

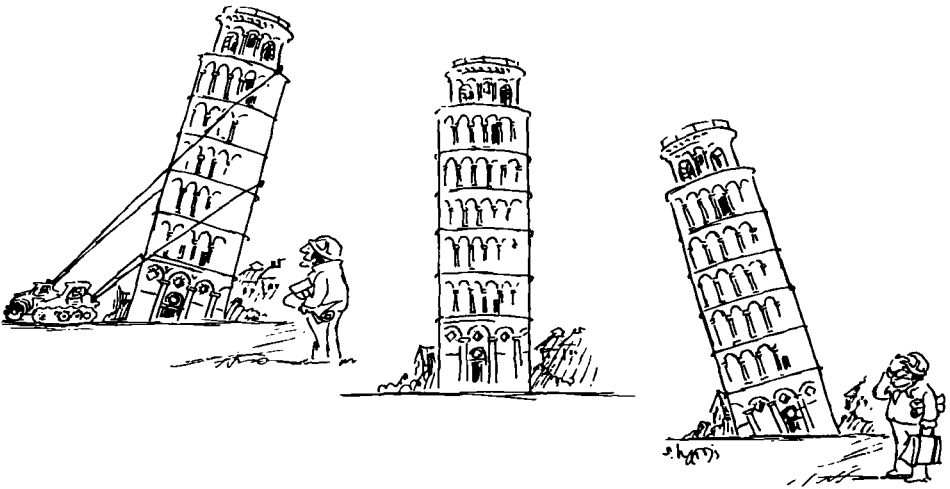
# Italy

Francesco Giavazzi and Luigi Spaventa

## Summary

*The Italian economy has often puzzled foreign observers over the past 15 years. In the early 1970s supply shocks caused huge domestic and external imbalances which made Italy a lost cause in the view of many. But the recovery of output was stronger and the turn-around in profitability happened earlier than in other 'healthier' countries. In this article we attempt to interpret these developments. One important result is that, in spite of wage indexation, inflation was an effective policy instrument and disinflation was relatively painless. Without supply-side measures, however, inflation would have been neutral, at best: thanks to a non-indexed tax system, inflation provided the revenue to finance the subsidies that permitted at the same time a recovery of profits and the demand stimulus coming from a real depreciation. The costs of subsequent disinflation were low precisely because inflation and currency depreciation had boosted firms' profitability. The paper develops a close comparison with the UK experience that took off from conditions very similar to those in Italy. We argue that the success of the Italian stabilization, and its apparently superior outcome when compared with the UK, crucially depended on the timing and the sequence of the policies pursued: by raising profit margins first, and forcing adjustment subsequently, Italy never underwent the wave of plant closures observed in the UK. The role of the initial level of profits in determining the output cost of a disinflation provides a good example of hysteresis – namely the possibility that temporary fluctuations may have long-lasting effects on the economy. But there is another side to the picture: high fiscal deficits have been a permanent feature of the period and the Italian public debt has steadily mounted to record levels. We show, however, that the origins of the debt problem are quite unrelated to the policies discussed in this paper: debt has a history of its own.*

# The Italian miracle



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# Italy: the real effects of inflation and disinflation

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## 1. Introduction

Over the past 15 years, the Italian economy has experienced rather uncommon developments, by comparison with the rest of Europe. These developments have been described alternatively in terms of near-collapses, miracles, or impending bankruptcy. Such dramatic characterizations are of little help in understanding what happened. Yet, they somehow reflect a history of large and often unexpected changes and a sequence of policy turn-arounds. From a distance, the Italian experience still raises some issues of general interest regarding the means and the timing of an adjustment process. In Italy, return to profitability was pursued before macroeconomic stabilization, instead of resulting from it, as happened elsewhere. It is indeed our contention that this evolution is sometimes commendable: adjustment in Italy was quicker and less costly, in terms of output, investment and employment.

The supply shocks of the early 1970s caused severe domestic and external imbalances, which were perhaps even more pronounced in Italy than in other European countries. The policy response to the shocks was a peculiar blend of supply side measures, inflation and exchange-rate depreciation.<sup>1</sup> The recovery of output was stronger and the turn-around in profitability happened earlier than in other 'healthier' countries, fostering a record investment boom. In the early 1980s, as inflation was accelerating, European Monetary System discipline was belatedly accepted and was used to enforce stabilization. One might

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<sup>1</sup> The role of policies in this period is stressed by Graziani and Meloni (1980), CER-IRS (1986), Barca (1987), Cipolletta (1986), Calcagnini *et al.* (1987). Andreatta and D'Adda (1985) provide an opposite, and critical appraisal of policies in this period.

Table 1. Indicators of performance (average annual growth rates)

	1977-80	1981-82	1983-87	1977-87
Gross domestic product:				
France	2.8	1.5	1.6	2.0
Germany	2.9	0.4	2.2	2.1
UK	1.1	-0.1	3.3	1.9
Italy (o.n.a.)	3.3	-0.2	n.a.	n.a.
(n.n.a.)	4.3	0.6	2.6	2.9
Gross fixed capital formation:				
total				
France	1.7	-1.6	0.3	0.5
Germany	4.6	-5.0	1.8	1.5
UK	-0.4	-2.3	4.4	1.4
Italy (o.n.a.)	3.6	-2.3	n.a.	n.a.
(n.n.a.)	4.2	-3.7	2.8	2.1
machinery and equipment				
France	2.8	-0.8	1.7	1.7
Germany	6.9	-5.5	4.5	3.4
UK	3.5	-4.8	6.2	3.1
Italy (o.n.a.)	5.7	-3.4	—	—
(n.n.a.)	9.1	-4.4	5.7	5.0
Private consumption deflator (difference from Germany):				
France	6.2	6.8	4.1	
UK	9.4	4.6	2.9	
Italy (n.n.a.)	12.3	12.2	7.7	

Sources: *European Economy*; for investment: OECD, *Quarterly National Income Accounts*, 3, 1988.

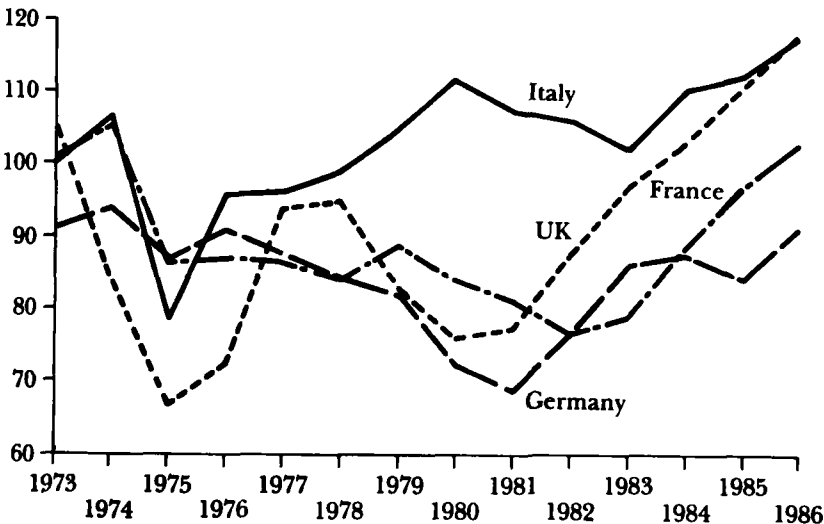
presume that the cost of disinflation in terms of output would offset the gains of the earlier boom, so that the inflationary spell would leave output unaffected in the long run. This, however, was not the case. There was indeed a recession, but it was short and relatively mild. Since 1983 output and investment have grown at a faster pace than in other major European countries, while the inflation differential with respect to Germany has narrowed considerably (Table 1). In terms of output, Italy has clearly outperformed other European economies in the period 1976 to date.

Our emphasis on the role of policies indicates that the popular explanation of Italy's growth in terms of the strength of its underground economy is, in our view, wholly unsatisfactory. The possibility of evading rules imposed by the tax authorities or the Labour Office may be relevant in other contexts, but can hardly account for the reaction of the economy to wage and oil shocks or to the imposition of EMS discipline.

On the whole, we find that Italian policies have gone beyond simply postponing the output cost of adjustment to the supply shocks; it is not

simply a matter of paying later what other countries had paid earlier. Rather, the sequence of policies has affected, and in our view improved, the outcome. A comparison with Britain, which experienced a similar situation but different policies, is instructive and can be conveniently summarized by Figures 1 and 2. Italy chose to boost firms' profitability first, tolerating inflation – even letting it increase considerably. As a result investment soared, creating the conditions for deep structural adjustment in industry. Instead, Britain which faced similar inflation pressure, elected to deal with it first, which resulted in sagging profitability and investment. The structural adjustments required by the supply shocks thus occurred in the context of major hardships, as indicated by the growth performance shown in Table 1. With comparable initial conditions and final outcomes (in terms of output and inflation), Italy has over the whole period created more income and presumably enjoyed higher welfare.

