearly revealed in this context.
5. World market prices, on which our export prices largely depend, have remained below the domestic price level. This has moderated our rate of inflation. In theory, it would be possible, however, to control imported inflation in a situation of flexible (free) exchange rates.
6. The income-levelling policy pursued in recent years, in which low wages have been raised faster, is thought to have considerably increased the rate of inflation, more particularly in the weak labour-intensive sectors (Construction, Trade, Other Services). This has been countered, however, by price policy and also by competition, having regard to the short-term selling market problems. Extra inflation due to income levelling has now given way to the accelerated closure of weaker firms, to the under-utilization of capacity, to losses and in this way to unemployment.
7. The growth of import costs has been relatively favourable, particularly for the weaker sectors, and moreover has not been very substantial in terms of quantity. Even after the energy crisis, it has been possible from this quarter to keep down inflation for these weaker sectors, which play such a central part in the inflation process.
8. Owing to its lack of productivity improvements, General Government is in the lead as regards the rise in the price of its production. Seen from this angle, too, Central Government is a creator of inflation.

Chapter III

Micro-economic aspects

§ 1. Introduction.

In Chapter I, inflation was dealt with in macroeconomic terms. In Chapter II, the emphasis was shifted to a sectoral approach. An attempt will now be made to give our study micro-economic substantiation on the basis of the behaviour of producers and consumers. This in fact amounts to presenting empirically-supported supply and demand functions, first of all by sector and secondly by product group.

In the second chapter, the investigation of differences in behaviour parameters per sector with regard to wages and the passing on of costs had to be prematurely concluded owing to lack of facts and figures. This applies, as we shall see, even more to the micro-economic investigation. Any such investigation, moreover, is doomed to failure by the lack of general theories, let alone models.

This presents in a nutshell why and on what grounds an investigation into the factors underlying the inflation process based on the actions and preferences of participants in the economy is bound to come to a dead end. The results of our study, as presented below, will underline this.

§ 2. Production and sales functions

The developments per sector and per sub-sector will depend on both short-term and long-term production and sales characteristics. As regards the production functions, information is needed on production capacity and employment, and also on their price movements. Such data are not available, at least not as far as production capacity is concerned. Short-term stocks of capital goods cannot be established, and the determinants of the accumulation process in the longer term (the investment function) are unknown. Furthermore, separate assumptions about these quantities can only be tested on their merits in multi-sector and multi-product models. In a dynamic approach the theoretical construction of such models would in itself fill a thick book. For all these reasons

the production aspect cannot be adequately studied. As far as this is concerned, economic science is not yet sufficiently advanced. A study of the product functions will therefore have to be omitted.

As far as the sales side is concerned, data are lacking on selling prices per sector. The important difference between cost and selling price cannot therefore be comprised in the theoretical analysis. Although the Central Bureau of Statistics supplies extensive data on the consumption expenditure of private households in terms of volume and price, these data are specified in product groups. Any attempt to allocate them to sectors or sub-sectors is therefore scarcely feasible, particularly since it is not known what should be attributed to imports and what to exports, nor what the price movements were.

In such circumstances we can do little more than consider the consumption expenditure in itself. Such an analysis would at all events show in principle whether or not income and price elasticities play a significant and identifiable role in this connection. If this were so, it would provide an indication of the conditions in which producers must operate with their volume and price postulates. An attempt to substantiate the developments described in Chapter II could then be made.

The results of an investigation of this type are described in the next section.

§ 3. Consumption functions: empirical results

Reference has already been made in Chapter I to the shifting shares of labour and other incomes in the total. According to empirical research, this trend appears to be very important, since the empirical results are considerably improved if the effects of these incomes are included in the macroeconomic consumption function not as unweighted but weighted quantities. The weighting coefficients involved are the annual ratio between the relevant income and total consumption. If such a weighted income grows by one per cent, then given a marginal consumption ratio of one there would also be a one per cent increase in consumption.

