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**Wage structure, relative prices and
international competitiveness**

di

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WAGE STRUCTURE, RELATIVE PRICES AND INTERNATIONAL COMPETITIVENESS.

1. Introduction.

The modern theory of open macroeconomics emphasizes the role played by wage-setting conditions and relative prices in the achievement and maintenance of external equilibrium.¹ The Italian economy has, since the sixties, exhibited significant differences with respect to other major European countries as to both wage structures and relative price evolution. In tables 1 and 2 a first look at such differences is offered; more statistical information is provided in the rest of the paper.

In table 1 ratios between the average earnings per employee by macro-sectors are recorded for the four largest members of the European Community: Italy, France, the Federal Republic of Germany and the United Kingdom. When compared to the other three countries, Italy shows a comparatively lower level of industrial wages both with respect to the public sector and to private services. The gap between wages in services and wages in industry has characterized the Italian wage structure since the sixties. Contrary to the Italian experience, in other European countries average wages in market services have always been lower than those of workers employed in industrial activities. In Italy industrial wages have overtaken those of market services only in the eighties, and are still much closer to them than in other countries. This seems still to be the main difference between the Italian wage structure and those of other European countries. The ratio between average earnings in the public administration and in industry decreased during the seventies to levels similar to the ones of other countries, and has grown again to levels higher

1. The first complete assessment of the theory we are referring to was made by Dornbusch (1980). Major subsequent developments were introduced by Bruno and Sachs (1985) and Layard and Nickell (1985 and 1986). A recent textbook exposition, in which the original Keynesian flavour of the argument is re-assessed, is Carlin and Soskice (1990).

than elsewhere in the eighties. Finally, average earnings in the Italian public sector have decreased in the seventies to levels lower than those of the workers employed in market services, contrary to the experience of Germany and the United Kingdom, and, albeit increasing more than them, remained at levels lower than elsewhere in the following decade.

At such an aggregate level as the one adopted for table one, very little can be said: the differences might be due to a different composition of Italian macro-sectors with respect to the other countries.² In paragraph four more detailed information on the wage structure of European countries will be provided, albeit only for the eighties; it can be anticipated that the break down of data seem to confirm the indication that emerges from this first glance at the empirical experience: the sectors less subject to foreign competition pay comparatively higher wages in Italy than in other European countries than the sectors more open to foreign competition.

In table 2 another Italian anomaly is indicated, relative to the processes of price-determination rather than to those of wage-setting but strictly correlated to the previous one: the markedly different dynamics of inflation between internationally traded commodities ("tradeables", from now on) and commodities exchanged only domestically ("non tradeables"). The simplest measure of their relative price is recorded for the four countries above: the ratio between the index of export prices and the index of consumer prices.³ Dates have been chosen so as to reflect the changes of exchange rate régime experienced by the Italian economy. This ratio⁴ increased in Italy substantially more than in the other countries during the periods in which the

2. This was probably the case for the high average level of wages obtained by Italian public employees in the sixties. At that time public administration was much less widespread in Italy than in other countries; at that stage of evolution any public sector is typically composed by a high proportion of high level employees (judges, officials, teachers, doctors, and so on) and a low share of low level employees (see OECD, 1982); this composition effect explains the relatively high level of average earnings of Italian public employees at that time. With the expansion of the Italian public sector the importance of this composition effect has significantly decreased. (Rose, 1982, and Biagioli, Salvati and Santi (1992).

3. The index of consumer prices includes prices of both tradeables and non tradeables.

Italian exchange market was organized under a fixed exchange rates régime (before 1973 and after 1979). From 1973 to 1979 the trend of the "traded to non-traded"⁵ prices ratio was totally reversed, as Italy was experiencing a period of flexible exchange rates, which were abandoned in March 1979, when depreciation was deemed to fuel excessively high rates of inflation. From March 1979 to February 1987 Italy participated in the European Monetary System of exchange rates fixed among EEC countries; although the lira in this period was often re-aligned (in fact depreciated) towards other European currencies, the ratio between non-tradeables and tradeables started to increase again.

We can summarize the information given in Table 2 as a prima facie indication that different patterns of price-determination occur in the sectors sheltered from or open to foreign competition, with firms operating in the latter sector bound not to increase prices more than their foreign competitors, except when depreciation offers them a shelter from foreign competition.

The aim of this paper is twofold. On the one hand, to examine how the Italian structure of relative wages and prices has affected internal conditions and the external equilibrium of our economy. On the other hand, to evaluate whether the participation of the Italian economy in the EMS is inducing changes such as to make wage structures and price-determination processes more similar to those operating in other European countries.

The paper is arranged as follows: in paragraph two it is at first argued that whenever domestic firms are price-takers in international markets organized under conditions of imperfect competition, the most suitable indicator of the effects of relative prices on domestic macro-economic equilibrium is the

4. The most appropriate indicator would be the ratio between production prices and consumer prices. Unfortunately, production prices were not recorded in Italy before 1980. In paragraph three the dynamics of this ratio during the eighties is examined and the Italian experience is compared with those of other European countries.

5. We shall use the terms "tradeables" and "non-tradeables" to refer to theoretical concepts and the terms "traded" and "non-traded" when empirical measures are referred to. This is to mark the difference between the theory, which highlights the (ex ante) possibility of choice of consumers between domestic and foreign goods, and refers to all goods consumers can buy, and the actual (ex post) result of which goods are actually bought.

relative price of traded to non-traded commodities. Subsequently, the ways in which the relative price of traded to non-traded commodities affect domestic aggregate demand, balance-of-trade equilibrium and domestic supply conditions are investigated from a theoretical point of view. In paragraph three the point is advanced that when price-setting conditions are such that traded goods prices are constrained by world prices, while non-traded goods prices move freely according to domestic conditions, domestic imbalance is likely to arise, taking the form of both profits and wages being squeezed between international competitiveness and domestic inflation. A comparison between Italy and other major European countries shows that this was the case for Italy during the eighties, with the consequence that, despite the high rates of productivity improvement scored by Italian firms, the external equilibrium has not been restored.

In the following paragraphs the trends that have developed in Italian wage-setting processes during the eighties are examined. In paragraph four the question is raised of whether the Italian wage structure is converging towards European characteristics or not; the conclusion is reached that, although some indications of convergence have appeared, differences are still very substantial, as the wages of branches subject to international competition are constrained to grow less than what occurs in comparable non-constrained activities. In paragraph five the wage-setting conditions that have prevailed in the sector open to foreign competition during the eighties are investigated. A trend towards the appearance of "efficiency wage" practices is detected. In paragraph six the recent upsurge of public sector wages is examined, and the questions are addressed of whether they have been originated by processes of imitation of increases obtained by workers employed in the private sector or because of the conditions under which wages are bargained and set in the public administration, and whether is it likely that such increases might spread from the public to the private sector. In the final paragraph some indications are drawn as to what kind of income policies could reduce the endemic conflict between profits and wages induced by the dynamics of prices in non-traded activities.

2. Theoretical Links between Domestic Relative Prices and Macroeconomic Conditions.

Relative prices play a major role in the determination of the international competitiveness of a country and in the analysis of the macroeconomic effects of openness whenever different processes of price-determination take place in the two sectors the economy can be divided into with respect to the strength of foreign competition: tradeables and non-tradeables.

In such a case, the traditional way of measuring international competitiveness through the two possible formulas of the "real" exchange rate:

$$\frac{P_f \cdot e}{P_d} \quad (2.1)$$

$$\frac{P_m \cdot e}{P_x} \quad (2.2)$$

[where: P_f are foreign prices (expressed in the currency of the countries they refer to); P_d are domestic prices (in domestic currency); P_m import prices (in foreign currency); P_x export prices (in domestic currency) and e is the exchange rate (units of domestic currency required to buy a unit of foreign currency)]

is unable to reflect the effects of switching expenditure flows induced by variations of domestic prices not due to variations of the exchange rate. Hence, the two expressions above can be used only when this implicit assumption holds, as is specifically the case with models using the "purchasing power parity" principle⁶ and with models assuming mark-up pricing with a fixed structure of mark-ups.

6. The first proponent of which was Cassell (1922). Recent surveys are provided by Officer (1976) and Dornbusch (1986); the former contains also a re-exposition of the principle. Frenkel (1976 and 1978) and Frenkel and Johnson (1978) make it one of the "building blocks" of the monetary approach to the balance of payments. In these models the first formula of the "real exchange rate" is definitely preferred.

The typical situation in which the "real exchange" rate is not the correct measure of international competitiveness is when domestic firms facing foreign competition are constrained in their price-setting policies by world prices, while firms sheltered from foreign competition set their prices according to domestic conditions. This seems to be the case in Italy. Besides the indications drawn from table 2 above, the empirical literature on price-determination processes (surveyed by Goldstein and Khan , 1985, pp. 1090-1091) provides two results clearly suggesting this. On the one hand, changes in the exchange rate in Italy seem unable to modify the "real exchange rate", unlike what happens in most other countries, being completely passed on both in import and export prices. On the other hand, Italian prices of tradeables are very elastic to competitors' prices and almost inelastic to unit labor costs (again this result makes the Italian situation different from other OECD countries). The elasticity of export prices of manufactured products with respect to unit labor costs has been estimated as only 0.19.⁷ Such a low value of the elasticity of the prices of tradeables to labour costs implies that when the latter increase, profits are squeezed, except if depreciation allows firms to defend them.

Let us now examine through which channels the "tradeables to non-tradeables" price ratio (P_t/P_{nt}) affects domestic conditions and international competition.

A first effect works on aggregate demand. A decrease of the P_t/P_{nt} ratio (as it appears from table 2 to have occurred for the periods during which an "external constraint" has acted through a fixed exchange rate of the lira) shifts domestic expenditure from non-tradeables towards tradeables. This effect was much studied in the fifties and sixties (see Graziani et al., 1969) especially as far as its implications for the external equilibrium are concerned: since tradeables are partly imported - whereas non-tradeables are not - the shift of demand in favour of

7. Other studies, not summarized in Goldstein and Khan's review, probably because they have been published in Italian, estimated values of the elasticity of prices to labor costs only slightly higher even for wider aggregates of tradeables. Pierucci and Tresoldi (1976) tested an equation for consumer prices of manufactured products obtaining an elasticity of 0.38 with respect to the share of labour earnings. Chiesa et al. (1978) found a value of 0.32 for the elasticity of the implicit GDP deflator of manufactured products with respect to unit labour costs.

the former increases the marginal propensity to import, reducing the value of the multiplier and deteriorating the balance of trade.

A decrease of the P_t/P_{nt} ratio can have further negative effects on domestic demand and international competitiveness through the fall of the profitability of firms producing tradeables which occurs when increases of the prices of non-tradeables fuel wage increases that firms facing international competition cannot pass on. Falling profitability can induce a reduction of investment, which might lessen the pace of technological improvement in the "open" sector, deteriorating its competitive position.