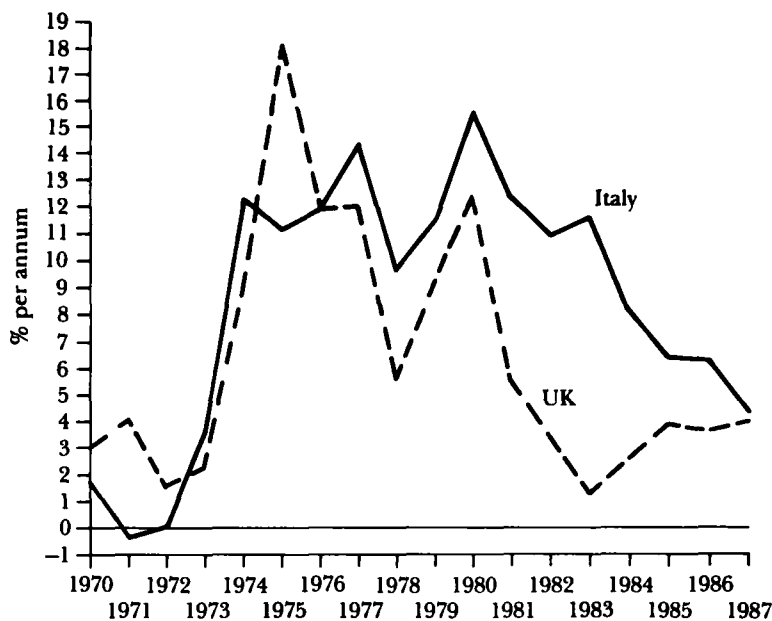
This leaves an important issue open; the question remains whether this favourable outcome was obtained at the expense of high deficits and mounting debt. If so, the public debt accumulated as a counterpart of the relatively good performance of the economy would represent a bill yet to be settled and the story would look much less successful. While fully recognizing the relevance of the debt problem, we shall however argue that its origins cannot be imputed to the policies we discuss in the paper: the debt issue has a history of its own, quite unrelated to the policies we examine.



**Figure 1. Gross profit shares**

*Source:* See Table 4.

*Note:* Shares in value added at factor costs adjusted for imputed income of the self-employed.



**Figure 2. Inflation differentials with Germany (consumers' prices)**

Source: OECD, *Economic Outlook*.

In the next section we consider the shocks of the first half of the 1970s, and the problems facing policy makers at the time. We show how a mix of inflation, currency depreciation and supply-side measures can provide a second-best solution in a regime where real wages are

#### Note on the data used in this article

Italy's national accounts recently underwent a very thorough revision which affects not only the levels but also the time profile of the relevant variables. The revision incorporates in the accounts previously unrecorded activities, as they emerge from census data and from a more comprehensive definition of employment. Employment is now defined in terms of 'units of labour', which, unlike previous data, include part-time and irregular work, standardized for the time actually worked, while excluding workers on subsidized lay-off (*Cassa Integrazione*). Whenever possible, we present our statistical material and our computations with reference both to the old (o.n.a. in the tables) and to the new (n.n.a.) data, as the latter are not yet published in international sources. Notes to the tables warn when only old data are used because the new ones are not yet available.

rigid downwards. Section 3 deals with the return to the straight and narrow path of EMS. This is, in a way, a more conventional story but one which accounts for the lower output cost of Italian disinflation. In Section 4, we explicitly examine the debt issue, and we show that the problem of budget deficits, which translates into high current indebtedness, has roots in an earlier period. In the last section we draw some conclusions.

## **2. The shocks and the policy response**

### **2.1. The shocks and the problems**

In the early 1970s supply shocks affected all European economies. Nominal wages and unit labour costs accelerated in all major countries, and more so in Italy and the UK. Fast output growth, while offsetting to some extent the consequences of rising wages, was accompanied by a hike in raw materials prices. The short-run effects on profit shares varied across countries, depending on the extent to which an inflationary response was tolerated. Between 1973 and 1974 the oil shock affected Italy more than other countries due to greater dependence on imported oil. To illustrate, in 1974 oil accounted for 56.5% of energy consumption in Italian industry as compared to 51.2% in France, 45.8% in the UK and 36.9% in Germany. As a result, total requirements of imported oil represented 4.6% of final demand in Italy, 4.6% in the UK, 3.3% in France and 2.8% in Germany (data from Silvani, 1985). The additional 'oil bill' imposed by the oil shock (higher cost of imported oil minus additional exports to oil producers) was in fact greater in Italy than anywhere else, with the exception of Japan.

The analysis of supply shocks is by now familiar (see for example, Bruno and Sachs, 1985). To avert negative effects on output, downward flexibility of real incomes, and in particular of real wages, is required; indeed, wage indexation raises inflation, while higher demand does not restore the previous level of output unless real wages decline. As a result, stagnation or recession can be avoided neither by expansionary policies, nor by exchange-rate depreciation, which feeds right back into prices because of indexation. The situation improves with time only as the pressure of unemployment removes the rigidities in the labour market and real wages decline. Rapid substitution of capital for labour may restore the output level in spite of rigid real wages, but at the cost of higher unemployment.

Nowhere in Europe were real wages flexible in this period. In Italy the rise in nominal labour costs was, however, greater than elsewhere and accelerated precisely in connection with the oil shock.

**Table 2. Contributions to the average annual change of output prices in manufacturing**

	1974	1975-76	1977-79	1980
Labour costs (a)	15.8	16.7	10.3	9.8
Profit margins (a)	8.9	2.4	4.7	7.3
Terms of trade	3.8	-1.7	-0.1	0.7
Residual	0.9	-0.2	-0.1	0.2
Rate of change of output prices	29.4	17.2	14.8	18.0
Memorandum items:				
Rate of change of input prices	37.2	14.9	14.6	21.2
Shares on value of output				
labour	-2.8	3.4	-2.0	-1.6
profits	0.9	-1.6	2.2	1.2
external inputs	1.9	-1.8	-0.2	0.4

*Sources:* Commission of the European Communities, Directorate General for Economic and Financial Affairs, 'Indicators of Profitability, Capital, Labour and Output', 1988, mimeo. Number of workers on subsidized layoffs: authors' estimates, 'Ratio of number of subsidized hours to yearly contractual hours', data from Banca d'Italia, *Annual Report*, various issues, and Barca (1987).

*Notes:* o.n.a.: value added at factor cost; (a) adjusted for self-employed and for subsidized lay-offs. Let  $q$  be manufacturing output and  $p$  its price. Then  $pq \equiv W + \pi + M$ , where  $W$  are gross wages,  $\pi$  gross profits and  $M$  the value of inputs external to the sector. Lower-case letters denote ratios to output, with  $\alpha$  and  $\beta$  respectively the labour and the external inputs per unit of output, and  $p_M$  the price of external inputs, then:  $p = \alpha w + \pi + \beta p_M$ . If the terms of trade,  $p_M/p$ , are set exogenously and  $\gamma = (1 - \beta p_M/p)^{-1}$ , the reciprocal of the share of value added on the value of output:  $p = \gamma(\alpha w + \pi)$ , and:  $\dot{p}/p = \gamma(\alpha w/p)\dot{w}/w + \gamma(\pi/p)\dot{\pi}/\pi + \dot{\gamma}/\gamma$ .

Strengthening of formal indexation was agreed upon in 1975; over and above this, high wage increases were requested, and granted, in a situation of widespread labour unrest; rigidities in the use of labour also became worse. Tables 2 and 3 show the extent of the problem; in Table 2, changes in the price of manufacturing output are disaggregated into three sources, namely labour costs, profit margins and the terms of trade between materials and output prices (assumed to be exogenous). In 1974 the terms of trade factor was responsible for almost four percentage points of the price rise: still, even in that year, the contribution of labour costs amounted to almost 16 points. In spite of this, accommodating monetary policy (in a situation of excess demand) allowed a rise of profit margins and of the profit share. In the following two years, labour costs rose even faster and were responsible for almost the entire rise of output prices, while the profit share fell abruptly.

Table 3 provides comparisons with other European countries (in terms of manufacturing value added rather than output). In 1974, nominal labour costs rose in Italy much faster than anywhere else, but high inflation allowed a temporary decline in real unit labour costs. In



**Table 3. Labour costs in manufacturing (annual compound rates of change, %)**

	1974	1975-77	1978-80	1981-85
<b>Nominal cost of labour per employee:</b>				
France	12.6	17.9	14.0	10.4
Germany	11.6	9.2	6.2	5.1
UK	15.6	20.5	15.6	10.3
Italy (o.n.a.) (a)	25.8	22.5	16.9	16.3
(n.n.a.) (b)	26.1	21.9	17.6	16.3
<b>Real value added per person employed (c):</b>				
France	2.6	4.3	3.4	3.0
Germany	2.7	4.8	0.5	3.4
UK	1.8	1.4	-1.3	5.8
Italy (o.n.a.) (a)	4.0	1.5	5.1	3.4
(n.n.a.)	3.6	3.0	5.8	4.3
<b>Nominal cost of labour per unit of real value added:</b>				
France	9.7	13.0	10.2	7.2
Germany	8.7	4.2	5.7	1.6
UK	13.6	18.8	17.1	4.2
Italy (o.n.a.) (a)	20.9	20.7	11.2	12.5
(n.n.a.)	21.7	18.4	11.1	11.5
<b>Real labour cost per unit of real value added (d):</b>				
France	-5.3	3.0	0.1	-1.7
Germany	0.4	0.5	2.2	-1.6
UK	10.1	-1.4	1.7	-2.2
Italy (o.n.a.) (a)	-6.2	2.4	-3.3	0.7
(n.n.a.)	-3.1	1.8	-1.6	-0.1

*Source:* Commission of the European Communities, Directorate General for Economic and Financial Affairs, 'Indicators of Profitability, Capital, Labour and Output'.