The regression coefficients for these weighted incomes are therefore a direct indication of the amount of the marginal consumption ratios. If furthermore wage incomes rise faster than profits, this is directly reflected in the function through a rising weighting coefficient of wages in total consumption and a falling coefficient of profits, so that the effects are not imputed to the regression coefficients.

The following expression typifies the results of our study:

$$C = 1.17L_c + 0.10Z_c - 0.23P_{c-1} - 0.36P_c + 0.58$$

$$R = 0.93 \text{ Rest var} = 1.79.$$

where C is the annual growth in the value of private consumption, expressed as a percentage;

L_c is the annual weighted growth of total disposable wage and auxiliary incomes (i.e. after tax and social insurance premiums and including transferred incomes), taking the weighting coefficient as the ratio between this total income and private consumption in the previous year;

Z_c is the annual weighted growth of total disposable income, idem;

P_c is the annual growth in the price of private consumption.

This function reveals the following characteristics, which constantly recur in the further course of the study:

1. The marginal ratio of consumption to disposal wage income is very high (in the present function even greater than one).
2. The marginal ratio of consumption to disposable other income, on the other hand, is very low. This links up very well with our remarks in Chapter I on the used up margin between profits and investment.
3. There is a negative relation between the nominal growth of consumption and the movement of prices. If price rises result ceteris paribus in a decrease of consumption, this may give rise initially to an increase of stocks. This could explain the effect noticed in § 9 of Chapter I, where

it was noted that, contrary to expectations, the relation between the movement of stocks and price rises is a positive one. Evidently, the relation is opposite to what one would expect: prices rise no less as a result of extra stock accumulation owing to disappointing sales, but stocks increase and sales are disappointing owing to extra price rises! It is conceivable that efforts are first made to dispose of these extra stocks on the world market. If subsequently they lead to less production and the underutilization of capacity, then according to § 9 of Chapter I this has a mitigating effect on prices.

The high marginal consumption ratio over total wages and auxiliary incomes confirms our remarks in Chapter I about the savings of wage and salary earners. In a growing economy, given this consumption function, national consumption will in the long run become equal to total wages, and therefore profits will become equal to investment. According to our calculations this situation has in fact already been reached - a situation which, according to economic theory, implies maximum per capita consumption. For consumption purposes, therefore, there is no more to redistribute. Any attempt in these circumstances to reduce profits in favour of wages can only result in inflation and in unemployment. As far as this is concerned the Netherlands, for internal reasons, can now be said to fulfil very significant conditions for accelerated inflationary processes. There can be little doubt, for example, that in the present economic climate, cost increases will be passed on to a greater extent than corresponds to the empirical results relating to the period behind us.

We have not been able to establish any convincing correlation between rates of interest or interest movements and total private consumption. This could suggest that the use of monetary policy to combat inflation by controlling private expenditure does not offer much chance of success. Although in theoretical models monetary factors are primarily significant as means of stabilizing overheated economies and moderating inflation, they do not appear to be operative at macro-level in the Netherlands economy.

Our investigation of more disaggregated consumption functions is downright disappointing: moreover the results in econometric terms are weak. First of all we tried to find relations for the collective categories Food, Beverages and Tobacco; Durable Consumer Goods; and "Other Goods and Services". The results are given below. As regards Food, Beverages and Tobacco, the prevailing picture is as follows:

$$a. \quad C_1 = 0.61C + 0.21P_{1-1} + 0.22P_1 - 0.75P_g + 3.72$$

$$R=0.80 \quad RV = 2.71$$

or

$$b. \quad C_1 = 0.58L_c - 0.22Z_c + 0.24P_1 - 0.86P_g + 5.87$$

$$R=0.70 \quad RV = 3.82$$

where

C_1 is the annual percentage rate of growth in the value of expenditure on Food, Beverages and Tobacco;

P_1 is the annual growth rate in the prices of these commodities;

P_g is the nominal rate of interest.