The last, and most interesting, channel through which changes of the P_t/P_{nt} ratio affect domestic equilibrium and international competitiveness works on the supply side of the economy by changing the conditions that determine equilibrium in the labour market. This occurs because the price index relevant to the decisions of workers with respect to employment supply is different from the price index relevant to the decisions of firms concerning employment demand. Workers decide how much work to offer on the basis of the consumption real wage (W/P_C , the nominal wage obtained by workers, net of all social and fiscal contributions, is deflated using the index of consumer prices) as they are interested in the purchasing power of their earnings; firms decide how much labour to employ on the basis of the product real wage (CE/P_p , the cost of a unit of labour - inclusive of the gross wage paid to the the worker and of the social contributions paid by the employer - is deflated using production prices; following a statistical convention, we shall call it Compensation per employee) as their economic problem is to maximize their profits (defined as the difference between revenues - commodities sold multiplied by their selling price - and costs).

We can break down CE/P_p as follows:

$$\frac{CE}{P_p} \equiv \frac{CE}{W} \cdot \frac{W}{P_p} \quad (2.3)$$

[The ratio between CE and W (net nominal wage) measures the so-called "tax wedge" (social contributions paid by employers) plus all social and fiscal contributions paid by the employee]

and write the supply and demand functions of labour:

$$N^S = N^S (W/P_C); \quad \text{with} \quad dN^S/d(W/P_C) > 0 \quad (2.4)$$

$$N^d = N^d \left(\frac{CE}{W} \cdot \frac{W}{P_p}; \frac{dQ}{dE} \right); \quad (2.5)$$

with: $dN^d/d(W/P_p) < 0$; $dN^d/d(CE/W) < 0$ and $dN^d/(dQ/dE) > 0$

[dQ/dE is the marginal productivity of labour]

which can also be written:

$$N^S = P_C \cdot N^S (W) \quad (2.4.a)$$

$$N^d = P_p \cdot N^d \left(\frac{CE}{W} \cdot \frac{W}{P_p}; \frac{dQ}{dE} \right) \quad (2.5.a)$$

The equilibrium of the labour market is achieved when supply equals demand:

$$N^S = P_C \cdot N^S (W) = P_p \cdot N^d \left(\frac{CE}{W} \cdot \frac{W}{P_p}; \frac{dQ}{dE} \right) = N^d \quad (2.6)$$

Figure 1 represents such an equilibrium in the Wage/Employment space.

Dividing both sides by P_p , the equilibrium becomes:

$$(P_C/P_p) \cdot N^S (W) = N^d \left(\frac{CE}{W} \cdot \frac{W}{P_p}; \frac{dQ}{dE} \right) \quad (2.6.a)$$

which indicates that variations of both the P_C/P_p and the W/CE ratios affect the equilibrium of the labour market. P_C is an average of the prices of both tradeables and non-tradeables, whereas, if the market of labour considered is the industrial one, the P_p^{ind} index is mostly made of tradeables. Hence, P_C/P_p^{ind} is a proxy of the P_{nt}/P_t ratio, as variations of the latter produce variations of the former having the same sign, although being of a different size.

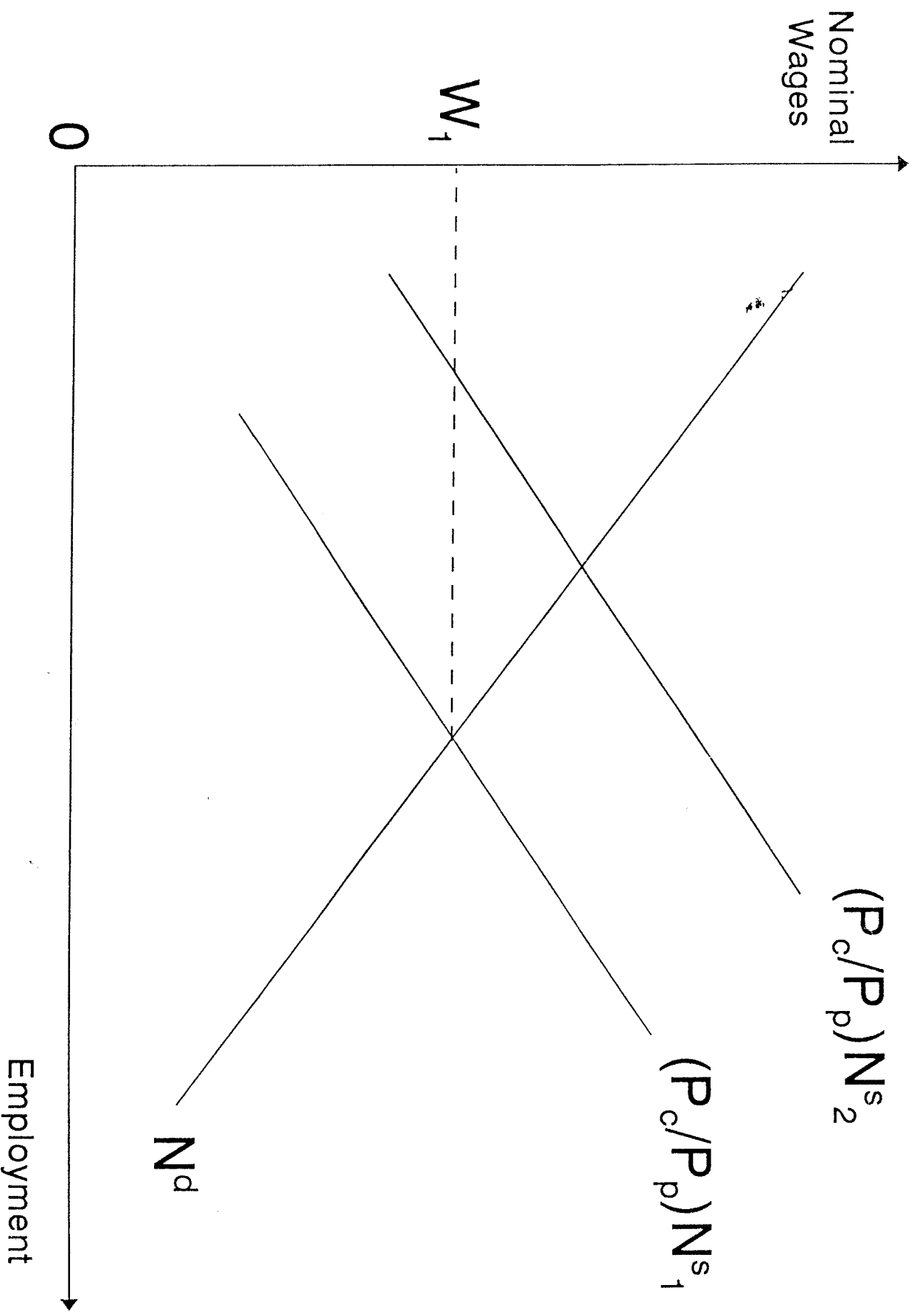


Figure 1

An increase of the P_C/P_P^{ind} ratio moves the labour supply curve upward - from $(P_C/P_P^{ind}) \cdot N^S_1$ to $(P_C/P_P^{ind}) \cdot N^S_2$ - creating, at the initial level of nominal wage (W_1) a situation of excess labour demand, which will induce an upward pressure on wages and a downward pressure on employment. The new labour market equilibrium will be characterized by a lower level of employment; hence, the rate of unemployment required to avoid accelerating inflation (the NAIRU) will increase too, worsening the conditions of internal equilibrium.⁸ The NAIRU is increased also by increases of the CE/W ratio; in this case the demand for labour shifts downward and a situation of excess labour supply occurs, which induces downward pressures on both wages and employment.

3. Relative Prices and Conflicts over Income Distribution: A Comparison between Italy and Other European Countries.

We have seen in the previous paragraph that relative price variations modify labour market equilibrium and change the values of the elements contained in the consumption real wage and in the production real wage formulas. Distributive conflicts are likely to arise, especially in countries where, as is the case in Italy, firms are constrained in their wage-setting strategies by international competition.

A simple way to sketch the nature of these conflicts is by elaborating the definition of the share of profits on value added in the sector "open to foreign competition" to evidence the factors which affect it:

$$\frac{G \text{ Prof}}{P_p \cdot Y} \equiv \frac{P_p \cdot Y - CE \cdot E}{P_p \cdot Y} \quad (3.1)$$

8. Since the P_C/P_P ratio has increased constantly for years in the main E.E.C. countries, the model sketched above might provide a further explanation of the phenomena of hysteresis that have appeared in E.E.C. countries, making the rates of unemployment compatible with non increasing inflation higher and higher as long as the actual rates of unemployment were growing. On the definition and explanation of hysteresis see Blanchard and Summers (1986), Lindbeck and Snower (1986), Layard and Nickell (1986) and Carlin and Soskice (1989 and 1990, chapter 19).

[where: G Prof are Gross Profits
 (corresponding to the book-keeping concept
 of Gross Operating Surplus; $P_p \cdot Y$ is
 the Gross National Product⁹ in nominal terms
 (gross product in real terms multiplied by
 production prices); CE is the average
 compensation of employees (including social
 contributions); E is the number of employees]

(3.1) is an identity¹⁰ which can be elaborated in the following:

$$\frac{G \text{ Prof}}{P_p \cdot Y} \equiv 1 - \frac{CE}{P_p} \cdot \frac{E}{Y} \quad (3.2)$$

9. This implies that the economy is vertically integrated. This amounts to neglecting the analysis of the role played by imported materials in generating distributive conflicts and concentrating our analysis on how GNP is divided between profits and wages. This choice must be explained, as this is the point on which theoretical and empirical literature has been mostly concentrated. We have decided to do so for several reasons. On the one hand, one aspect of the problem - namely, that the units of materials used by the Italian economy to produce a unit of traded commodities is much higher than those used by other European countries - has been analyzed in Piacentini's paper contained in this volume. On the other hand, recent economic literature, starting with the seminal contribution by Bruno and Sachs (1985), has substantially developed the point that an increase of the real unit cost of imports strengthens distributive conflicts. Proof of this point is contained in several textbooks (Carlin and Soskice, 1990, chapter 11, is very close to the analysis proposed here. See also Salituro and Soci, 1989, chapter 9). In the Appendix a simple way to extend our analysis to include this point is presented. Finally, this problem arises in Italy in the same way as in other European countries and makes little difference to the comparative analysis this paper is concerned with.

10. Although, like every identity, (3.1) is true by definition, and does not require to be developed starting from a model of price-formation, its resemblance to the "normal cost pricing principle" (à la Coutts, Godley and Nordhaus, 1978) is evident and can be illustrated very easily. For this, see the Appendix

The last term of (3.2) is the inverse of the average productivity of labour, whose growth makes room for real profits and real wages to increase.¹¹ Therefore, the term CE/P_p does not reflect the theoretical problems singled out in paragraph 2. To do so, we can break it down in a way that will allow us to keep the factors highlighted there separate:

$$\frac{CE}{P_p} \equiv \frac{CE}{W} \cdot \frac{W}{P_c} \cdot \frac{P_c}{P_p^w} \cdot \frac{1}{e} \cdot \frac{e \cdot P_{wp}}{P_p^d} \quad (3.3)$$

[where P_p^w are foreign production prices in foreign currencies, so that $e \cdot P_p^w$ are foreign production prices expressed in lire]

The terms singled out in expression (3.3) include all the theoretical concepts examined in paragraph 2. The ratio between $e \cdot P_p^w$ and P_p^d measures the relative competitiveness of domestic firms, and thus indicates the constraint imposed by international competition to the wage-setting policies carried out by them.¹²

Inserting (3.3) into (3.2) provides:

$$\frac{G \text{ Prof}}{P_p^d} \equiv 1 - \frac{CE}{W} \cdot \frac{W}{P_c} \cdot \frac{P_c}{P_p^w} \cdot \frac{1}{e} \cdot \frac{e \cdot P_{wp}}{P_p^d} \cdot \frac{1}{Y/E} \quad (3.4)$$

which indicates that the profitability of firms operating in international markets and subjected to foreign competition is improved by productivity increases, whereas it is worsened not only by increases of net consumption wages but also by increases of the tax wedge plus direct taxes (i. e. changes of the CE/W ratio) and of the P_c/P_p ratio.¹³

11. Also this point is dealt with in the Appendix.

12. This ratio can be, and usually is, different from one (the value hypothesized by the "law of one price") whenever domestic and foreign commodities are not perfect substitutes and international markets work under conditions of imperfect competition.