*Notes:* (a) the o.n.a. data on employees in employment and on total employment are corrected for dependent workers on subsidized layoffs; (b) units of dependent labour; (c) employees plus self-employed. For Italy (n.n.a.) total labour units; value added at market prices; (d) deflated value added at market prices.

the following two years, the nominal cost of labour per unit of real value added rose faster also, because of a disappointing performance of productivity: a higher rate of inflation (17-18%) was not sufficient to prevent a rise in real labour costs and a sharp decline in the profit share (Table 4).

Domestic inflation was accompanied by huge external deficits. Between 1974 and 1976, Italy had to have recourse to the EEC support arrangement and to an EEC recycling loan, to an IMF stand-by arrangement and to the IMF oil facility, to a swap of gold for currency with the Bundesbank and to a swap arrangement with the Federal Reserve. There were repeated currency crises and the exchange market had to

**Table 4. Changes of adjusted gross profit shares in manufacturing (%)**

	1973-74	1974-77	1977-80	1980-85
France	+1.5	-6.3	-0.8	+4.2
Germany	-0.2	-0.8	-4.4	+3.3
UK	-5.0	+2.3	-4.3	+8.4
Italy (o.n.a.)	+2.6	-5.2	+7.9	-2.5
(n.n.a.)	+1.8	-3.1	+4.6	+0.1

Source: See Table 3.

Note: Shares of value added at factor cost adjusted for imputed income of the self-employed.

be closed for over a month at the beginning of 1976. In short, up to 1976-77 Italy displayed the symptoms predicted by theory for an indexed economy hit by a supply shock. Few at the time would dispute the conclusions of the 1977 OECD *Survey of Italy* (OECD, 1977):

At the beginning of 1977, the situation of the Italian economy remains precarious. There is general agreement in the country on the need to implement an effective stabilization program ... [But] no lasting agreement has been reached ... on the choice of a method to stop the incomes-prices spiral. The sacrifices implied by the indispensable austerity measures risk to be ineffective if a pace of inflation of the order of 20% is going to persist for long. Radical stabilization measures are inevitable to avoid that domestic inflation and currency depreciation reinforce each other and that the adjustment of the current balance ... is only transitory. Considering the nature of the disequilibria ... they will not however be sufficient to bring the economy back onto a path of balanced growth.

The IMF staff's analysis prepared for the second stand-by arrangement in the Spring of 1977 criticized deficient policies; according to that analysis, 'another year of low growth ... is inevitable if Italy is to break free from constrictions ... that presently hamper economic policies'; in addition, the IMF expressed 'the belief that the nature of the disequilibrium ... is such that correction in a short period of time is not possible' (see Spaventa, 1983). In the OECD's view, unless the indexation mechanism was profoundly changed, policies of demand management could achieve stabilization only at the expense of employment and investment, while exchange rate depreciation would cause an increase in inflation.<sup>2</sup>

<sup>2</sup> OECD (1977). Modigliani and Padoa Schioppa (1977) provide a formal analysis.

These views should be compared with the picture of the period 1977–80 which emerges from Figure 1 and Tables 1 to 3. There was a strong recovery of output, led by exports and strengthened by an investment boom. Output grew faster than elsewhere; more importantly, the turn-around in profitability and in the wage gap (however measured) occurred in 1978 – much earlier than in other countries (see Bruno, 1985 and United Nations, 1988). Real unit labour costs fell substantially in Italy, but rose elsewhere – in low inflation Germany as well as in high inflation Britain. Inflation in Italy declined somewhat but remained far higher than elsewhere; gross nominal wages kept rising at over 20% and nominal exchange rate depreciation continued. The recipes recommended by international organizations were followed to a very limited extent: one may thus wonder why their predictions did not come true. To what extent were inflation and depreciation instrumental in reaching a relatively favourable and largely unexpected outcome? We shall now try to answer these questions.

## 2.2. Subsidies, taxes and depreciation

We intend to show how an unconventional mixture of subsidies and exchange-rate depreciation can be used in an indexed economy hit by a supply shock to yield the following results: a favourable effect on the supply side, by restoring profitability; a favourable effect on the demand side, by inducing a real depreciation and thereby stimulating exports; and additional revenues to finance the subsidies. We first tell the story in general terms (formalized in the Appendix) and then show how the story applies to the Italian case.

**2.2.1. A simple parable.** We imagine a country which produces manufactured goods using only labour and imported 'oil'. Initially, this country only trades with the oil exporter, exchanging its output for oil. There is now a sudden rise in the *real* oil price. With wages fully indexed to the price of the home produced goods, the shock affects only the profit margins, leaving real wages unchanged. As the size of the fall in real margins is independent of the price level, inflation is by itself wholly ineffective. The fall in real margins will probably depress investment and cause a slump.

At the macro level there is thus nothing that the government can do. The government could, however, decide to enact a 'supply-friendly' policy, amounting to subsidizing a recovery in margins. Typically, this can be done by reducing the wedge between take-home pay and the cost of labour for the enterprise, either by lowering taxes on employees – if they accept a corresponding reduction of their gross wage – or, more

directly and more safely, by reducing social security contributions, which is equivalent to granting a subsidy proportional to the wage. The pitfall of this latter solution is of course an increase in the budget deficit. How can the government avoid the budgetary cost without having to ask Parliament to raise taxes to subsidize profits (a difficult proposition in a pre-Thatcherite era)?

The answer may come from personal income taxation. With a proportional income tax nothing can be done: if the increase in nominal incomes is in line with the rate of inflation, real revenues remain the same and higher nominal revenues finance the nominal increase of unchanged real expenditures. If instead the income tax is progressive and tax brackets are fixed in nominal terms, tax rates increase with a rise in income, whether nominal or real: this introduces another variable in the system, which like profit margins is not indexed. This is important, since *real* revenues now depend on the price level. As long as *only the gross wage* is indexed or, more generally, as long as wage earners do not pass on into higher wages an increase in taxation due to inflation, a price rise provides the government with an increase in real revenues, which can be used to subsidize profits (more elegantly, to cut social security contributions). In principle, supposing only for a moment that it can fully control the rate of price rise, the government could set the latter at a level such that the increase in real revenues is enough to finance the subsidy needed to offset the fall in real margins caused by the shock with full gross wage indexation. Note, again in principle, that to ensure a *permanent* rise in real revenues through progressive taxation, what is required is not an increase in the *rate* of inflation, but a *one-shot* price rise, which is sufficient to allow a *permanent* rise of real tax rates.

If the home country also trades with another industrial country whose prices are supposed for simplicity (but without loss of generality) to be fixed, home wages are indexed on a basket of home produced goods and of imports from the other industrial country and their change will depend on domestic inflation and on the change in the nominal exchange rate. Hence, wages do not fully reflect domestic inflation and, for a given nominal exchange rate, an increase in domestic prices lowers the product wage at a constant consumption wage. An increase in the price level can thus be used to raise real margins: the cost is a real exchange rate appreciation, and consequently a loss of competitiveness and a fall in export demand. Here again, subsidies can be used to restore real margins to their pre-shock level; to pay for the subsidies, the increase in the price level must, however, be accompanied by a depreciation of the nominal exchange rate, so as to keep the real exchange rate constant. In the same way as there is a level of subsidies that allows real margins to remain constant with a constant real exchange

rate, higher subsidies should achieve the same recovery of margins *and* a real depreciation. With real depreciation, subsidies will of course need to be higher; to finance them, nominal depreciation and inflation will have to be correspondingly higher. In short, there is always a combination of subsidies and nominal depreciation which ensures the constancy of real margins and whatever target for the real exchange rate the authorities decide to pursue.

We note that real depreciation is a desirable target in this context. The subsidy required to keep real margins constant is being financed at the expense of disposable wage income, which may very well induce a fall in demand and offset the virtuous supply-side effect of subsidies. Real depreciation serves to substitute consumption with exports and therefore helps to sustain the level of demand and investment (at unchanged real margins). Once more, we stress that, to achieve the desired outcome, what is required in principle is a *one-shot* change in the nominal exchange rate and in prices (and a one-shot real depreciation, if the latter is desired). This is important, not because the engineering of a one-shot price rise is a realistic possibility, but because it shows that the story does not require complete money illusion for gross wages. It only requires persistent money illusion for the net wage. It is sufficient to perform the trick once, even if wage earners react later by requiring some form of indexation for the net wage, which they can do by asking the government to index the tax rate. The only thing that matters is that such indexation should be not applied retroactively.<sup>3</sup>

**2.2.2. The strategy in Italy.** We are well aware that reality is far more complicated than any simplified parable can tell. First, as expected, the true story features not a once-and-for-all jump in prices but persistently high inflation. Second, even though inflation helps the budget, it is hard to think that policy-makers consciously plan inflation to raise extra revenue. Extra revenue is a welcome bonus, but monetary accommodation is likely to find other justifications. Third, by assuming that the tax system is the only source of monetary non-neutrality in the economy, we have neglected more traditional channels, like price stickiness. Finally, even within the period considered in this section, changes in unions' behaviour, as well as important differences in the strategies of enterprises, were certainly relevant.