The other symbols have already been defined above.

In relation to a, a connection was sought with total private consumption expenditure; in b, we looked for a connection with the weighted growth rates of disposable wage and other incomes. The explanations are weak. The negative influence of the rate of interest is particularly noticeable. This can only be understood by assuming that when interest rates rise, associated categories of expenditure within the consumer budget receive priority over spending on Food, Beverages and Tobacco.

The influence of prices on value growth is seen to be positive, but in total is smaller than one (or both relations). The connection between volume and price changes in such conditions is therefore negative, but the direct price elasticity involved is evidently smaller for Food, Beverages and Tobacco than for total private consumption (see above).

As regards a possible indirect price elasticity between total private consumption and expenditure on Food, Beverages and Tobacco, it should be remarked that we were not able in the econometric study itself to determine whether this elasticity was greater or smaller than zero.

We also tried to find functions for individual parts of this sector of expenditure (i.e. for beverages separately, for tobacco, for bakery products) but here too the results were not acceptable.

For expenditure on Consumer Durables we found:

$$a. \quad C_2 = 1.92C + 0.27P_{2-1} - 1.37P_c - 1.66P_{g-1} + 4.73$$

$$R=0.9 \quad RV=7.60$$

$$b. \quad C_2 = 2.0L_c + 0.58Z_c - 1.68P_2 - 0.45P_{c-1} - 4.58$$

$$R=0.82 \quad RV=12.41$$

where

C_2 is the annual percentage growth in value of expenditures on Consumer Durables;

P_2 is the annual percentage change in price, idem.

The picture shown by the two functions shows similarities in so far as the "marginal expenditure ratio" is very high in both cases. As far as the influence of prices and interest rates is concerned, at the most a negative influence is found to be exerted by the total price of expenditure on consumer goods. In the two functions the individual price turns out very different, but the total picture does suggest a negative direct price elasticity. Relation a also imputes the negative influence to the rate of interest. As regards b, little can be said even about the sign of any such influence. This may perhaps be due to a high correlation between interest rate and other incomes and/or the price of Consumer Durables: it seems rather obvious that a relationship, probably negative, exists between expenditure on Consumer Durables and the rate of interest.

A further division into categories (textiles and clothing, footwear, domestic appliances) again yields few acceptable results.

Finally, we mention some typical results found for expenditure on "Other Goods and Services":

$$a. \quad C_3 = 0.74C + 0.97P_{3-1} - 0.61P_{c-1} + 0.53P_g - 1.75 \quad R=0.83 \quad RV=3.27$$

$$b. \quad C_3 = 0.60L_c + 0.31Z_c + 0.33P_{3-1} + 0.44P_g + 0.56 \quad R=0.84 \quad RV=3.12$$

where

C_3 is the annual percentage growth in the value of expenditure on "Other Goods and Services";

P_3 is the ditto price growth, idem.

The growth of the category of consumption considered also appears *ceteris paribus* to lag behind the growth of total consumption and incomes. As regards the price of home-produced goods, however, there again appears to be a negative elasticity. The influence of higher interest rates is now positive, which may be the complementary effect of the reactions observed in the case of food and beverages, etc. Where rents are also included in this category, this positive relation is not exactly surprising. An empirical analysis of parts of expenditure on other goods and services, however, yielded few if any really hard-and-fast results.

The foregoing may sufficiently explain why econometric analysis aimed at finding a relation between consumer behaviour and inflation does not yield any important new insights. As far as this is concerned, we shall have to confine ourselves to overall insights. This will have to be done using the means adopted in the foregoing chapters. Some information on consumer behaviour ought to emerge from the average trend of expenditure on the categories under consideration, namely Food, Beverages and Tobacco; Consumer Durables; and "Other Goods and Services". Table XV shows how the shares of these categories in total consumption have developed over a number of years.

