WAGES, WAGE ROOM AND WAGE ROOM UTILIZATION IN BELGIUM

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ABSTRACT

The authors start from the proposition that every year a well-defined room for wage increases is created. They show that this room is determined by the price increases for our export products on the international market, by the evolution of the exchange rate of the Belgian franc and by the increase in labour productivity. Price increases originating in foreign markets and labour productivity increases both give more room for wage increases. The same is true for depreciation of the currency.

In the paper, it is assumed that the export prices can not be manipulated by the Belgian exporters (these prices are given to them since their share in foreign markets is too small). The same holds (to a certain degree) for productivity increases and for the changes in the exchange rate. Hence, the room for wage increases is also fully determined.

The authors compare the yearly evolution of the wage room with the evolution of the actual wages. Therefore they construct a room utilization index. Some important conclusions are obtained. During the sixties the room utilization index nearly always equals 100 (100 being the 'critical' value of the index). During the seventies, on the other hand the average value of the index equals 112, with especially high values in 1972, 1973 and 1975. Towards the end of the investigation period (1979) there seems to be a return to "normality", at least for the aggregate manufacturing industry. There are, however, important sectoral divergencies. The sectoral indexes show indeed an over-exhaustion of the wage room for textiles, leather, cement, clay and ceramics (whole period) and after 1970, for glass, food, beverages and tobacco. The same is true - but to a much lesser extent - for engineering and clothing. These results differ from those for quarrying (other than coal-mines), iron and steel, non-ferrous, and especially chemicals, wood and furniture, and paper, cardboard and printing.
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In their analysis of Belgium's economic performance, many individual economists and official institutions have often stressed the so-called excessive wage increases that have taken place during the past decade, and especially in the early 1970s. In this paper, the concept "excessive wage increase" is given an empirical meaning by referring to a wage formation model, designed for small open economies and assuming cooperative labour unions (the Scandinavian model). Using the prescriptive conclusion of that model, the aggregate and sectoral wage increases in Belgium in the 1970s are contrasted with the 1960s.

We proceed as follows: first those aspects of the model, related to wage formation are briefly recalled and formalized (section I). Next, the prescriptive conclusions of the model are compared with the actual wage increases in Belgium. This is done on an aggregate (section II) and on a sectoral (section III) level.

I. Wage formation according to the Scandinavian Model

The Scandinavian model has originally been designed for normative purposes. Indeed, it serves as a quantitative guide-line during wage negotiations in Norway. Later on, the model was turned into an inflation explaining model by assuming that actual wage and price behaviour conforms to the norm.

With respect to wage formation the model assumes what follows:

1. The aggregate economy can be divided in two sectors. The "exposed sector" which produces exportables and importables, is characterized by strong foreign competition. This sector is assumed to be a price-taker on the world market (small open economy hypothesis). The "sheltered" sector, producing non-tradables, on the other hand, is a price-setter on domestic markets. In what follows, only the "exposed sector" will be con-
sidered. This sector is more or less identical with the manufacturing sector. However, a more detailed investigation is needed to define whether or not prices are given to the sector, i.e. determined on the world market.

2. The shares of labour and capital in the value of total output remain more or less constant, except for some long-term trend. This "invariability" of both shares may be the consequence of an income policy and assumes "cooperative" labour unions.³

3. Labour productivity is exogeneous to the model.

The above assumptions are easily formalized as follows:

Define \( S_L = \frac{WL}{OP} \) (1)

with \( S_L \): the share of labour in the value of total output

\( W \): the price per unit of labour used, i.e. the nominal wage rate

\( L \): the amount of labour input

\( O \): the quantity of output

\( P \): the price at which the output is sold.

Then: \( S_L = w - q - p \)

with small letters denoting relative rates of change, and with \( q = d\ln Q \), where \( Q = \frac{O}{L} \) (i.e. a measure of labour productivity).

Now, according to the above assumptions:

\( S_L = 0 \)

and \( p = p^* \)

\( q = q^* \)

with \( p^* \) standing for the (exogeneous) world market price, denoted in the home currency.⁴

Consequently: \( w^N = p^* + q^* \) (2)

Equation (2) defines the (increase in the) wage norm \( w^N \), or the so-called "room for wage increases". Wage increases that conform to this norm will keep up profits to the mark. It is argued that
this will stimulate investment and stop entrepreneurs from withdrawing from the market. Further, since $p = p^*$ firms will be able to stand firm on the international market.

Equation (2) defines a long-term norm which cannot be met at every moment. However, taken over a longer-term period actual wage increases ($w^a$) should meet more or less the wage norm ($w^a = w^N$).

II. Aggregate wage evolution and the wage norm in Belgium

Figure 1 shows for the Belgian aggregate manufacturing sector the evolution of the wage norm, the actual wages and the "room utilization". The latter concept is defined as the actual wage divided by the wage norm.

Given $w^N$ which can be computed on a yearly basis, an index was constructed coming up to the following definition:

$$w^N_t = 100(1 + w^N_0)(1 + w^N_1)...(1 + w^N_t)$$

with basis $1964 = 100$. This index will further be called the wage norm or wage room index.