<sup>3</sup> Another problem may arise from the presence of a *Tanzi-Olivera* (more correctly *Bresciani-Turroni*) effect, whereby tax collection occurs with a long lag behind earned income so that the real value of tax revenues decreases in the interim as prices rise. The latter, however, concerns situations of persistent hyperinflation, not a one-shot price increase.

**Table 5. Italy: the wedge and the cost of labour in manufacturing**

	1977-80		1981-85	
Real gross wage per unit of output (a) (% p.a.):				
(o.n.a.)	0.1		0.1	
(n.n.a.)	1.3		-0.3	
Real labour cost per unit of output (a) (% p.a.):				
(o.n.a.)	-2.2		0.7	
(n.n.a.)	-1.2		0.1	
	1976	1977	1980	1985
Wedge (b) (% of gross wage):				
(o.n.a.)	47.5	38.2	33.9	38.1
(n.n.a.)	53.6	43.3	39.1	41.0
Social security contributions paid by employers (% of gross wage):				
(n.n.a.)	39.3	34.4	29.7	31.8

Sources: Istituto Centrale di Statistica, *Annuario di Contabilita Nazionale*; Banca d'Italia, *Annual Report*; Centro Europa Ricerche, *Rapporto*, no. 6, 1987.

Notes: (a) o.n.a. data corrected for workers on subsidized layoffs and all data adjusted for self-employed; value added level and deflator at market prices; (b) ratio of the difference between labour costs and gross wages (mostly funds for severance indemnity and social security contributions paid by employers) to gross wages.

Still, the purpose of parables is not to provide an exhaustive picture of reality, but to draw attention to one of its many relevant aspects, and we believe that our parable captures a crucial feature of the Italian recovery of the 1970s. Table 5 provides evidence on the reduction of the wedge between the gross wage and the cost of labour in the period under consideration. Before 1976, and after 1980, the cost of labour for enterprises rose slightly faster than the gross wage. Between 1976 and 1980, however, the (average) annual growth of labour cost was far below that of gross wages; so that real unit labour costs could fall. The reduction of the wedge was the result of a generous cut in social security contributions paid by enterprises and of an agreement with the unions to remove indexation from the funds set aside for severance indemnity (indexation of these funds was subsequently reintroduced in 1982. On the relevance of the two causes of reduction of the wedge in this period, see Banca d'Italia, 1981). The ratio of contributions to gross wages fell by ten points between 1976 and 1980.

In spite of subsidies, the budget deficit as a proportion of GDP did not increase in the period: in fact, revenues rose more than expenditures

**Table 6. Taxes on labour income: changes in direct tax ratios on employees' income (% of gross wage)**

	1974-77	1977-80
total	+2.8	+4.6
due to:		
rise in real income	+1.3	+0.4
discretionary changes	-2.5	-0.7
fiscal drag	+4.0	+4.9

Source: Centro Europa Ricerche, *Rapporto*, no. 4, 1984.

net of interest and the primary deficit actually fell between 1974 and 1980. We are not implying that a budget problem did not already exist at the time. The size of the deficit was already a prominent issue, to which we shall return in Section 4. We only maintain that the dynamics of revenues were not affected by the cut in social security contributions, as the rise in direct taxes provided plenty of room for the subsidies. Table 6 shows that the major source of rising revenues was the joint operation of steeply rising marginal tax rates – introduced with the 1974 tax reform – and of high inflation; fiscal drag was responsible for a rise of almost 9 points in the tax burden on industrial workers between 1974 and 1980. Only a fraction of this was offset by discretionary measures of opposite sign. The inflation-induced increase in the average tax rate was such that the wedge between the cost of labour for enterprises and take-home pay actually increased in the period, in spite of the substantial cut in contributions.

There was in short a redistribution from wages to profits in industry by means of increased taxation of labour incomes which was induced by inflation rather than legislated by Parliament. Inflationary accommodation provided a way to offset the consequences of the nominal wage shock. The unions were not wholly blind to what was happening, but the compensating discretionary measures which they managed to obtain never affected the structure of marginal tax rates, which was the source of the fiscal drag. They only became fully aware of the issue in later years, when 'restitution of fiscal drag' became a major bone of contention with the government. The structure of income taxation remained unchanged until the early 1980s when it was made less progressive, and deductions for employees' income were repeatedly increased. Today a repetition of past history, involving the use of inflation to raise tax revenues, would no longer be possible (in 1988 the government agreed to a *de facto* indexation of personal taxation by pledging to cut taxes on labour income so as to offset the previous year's fiscal drag in

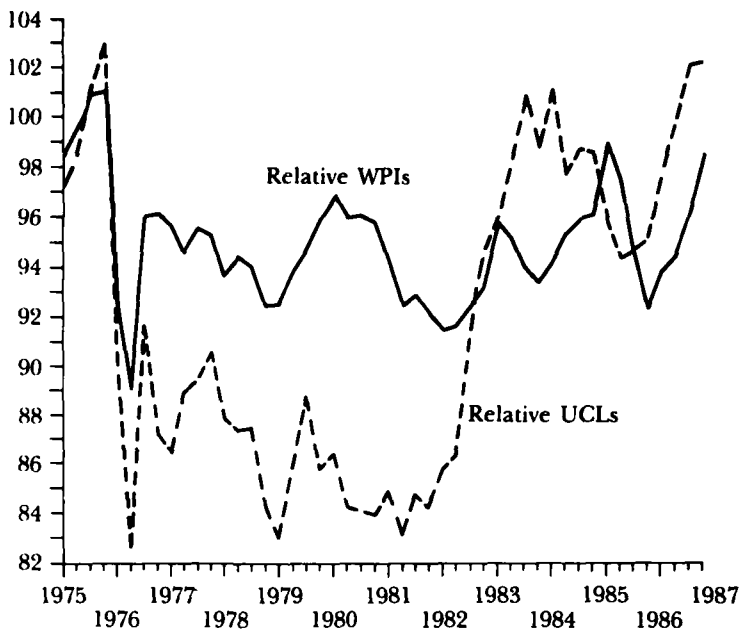


Figure 3. Italy: real exchange rates (indices: 1975 = 100)

Source: IMF, *International Financial Statistics, Supplement on Price Statistics*, 1986.

excess of 2% inflation). Learning by the unions took a long time, however, and that time was sufficient to undo the effects on the distribution of disposable income of the nominal wage shock.<sup>4</sup>

The fall in real unit labour costs in 1977–80 was greatly helped by the reduction of the wedge, and hence by subsidies. The acceleration of productivity growth (Table 4) was at least as important. There are certainly several factors accounting for the behaviour of productivity. In 1977 the unions agreed to remove some restrictive practices and to allow a more efficient use of equipment. Still the resulting increase in flexibility did not remove the most relevant obstacles to firings and lay-offs. This is why there is little doubt that a recovery of demand and output was a necessary condition for faster productivity growth and for exploiting the new machinery installed during the 1973–74 investment boom. The recovery was led by exports which grew at an average real rate of over 9% between 1976 and 1980.

<sup>4</sup> The consequences of inflation were not confined to those on tax revenues, as inflation also provided a powerful help to enterprises by eroding the real value of their outstanding debt contracted at fixed nominal interest rates. A measure of this effect is the size of the inflation correction of the reported net liabilities of the enterprise sector, which also shows the redistribution from households to firms and which in the period under consideration was as high as 5% per year on average (see Ministero del Tesoro, 1987). Another measure is the difference between gross operating margins and margins net of real interest payments: the latter's rise is far steeper than that of the former (see Banca d'Italia, 1983).