Table XV. Consumption expenditure: relative percentage shares in the total (1)

	1952	1957	1962	1967	1972
Foods, beverages and tobacco	41.3	38.4	36.0	33.0	26.2
Consumer durables	24.2	26.5	27.6	26.6	28.1
Other goods and services	34.5	35.2	36.5	40.4	45.7

(1) Calculations on the basis of National Accounts.

This table shows that the share of the Food, Beverages and Tobacco category decreased, whereas that of Consumer Durables and of "Other Goods and Services" increased. The question again arises as to whether these shifts are to be attributed to price changes or to volume changes. The answer to this question may be formulated on the basis of Table XVI, which gives the price changes as percentages averaged over five-year periods, together with the corresponding changes in value and volume.

It is seen that on average the category of "Other Goods and Services" showed the fastest growth in value, closely followed by Consumer Durables. Expenditure on Food, Beverages and Tobacco lagged behind.

Table XVI. Consumption expenditure: growth of value, volume and price
(as %s averaged over five-year periods)

		1953 to 1957	1958 to 1962	1963 to 1967	1968 to 1972	Total Average
Food, beverages and tobacco	(Value	6.5	5.2	8.6	6.9	6.8
	(Volume	3.9	4.0	3.8	2.7	3.6
	(Price	2.5	1.1	4.6	4.2	3.1
Consumer durables	(Value	10.2	7.6	9.8	13.2	10.2
	(Volume	10.0	7.2	6.8	7.5	7.9
	(Price	0.2	0.3	2.8	5.4	2.2
Other goods and services	(Value	8.4	7.6	12.5	14.8	10.9
	(Volume	3.9	4.2	6.3	6.6	5.2
	(Price	4.4	3.3	5.9	7.9	5.4
Total consumption	(Value	8.0	6.5	10.6	12.0	9.4
	(Volume	5.1	4.4	5.8	5.7	5.3
	(Price	2.9	2.0	4.6	6.0	3.9

In terms of volume growth, however, Consumer Durables stay at the top, but in terms of price they are at the bottom. The shifts in the consumer budget in this direction are therefore, seen purely arithmetically, attributable to the growth in volume.

The opposite applies to "Other Goods and Services". Here the price rises are high, while the growth of volume is lower, although on balance the total expenditure in this category shows a marked increase in value.

The movement of prices in the category of Food, Beverages and Tobacco is clearly behind the movement of macro-prices, and the same applies to volume growth and the net value growth.

Disregarding other influences, Table XV does arouse expectations with regard to income and price elasticities. This prompted us to investigate separately whether an empirical analysis might provide information on the volume movements of the categories of consumption under consideration. In this analysis, contrary to the foregoing, we considered the effects of the various prices on the various volumes. The results in a nutshell were as follows:

$$\bar{C}_1 = 0.66L_c - 2.7(P_g - P_{g_{-1}}) - 0.76P_2 + 0.68 \quad R=0.75 \quad RV=2.77$$

$$\bar{C}_2 = 2.27L_c - 0.83(P_1 + P_{1_{-1}}) - 1.83P_2 - 3.25 \quad R=0.85 \quad RV=10.81$$

$$\bar{C}_3 = 0.54L_c + 0.32Z_c + 0.97P_g - 0.80P_3 - 1.010 \quad R=0.90 \quad RV=1.69$$

where $\bar{C}_{1,2,3}$ stand for the percentage volume growth.

It should again be remarked that the above functions require empirical improvement. They are presented here in this form because they represent quite well the main trends brought to light by our investigation. In particular the developments indicated in Table XV are understandable on the basis of these functions.

The considerable volume growth shown by Consumer Durables (\bar{C}_2) is connected primarily with a high marginal spending ratio. Increases in the prices of home-produced goods do have a marked inhibitory effect, but in fact such price rises have been on a limited scale. Particularly noticeable is the equally inhibitory effect of price rises in the category of Food, Beverages and Tobacco, which suggests mutual substitution.