The formula is also a reminder that devaluation is another way to lessen the pressures on the "open" sector. In fact, devaluation was used for most of the seventies in this direction and, by favouring a decrease of the P_C/P_p ratio, obtained some success as an instrument for lessening distributive conflicts and for increasing industrial profits, but at the price of inducing unacceptably high levels of inflation. Productivity improvements did a similar job for most of the following decade.

Therefore, the pressure of the continuous increase of the CE/W and P_C/P_p ratios has continued to grow in recent years.

As for the CE/W ratio, several estimates are available. In tables 3a and 3b some results of an unfortunately little known research carried out by Broglia and Carra (1991), who have estimated the CE/W ratio on National Accounts data are recorded. The ratio has increased from 1.64 to 1.86 from 1981 to 1990 as a result of the contemporaneous increase of both social contributions (which have grown, as percentages of compensations per employee, from 30.6 to 34.7%) and direct taxes on wage earners (increased from 8.4 to 11.6% of compensations per employee). The effect of such a high increase of the ratio is impressive: the average compensation per employee has grown in the decade at a pace of 10.8% per year, but net wages have grown only by 9.3%. Taking into account that consumer prices have increased by 8.7% per year, these figures show that, had the CE/W ratio stayed unchanged, workers would have obtained a percentage increase of their wages four times higher than what they actually did.¹⁴

As a result of this increase, the CE/W ratio has reached values in Italy that are considerably higher than in other European countries: an estimate carried out by CER (1990, p. 45) showed that the difference between compensations per employee and gross wages (nominal net wages plus direct taxes and social contributions paid by employees) for an average industrial worker

13. In both cases the real cost of labour increases with no benefit for workers, and wears away financial resources from "open to foreign competition" sector towards the Treasury and/or the branches producing non-tradeables).

14. The story might also be told in another way: to obtain the increase in real net wages actually received, workers had to push the cost paid by firms at a pace four times higher. It is not surprising that Italian industrial relations were exceedingly conflictual during this period!

in Italy amounted to 50% of the compensation per employee, whereas the same ratio was 44% in France and in Germany and only 36% in the United Kingdom. As for the P_c/P_x ratio, data have already been provided in table 2 which show that, after Italy joined the European Monetary System, this ratio has grown at a consistently higher pace than in the other three countries.

Table 4 shows the consequence of the increase of the two ratios on the distribution of income between profits and wages in the eighties by comparing the Italian situation to that of the other three major European countries. In this table we have recorded the yearly rates of growth of the two distributive shares in manufacturing, each one deflated by its proper price index: gross wages¹⁵ deflated with consumer prices and gross profits, measured by subtracting from the rate of variation of P_p the rate of variation¹⁶ of the cost of labour (gross wages divided by average productivity). Three out of the four determinants of income distribution indicated in formula (3.4) are thus recorded in table 4: the exchange rate, the rate of increase of the average productivity of labour and the P_c/P_p ratio.

These data show the role played by lira depreciation and productivity increase in compensating for the highest inflation rates experienced by Italy from 1980 to 1988. In the final two years both effects have ceased - the lira remained fixed, as no re-alignments have been allowed for inside the EMS, and the pace of technological improvements slowed down - and firms could not pass through costs on price increases and profits remained squeezed. Among the four countries examined in the table, Italy is the only one in which the indicator of profits shows an average decrease over the decade (- 0.4% per year¹⁷) against increases in other countries ranging from 0.3% in France to 1.6% in the United Kingdom. Therefore, it is worth noting that also

15. Net wages would have been the most correct indicator of workers' net earnings, but this would have required estimating the CE/W ratio for the different countries. Since the aim of this paper is to stress the role played by the P_c/P_p ratio, it was decided not to undertake such estimates.

16. Since all data are yearly percentage variations, the rate of change of ratios are measured by the difference between the rates of change of numerator and denominator.

17. with a marked pro-cyclical pattern, for the analysis of which see Abbate and Piacentini (1986).

the purchasing power of workers increased in Italy less than elsewhere: real gross wages increased in Italy by 0.9% per year;¹⁸ slightly less than the 1% of French workers and substantially less than German and UK workers (1.5 and 1.6%, respectively).

So, both real wages and real profits of the "open" sector fared in Italy worse than in the other three countries. Why? Mostly because the growth of the P_C/P_P ratio diversified the two price indices relevant for measuring workers' and employers' shares of income by 2.4 percentage points per year, against 1.2 points in France, 0.8 in the United Kingdom and 0.5 in Germany.

4. International Competitiveness and Italian Wage Structure.

So far we have examined the structural difficulties that have enhanced distributive conflicts in the "open" sector of the Italian economy. We shall now focus our attention on the Italian wage structure. We shall start by extending the comparison between Italy and European countries sketched in the first paragraph in commenting table 1. In table 5 average compensations of employees have been recorded in a common currency (ecu) by macro-sector for all E.E.C. countries in 1980 and 1987 and ratios among them have been calculated.¹⁹ The ratios have already been commented in paragraph one. As to the absolute values, it is of interest to note that, whereas in 1980 the average earnings of the three sectors were all well below the European average, in 1987 compensations per employee of workers employed in manufacturing were still substantially lower than the European average, whereas in both market and non-market services Italian average earnings had overtaken the European average. A comparison with Germany is probably even more impressive: in 1987 the average earnings of a worker employed in manufacturing in Italy was 78.1% of the same average in Germany; the average

18. Real net wages increased substantially less - by only 0.5% per year - as pointed out above, due to the lower pace of net, compared to gross, wages.

19. The attempt to include as many countries as possible has forced us to stop at a relatively remote date. More recent data, limited to four countries only, can be found in table 1.

Italian worker in non-market services earned 86.9% of what the German one earned; therefore, for market services the gap almost disappeared, the ratio between average earnings was only 94.2%.

Nevertheless, the data recorded in tables 1 and 5 are highly aggregated. In table 6 a break down of average compensations per employee by branch is recorded for the five major countries (Spain is the one added). This more disaggregated elaboration is possible only up to and including 1986. However, the results obtained are worth commenting, as they represent a highly impressive confirmation that Italian unit compensations are lower than European averages, in almost all branches, with few exceptions (office machines, textiles and rubber products). The widest gaps occur for workers employed in typical low wages branches (building and agriculture) but also in the manufacturing of metal products and of transport equipment. Not all service branches exceed the European average; this occurs especially in the branches characterized by high average earnings: credit and insurance above all, transport and communications, afterwards whereas low wages branches, such as repair activities and trade, remain below the European average. A further proof that the dividing line in wage-setting practices is between "open to" versus "sheltered from foreign competition" is that in the only branch of services for which foreign competition is possible (accommodations and catering, i.e. tourist activities) Italian compensations are almost ten percentage points below the European average, whereas the only industrial branch in which international competition is absent - "fuel and power products" - shows ratios of Italian compensations compared to the European average almost as high as that of credit. In table 6 a measure of wage dispersion of average earnings among branches has also been calculated, the "coefficient of variation", given by the ratio between variance and average of a sample. A further comment on the Italian wage structure is suggested by this comparison: the differences among average wages by branch in the industry are less marked in Italy than in all the other countries, while the differences among the branches of services are much more dispersed than elsewhere.

The comparison between the Italian wage structure and those of the rest of Europe gives the impression that wages in the "open" sector are constrained by foreign competition, whereas wages in the "sheltered" sector are not. This impression is strengthened when the dynamics of wages by branches in Italy is observed. In table 7 gross earnings per employee in 1980 and 1990 are recorded by economic branch, both in value and as indices of the average for all workers; the yearly variation by branch over the period is also calculated. For the branches in which the presence of

"non regular workers" (as defined by Istat) is high, the percentage of them over total workers in 1980 and in 1990 is recorded too. Most branches open to foreign competition whose earnings had reached levels equal to or even higher than the European average (textiles, leather and footwear, rubber products) are among the ones whose wages have increased less than average. A similar indication of the presence of an external constraint to the growth of wages in branches subject to bitter foreign competition comes from the observation that "non-regular" jobs have grown not only in some activities traditionally carried out by lowly workers - like the "other non market services", agriculture and repair services - but have increased consistently also in activities like textiles, metal products, building, transport, accommodation and catering. The increasing share of non regular jobs has thus been one concerning the ways through which employers have reduced average compensations in the face of foreign competition.

5. The Composition of Industrial Wages: Is an "Efficiency Wages" Determination Arising ?

In the last 15 years, wage determination processes have changed rapidly in Italy as a consequence of the massive reorganization of production processes and administration techniques implemented by firms in order to face the growing instability of world markets and the increasing need for competitiveness that followed the two oil-shocks in the seventies and the European depression in the first half of the eighties. There has been increasing recognition of the crucial role played by "flexibility" - in terms of both costs and production techniques - in achieving and maintaining competitiveness. This growing awareness has led firms to introduce radical changes in human resources management techniques²⁰ to reduce the costs of monitoring, supervising and controlling the workforce and to improve the "quality" of the goods produced and the co-ordination of the various phases of the production process, moving towards the implementation of "total-quality strategies". Such changes are aimed at motivating workers not to shirk responsibility and

20. See Costa (1989 and 1991).

to assume a more co-operative attitude towards technical and organizational innovations. These strategies led to a substantial decentralization of wage agreements to the company level²¹ with the expansion of "merit-pay" based pay practices and, towards the end of the eighties, to the appearance of pay items aimed at worker participation in the economic results of companies through various types of financial schemes negotiated between management and trade unions at the company levels.

The decentralization of wage determination processes at the plant level produced at first conflicts between management and shop stewards. At the beginning of the eighties both sides were aware of the need to increase wage differences among workers with different grades of skill, which had become too narrow due to the effects of the "scala mobile" indexation mechanism based on flat-rate increases at work during the previous long phase of heavy inflation,²² and to increase the wage share negotiated at the company level. However, the means by which both endeavoured to achieve these goals were just the opposite. Management would have liked to gain flexibility by de-regulating the system of rules previously negotiated and by running individual wage policies through merit-based rewards, bonuses and a greater recourse to overtime practices, while deferring to the future the definition of new systems of skill-grading for workers. Union representatives aimed at conducting all negotiations back to the already existing grade structure, changing it occasionally, if necessary, by establishing new rules to substitute the obsolete ones and to make adjustments for the changes in work organization, but always through collective agreements.