**Table 7. Relative export performance of Italy and in the UK (a)**

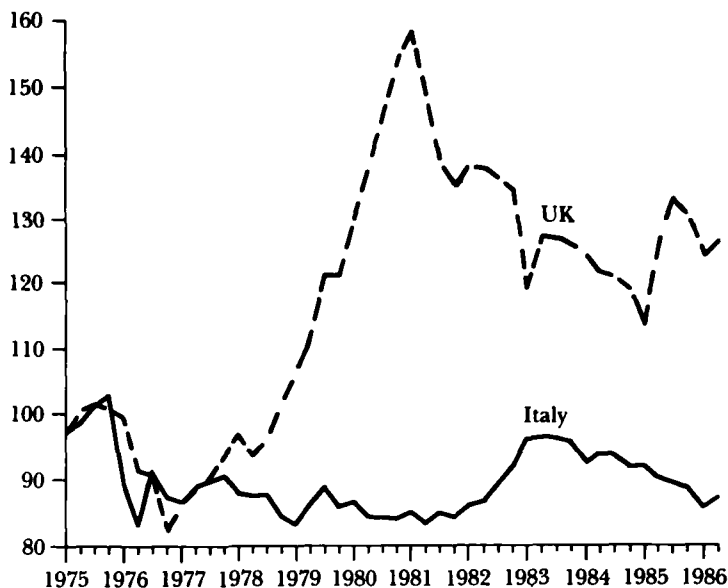
	Italy (o.n.a.)	UK
1976	+0.9	-2.0
1977	+2.6	+3.0
1978	+5.0	-4.5
1979	+0.4	-5.0
1980	-4.7	-8.5

*Sources:* OECD, *Economic Outlook*, various issues; and Istituto Centrale di Statistica.

*Note:* (a) growth rate of exports minus growth rate of export markets for manufactures.

Figure 3 shows the real effective exchange rates of the lira computed using manufacturing wholesale prices and unit labour costs. Between 1975 and 1978, the nominal depreciation resulted in a large real depreciation. The trend reversed in 1979, when Italy joined the EMS. The gap between the real exchange rate based on wholesale prices and that based on unit labour costs widened until 1981, providing further evidence of the recovery in margins. Table 7 compares the relative export performance (growth of exports minus growth of export markets) in Italy and in the UK. The difference between the two countries, as well as the strength of Italy's export drive in 1977-79, is remarkable. The boom in domestic demand and real appreciation account for the turn-around in export performance in 1980. A large part of the explanation for the difference between the British and Italian experiences can be traced back to the evolution of their effective real exchange rates. Figure 4 illustrates the large appreciation of sterling which is in sharp contrast with the quasi-stability of the lira during the period 1976-81.

To what extent was the fall of the lira a conscious decision by the Italian monetary authorities? The answer is different for the two episodes of sharp depreciation, namely the first half of 1976 and 1978. In 1976 the fall of the lira was not planned; it resulted from one semester of extravagantly expansionary monetary policy, which caused accelerating inflation and a deterioration of the current balance. Speculation against the lira then forced the authorities to close the exchange markets and to turn to the IMF for a stand-by arrangement (which was never used). In contrast, by the end of 1977 the current account was in balance and there were massive capital inflows. Not only was the exchange rate not allowed to appreciate but, on the contrary, the authorities pursued



**Figure 4. The real exchange rate in a disinflation (relative unit labour costs)**

Source: IMF, *International Financial Statistics, Supplement on Price Statistics*, 1986.

a deliberate policy of real depreciation inspired by several motives. First, there was the need to replenish foreign exchange reserves. Second, the fall of dollar at the end of 1977 provided an opportunity to engineer an appreciation *vis-à-vis* the major import currency, and a further depreciation against the stronger currencies of Italy's export markets in Europe. Third, the Italian monetary authorities, having more fears than enthusiasm for the EMS, thought it wise to set some more depreciation in store during the second half of 1978 and in early 1979.

The wisdom of this policy of deliberate depreciation has later been explicitly or implicitly questioned on the grounds that stricter exchange-rate discipline would have lowered inflation without affecting the growth performance in the long run (Andreatta and D'Adda, 1985). The Governor of the Bank of Italy faced this issue at that time and gave the following answer:

'Though aware of its role in shaping the dynamics of prices, we guided the external value of the lira so as to permit a growth of exports laying the foundations for a recovery of accumulation and of employment less conditioned by the external constraint.' (Banca d'Italia, *Annual Report* 1979.)

We agree with the Governor. Depreciation and subsidies were part and parcel of the same strategy, designed to pull the economy out of the low growth-rising costs trap into which it had fallen with the oil

shock. Real wage flexibility was perhaps a first-best solution, but this perfect course of action was followed nowhere in Europe. In view of her growth and investment performance, the Italian second-best solution does not appear to be inferior to the strategies followed in other countries. Cost and price inflation was lower in Germany, but so was productivity and GDP growth. Cost inflation was slightly better in France and the UK, but profit margins were squeezed in both countries, because of lower price inflation in France and because of sluggish output and productivity in the UK. In Italy, the early recovery in profit margins and in demand sparked off an investment boom in industry, which lasted for two years.<sup>5</sup> In contrast, in the UK, a country similar to Italy in conditions prevailing in the labour market, the strategy was to let the hardships of recession and unemployment take care of the problem: growth and investment did eventually resume, but, as we shall stress later, at greater cost in terms of output and capacity.

### 3. The output cost of disinflation

With 1980

'there came to an end a two-year period in which the real growth rate of GDP and private consumption neared 10%, that of investment in machinery and equipment 30% ∴ such ratios are twice or three times as high as in the OECD area. The Italian economy surpassed all other countries in the pace of growth of income and even of employment, but paid the price in terms of external imbalances and inflation.' (Banca d'Italia, *Annual Report*, 1981.)

To put fiscal non-neutrality to work and pay for the subsidies, a jump in the price level is in principle sufficient; but inflation is seldom a stable process: the rate of price increase accelerated from 11% in the Winter of 1979, to 25% in the Fall of 1980. More importantly, considering that in March 1979 Italy had joined the EMS, the inflation differential

<sup>5</sup> The Governor of the Bank of Italy provided a vivid picture of the boom in his 1981 Report:

'First exports, then private consumption pulled the economy out of the recession in the course of 1978. Consumption kept growing in the first half of 1979. [...] The dynamics of exports and consumption sparked a strong recovery of investment, especially in machinery and equipment, in the second half of 1979. [...] For nine months since the beginning of the expansionary phase gross domestic product grew at an annual rate of 10%.' (Banca d'Italia, 1981).

The nature of investment varied with the size of firms (see Barca and Magnani, 1985a, b; Barca, 1987; Heimler and Milana, 1984). Scrapping and disinvestment were particularly important for larger enterprises. The analysis of a Bank of Italy sample (Barca and Magnani, 1985b) shows that between 1977 and 1982 there occurred a remarkable shortening (2.5 years) in the average life of equipment. This matches some evidence of a younger average age of equipment in Italy than in other countries (Bank of England, 1988, and Chan-Lee and Sutch, 1985).

relative to Germany widened from 12% in 1979 to 16% in 1980. One might thus be tempted to conclude that the output cost of reducing real wages had only been postponed and that waiting made things even worse; indeed by 1980 not only was high inflation built into expectations and the wage-price mechanism, but the real wage problem was coming right back as unions realized to what extent they were cheated by fiscal drag. What comes as a surprise, however, is the mildness of the Italian recession during the disinflation. Between 1980 and 1987 the inflation differential relative to Germany fell from 16% to 4.5%, but the economy kept creating jobs. It is instructive to compare the path of prices and output in the British and Italian disinflations. The amount of disinflation was almost the same: there is, however, a difference in terms of the timing and the output cost. A similar reduction in the inflation differential *vis-à-vis* Germany took three years in the UK but twice as long in Italy. The output cost, however, was very different.

Model-free estimates of the output cost of disinflation, like 'sacrifice ratios', are often difficult to interpret because they lack a theory predicting what the path of output and employment would have been in the absence of monetary contraction. We present in Table 8 two different measures of this cost in Italy and in the UK. The first set of numbers measures how much unemployment it takes to bring inflation down by 1%.<sup>6</sup> An alternative measure uses output gaps, computed as deviations of real GDP from its (linear) trend growth rate between 1970 and 1987. For each of the two countries the interval over which the sacrifice ratio is computed ends when the inflation differential relative to Germany stabilizes. We show two different measures of the reduction in the inflation differential (and therefore also of the sacrifice ratios), namely the absolute fall in the differential, and its percent reduction relative to the initial level. The latter accounts for the fact that squeezing inflation by 1% is harder at single-digit inflation levels than it is at double-digit inflation. The output cost was lower in Italy. The superior performance of Italy emerges from the output gap measure. This is in our opinion a better measure, since cumulated unemployment (for which Italy did not do better than the UK) tends to penalize countries, such as Italy, where disinflation is slower, by attributing the persistence of unemployment to disinflation. The difference would be much larger if the reference were actual output growth rather than the deviation from trend, as trend growth is 3.1% in Italy, and 1.7% in the UK.

<sup>6</sup> For example a 10% reduction in inflation that is achieved in four years, and is associated with an increase in unemployment of 0.5% per year (say from 5% in year 1 to 5.5% in year 2, to 7% in the last year), corresponds to a sacrifice ratio of  $1/2 = (0.5 \times 4 + 0.5 \times 3 + 0.5 \times 2 + 0.5 \times 1)/10$ . This measure of the sacrifice ratio is computed for example in Sachs and Wyplosz (1986).