The latter is all the more pronounced where the price of Consumer Durables appears in addition to changes in interest rates to have an important bearing on the volume of expenditure on Food, Beverages and Tobacco (\bar{C}_1). The marginal spending ratio of wage incomes is fairly small, which partly explains the relatively lower growth of volume in this category.

The marginal spending ratio over total incomes from labour and other incomes is higher for the category of "Other Goods and Services". The increase in the price of home-produced goods inhibits the growth of volume, but in this relation too a high level of interest rates has a stimulating effect. Further analyses give strong indications that a similar stimulating effect is exerted by price rises in the category of Consumer Durables. A lower demand for Consumer Durables (including domestic appliances, clothing and dwellings) evidently contributes towards a demand for extra services in this direction.

We consider that the foregoing provides sufficient indications to show that the price consciousness of the Dutch consumer should not be under-estimated. Time and again it is found that price rises inhibit spending, a phenomenon which evidently involves substitution effects. When incomes improve there is a strong preference to use the additional income to acquire consumer durables, which have made the least contribution to inflation. The growing shares of expenditure on "Other Goods and Services", however, took place in spite of the marked rise in their prices. As compared with the connection between volume and price of consumer durables, the price-sensitivity of home-produced goods and services is small. People evidently attach considerable importance to consumption in this sector, which included medical services.

§ 4. Conclusions

1. In the absence of empirical data it is impossible to set up production and sales functions per sector in so far as they relate to activities on the home market.
2. The results of our investigations into the behaviour of consumers can only be presented with extreme reservations.
3. The results suggest that, as far as volume expenditure is concerned, the consumer always reacts negatively to price rises.
4. In addition the consumer is inclined to avoid expenditure on categories in which prices are rising fast.
5. In view of the above, the producer must certainly take the consumers' reactions into account when fixing prices: competition for the disposable guilder is thus a distinct brake on inflation.
6. The latter consideration does not seem to apply so much to "Other Goods and Services": this category evidently comprises many goods and services which the consumer feels he cannot do without (rents, medical care, etc.).

Chapter IV

Summary and Conclusions

In the foregoing some characteristics of the process of inflation in the Netherlands have been dealt with, which will now be reviewed by way of summary.

1. The passing on of nominal cost increase to prices is less than complete and occurs moreover with a time lag. In this situation, continuing cost increases have led to a decline in real profitability.
2. Prices play an important part in the formation of gross wages. Almost complete indexation of wages coupled to the above-mentioned delayed passing on of costs is one of the reasons why inflation has continued even in times of more than normal unemployment.
3. Macro-economically, wage and price movements can be sufficiently explained in terms of movements of costs, supply and demand.
4. Inflation is additionally stimulated by general government, not only through its own high price increases but also through the rapid increase in the burden of taxation and social security premiums on wage incomes, which wage and salary earners try to avoid.
5. In view of the seriously low level of profitability at the present time, it is to be expected that cost transfer coefficients will rise. For this reason alone there is now a danger that inflation will accelerate more than ever. At present there is little sign of this, partly because of the government's rigid prices policy. (One way or the other, it is the employment situation that is likely to suffer.)
6. The internal rate of inflation in the Netherlands has been higher than that of the world market prices relevant to this country. Foreign, international competition has kept the Dutch rate of inflation down.
7. The low level of real labour costs in the 1950's is partly responsible for the accelerated wages and prices spiral in the course of the sixties. The high profits earned partly as a result of these low levels of wages and prices, together with a rapid increase in foreign

demand, led to a rapid increase in the number of jobs. This ultimately resulted in great tensions on the labour market, producing a turning point in the movements of nominal and real wage costs and prices.