21. A substantial decentralization of wage determination processes has also occurred in France (see Reynaud, 1990) and in the United Kingdom (see Nolan and Brown, 1983, and Blanchflower and Oswald, 1988). However, in these countries the decentralization process took place almost exclusively through the expansion of "merit pay" bonuses, giving rise to a growing "individualization" of pay practices, whereas, in Italy individualization has taken place along with, and not as a substitute of, plant bargaining with trade unions. In Germany, where the traditionally centralized bargaining practices still endure, at least in the primary sector of the labour market, an increasing part of labour activities tend to move towards non-union, individual, forms of bargaining (see Niebur, 1990).

22. See Marsden and Saunders (1981), pp. 190-199.

One indication of the difficulties encountered by wage-fixing at the plant level was the sharp reduction in "wage drift"²³ in the early part of the decade. Data on the pay structure that are sufficiently detailed to permit distinctions among the different sources of wage drift, are only available for one region, Lombardy (see the bi-annual survey carried out by Assolombarda). However, this region has the largest number of industrial establishments in the country. Moreover, according to the evidence collected by some studies, the general evolution of the wage drift in the other most industrialized regions does not seem to have been qualitatively dissimilar, albeit of different dimensions.²⁴

In table 8 the percentage of annual average earnings gained by workers above the minima which are determined by national collective negotiation at the plant or company level and those derived from unilateral concessions from management is examined. Four dates have been considered; they correspond to the traditional phasing of the evolution of the Italian system of industrial relations and pay fixing: April 1975, October 1979, April 1984 and October 1988.²⁵ The trend in the amount of wages

23. In this paper we define "wage drift" (following Hicks, 1965, p. 318) as all sources of wage increases, determined at the company level, through both collective negotiation and unilateral concessions.

24. Similar observations regarding the general evolution of the wage drift are made in two studies carried out in Emilia-Romagna and Piedmont by Ires CGIL Emilia Romagna (1984) and Valvo (1986).

25. The first date corresponds to the enactment of the flat-rate indexation mechanism ("scala mobile"). The second date corresponds to the enforcement of national agreements in the main industrial branches, which were reached during a period of cyclical recovery but at the very beginning of the phase of industrial re-organization that led to a massive reduction of employment, as well as to sweeping changes in work organization. The third date marks the end of the most severe phase of production stagnation and employment reduction and the beginning of an expansion phase for Italian industry during which both production and profits increased substantially. The fourth date corresponds to the period in which there was a rise in local agreements. During this period there was a strong recovery after four years characterized by extremely high rates of productivity growth: on average, 5% per year for Italian industry overall.

and salaries negotiated at the company level is evident. In 1975, a large amount of the pay (on average, about 30% of annual earnings) was fixed through decentralized agreements in the metal and chemical industries. Most of it was due to collective bargaining at the company level, while unilateral concessions for manual workers were much smaller in scope and, even for non-manual workers, unilateral concessions proved to be less decisive than local bargaining. The wage drift decreased substantially from 1975 to 1979, with some exceptions in the textile industry, where the wage drift in 1975 had been smaller than elsewhere. From 1979 to 1984, the percentage of pay negotiated at the company level continued to decrease and even more sharply than in the previous period. Therefore, this decrease almost exclusively affected the weight of local negotiations, whereas unilateral concessions took the lead in determining wage drift. There is a clear indication of a general recovery of the importance of local negotiations in pay determination from 1984 onwards. In three out of the four branches, wage drift exceeded the levels recorded in 1979.²⁶ Substantial differences from the previous situation as to the composition of wage drift also requires further comment. First of all, among non-manual workers, the percentage of locally-determined pay items returned to levels near or even higher than the 1975 levels, whereas the earnings of manual workers continued to be determined more by national agreements than in the seventies. Secondly, the increase for non-manual workers mainly consisted of unilateral concessions from firm management. On the contrary, the percentage of the pay items granted by firm management to manual workers without collective negotiations continued to decrease.

The increasing importance of company and plant levels of wage determination is demonstrated by the calculation of the sources of wage increases in the four periods indicated above. The results for metal and mechanical workers are recorded in table 9. The changes in wage composition and the sources of such changes - national agreements, the indexation mechanism, unilateral concessions made by firms, are highlighted by this analysis. They indicate especially that more than 40% of the overall increases in wages and salaries obtained by workers from April 1984 to October 1988 was determined at the company level. For non-manual workers, wage drift was responsible for over 50% of the wage and salary increases. Unilateral concessions and individual

26. Once again, the textile industry was the exception, due to the depressed situation with increasing international competition this industry faced throughout the eighties

bargaining were more important for this category of workers than local union negotiation, although not as overwhelmingly as in the previous period. Among manual workers, wage drift was still relevant, but entirely due to collective negotiations at the company level. This estimation thus indicates that not only had the company level of wage determination become increasingly important during the eighties, but also that local negotiation had recovered in the second half of the decade from the loss of importance suffered in the first half.²⁷

The most significant change that occurred in the 1988-1989 round of local pay settlements was the appearance of pay items linked either to the production levels or the financial results obtained by firms. Before 1988 payment schemes of this kind had been enacted only very rarely. Cossentino and Prosperetti (1991) estimate that prior to 1988 only 28 gain-sharing agreements had been settled, involving no more than 150,000 workers. By the end of 1989, the number of plan had risen to 128 and the estimated number of workers involved had reached 680,179. Subsequently, the extent of the phenomenon has continued to grow. A more recent research has estimated that in 1991 899,000 workers were interested in such arrangements (Biagioli, Broglia and Cardinaleschi, 1992).

The existing literature has indicated four factors that seem to be implicated in the trend that the decentralization of wage determination processes is taking towards forms of financial participation:²⁸ the need for a more flexible management of human resources, induced by increasing international competition; the characteristics of the innovations in production, marketing and administration processes implemented in the eighties, which require a more co-operative attitude of workers than the

27. Biagioli and Cardinaleschi (1991) indicate that unilateral concessions made by firms in the eighties concerned only the higher grades of non-manual workers and did not spread significantly to other categories of workers. Asap Reports and Biagioli (1989) provide more detailed analyses and estimations of the weight and the size of the various sources of wage drift.

28. The most interesting studies on the subject are: Della Rocca and Ponzellini (1987), Danieli and Ghidoni (1990), Cossentino and Prosperetti (1991), Biagioli and Cardinaleschi (1991), Costa (1991) and Uvalic (1990), who carries out a comparison among the different experiences of E.E.C. countries.

traditional, "Ford-type" method of organization; an increasing "ability to pay" on the part of the companies, whose profits grew steadily from 1982 to 1989,²⁹ as the decreasing degree of wage indexation was making room for the possibility of using wage increases to motivate labour efforts; the shortcomings deriving from the attempts to centralise wage bargaining in Italy in the first half of the decade.³⁰

The main characteristic of the Italian experience of financial participation is the complexity of the formulas used to compute the bonus. These formulas clearly reflect in several cases - and, it should be stressed, in most of the "successful ones" - attempts to enhance productivity, eliminate "bottlenecks" in the production process, and create a team spirit among workers. This fact, as well as the conditions under which they have been enacted, has suggested the hypothesis that the main "reason" for their expansion is the link they establish, or try to establish, between wages and labour productivity.

The adoption by firms of total quality strategies entailing the expansion of merit-pay and financial participation of employees to enterprise results systems of wage determination is thus an aspect of the abandoning of patterns of organization of production processes of the "Ford-Taylor type" for moving towards organizational schemes in which the cost of directly controlling and monitoring work effort would be less heavy. Strategies of human management resources are therefore enforced, aiming at substitutingincentivation to monitoring according to decision-making schemes that strongly resemble the models of "efficiency wages" (especially in the version modelled by Shapiro and Stiglitz, 1984).³¹ If this is the case, these ongoing changes in wage determination processes might connect wage increases to productivity improvements, with positive effects on international

29. Mediobanca (1991, pages 32-34) estimates that the net profits of large Italian private companies grew from a situation of overall loss in 1982 to a low positive level of 0.38% of total sales in 1983 and continued to grow regularly, reaching a percentage of 3.75% of total sales in 1989.

30. See Regini (1984 and 1988) and Santi (1989).

31. A few empirical studies have been carried out which support this hypothesis (Lucifora, 1991; Biagioli and Cardinaleschi, 1991). Also the description of how the implementation of the new organizational techniques has occurred at Fiat made by Cerruti and Rieser (1991) goes in the same direction.

competitiveness. It might be worth for Italian policy-makers trying to sustain them through forms of income policies more decentralized than the ones attempted so far with so little success.

6 - The Dynamics of Private and Public Wages: Which Patterns of Wage Imitation Processes are at Work in the Italian Experience?

In the last years average wages in public administration have experienced a sudden upward shift. Worries have grown of whether wage imitation processes might arise as a consequence of it, and doubts have been raised regarding the efficiency of the wage policies carried out in the Italian public sector.

A widely held opinion, endorsed by the Carniti Commission (Commissione Carniti, 1988) is that the increases of wages in the public administration were induced, through imitation processes, by the increases obtained by the workers of the private sector in the second half of the seventies. As a matter of fact, contrary to what had occurred in the two previous decades, from 1980 to 1990 the average real wages per employee increased in the public sector by 2.5% per year, against an average increase of only 1.5% of the workers employed in the "market" sector. In table 10 average compensations per employee, broken down by branch - branches are: Manufactured Products, Market Services, the average wage of these two sections of "Market" Activities and Government Services - are recorded on a yearly basis from 1980 to 1990, as well as the yearly percentage changes in real terms by decade of Market and Government average compensations per employee. Wages in the public administration have increased in the eighties substantially more than wages in market services. Therefore, this trend was to a large extent a correction of the abnormally high level of the wages of market services employees that characterized the Italian economy at the beginning of the eighties. The wages of public employees have moved in line with the wages of workers employed in the production of manufactures since 1980 and have started to grow substantially faster only in 1990. Since the narrowing of wage differences between public and private employees was a phenomenon that had occurred more than ten years before, at the most it could represent a premise to this upward shift of wages in the public sector.

In a previous study (Biagioli, Salvati and Santi, 1992, chapter 4) the point was stressed that the changing of the trend in relative - public vs. private - wages was prompted by the

substantial changes in the wage structure that occurred in the public sector, starting from the late seventies, both with regard to differences between various sectors and to interoccupational differences. The point of departure of these changes was the narrowing of wage differences, which was induced by the patterns of bargaining chosen by unions and by the system of indexation based on flat-rate increases of wages in a manner almost similar to that which took place in the private sector of the economy (examined in the previous paragraph). The few existing data suggest that such phenomena were even more marked in the public sector, due to the almost non-existence in it of unilateral concessions of wage increases by employers.³²

At the beginning of the eighties, the opinion that public executives were under-rewarded was largely widespread. The influent survey made by the Coppo Parliamentary Enquiry (1977) had provided a large documentation in support of this view only a few years before and had suggested policies aimed at increasing them without affecting the pace of the pay increases of the other public employees. In the attempt to reverse the marked narrowing of wage differences that had occurred in the seventies, the wages and salaries of public sector executives and other personnel in the same bracket were gradually increased from 1981 to 1986, inducing marked breaks from the previous wage differential structure.³³ Such breaks, however, could not be confined to the

32. As regards inter-sector differences, Biagioli and Santi (1988) compared the standard deviation of average earnings in some public agencies, as recorded in 1976 by the Coppo Parliamentary Enquiry (Senato della Repubblica e Camera dei Deputati, 1977) with the one computed over the average earnings recorded in 1985 for the same agencies by the Observatory on Public Employment (Osservatorio del Pubblico Impiego, 1987) and found that it fell from 17.5 to 10.4% between the two dates.