**Table 8. The output cost of disinflation**

	UK (1980-83)	Italy (1980-87)
Reduction in the (CPI) inflation differential relative to Germany:		
(a) percentage points	10.0	9.0
(b) % of the initial level	84.4	67.2
(c) cumulated increase in unemployment	21.2	17.6
(d) cumulated output loss	11.7	5.6
Sacrifice ratios:		
Unemployment measure (c)/(a)	1.96	1.96
(c)/(b)	2.45	2.62
Output gap measure (d)/(a)	1.08	0.62
(d)/(b)	0.14	0.08

Sources: OECD, *Economic Outlook*, except unemployment for Italy from Banca d'Italia, *Annual Report*, 1988.

Notes: Cumulative output loss: sum of deviations from trend GDP growth (log-linear trend: 1970-1987); cumulative increase in unemployment: sum of year to year changes in OECD standardized unemployment.

But why was disinflation relatively costless? We first deal with two possible answers. First, the EMS, by shifting expectations, has improved the output-inflation tradeoff. Second, the government has actively tried to reduce the sacrifice ratio, a view based on the observation that between 1980 and 1985, out of 535 thousand (net) new jobs created in the entire economy, 400 thousand were new government jobs. In our opinion both interpretations overlook the supply side of the story, which is crucial to account for the low output-cost of Italian disinflation.

### 3.1. Credibility and the EMS

Bringing inflation down requires a change in inflationary expectations on the part of price setters. To convince price setters that an announced contraction will be lasting and credible, and gain reputation, monetary authorities can proceed in two ways. The first is to show that, even in the depths of a recession, the announced monetary targets are not reneged on. The recession will come because the monetary contraction necessary to disinflate is imposed on an economy where inflation expectations are high, and because the very fact that the monetary authority sticks to the announced contractionary path comes to private agents as a surprise. Alternatively, monetary authorities can seek to influence expectations with some institutional reform, such as a change

in the exchange-rate regime.<sup>7</sup> Can the transition from flexible to fixed exchange rates bring about an improvement in the output-inflation tradeoff, and facilitate the disinflation effort? Suppose a country decides to peg its exchange rate passively to another country, whose monetary authorities enjoy a reputation as credible inflation-fighters. By a 'passive peg' we mean that the monetary authorities, after announcing the exchange-rate parity, simply accommodate the other country's monetary policy, without attempting to influence its choice of targets. In the private sector, wage and price setters will appraise the credibility of this institutional reform in terms of the probability they assign to the consistent pursuit by the authorities of the announced exchange-rate target. If, and only if, the target is a credible one, expectations will adjust and the process of disinflation will be eased.

The argument that joining the EMS has helped Italy in its disinflation efforts of the 1980s rests crucially on the assumption that exchange-rate targets are more credible than monetary targets. The way to assess the empirical relevance of this argument is to show that the decision to join the EMS has produced a shift in expectations. The empirical evidence reported in Giavazzi and Giovanini (1988) is consistent with this view but suggests a long lag between the start of the EMS and the effect on expectations: in Italy the shift in expectations occurred in the first quarter of 1985 – six years after the start of the EMS; in France in March 1983; in Ireland in the Fall of 1982. The timing of these shifts suggests that the turn-around in expectations was induced by some specific set of measures which signalled that there had been a change in policy regime: the turn-around in macroeconomic policies of the first Mitterrand government in France, and a similar policy turn-around in Ireland in the summer of 1982 (the French and Irish experiences are discussed in Sachs and Wyplosz, 1986, and Dornbusch, 1989, respectively). As for Italy, the government set, by decree, a ceiling to wage indexation limited to one year (1984). By itself this measure would have a very small effect on inflation. But the opposition and the more militant unions called for a national referendum and were defeated. This defeat, and an unusual display of firmness on the part of the government, affected expectations far more than the measure itself (for an account of these events and for an estimate of the shift in expectations see Gressani *et al.*, 1988). EMS membership might have helped by providing a justification for unpopular policies, but the data strongly suggest that the new exchange-rate regime did not automatically produce an improvement of the output-inflation tradeoff. Governments had to

<sup>7</sup> The arguments discussed in this section are developed more fully in Giavazzi and Giovannini (1988; and 1989, chap. 5) where the empirical results to which we refer are also reported.

**Table 9. Change in structural budget balance (% of GDP)**

	1980	1981	1982	1983	1984	1985	1986
UK	+1.1	+2.9	+1.4	-1.3	-0.5	+0.5	-0.3
Italy (o.n.a.)	+1.0	-3.4	0.0	+2.2	-0.3	-0.9	+0.6

Source: OECD, *Economic Outlook*.

Note: A positive sign indicates a move toward fiscal restriction.

prove that they were prepared to bear the cost of unpopularity before price-setters became convinced that the commitment to the new monetary targets was lasting.

### 3.2. Fiscal accommodation

Disinflation has important implications for the budget. It reduces the portion of the deficit that can be financed by printing money and it raises real interest rates which adds to the cost of servicing the public debt. Disinflation therefore requires a shift not only in monetary policy, but also in fiscal policy: failure to adjust fiscal policy to the new monetary conditions will ultimately result in a debt problem. Accompanying disinflation with fiscal contraction, on the other hand, may worsen the recession already induced by the slowdown in money growth which, in the short run, may well worsen the budget deficit despite the improvement in the structural budget balance.

Between 1980 and 1982, Britain accompanied her disinflation by a sharp budgetary contraction. In Italy, on the contrary, there was no adjustment in fiscal policy. The difference is illustrated in Table 9. Between 1980 and 1982 the UK structural balance improved by 5.4% of GDP, while in Italy it worsened by 2.4% (by 1986 the primary deficit ratio was still at its 1980 level). The path of fiscal policy may have affected the output cost of disinflation; in Italy, disinflation was preceded by a sharp fiscal expansion, between 1980 and 1981, only partly reversed in the following period. (Between 1979 and 1981 indexation for public sector salaries was increased, pensions were raised and so were tax deductions and family allowances, while generous increases were granted to civil servants with the payment of substantial lump-sum advances.) This expansion, superimposed on a situation already characterized by excess demand, raised the inflation peak and caused a large external imbalance. This initial fiscal impulse certainly contributed to sustaining demand, but we have no estimate of the size of its contribution. It is likely that the output cost of disinflation would have been higher if Italy had followed the path of British fiscal policy. But the crucial

question is the extent to which this policy contributed to the build-up of public debt, which in the long run is the true cost of delaying adjustment by means of fiscal expansion. We address this question in Section 4.

### 3.3. The timing of the supply squeeze

In order to break inflation inertia it was necessary to convince firms that they could no longer rely on a depreciating exchange rate and on subsidies: to preserve their profit margins they should now cut costs and exploit to the best their earlier investments. At the macro level the change was signalled by a tightening of monetary policy and a sharp rise of interest rates. The authorities let the lira appreciate substantially: realignments in the EMS, though frequent, always fell short of the cumulated inflation differential.<sup>8</sup> The generous subsidies which had lowered the cost of labour earlier now came to an end: the wedge between the cost of labour and the gross wage increased again (see Table 5). Help to industry did not, however, come to an end. Subsidies to reduce the cost of labour were replaced by provisions for firms planning to increase productivity by rationalizing, and reducing, the use of labour. State financing of layoffs (*Cassa Integrazione*) due to restructuring and early retirement schemes encouraged labour shedding, and made it possible to bypass the staunch opposition of the unions to outright firing of industrial workers. Between 1980 and 1984 the number of hours paid through this system (at 80–90% of the ordinary wage) increased by three times. Employment in larger enterprises, which made far greater use of the scheme, fell by more than 21%, and yet the number of hours lost through strikes declined by 80% – from 75 million hours lost in 1980 to 16 million in 1985.

The attitude of firms changed. The unions changed too, threatened by sticks (the decree that partly suspended wage indexation and the layoffs which discriminated against the more militant workers) and lured by a few carrots (a clumsy but not ineffective version of tax-based incomes policy, whereby tax concessions to offset fiscal drag were granted in exchange for wage moderation). The result was far greater flexibility in the use of the work force and fast increase in productivity. This policy was effective, but its effectiveness depended crucially on the fact that it came *after* the earlier recovery in margins, investment boom and modernization of equipment.

□

<sup>8</sup> The rise of the dollar mitigated the rise of the real effective exchange rate which was half as large (+7%). For an analysis of the role of a real appreciation in enhancing the credibility of a disinflation, see Giavazzi and Pagano (1988).