8. In spite of the foregoing, real disposable incomes of employees, after taxes and payments of social security premiums and pensions, have lagged behind the growth of labour productivity. Partly because of this, the pressure on nominal wages has been high. It is likely to be very difficult to avert the trend towards rising wage claims. The decreasing ratio between productive and non-productive population, in addition to other strong claims on collective amenities, suggests that the contrary is likely to be the case.
9. Macro-economic control of the inflation process by means of monetary policy appears to be very difficult in the Dutch economy. The President of the Bank of the Netherlands has also pointed out that attempts in this direction are to a great extent nullified by uncontrolled international capital movements (1).
10. Sectoral shifts are taking place in the Netherlands in the direction of the sectors showing faster inflation. The sales of these sectors are largely directed at the home market. The sectors in which inflation is slower, on the other hand, are the big exporters. This explains the disparate movements of domestic and export price levels. At the same time the growth of productivity is relatively low and therefore the rise of costs relatively high in the faster inflating sectors.
11. The shifts mentioned under 10. have benefited employment but have been detrimental from the point of view of inflation. (The income-levelling policy pursued in the Netherlands, coupled to the government's price policy, have broken through this development with what is to be feared will be less favourable results for employment.)

(1) In this context see the 1972 and 1973 Annual Reports of the Bank of the Netherlands.

12. Owing to the lack of data, it is not possible to make a comparative analysis of the possible differences in behaviour with regard to the passing on of costs.
13. It is noticeable, however, that inflation in the faster inflating sectors is moderated by a relatively slow growth of nominal wages. Where this involves "low wage sectors" the income-levelling policy will also have the effect of breaking through this trend.
14. The above-mentioned weaker sectors with steeply rising wage costs are also characterized by high wage and labour income ratios. The sectoral shifts are thus in the direction of sectors of economic activity in which the rises of wage costs are high but which also have a greater need for higher cost transfer coefficients. For both reasons, these shifts stimulate inflation.
15. Typical features of the faster inflating sectors are their relatively low import ratios and their low rises of import costs (with the exception of the construction sector); this characteristic tends to keep down the national rate of inflation.
16. Owing to lack of statistics, an analysis of the possible connections between rates of inflation and sales functions per sector against the background of competitive relationships is not feasible. For this reason it is not yet possible to obtain any insight into the relevant income, price and production elasticities.
17. Available statistics on consumer expenditure do provide a basis on which to draw some conclusions, by empirical methods, relating to consumer behaviour, but only with great reservations.
18. This study shows that, as far as volume spending is concerned, the consumer responds negatively to price rises, at least in the major categories of Food, Beverages and Tobacco; Consumer Durables; and "Other Goods and Services".
19. Because of this, producers have to compete for the consumers' disposable guilders, which will tend to make them circumspect in the raising of prices.

20. Given this effective competition, producers will not therefore readily pass on cost increases in full, and moreover will only pass them on after a time lag. This links up with the cost transfer scheme described in Chapter I.
21. In this way, competition and consumer behaviour contribute towards the moderation of inflation (1). In all probability this applies most to Consumer Durables, which our study shows to have the highest price elasticity. The connection referred to is least convincing in its application to the sector of "Other Goods and Services".
22. Consumer durables are manufactured products. As pointed out in Chapter II, labour-saving technological progress is high in the manufacturing sector. Labour-saving in the services sector, on the other hand, is low. This may account to some extent for the difference in price movements. Consumer behaviour gives this difference an extra dimension. The reaction to pricing may provide the ultimate motivation for seeking ways and means of cutting down on costs.

In theory an inflationary process can be weakened with the aid of a strict prices policy. As pointed out in Chapter II, however, a policy of this kind has certain drawbacks:

- a) It cuts across structural reallocation processes, which in the Netherlands situation can lead to unemployment, first and foremost in the tertiary sector.
- b) It can have the effect of increasing the pulling power of external (foreign) demand, giving rise to labour market tensions in the export sector, especially in manufacturing. It should be added that this sector in the Netherlands has the function of a "wage leader".
- c) Profitability may be reduced to such an extent as to impair the overall investment climate.