As for inter-occupational differences, the only sector for which two comparable records are available is National Health-Care. The squeezing of wage differences that emerges from the comparison is impressive. In 1976, the Parliamentary investigation mentioned previously observed that a chief physician's salary was on the average 3.95 times higher than that of a nurse and 4.47 times higher than that of an orderly. The study conducted in 1985 revealed values of 2.95 and 3.26 respectively (Osservatorio del Pubblico Impiego, 1987).

33. For instance, the ratios of chief physicians to nurses and orderlies increased to values of 3.87 and 4.06 respectively in 1987, almost restoring the differences of ten years before.

small groups of managers they had been sought for and spilled over the rest of public employees in the following years. This process of catching-up wage and salary increases was at first triggered off by the appearance of independent unions (Comitati di base) organizing wage requests especially for physicians, teachers and train drivers.

It is of some interest to remind that two of the three groups, the physicians and the teachers, obtained appreciable results, while the train drivers, despite accumulating many strike hours, did not obtain as much as they had requested. At this point the question arises as to whether it is possible to identify the existence of conditions that contributed to the success of some demands and the failure of others. It is worth stressing that, from a strictly economic point of view, in the Italian context a significant element favouring first the physicians and then the teachers may have consisted in the greater rigidity of the labour demand in their categories. However, this difference cannot be empirically assessed on the basis of data referring to the past, as the main reason behind this rigidity, in my opinion, is the lack of organizational and technological changes planned for these two sectors. A reorganisation plan has been prepared for years for the State-owned railway and has started to be carried out soon after the privatization of Italian railways, while plans for the health-care and school systems have only recently come under consideration, and therefore the health-care and scholastic administrative bodies still do not have concrete plans.

This view can be considered an application of the classic analyses conducted by Marshall (1920) and Hicks (1932) that the rigidity of the labour demand is greater:

- the lower the price elasticity of the demand for the commodity or service produced;
- the more reduced are the possibilities of substituting employees with other productive inputs;
- the less elastic is the supply of the other productive factors;
- the higher the share of labour costs on the total production cost.

The last factor could act to the disadvantage of the physicians and, above all, the teachers. However, Hicks (1932) demonstrated that this "rule" is valid only when the elasticity of product demand exceeds the elasticity of substitution between the factor considered and all the others. It should not be forgotten that both health-care services and the school system are, in the Italian context, commodities supplied by public

services, whereas the supply of such goods on the part of the private sector is quite limited. They are thus characterised by a very low degree of demand elasticity. Therefore, this is one of those situations in which such a "rule" does not hold (Maurice, 1975). In the case of the railways, on the other hand, there exists a concrete substitution possibility by means of private transportation by truck. In this case then the "rule" should hold, to the disadvantage of the train drivers who still make up a substantial percentage of this sector's employees.

The physicians and teachers are instead in a better position than the train drivers with respect to the other three conditions: we have already discussed the price elasticity of the services supplied. Moreover, teachers and physicians are not easily substituted with other productive factors. At any rate, such a substitution would be functional only after long periods of time and would necessitate the reorganisation of the entire national educational and health-care systems. This would require political commitment and a managerial capacity that is usually considered to be beyond the sphere of routine management of the ministries involved. Moreover, such reorganisation would encounter strong social opposition, especially in the event that the changes were limited to reducing the quantity of public services offered or simply raising the price of such services. However, as mentioned previously, above all, the future implementation of the reorganisation plans being discussed for the health-care and school systems appears quite distant and has not yet acquired a credibility comparable to that acquired by the railway plan. This situation definitely strenghtens the power of the physicians and teachers who are demanding wage and salary increases.

Most of the Italian public administration is in conditions closer to the ones that have been faced so advantageously by physicians and teachers than to the ones encountered by train drivers. This is why a wage policy such as that implemented by the Italian government in the late seventies and early eighties, based on the balance between low productivity levels and low monetary compensation³⁴ (a sort of "implicit contract" theorized ex-post by the Report of the Carniti commission, 1988, pp. 73-74) was deemed to failure. In situations where the labour demand continued to be inelastic, and in the presence of groups of

34. whose consequence was the comparatively low level of the ratio between the wages of public employees and those of workers employed in market services examined in paragraphs one and four.

workers that were able to organise themselves and initiate wage demands - justifying them as attempts to re-establish, in the name of equity³⁵, those wage differentials that the Government was trying to modify - wage pushes developed due to the strength of the employees who find themselves in these conditions. To invoke the principle that it is necessary to compare the net balances of the monetary and non-monetary benefits, as is often done, may perhaps be fitting from a general point of view; however, only with great difficulty could this principle induce the employees in a stronger position, not to take advantage of their situation in attempts to obtain further wage increases while maintaining non-monetary benefits. As a matter of fact, the "implicit contract" was broken and the Italian government did not take the opportunity to enforce a reorganization of the public sector aimed at increasing its productivity, which would have been, and still is, an indispensable condition for carrying out any wage policy in this sector.³⁶

7 - Concluding Remarks.

The general point to stress as a conclusion of this analysis is that in Italy distributive conflicts are endemically worsened by the factors examined in paragraphs two and three: the structural bias of inflation processes, a larger than abroad tax wedge, and the regular resort to the fiscal drag to increase State revenues. These are well-known phenomena.³⁷ The aim of this paper has been to build up a simple theoretical framework to outline the point that in a dualistic economy subject to international competition, as Italy is, these phenomena induce distributive conflicts which impair any attempt to enforce income policy, whatever content is given to it.

35. The relevance of the criterion of equity to wage determination is particularly stressed by Hicks (1974).

36. For a more complete analysis of this point, see Biagioli, Salvati and Santi (1992).

37. Among the most recent studies, see Graziani (1986 and 1991), Giavazzi and Spaventa (1989) and Barca and Visco (1992).

The main indication to draw from this analysis is that the extent of income policy has to be extended from the usual simple indication of keeping wage increases at pace with labour productivity improvements to interventions aimed at:

- Lessening the weight of the factors leading to distributive conflicts.
- Implementing reorganization plans in Government services, and linking wage policies to their success.
- Sustaining the trend towards the decentralization of wage bargaining practices, insofar as it induces productivity improvements by linking wages to the development of more participatory attitudes of workers and unions towards the processes of production restructuring and business reorganization.

Appendix to Paragraph 3: Some Algebraic Elaborations on the Expression (3.1).

In this appendix two aspects referred to in paragraph 3 are examined through simple elaborations of formula (3.1).

In order to examine the similarity between our formula and the "normal cost hypothesis", we shall start multiplying both sides of (3.1) by P_p , obtaining:

$$\frac{G \text{ Prof}}{Y} \equiv \frac{P_p \cdot Y - CE \cdot E}{Y} \quad (3.1.a)$$

$$\frac{G \text{ Prof}}{Y} \equiv P_p - \frac{CE \cdot E}{Y} \quad (3.1.b)$$

$$P_p \equiv \frac{G \text{ Prof}}{Y} + \frac{CE}{Y/E} \quad (3.1.c)$$

which simply means that production prices are composed of profits per unit of output plus costs of labour per unit of output (average compensation per employee divided by average output per head).

We can develop $(G \text{ Prof})/Y$ into $\alpha \cdot P_p$, where α , which measures the amount of profits per unit of output is linked to the most frequently used expression of the mark-up by the formula: $\alpha = m/(1+m)$ (see Carlin and Soskice, 1990, pp. 142-143). Substituting this expression in (3.1.c), we obtain:

$$P_p = \alpha \cdot P_p + CE/(Y/E) \quad (3.1.d)$$

$$P_p \cdot (1 - \alpha) = \frac{CE}{Y/E} \quad (3.1.e)$$

$$P_p = \frac{1}{1 - (m/1+m)} \cdot \frac{CE}{Y/E} \quad (3.1.f)$$

$$P_p = (1 + m) \cdot CE/(Y/E) \quad (3.1.g)$$

Formula (3.1.a) can be also extended in order to analyze the effects of imported materials as a further source of distributive conflicts into the following:

$$\frac{G \text{ Prof}}{Y} \equiv \frac{P_p \cdot Y - (P_m \cdot e / P_x) \cdot (1/MP) \cdot Y - CE \cdot E}{Y} \quad (3.1.h)$$

[where (1/MP) are the units of imported material used per unit of output, while all other symbols have already been explained. Moreover, since the hypothesis of the economy being vertically integrated has been abandoned, Y represent now Total Sales.]

from which it can be easily obtained:

$$P_p = \alpha \cdot P_p + \frac{CE}{Y/E} + \frac{P_m \cdot e}{P_x} \cdot \frac{1}{MP} \quad (3.1.i)$$

Dividing all terms by P_p , we obtain:

$$1 = \alpha + \frac{CEE/P_p}{Y/E} + \frac{P_m \cdot e}{P_x} \cdot \frac{1}{MP} \cdot \frac{1}{P_p} \quad (3.1.l)$$

$$Y/E = \alpha \cdot (Y/E) + \frac{CE}{P_p} + \frac{P_m \cdot e}{P_x} \cdot \frac{Y/E}{MP} \quad (3.1.m)$$

That is, real output per head equals real profits per head plus real wages per head plus the cost of imported materials per head. This makes it clear that distributive conflicts are worsened by a deterioration of the terms-of-trade, as occurred during the oil-shocks of the seventies, since a higher share of the real output has to be used to pay for imported materials, and is improved by a terms-of-trade improvement.

Table 1 - RATIOS BETWEEN COMPENSATIONS OF EMPLOYEES PER EMPLOYEE IN THE INDUSTRY, IN MARKET SERVICES AND IN THE PUBLIC ADMINISTRATION IN FOUR EUROPEAN COUNTRIES: 1960-1987.

Years	Public Administr.*/Industry				Public Adm.*/Market Services				Industry/Market Services			
	Italy	France	Germany	U.K.	Italy	France	Germany	U.K.	Italy	France	Germany	U.K.
1960	165.6	114.5	140.9	n.a.	126.7	120.3	156.0	n.a.	76.5	105.1	110.7	n.a.
1965	170.6	123.3	130.4	n.a.	126.2	127.0	141.9	n.a.	74.0	103.0	108.8	n.a.
1970 (a)	125.7	n.a.	121.3	n.a.	104.3	n.a.	138.8	n.a.	83.0	n.a.	114.4	n.a.
1970 (b)	118.7	n.a.	115.0	98.0	98.5	n.a.	131.5	122.7	83.0	n.a.	114.3	125.2
1975	94.2	n.a.	118.4	n.a.	84.0	n.a.	131.7	n.a.	89.2	n.a.	111.2	n.a.
1980	102.2	91.8	103.9	103.4	94.7	98.4	122.5	121.0	92.6	107.2	117.9	117.0
1985	100.3	91.6	94.6	97.2	101.6	96.8	117.7	120.2	101.3	105.7	124.4	123.7
1989	101.3	n.a.	88.1	98.3	107.1	n.a.	112.8	114.3	105.7	n.a.	128.0	116.3

n.a. = not available.