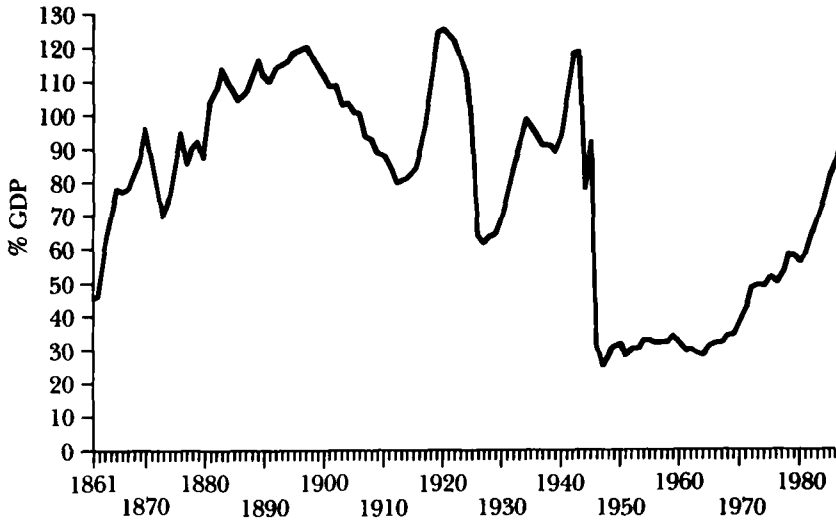
Once exchange-rate accommodation came to an end and competitiveness started to fall, profit margins were squeezed. But as the squeeze came at a peak of the profit rate, there was room to reduce margins without turning them negative. The outcome was strong pressure on firms to adapt to the new monetary regime, but few bankruptcies and plant closures. This, in our opinion, is the explanation for the low output cost of the Italian disinflation. In the UK, at the start of the disinflation, profit margins were at an all-time low. As the pressure from the real appreciation mounted, along came bankruptcies and plant closures: these are partly irreversible decisions that imply permanent dissipation of physical and human capital.

The role of the initial level of profits in determining the output cost of the disinflation provides a good example of hysteresis – namely of the possibility that temporary fluctuations may have long-lasting effects on the economy. This point, which to the best of our knowledge has never been documented, obviously deserves more careful empirical investigation. Yet, the lesson seems to be that exerting pressure on the supply side may be an effective way to speed up the adjustment of prices and wages – in the sense that it may reduce its output cost – provided it comes at a time when firms are ready to bear a squeeze on profits.

#### **4. Is debt the price?**

In the mid-1970s the ratio of public debt to GDP was below 50%; it has now passed the 100% mark. High debt levels are not unusual in Europe. But contrary to other countries where debt is also high – Belgium for example – Italy still runs primary deficits close to 3% of GDP: there is as yet no sign of a primary budget surplus sufficient to service and stabilize the debt. Even though Italian government debt is almost entirely held domestically, so that a problem of solvency in the strict sense does not exist, the fear of financial instability is widespread, as signalled for example by the inability of the Treasury to lengthen the maturity of the debt. (On the management of the Italian debt see Giavazzi and Spaventa, 1988.) The obvious question is whether the smart policies of the 1970s and early 1980s have simply postponed the bill, that now falls due in terms of an unsustainable path for public debt.

Italy has known high debt levels before. Since 1861, the date of birth of the Italian state, the ratio of public debt to GDP has grown beyond 100% three times already: in the early years of the new nation (1861–1910), and at the time of the two world wars (see Figure 5). The three episodes of debt stabilization that followed each surge of the debt ratio, correspond to three different ways of reducing a high debt. Between 1900 and 1910, it was the rapid growth of real income which



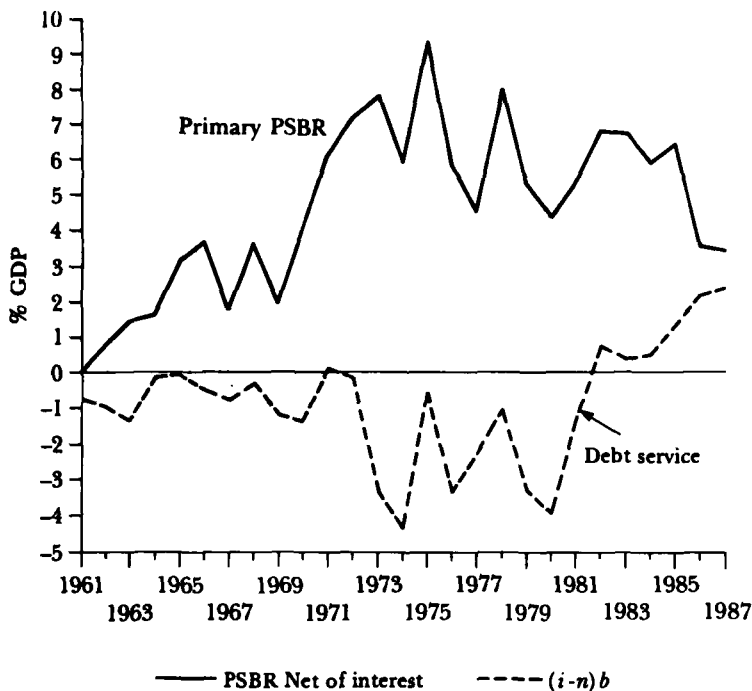
**Figure 5. The Italian public debt (% of GDP)**

*Source:* Ministero del Tesoro (1988).

*Note:* Total public sector debt including debt held by the Central Bank.

lowered the debt to GDP ratio. After each war, on the contrary, debt was reduced through some form of repudiation: a forced consolidation in 1926, and inflation in 1946–47. After World War II there was a 20-year period of debt stability which ended in 1969. In only three years, between 1970 and 1973, the ratio of debt to GDP jumped from 33% to 50%. These are the years when Italian public finances went out of balance. Never since have they recovered. The most recent growth of the debt to GDP ratio occurred in a period of peace and is thus more similar to the 1880–1910 episode. It is interesting to note that the only case of debt growth which has not resulted in some form of repudiation is precisely this peacetime 1880–1910 episode.

In order to understand what happened to the budget in the early 1970s we decompose in Figure 6 the growth of public debt into its two components: the primary deficit and debt service. In the 1960s, stability of the debt level was guaranteed by a combination of moderate primary deficits and interest rates lower than the growth rate of the economy. Between 1970 and 1973, the primary deficit increased from 4.3% to 8.3% of GDP: this increase was not cyclical (1973 was a boom year with 7% real growth), but was caused by a structural jump in public expenditure not matched by a corresponding change in revenues. The early 1970s were a period of big social reforms: extension of the years of compulsory schooling, reform of the health-care system, the decision to link pension benefits to earnings, rather than to contributions, etc. The gap that those social bills opened in public finances, documented



**Figure 6. Primary PSBR and debt service (% of GDP)**

*Source:* Ministero del Tesoro (1988), and authors' calculations.

*Notes:* The measure of the primary deficit reported in Figure 6 is the Public Sector Borrowing Requirement net of interest. The contribution of debt service to the growth of public debt is  $(i-n)b$ , where  $i$  is the average nominal interest rate on public debt,  $n$  is the growth rate of nominal GDP, and  $b$  is the ratio of debt to GDP.

in Table 10, has never since been closed. In the mid-1970s the tax base was widened through a major tax reform. Between 1973 and 1985 the combination of a larger tax base, higher tax rates and inflation raised revenues from 29% to 41% of GDP: enough to cover the increase in expenditure over the same period (also approximately equal to 12% to GDP), but not enough to close the gap opened in the earlier period. Thus, for 15 years (1973–1985) the primary deficit has fluctuated between 5% and 8% of GDP.

Once a gap between expenditures and revenues is opened, the subsequent growth of the debt ratio depends on the real interest rate and on the growth rate of the economy. As shown in Figure 6, just when primary deficits increased, inflation turned the stock of debt into an asset rather than a liability, as nominal interest rates fell much below the growth rate of income and helped to stabilize the debt ratio. Though low real rates were not special to Italy in the 1970s, there is evidence that exchange controls allowed the Italian authorities to keep domestic rates below the level they would have reached otherwise. Between 1974

**Table 10. The source of the Italian debt problem  
(public sector, % of GDP)**

	1970 level	1970-73 change
Revenues	29.2	-0.5
Expenditure (net of interest)	33.5	+3.5
purchases of goods and services		+1.2
wages and salaries		+0.4
pensions and other social transfers		+1.3
other items		+0.6

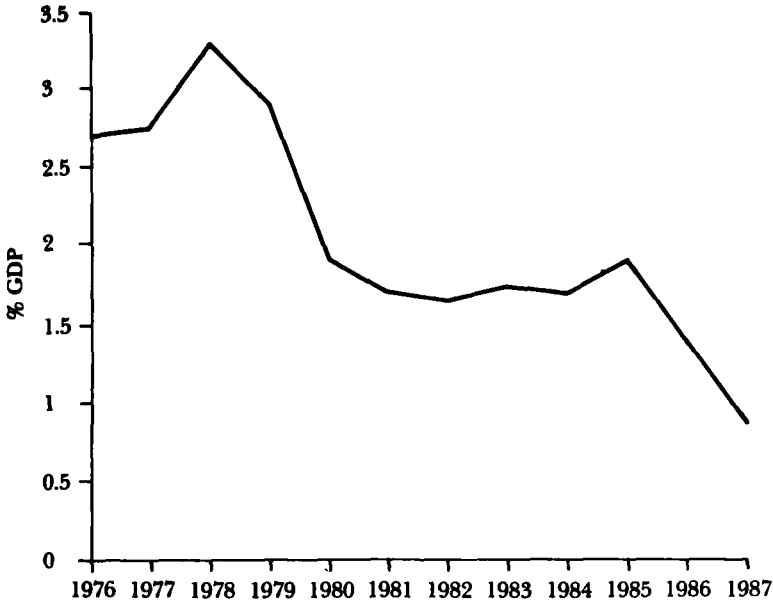
Source: Ministero del Tesoro, 1988.

and 1983 onshore rates were on average 350 basis points lower than the corresponding offshore rates. The ability to raise revenue through the seigniorage attached to money creation is another way to slow down the growth of marketable debt. As shown in Figure 7, seigniorage revenue contributed 2-3 percentage points of GDP per year throughout the late 1970s.<sup>9</sup>

Figure 8 provides a rough estimate of the path of the debt ratio under an alternative story of greater monetary virtue in the 1970s and less fiscal profligacy in the early 1980s. Had Italy followed a low-inflation path since 1976, domestic interest rates would have been at the (covered) level of international rates: the lower line is drawn by simply adding the corresponding extra debt service cost measured by the difference between the offshore and the onshore interest rates. If we also assume that seigniorage was kept at only 1% of GDP per year over the period, we obtain the upper line. To take care of the fiscal expansion in 1981, we have subtracted 1% of GDP from primary deficits in the years 1981-83: adding this assumption to the other two, we obtain the middle line. In the three simulations, we use the actual nominal income growth rates and primary deficits (except in 1981-83 for the third case). These simulations show that the policies discussed in this paper were not by themselves responsible for the growth of debt and that more conventional policies would actually have been more costly in terms of debt.