(1) Whether this applies to other countries, and to what extent, does not come within the scope of this study.

The differentiation of prices policy in favour especially of the weak sectors deprives the above-mentioned measures of much of their effectiveness as short-term means of combating inflation. For of course the weak sectors are at the same time the ones that create the highest inflation.

In the very open economy of the Netherlands, not much is to be expected of monetary policy as an instrument of combating inflation, mainly owing to international capital movements.

According to present theoretical views, in a situation of fixed exchange rates it is virtually not possible for a country like the Netherlands to cause its rate of inflation in the longer term to differ from that on the world market (1). Admittedly, this does not apply to typically home-produced goods, but it is precisely these goods that are characterized in the Netherlands by high price increases. Seen from this point of view as well, competition - now international - moderates the Dutch rate of inflation.

In theory something could be done about (world) inflation by using monetary instruments, provided the monetary policy could be implemented at world level. That stage, however, is far from being reached, if it ever will be.

On the basis of the present study, and in the light of the above statements, we believe that our recommendations for combating inflation should rest on different considerations. We cannot conclude otherwise than that the inflation process is largely dictated - albeit in interaction - by cost increases. It may also be contended that inflation tends to be mitigated by the effect of competition for the consumers' disposable guilder and that a converse, reinforcing effect is exerted by (wage) indexation.

In these circumstances it seems the obvious course to promote the maintenance and where necessary the reinforcement of effective competition, in particular as far as home-produced goods are concerned. Where

(1) In this connection see Prof. D.B.J. Schouten "Een monetair conjunctuur-structuurmodel" in "model en mogelijkheid", Jan Haan b.v. Groningen 1974.

the market mechanism, owing to low direct price elasticities, can only function imperfectly, the danger of inflationary processes is theoretically greater. Measures implemented to cut down on costs can help to avert such a danger. The stimulation and possible subsidizing of such cost-saving measures and government-sponsored research to this end are therefore to be recommended. Offering the prospect of a government subsidy in the event of business mismanagement or to save enterprises that are clearly running down does not promote competition.

Rising costs may to a great extent be attributed to the ever increasing burden of taxation and social insurance. Wage costs could be brought down considerably if this burden were to be reduced. The coupling of a lower nominal growth of wage to lower taxes etc. could on balance leave the real improvement of employees' incomes unaffected. A measure of this nature would give the inflation spiral a push in the downward direction. In the present situation in the Netherlands the resultant lower revenues for the national treasury could be compensated by financing government expenditure out of balance of payments surpluses, including the income from natural gas. On the other hand, government should pay more attention to the question of whether everything it is doing ought in fact to be done in the public sector, or whether it might not in fact equally well be left to private initiative. With its ever-increasing prices, government is a great inflation-maker.

The indexation of wages, minimum wage fixing and the payment of social insurance benefits should not be allowed to become automatic processes. In wage bargaining more room should be allotted to the creation of jobs and to the combating of inflation. In the long term this is of the utmost importance, especially for the weaker sections of the community. Bearing in mind the need to ensure the continuity of business enterprise and the jobs it provides, more attention should be paid to helping firms maintain the necessary level of profitability.

Precisely with a view to the economically weaker sections of the community, concentrated according to Chapter II in the weak sectors of economic activity, the policy of income levelling should only be

pursued with the utmost circumspection and certainly not be re-implemented as a matter of course from year to year. In the implementation of such measures, greater attention should be paid to its effects on inflation and on the employment situation.

Whether the recommendations made above can be carried into effect will depend on all the partners involved in the social and economic process. However, this may be, galloping inflation is disastrous to our economy, and not only to its economically weaker members. The market mechanism depends on information and calculation, and their quality is impaired by inflation. In a situation of accelerating inflation the market mechanism can therefore no longer fulfil its proper role.

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