* - Data on compensations per employee in the public sector refer to the public administration in the Sixties and in 1970 (line a) and to the sector non-market services from 1970 (b) onwards.

Sources of the data from which the calculations have been performed:

ISTAT: Annuario di Contabilità Nazionale, 1960-85 (Roma, 1987).

EUROSTAT: Conti Nazionali, 1960-85 (Luxembourg, 1989).

EUROSTAT: National Accounts ESA, 1984-1989 (Luxembourg, 1992).

Table 2 - *TRADED TO NON-TRADED GOODS PRICES IN FOUR EUROPEAN COUNTRIES: 1961-1990.*

Years	Ratio between the index numbers of consumer prices and the unit values of exports				Period	Difference between the percentage change per year			
	Italy	France	Germany	U.K.		Italy	France	Germany	U.K.
1961	100.0	100.0	100.0	100.0					
1972	131.1	109.9	121.3	110.8	1961-72	2.5	0.9	1.8	0.9
1979	105.4	115.8	120.6	95.9	1972-79	-3.7	0.8	-0.1	-2.4
1987	130.0	126.1	123.5	111.3	1979-87	3.0	1.1	0.3	2.1
1990	135.4	129.0	126.6	121.6	1987-90	1.4	0.8	0.8	3.1

Sources of the data from which the calculations have been performed:

International Monetary Fund: Financial Statistics, Yearbook 1991.

International Monetary Fund: Financial Statistics, April 1992.

Table 3a - COMPENSATION OF EMPLOYEES, GROSS AND NET WAGES AND SALARIES
PER EMPLOYEE

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
(Thousand lire at current prices)										
Compens. of employees	14,642	17,098	19,734	22,056	24,283	26,114	28,261	30,744	33,428	36,902
Gross Wages and Sal.	10,835	12,490	14,372	16,159	17,727	18,865	20,540	22,301	23,909	26,206
Net Wages and Salaries	8,936	10,001	11,213	12,652	13,798	14,425	15,749	16,864	18,148	19,832
(Thousand lire at 1981 prices)										
Compens. of employees	14,642	14,612	14,749	14,913	15,111	15,316	15,850	16,423	16,747	17,423
Gross Wages and Sal.	10,835	10,730	10,741	10,926	11,031	11,065	11,520	11,913	11,978	12,373
Net Wages and Salaries	8,36	8,92	8,80	8,54	8,86	8,60	8,33	9,009	9,092	9,364
STRUCTURE OF THE COMPENSATION OF EMPLOYEES										
Compens. of employee	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
- Employers' soc. contr.	26.0	26.6	27.2	26.7	27.0	27.8	27.3	27.5	28.5	29.0
= Gross Wages and Sal.	74.0	73.4	72.8	73.3	73.0	72.2	72.7	72.5	71.5	71.0
- Employees' soc. contrib.	4.6	5.2	5.4	5.4	5.3	5.6	5.6	5.7	5.7	5.7
- Direct taxes	8.4	9.5	10.6	10.5	10.9	11.4	11.3	12.0	11.6	11.6
= Net Wages and Sal.	61.0	58.7	56.8	57.4	56.8	55.2	55.8	54.8	54.2	53.7
Compens. of employees over net wages and sal.	1.64	1.70	1.76	1.74	1.76	1.81	1.79	1.82	1.84	1.86

table 3.b - YEARLY CHANGES AT 1981 PRICES.

	Indices		Yearly Changes			
	90/81	81-90	81-83	84-86	87-89	89-90
Compensation of Employees	119.0	2.0	+ 0.4	1.3	3.0	4.0
Gross Wages and Salaries	114.2	1.5	- 0.4	1.0	2.7	3.3
Net Wages and Salaries	104.8	0.5	- 3.2	0.3	2.4	3.0

Source: Broglia and Carra (1991).

Table 4 - INDICATORS OF COMPETITIVITY AND INCOME DISTRIBUTION IN THE FOUR MAIN E.E.C. COUNTRIES: 1980-1990. (Yearly percentage changes)

COUNTRIES and YEARS	W Man	Pc	Prod.Man.	Pp Man	E	W Man - Pc	(Pp Man. - W Man + Prod. Man.)	Pc - PpMan
ITALY								
1980-83	19.8	18.5	0.7	14.8	4.3	1.3	- 4.3	3.7
1983-87	8.3	7.6	4.8	6.8	2.5	0.7	+ 3.3	2.8
1988	5.4	5.1	4.6	5.0	2.9	0.3	+ 4.2	0.1
1989	6.8	6.3	2.6	5.9	- 1.7	0.5	+ 1.7	0.4
1990	7.1	6.5	0.9	4.2	0.7	0.6	- 2.0	2.3
1980-1990	11.1	10.2	2.9	7.8	2.5	0.9	- 0.4	2.4
FEDERAL REPUBLIC of GERMANY								
1980-83	4.5	3.2	1.9	4.1	- 3.5	1.3	+ 1.5	- 0.9
1983-87	3.7	1.2	2.0	0.5	- 2.3	2.5	- 1.2	+ 0.7
1988	4.6	1.3	4.2	1.6	0.1	3.3	+ 1.2	- 0.3
1989	3.5	2.8	2.4	3.4	- 0.2	0.7	+ 2.3	- 0.6
1990	5.1	2.7	2.5	1.5	- 0.9	2.4	- 1.1	+ 1.2
1980-1990	4.1	2.6	2.3	2.1	- 2.0	1.5	+ 0.3	+ 0.5
FRANCE								
1980-83	13.9	11.6	0.9	11.1	4.9	2.3	- 1.9	+ 0.5
1983-87	5.1	4.8	3.4	2.2	0.6	0.3	+ 0.5	+ 2.6
1988	3.1	2.7	6.3	5.3	1.5	0.4	+ 8.5	- 2.6
1989	3.8	3.5	3.5	5.3	- 0.2	0.3	+ 5.0	- 1.8
1990	4.5	3.4	1.8	- 1.1	- 1.6	1.1	- 3.8	+ 4.5
1980-1990	7.3	6.3	2.8	5.1	1.6	1.0	+ 0.6	+ 1.2
UNITED KINGDOM								
1980-83	11.1	8.3	6.9	7.6	- 0.6	2.8	3.4	0.7
1983-87	8.4	4.6	5.0	5.0	4.7	3.8	1.6	- 0.4
1988	8.5	4.9	6.0	4.5	6.5	3.6	2.0	0.4
1989	8.7	7.8	4.3	5.1	- 1.2	0.9	0.7	2.7
1990	9.4	9.5	0.2	5.9	- 5.8	- 0.1	- 3.3	3.6
1980-1990	9.3	6.6	5.1	5.8	1.6	2.7	1.6	0.8

Legends (all data are expressed as yearly average changes):

Wman = Hourly wages in manufactured products;

Pc = Consumption price index;

Pp = Production prices of manufactured products;

Prod. Man. = Productivity in manufactured products (value added per head); E = Exchange rate (national currency per ecu).

Sources of the data from which calculations have been performed:

Eurostat: Comptes Nationaux SEC, 1989. (Luxembourg, 1990).

Banca d'Italia: Relazione per l'anno 1990, Appendice. Roma, 1991.

OECD: Main Economic Indicators, vari numeri.

Table 5 - AVERAGE COMPENSATION PER EMPLOYEE IN MANUFACTURED PRODUCTS, MARKET SERVICES AND NON-MARKET SERVICES* IN E.E.C. COUNTRIES: 1980 and 1987.
(Figures in Ecus)

COUNTRIES and YEARS	BRANCHES			RATIOS		
	Manufactured Products	Market Services	Non-Market Services	Non-market Serv/Man.Prod.	Non-Market Serv./Mark.Serv.	MarketServ/ Man. Prod.
1980:						
Belgium	17,266	15,491	15,477	89.6	99.9	89.7
Denmark	13,163	13,302	12,728	96.7	95.7	101.1
F. R. of Germany	15,199	12,890	15,789	103.9	122.5	84.8
France	15,504	14,462	14,231	91.8	98.4	93.3
Ireland	9,179	8,106	10,350	112.8	127.6	88.3
Italy	10,117	10,923	10,339	102.2	94.7	108.0
Luxembourg	16,515	13,804	20,101	121.7	145.6	83.6
Netherlands	16,597	15,956	21,485	131.7	134.7	96.1
Portugal	3,184	3,779	4,076	128.0	107.9	118.7
Spain	9,030	8,845	12,036	133.3	136.1	98.0
United Kingdom	10,295	8,798	10,645	103.4	121.0	85.5
Average E.E.C.	13,166	12,036	13,275	100.8	110.3	91.4
1987:						
Belgium	25,249	21,143	18,971	75.1	89.7	83.7
Denmark	21,171	22,194	20,692	97.7	93.2	104.8
F. R. of Germany	25,321	20,385	23,368	92.3	114.6	80.5
France (1986)*	—	—	—	86.9	91.3	95.2
Ireland	—	—	—	101.5	137.6	73.8
Italy	19,768	19,204	20,307	102.7	105.7	97.1
Luxembourg	—	—	—	129.5	140.0	92.5
Netherlands	25,090	22,670	26,736	106.6	117.9	90.4
Portugal (1986)*	—	—	—	137.2	116.5	117.8
Spain	13,363	13,188	16,630	124.4	126.1	98.7
United Kingdom	—	—	—	97.1	119.3	81.4
Average E.E.C.**	21,247	18,899	20,054	94.4	106.1	88.9

* - Some data are not available for 1987, but are available for some previous year. In such cases the ratios referred to the last available year are recorded, accompanied by the indication of the year inserted after the name of the country, if all ratios refer to the same year, of after the ratios they refer to.

** - Excluding France and Portugal.

Sources of the data from which calculations have been performed:

EUROSTAT: National Accounts ESA, 1989 (Luxembourg, 1990).

EUROSTAT: National Accounts ESA, 1984-1989 (Luxembourg, 1992).

Table 6 - COMPENSATION PER EMPLOYEE IN THE FIVE MAIN E.E.C. COUNTRIES IN 1986 (Figures in Ecu).