The wage norm index is there contrasted with the index of actual wage behaviour ($w^a$), also with basis $1964 = 100$. The "room utilization" index is then defined as

$$RU = \frac{w^a}{w^N} \times 100$$

From the definition of the RU-index, it follows that RU is equal to 100 during the base year. This implies that it is assumed that in that year the actual wage level is equal to the wage room. The "critical" level of RU thus equals 100. It follows that if $RU > 100$ then the wage room is "over exhausted"; if $RU < 100$ the room for wage increases is not fully used.

Figure 1 shows the sharp contrast between the 60s and the 70s. During the sixties the aggregate RU-index was most often only slightly above its critical value. In the 1970s, on the other hand, the
RU-index was on the average 12% above the critical value, with especially high values in 1972-73 and 1975. Towards the end of the period there seems to be a return to more "normal" values of the RU-index. Behind this average picture, however there are important sectoral divergencies, to which we will turn in section III.

At this point it is necessary to digress on the limitations of the RU-index. This index will be the more relevant, the more its assumptions are met in the real world. Actually, however, this is not always the case.

(1) In the face of increased wage claims, it is possible that some entrepreneurs will pass through these cost increases in the final output price. As far as this does not result in a significant loss of market share, the RU-index gives a satisfactory picture. If, on the other hand, this price increase leads to a significant loss of output, then the RU-index gives a too flattered picture. Indeed, in that case the shares of labour and capital in total output remain constant, but the output is declining.

(2) Contrary to the assumptions of the model, only a minor part of labour productivity increases can actually be labelled "exogenous" (better schooling e.g.). Increased wage claims will often urge entrepreneurs to save on labour and thus turn to more capital intensive methods. In this process, most measures of productivity will show an increase (the denominator of $Q = \frac{O}{L}$ decreases). As far as the productivity increases are not exogenous but the outcome of a process of labour expulsion, the RU-index will again give a too optimistic picture of the economic situation of the sector especially with respect to employment opportunities.

(3) The RU-index concentrates on the shares of labour and capital in the value of total output, and assumes away the share of
the other intermediate inputs and of government e.g. The index will thus be the more relevant, the smaller the share of intermediate inputs in the value of total output, or, the less difference there is between the price increases of intermediate inputs and wage increases. In the latter case, wage increases stand for all non-capital cost increases.

With respect to the first remark some investigation was performed (reported in a separate paper, cf. H. Pauwels & A. Van Poeck - 1981). On the basis of the analysis that was carried out there it was found that price taking behaviour is the case with most Belgian exporters (exceptions are noted for engineering and glassworks).

With respect to the last remark, table 1 shows the share of the gross value added at market prices in the value of total output in 1970. It is seen that this share is rather low for some sectors (e.g. Food and Beverages, Iron and Steel, Non-ferrous). No definite conclusions should be drawn, on the basis of table 1, however since it is based on one single observation.

Behind the evolution of the aggregate index of wages, wage room and wage room utilization there is plenty of scope for sectoral divergencies. Figure 2 shows the dispersion of actual sectoral wage increases around the average $V_c(w_a)$, together with the dispersion of the increase in the wage norm: $V_c(w^N)$. For that purpose, the coefficient of variation was used. Thus:

$$V_c(w_a)_t = \frac{\Sigma (w_{it} - w^a_t)^2/n}{w^a_t}$$
Table 1: Gross value added at market prices as a share of the value of total output

<table>
<thead>
<tr>
<th>Industry</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and beverages</td>
<td>.26</td>
</tr>
<tr>
<td>Tobacco</td>
<td>.71</td>
</tr>
<tr>
<td>Textile industry</td>
<td>.35</td>
</tr>
<tr>
<td>Clothing</td>
<td>.47</td>
</tr>
<tr>
<td>Footwear, gloves etc.</td>
<td>.41</td>
</tr>
<tr>
<td>Wood and furniture</td>
<td>.42</td>
</tr>
<tr>
<td>Paper, cardboard, printing</td>
<td>.42</td>
</tr>
<tr>
<td>Chemical industry</td>
<td>.44</td>
</tr>
<tr>
<td>Clay and ceramics</td>
<td>.64</td>
</tr>
<tr>
<td>Glass-works, cement &amp; cementagglomerates</td>
<td>.52</td>
</tr>
<tr>
<td>Iron &amp; steel</td>
<td>.32</td>
</tr>
<tr>
<td>Non-ferrous</td>
<td>.12</td>
</tr>
<tr>
<td>Engineering &amp; shipbuilding</td>
<td>.42</td>
</tr>
</tbody>
</table>

Source: based on 1970 input-output table.

\[ V_c(w^N)_t = \frac{\sum_{i=1}^{N} (w_{it} - w_{t})^2/n}{w_t} \]

\[ t = 1960 - 1979 \]

It is seen that the coefficient of variation of the actual wage increases, \( V_c(w^A) \), shows a long-term decreasing trend from the beginning of the investigation period onwards, until 1974. After 1974 there seems to be a reverse in that trend. This means that until 1974 the dispersion in sectoral wage increases has steadily narrowed.