BRANCHES	C O U N T R I E S					E.E.C.	Ratio
	Italy	France	Germany	United Kingdom	Spain	Average	Italy/Europe
Agriculture, for. and fishing	10,186	14,952	16,918	8,151	7,335	12,297	82.8
Fuel and power products	29,997	35,541	31,092	21,211	21,028	28,276	106.1
Manufactured Products	18,694	23,076	23,841	15,569	12,843	20,892	89.5
Chemical Prod.	24,542	29,507	33,240	18,317	16,957	27,619	88.9
Ores and Metals	22,900	25,405	24,823	17,861	16,482	23,613	97.0
Non-metallic minerals	18,588	23,602	23,068	13,396	14,196	19,802	93.9
Metal Products	16,838	21,297	22,367	15,752	12,358	19,872	84.7
Agr. and Ind. Machinery	20,838	23,951	25,886	15,688	13,937	21,993	94.7
Offices Machines	22,103	35,750	23,175	11,176	19,643	21,262	104.0
Transport Equipment	20,898	24,092	29,985	19,414	15,796	24,630	84.8
Electrical Goods	21,244	23,768	24,439	16,885	14,268	22,461	94.6
Textiles, leather, footwear	14,386	17,264	15,760	10,290	8,598	14,382	100.0
Food, Bever. and Tobacco	19,191	22,840	18,381	15,896	12,216	19,316	99.4
Paper and Print. Pr.	21,716	25,411	22,737	19,184	12,899	22,234	94.7
Rubber and Plastic Pr.	19,821	21,011	21,011	16,660	14,392	19,796	100.1
Building and Constr.	14,327	20,067	19,638	14,652	14,624	18,298	78.3
Market Services	18,129	22,269	19,294	12,831	12,984	17,433	104.0
Repair serv., trade	15,991	19,647	18,143	11,584	11,678	16,270	98.3
Lodging and Catering Serv.	9,416	21,020	13,239	5,715	11,174	10,173	92.6
Transport Serv.	21,625	25,381	23,397	16,654	13,907	20,947	103.2
Communication Serv.	20,379	19,004	21,421	17,714	14,982	19,013	107.2
Credit and Insurance	40,982	29,483	28,030	56,384	28,072	36,556	112.1
Non-market Services	18,579	20,352	22,120	15,312	16,108	19,039	97.6
General Government Serv.	20,439	n. a.	23,171	n. a.	n. a.	n. a.	n. a.
Other non-market Serv.	8,611	n. a.	17,607	n. a.	n. a.	n. a.	n. a.
All Workers' Average	17,885	21,865	21,716	14,319	13,469	18,775	95.3
Variation Coefficients:							
Manufactured Prod.	13.5	18.0	18.8	18.6	17.7		
Market Services	48.7	18.7	23.9	82.8	38.9		
Whole Economy	32.1	22.2	21.5	56.1	28.9		

n. a. = not available.

Sources of the data from which calculation have been performed:

EUROSTAT: National Accounts ESA, 1989 (Luxembourg, 1990).

EUROSTAT: National Accounts ESA, 1984-1989 (Luxembourg, 1992).

Table 7 - GROSS EARNINGS PER EMPLOYEE AND PERCENTAGE OF "NOT REGULAR" WORKERS BY BRANCHES: 1980 and 1990. (Million lire and index numbers obtained by taking the overall average as 100).

BRANCHES	GROSS EARNINGS				Yearly Percentage Variations in real terms	Percentage of "not regular" Workers	
	1980		1990			1980	1990
	Million lire	Index Numbers	Million lire	Index Numbers			
Agricult. for. and fish.	6,405	73,3	16,926	64,6	+ 0,5	75.5	88.4
Industry	8,486	97,1	25,530	97,4	+ 1,8	11.2	13.9
Fuel and Manufact.	8,789	100,5	26,356	100,6	+ 1,8	5.5	7.2
Fuel and Power Prod.	13,151	152,5	40,690	155,3	+ 1,8	s.s.	s.s.
Maufact. Products	8,628	100,7	25,705	98,1	+ 1,7	5.7	7.6
Ores and Metals	10,159	117,4	30,534	116,5	+ 1,8	s.s.	s.s.
Non-metallic Minerals	8,569	96,8	24,396	93,1	+ 1,3	s.s.	s.s.
Chemicals	11,550	132,1	34,604	132,1	+ 1,8	s.s.	s.s.
Metal Products	8,119	92,9	23,533	89,8	+ 1,4	10.0	13.5
Agr. and Ind. Machines	9,599	111,1	28,760	109,8	+ 1,8	s.s.	s.s.
Office Machines	9,809	112,2	29,868	114,0	+ 1,9	9.6	9.8
Electrical Goods	9,640	110,3	30,951	118,1	+ 2,5	s.s.	s.s.
Automobils and Equipm.	9,448	108,1	29,107	111,1	+ 2,1	s.s.	s.s.
Other Transport Eq.	9,725	111,3	30,814	117,6	+ 2,3	s.s.	s.s.
Meat	8,907	101,9	26,161	99,8	+ 1,6	s.s.	s.s.
Milk	9,544	109,2	28,027	107,0	+ 1,6	s.s.	s.s.
Other Food	8,240	94,3	25,443	97,1	+ 2,1	7.3	10.5
Beverages	9,944	113,8	30,996	118,3	+ 2,2	s.s.	s.s.
Tobacco	8,400	96,1	28,285	107,9	+ 3,0	s.s.	s.s.
Textiles and clothing	6,884	78,8	19,471	74,3	+ 1,2	s.s.	s.s.
Leather and footwear	6,628	75,8	17,913	68,4	+ 0,7	8.5	11.8
Timber and wood	6,805	77,9	19,088	72,8	+ 1,1	9.4	13.2
Paper and printing	9,591	109,7	29,333	111,9	+ 2,0	s.s.	s.s.
Rubber and Plastics	9,017	103,2	25,986	99,2	+ 1,4	s.s.	s.s.
Other manuf. products	6,981	79,9	20,194	77,1	+ 1,4	7.6	10.2
Building	7,204	82,4	22,206	84,7	+ 2,1	35.2	41.3
Market Services	9,106	104,2	25,266	96,4	+ 1,0	16.4	19.0
Repair	6,620	75,7	18,319	69,9	+ 1,0	25.7	30.1
Trade	7,949	90,0	23,119	88,2	+ 1,5	9.4	14.6
Lodging and catering	5,056	57,8	14,424	55,0	+ 1,3	52.8	48.9
Inland Transports	11,199	128,1	28,991	110,6	+ 0,3	17.7	38.6
Intern. Transports	13,102	149,9	37,721	143,9	+ 1,4	s.s.	s.s.
Transport Support Act.	11,412	130,6	31,505	120,2	+ 0,9	10.6	17.2
Communications	11,754	134,5	29,715	113,4	+ 0,1	s.s.	s.s.
Credit and Insurance	17,224	197,0	49,985	190,7	+ 1,4	s.s.	s.s.
Services to firms	8,583	98,2	23,048	88,0	+ 0,7	11.4	9.2
Market Theach. and Res. Act.	6,460	73,9	21,229	81,0	+ 2,7	s.s.	s.s.
Market Health Services	9,055	103,6	27,548	105,1	+ 1,9	s.s.	s.s.
Other Market Serv.	6,792	77,7	17,155	65,5	+ 0,05	18.3	16.8
Market Products and Services	8,544	97,7	24,864	94,9	+ 1,5	18.2	21.0
Non market Services	9,377	107,3	29,923	114,2	+ 2,4	6.0	7.8
General Government Services	9,972	114,1	32,415	123,7	+ 2,6	s.s.	s.s.
Other non-market Serv.	5,179	59,2	15,232	58,1	+ 1,6	47.9	55.0
Total Average	8,741	100,0	26,205	100,0	+ 1,8	15.3	17.5

s.s. = small size.

Calculations have been performed on National Accounts Statistics (Istat).

Table 8 - WAGE DRIFT, BONUSES AND PAY ITEMS NEGOTIATED BY UNIONS AT THE COMPANY LEVEL: 1975-1988.

Industries and Grades of Workers	APRIL 1975			OCTOBER 1979		APRIL 1984	OCTOBER 1988		
	Unilateral Concessions and Individual Bargaining	Pay Items Negotiated at the Company Level	Locally Determined Share of Pay	Locally Deter- mined Share of Pay (excluding seniority)	(including seniority)	Locally Determined Share of Pay*	Unilateral Concessions and Individual Bargaining	Pay Items Negotiated at the Company Level	Locally Determined Level of Pay
Metal and Mechanical Industry:									
Non-manual	16.9	17.4	34.3	26.7	---	23.4	18.8	13.4	32.2
Manual	4.2	22.2	26.4	18.6	---	12.8	2.6	15.0	17.6
All Workers	10.0	20.0	30.0	21.9	---	17.9	11.4	14.1	25.5
Chemical Industry:									
Non-manual	11.7	19.2	30.9	21.3	34.2*	28.7*	13.3	21.0	34.3
Manual	4.6	27.8	32.4	19.2	28.4*	20.6*	1.6	21.9	23.5
All Workers	7.7	24.0	31.7	20.2	31.2*	25.3*	9.5	21.3	30.8
Food Industry:									
Non-manual	n.a.	n.a.	n.a.	23.7	32.7*	22.0*	9.9	19.0	28.9
Manual	n.a.	n.a.	n.a.	21.1	24.5*	12.5*	1.6	21.3	22.9
All Workers	7.2	13.5	20.7	22.5	28.1*	16.5*	5.9	20.1	26.0
Textile Industry:									
Non-Manual	9.3	10.4	19.7	24.0	29.0*	25.5*	18.8	6.8	25.6
Manual	2.9	11.6	14.5	20.2	22.7*	16.0*	1.0	7.8	8.8
All Workers	3.9	11.4	15.3	21.3	24.5*	18.9*	6.4	7.5	13.9

Source of the data from which calculations have been performed:

ASSOLOMBARDA: Retribuzioni e costo del lavoro dell'industria manifatturiera nella provincia di Milano (Issues from 1976 on).

n.a. = not available.

* - In 1984, the share of pay determined at the company and plant levels of the chemical, textile and food industries also included seniority premiums. For the sake of comparison, both aggregates have been recorded for 1979, the one including seniority premiums (comparable with 1984) and the one excluding seniority premiums (comparable with 1975 and 1988).

Table 9 - ESTIMATION OF THE SOURCES OF WAGE AND SALARY INCREASES: METAL AND MECHANICAL INDUSTRIES, 1975 TO 1988.

Categories of Workers and Time Periods	National-Level Negotiation of Contract	Scala Mobile Indexation	Seniority Premiums	Unilateral Concessions and Individual Bargaining	Union, Company and Plant Negotiations	Total Variation of Pay
Non-manual Workers:						
Apr. 1975-Oct. 1979	14.0	58.5	8.9	9.0	9.7	100
Oct. 1979-Apr. 1984	37.1	38.3	4.1	15.5	5.0	100
Apr. 1984-Oct. 1988	20.7	29.1	-0.7	28.8	22.1	100
Manual Workers:						
Apr. 1975-Oct. 1979	16.5	70.8	1.0	2.4	9.3	100
Oct. 1979-Apr. 1984	35.0	51.1	6.3	4.6	3.0	100
Apr. 1984-Oct. 1988	22.7	40.5	7.6	-0.5	29.7	100
All Workers:						
Apr. 1975-Oct. 1979	15.1	65.2	5.4	5.1	9.2	100
Oct. 1979-Apr. 1984	35.4	44.5	6.0	10.1	4.0	100
Apr. 1984-Oct. 1988	22.0	33.0	3.4	16.9	24.7	100

Source of the data from which the calculations have been performed:

ASSOLOMBARDA: Retribuzioni e costo del lavoro dell'industria manifatturiera nella provincia di Milano (Issues from 1976 on).

Table 10 - COMPENSATIONS PER EMPLOYEE BY BRANCH: 1980-1990.

YEARS	MILLION LIRE				INDICES (1980 = 100)			
	Manufact. Products	Market Services	Market Prod. and Services	Governm. Services	Manufact. Products	Market Services	Market Prod. and Services	Governm. Services
1980	8.747	9.631	9.009	9.972	100.0	100.0	100.0	100.0
1981	10.755	11.506	10.995	12.925	123.0	119.5	122.0	129.6
1982	12.458	13.160	12.677	14.788	142.4	136.6	140.7	148.3
1983	14.531	15.267	14.741	16.783	166.1	158.5	163.6	168.3
1984	16.640	16.991	16.681	18.774	190.2	176.4	185.2	188.3
1985	18.420	18.601	18.411	20.326	210.6	193.1	204.4	203.8
1986	19.623	19.757	19.632	21.613	224.3	205.1	217.9	216.7
1987	21.320	21.414	21.326	23.768	243.7	222.3	236.7	238.3
1988	22.936	23.122	23.006	26.362	262.2	240.1	255.4	264.4
1989	24.631	24.944	24.778	28.006	281.6	259.0	275.0	280.8
1990	26.320	26.844	26.648	32.415	300.9	278.7	295.8	325.1
YEARLY PERCENTAGE CHANGES IN REAL TERMS*								
1950-60			+ 3.9%	+ 4.1%				
1960-70			+ 6.9%	+ 4.6%				
1970-80			+ 4.0%	+ 2.8%				
1980-90			+ 1.5%	+ 2.5%				

* - Deflated using the index of consumption prices for wage and salary earners.

Source of the data from which calculations have been performed:
ISTAT: Contabilità Nazionale.

REFERENCES.

- Abbate, C. and Piacentini, P. (1990), 'Costi e margini nell'industria italiana negli anni ottanta', **Economia e Lavoro**.
- ASAP (Issues from 1986 to 1991), **Rapporto sui salari**. Franco Angeli, Milano.
- Assolombarda (Issues from 1976 to 1989), **Retribuzioni e costo del lavoro dell'industria manifatturiera nella provincia di Milano**. Milano.
- Barca, F. and Visco, I. (1992), 'L'economia italiana nella prospettiva europea: terziario protetto e dinamica dei redditi nominali', **Temi di discussione del servizio studi della Banca d'Italia**, n. 175.
- Biagioli, M. (1989), 'I differenziali retributivi inter-professionali e intercategoriali' in Carinci F. et al.: **Il sistema retributivo verso gli anni '90**. Jovene, Napoli.
- Biagioli, M. and Cardinaleschi, S. (1991), 'La diffusione di voci retributive legate ai risultati di azienda: una ricerca empirica sulla recente esperienza italiana. **Politiche del Lavoro**.
- Biagioli, M., Broglia, B. and Cardinaleschi, S. (1992), **Salari e Incentivi**. Ediesse, Roma.
- Biagioli, M., Salvati, M. and Santi, P. (1992), 'Occupazione, retribuzioni e spesa per il personale nella pubblica amministrazione', in Ente Einaudi (ed.), **Il disavanzo pubblico in Italia: natura strutturale politiche di rientro. Volume 1: Alle radici del deficit: politica della spesa e politica fiscale**. Il Mulino, Bologna.
- Blanchard, O. J. and Summers, L. (1986), 'Hysteresis and the European Unemployment Problem'. **NBER Macroeconomic Annual**.
- Blanchflower, D. G. and Oswald, A. J. (1988), 'Internal and External Influences upon Pay Settlements'. **British Journal of Industrial Relations**.
- Broglia, B. and Carra, A. (1991), **Note su distribuzione del reddito e retribuzioni**. Ediesse, Roma.
- Brown, W. and Nolan, P. (1983), 'Competition and Workplace Wage Determination'. **Oxford Bulletin of Economics and Statistics**.
- Bruno, M. and Sachs, J. (1985), **Economics of Worldwide Stagflation**. Basil Blackwell, Oxford.
- Carlin, W. and Soskice, D. (1989), 'Medium-run Keynesianism: Hysteresis and Capital Scrapping', in P. Davidson and J. Kregel (eds.), **Macroeconomic Problems and Policies of Income Distribution**. Edward Elgar, Aldershot.

- Carlin, W. and Soskice, D. (1990), **Macroeconomics and the Wage Bargain: A Modern Approach to Employment, Inflation and the Exchange Rate**. Oxford University Press, New York.
- Cassel, G. (1922), **Money and Foreign Exchange after 1914**. Constable, London.
- C.E.R. (1990), 'La struttura del costo del lavoro'. **Rapporto n. 2**.
- Cerruti, G. and Rieser, V. (1991), **Fiat: qualità totale e fabbrica integrata**. Ediesse, Roma.
- Chiesa, G. et al. (1978), **Un modello di analisi e previsione del settore bilancia dei pagamenti corrente**. Servizio studi della Banca d'Italia. Roma.
- Commissione Carniti (1988), **I salari in Italia negli anni ottanta**. Marsilio, Venezia.
- Cossentino, F. and Prosperetti, L. (1990), 'Gli accordi di gain-sharing in Italia: diffusione, motivazioni e valutazioni aziendali'. **Produttività e Competitività**.
- Costa, G. (1989), 'Le risorse umane nella sfida degli anni novanta'. **L'impresa**.
- Costa, G. (1991), **Economia e direzione delle risorse umane**. Utet, Torino.
- Coutts, K., Godley, W. and Nordhaus, W. (1978), **Industrial Pricing in the United Kingdom**. Cambridge University Press, Cambridge.
- Danieli, E. and Ghidoni, R. (1990), 'La partecipazione economica nelle imprese cooperative'. **Sviluppo e Organizzazione**.
- Della Rocca, G. and Ponzellini, A. (1987), 'Salari e produttività in Italia. Alcune considerazioni'. **Prospettiva Sindacale**.
- Dornbusch, R. (1980), **Open Economy Macroeconomics**. Basic Books, New York.
- Dornbusch, R. (1986), 'Purchasing Power Parity', in J. Eatwell et al. (eds.), **The New Palgrave: A Dictionary of Economics**. Mac Millan, London.
- Frenkel, J. A. (1976), 'A Monetary Approach to the Exchange Rate: Doctrinal Aspects and Empirical Evidence'. **Scandinavian Journal of Economics**.
- Frenkel, J. A. (1978), 'Purchasing Power Parity: Doctrinal Perspective and Evidence from the 1920s'. **Journal of International Economics**.
- Frenkel, J. A. and Johnson, H. G. (1976), **The Monetary Approach to the Balance of Payments**. University of Toronto Press. Toronto.
- Giavazzi, F. and Spaventa, L. (1989), 'The Real Effects of Inflation and Disinflation'. **Economic Policy**.

- Goldstein, M. and Khan, M. S. (1985), 'Income and price effects in foreign trade', in R. W. Jones and P. B. Kenen (eds.), **Handbook of International Economics**. Vol. II. Elsevier, Amsterdam.
- Graziani, A. et. al. (1969), **Lo sviluppo di un'economia aperta**. Edizioni Scientifiche Italiane, Napoli.
- Graziani, A. (1986), 'I fattori strutturali dell'inflazione'. **Rivista Milanese di Economia**. Quaderno n. 11, Milano.
- Graziani, A. (1991), 'L'inflazione italiana negli anni ottanta'. **Note Economiche**.
- Hicks, J. R. (1932), **The Theory of Wages** (2nd edition). Mc Millan, New York.
- Hicks, J. R. (1974), **The Crisis in Keynesian Economics**. Basil Blackwell, Oxford.
- Ires-CGIL Emilia-Romagna (1984), **Contrattazione aziendale e retribuzioni: un'indagine empirica sull'esperienza dell'Emilia-Romagna**. Angeli, Milano.
- Layard, R. and Nickell, S. (1985), 'The Causes of British Unemployment'. **National Institute Economic Review**.
- Layard, R. and Nickell, S. (1986), 'Unemployment in the UK'. **Economica**.
- Lindbeck, A. and Snower, D. (1986), 'Wage Setting, Unemployment and Insider Outsider Relations'. **American Economic Review**.
- Lucifora, c. (1991), **Wage Drift in Two-stage Wage Determination Systems: The Case for Italy**. CRELI, Dipartimento di Scienze Economiche - Università Cattolica del Sacro Cuore, Milano.
- Marsden, D. and Saunders, C. (1981), **Pay Inequalities in the European Community**. Butterworths, London.
- Marshall, A. (1920), **Principles of Economics**. Mac Millan, London.
- Maurice, S. C. (1975), 'On the Importance of Being Unimportant. An Analysis of the Paradox in Marshall's Third Rule of Derived Demand. **Economica**.
- Mediobanca (1991), **Dati cumulativi di 1743 società italiane**. Milano.
- Niebur, R. (1990), 'Payments in the Service Sector', in Ministère du Travail, de L'Emploi et de la Formation Professionnelle et C.E.R.C. (eds.), **Rencontre Européenne sur les Salaires: Actes du Colloque**. Paris.
- O.E.C.D. (1982), **Employment in the Public Sector**. Paris
- Officer, L. H. (1976), 'The Purchasing Power Parity Theory of Exchange Rates: A Review Article'. **IMF Staff Papers**.
- Osservatorio del Pubblico Impiego (Issues from 1985 to 1992), **Relazione Annuale**. Istituto poligrafico dello stato, Roma.

- Pierucci, C. M. and Tresoldi, C. (1976), 'Il settore dei prezzi interni: aspetti istituzionali, schemi di riferimento e verifiche empiriche', in Banca d'Italia (ed.), **Modello econometrico dell'economia italiana**. Roma.
- Regini, M. (1983), 'Le condizioni per lo scambio politico. Nascita e declino della concertazione in Italia e Gran Bretagna'. **Stato e Mercato**, n. 9.
- Regini, M. (1988), 'Le relazioni industriali tornano in azienda: perchè e con quali prospettive?'. **Giornale di diritto del lavoro e delle relazioni industriali**.
- Reynaud, B. (1990), **Corporate Strategies and Wage Setting: the French Case: 1978-1986**. Cepremap, Paris.
- Rose, R. (ed.) (1985), **Public Employment in Western Nations**. Cambridge University Press, Cambridge.
- Salituro, B. and Soci, A. (1989), **Macroeconomia: introduzione ai modelli teorici**. Il Mulino, Bologna.
- Santi, P. (1989), 'Economia della partecipazione e relazioni industriali', **Giornale di diritto del lavoro e delle relazioni industriali**.
- Senato della Repubblica e Camera dei Deputati (1977), **Rapporto della commissione parlamentare d'inchiesta sulle strutture, sulle condizioni e sui livelli dei trattamenti retributivi e normativi**. Istituto poligrafico dello stato, Roma.
- Shapiro, C. and Stiglitz, J. (1984), 'Equilibrium Unemployment as a Worker Discipline Device', **American Economic Review**.
- Uvalic, M. (1991), **The Pepper Report: Promotion of Employee Participation in Profits and Enterprise Results in the Member States of the European Community**. Commission of the European Communities and European University Institute, Brussels and Florence.
- Valvo, T. (1986), **Retribuzioni a confronto: indagine empirica sulle strutture e sui differenziali retributivi nell'area torinese**. Angeli, Milano.

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