The same picture is however not found back with respect to the dispersion of sectoral wage norm increases. The line showing \( V_c(w^N) \) has indeed a rather erratic behaviour with sharp peaks in 1965, 1971, 1975. Only during the period 1965-1970 a positive correlation of both series can be detected.
This analysis clearly underlines that sectoral problems are inevitable if in the face of a highly divergent behaviour of sectoral export prices and productivity increases, wages increase at a more or less uniform rate.

III. The evolution of the sectoral RU-index in Belgium

Figure 3(1) - 3(16) shows the evolution of the RU-indexes for sixteen sectors. As suggested before, there are strong divergencies between these sectoral indexes. For most sectors, however, there is also a sharp contrast between the evolution of the index in the sixties and during the past decade. For most of them the index also shows an improvement towards the end of the investigation period.

Especially "unfavourable" behaviour of the index is found for the textile leather, cement and the clay and ceramics industry and after 1970 for the sectors glass and glassworks, food, beverages and tobacco. To a lesser extent the same holds for engineering and clothing.

These sectoral indexes are in sharp contrast with those for the sector "other mining industry", "iron and steel industry", "non-ferrous" and especially "chemicals industry", "Wood and furniture" and "Paper, cardboard and printing".

IV. Conclusions and suggestions for further research

In this paper an attempt was made to compare actual wage behaviour in Belgium with a wage norm. The latter was based on the normative conclusion of the so-called Scandinavian model. This model has the advantage of being designed for small open economies, subject to price taking behaviour on the world market. This seems indeed to be the case for most Belgian export sectors.

An index of wage room utilization (RU-index) was constructed for the aggregate manufacturing sector and for 16 subsectors. This
index clearly shows the different behaviour of wages in the sixties versus in the seventies. Towards the end of the investigation period there seems to be a "return to normality". However, important sectoral divergencies clearly come to the fore, and for some sectors the index is nearly always above its critical value.

The utility of the RU-index could be increased if it could be showed that there exists a relationship between the evolution of the index and the evolution of some measure of actual performance on the international market, like e.g. an export market share index. The authors are presently working on that part of the investigation project.

Further, it seems to us that an index such as the room utilization index should have its place in wage negotiations in Belgium. Therefore, information should be gathered with respect to the expected future evolutions of export prices, exchange rate changes and productivity increases. The resultant wage room index should then be viewed as a loose sectoral guide-line around which wage negotiations can take place.

Remarks

(1) The model was called PRIM I (PRice and Income distribution Model). It was created by a group of experts, viz. O. Aukrust, F. Holte and G. Stolz, members of the Reporting Committee for the Income Settlement 1966, and known informally as the Aukrust Committee. Afterwards it was continued by three Swedish economists, G. Edgren, K.-O. Faxén and C.-E. Odhner, hence the name EFO- or Swedish model.


(3) The same result is obtained in a model assuming price-setting behaviour as a mark-up over unit labour costs or in a model assuming marginal cost pricing.
(4) Alternatively, one could write: \( p = p^* - \epsilon \)
with \( p^* \) as before and \( p^* \) now standing for the world market-price, denoted in foreign currency and \( E \) for the exchange rate (\( \epsilon < 0 \) means a devaluation; \( \epsilon > 0 \) a revaluation). In our analysis, \( p \) is denoted in Belgian francs. Hence, exchange rate changes are implicitly taken into account.

(5) For an explanation of the data, cf. appendix.

(6) It follows that all conclusions should be interpreted in relation to the 1964 situation. It is assumed that for this year there was still more or less equilibrium between actual wages and the wage norm.
Appendix: Source of the data

- Export prices: Export unit values F.O.B., calculated by the National Bank of Belgium (Source: Tijdschrift van de Nationale Bank van België: Table VIII - 4a) have been used for nearly all sectors. Data on export prices for the sectors Clothes and beverages are taken from a study by the Belgian Planning Bureau (H. Van Schroeck, Zichtbare en Onzichtbare Buitenlandse Handel van België 1961-1977: Table 37).

- Indexes of labour productivity: have been calculated by dividing the production index by the numbers of hours worked in the sector (expressed as an index 1970 = 100) (Source: Industriële Statistieken N.I.S.).

- Wages: December values of workers' average gross hourly wages have been obtained through linear interpolation of the October and April values (Source: Sociale Statistieken N.I.S.).

References:


PAP : Paper, cardboard and printing
FOD : Food
BEV : Beverages
TOB : Tobacco
CEM : Cement
CLY : Clay and ceramics
OMI : Mining, except coalmines
IRN : Iron and steel industry
NFR : Non-ferrous
ENG : Engineering
WOD : Wood and furniture
GLS : Glass- and Glassworks
TXT : Textile industry
CLT : Clothing
LET : Leather
CHM : Chemicals industry