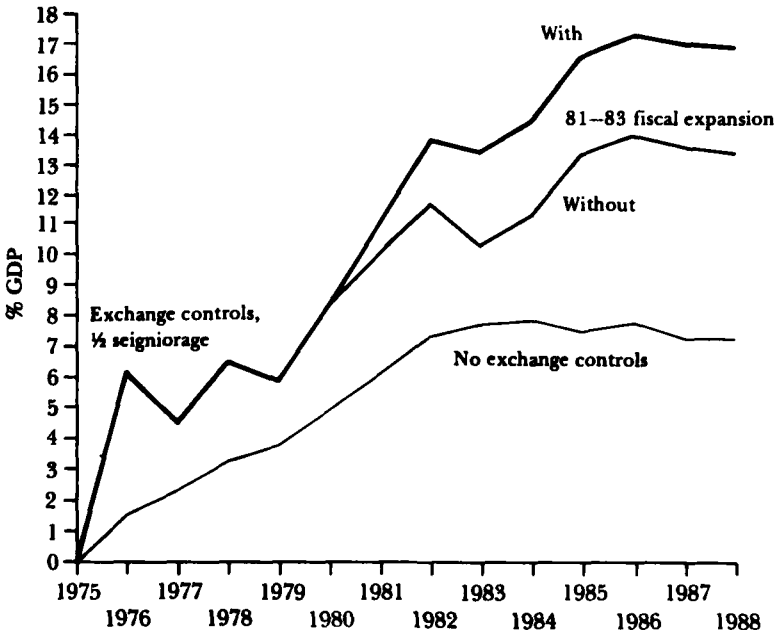
In the last few years, the safety nets which sterilized the effects of fiscal imbalances on debt in the 1970s have been removed: the need to set monetary policy consistent with German targets as well as financial liberalization have both cut into seigniorage and made it impossible to control real rates. Italy now faces the effects of the fiscal imbalance

<sup>9</sup> Most of this revenue, as discussed in Giavazzi (1988), is accounted for by the level of bank reserves, much higher in Italy than elsewhere in the industrial countries.



**Figure 7. Seigniorage (% of GDP)**

Source: Pagano (1989).



**Figure 8. Alternative debt paths (difference from actual debt as % of GDP)**

Note: In these simulations 'debt' is the marketable debt of the state sector.

created in the early 1970s. Revenues will have to increase: this, however, is the delayed price to be paid for the social reforms of the early 1970s. It is not a bill to settle either for the supply-friendly policies of the late 1970s, or for the policies which later reduced the cost of disinflation.

## **5. Conclusions**

In the troubled period of the 1970s, characterized by several shocks and a complete lack of wage flexibility, recourse to conventional policies would have implied a prolonged period of depression and postponed supply-side adjustment. Less inflation and greater exchange-rate stability would have been the prize, but a costly one in terms of output, and particularly in terms of investment. Instead, the Italian response to the oil shock was at odds with this conventional wisdom. Inflation was used to give government the means to boost profit margins. Despite a fairly complete system of wage indexation, inflation worked through the non-neutrality of the income tax system, and some degree of real-wage myopia of the trade unions. That route could, however, not be pursued for too long because its costs were rising and its benefits were declining, particularly as inflation almost went out of control. EMS membership marked the watershed and precipitated the change, but a change was unavoidable anyhow. Disinflation was not achieved by conventional means either, as the change in monetary regime was not accompanied by a consistent shift in fiscal policy. It might have been expected that the retribution for profligacy would be high. This was not the case, however. The earlier recovery of margins and the investment boom eased the consequences of monetary and exchange rate discipline; with high profit margins and the new capital stock installed, pressure could be exerted on industry to cut costs and to adapt quickly to the new regime without undue sacrifices in output. As of 1989, Italy has solved most of its macroeconomic problems, save one. It is our view, however, that the debt problem does not originate in the particular sets of policies reviewed in this paper. The primary budget deficit was promptly and widely increased between 1970 and 1973, and never reduced since. Yet, it has not further deteriorated either; the explosive growth of the debt to GDP ratio is a consequence of this early increase in the primary deficit, combined with high real interest rates. Undoubtedly, the primary deficit must now be turned into a sizeable surplus and this may well provoke some severe macroeconomic hardship: this, however, will be the price to pay for the 1970–73 period, and not for the policies discussed in this paper.

The Italian experience raises a number of questions about the timing of stabilization policies after a major supply shock. One important result

is that, in spite of indexation, inflation may be an effective policy instrument and that disinflation may be relatively painless. Timing seems, however, essential to success. The comparison with the British case is illuminating in this respect. With compressed profit margins, adjustment in Britain took partly the form of plant closures, thereby dissipating physical, and possibly human, capital. By boosting profit margins first, and subsequently imposing adjustment, Italy never underwent the massive wave of plant closures observed in the UK. Adjustment is a slow process as firms' strategies are limited by the speed at which labour markets can absorb large-scale restructuring: the timing and the sequence of policies are thus essential to make sure that temporary fluctuations do not have long-lasting effects on the economy.

## Discussion

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Giavazzi and Spaventa highlight and interpret two major developments in Italy in the last two decades. After the severe supply shocks of 1973–74, the recovery of output and profitability in Italy was stronger and earlier than in other, 'healthier' countries. And in the 1980s, Italian disinflation was less costly in lost output than in any other major European country. The authors attribute these successes to a particular economic strategy pursued by the authorities.

In particular they see inflation and currency depreciation as a second-best solution to the problems resulting from adverse supply shocks when real wages are hard to reduce. Revenue from the inflation tax on households was used to finance part of firms' social security contributions. And exports were kept strong. Finally, the authors stress the shrewd timing of the disinflation of the 1980s: by waiting until output had recovered from the first oil shock and an investment boom had occurred, the disinflation costs in output and employment were reduced.

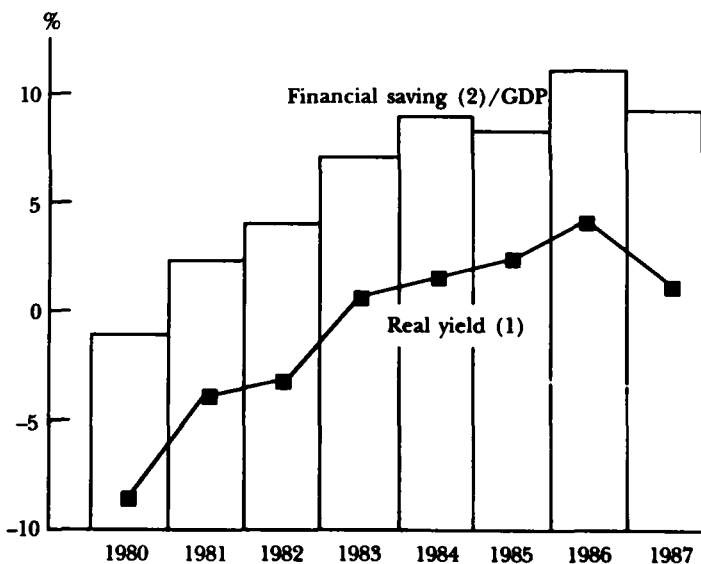
Since I basically agree with the authors' interpretation, my comments will be complementary rather than critical.

**The inflation tax.** Higher inflation acts as a tax on workers' holdings of financial assets. And workers respond in part by saving more to make good their real asset holdings. Even if the real wage bill cannot be directly reduced, higher inflation can reduce real consumer spending through this inflation tax and its effects on savings. Lower consumer spending frees resources for other uses in the economy. Correspondingly, the inflation tax reduced the real value of public sector debt

below what it would otherwise have been. In inflationary years such as 1974, 1976 and 1979 this effect was equivalent to about 5% of GDP.

The 1970s were not years of uniformly high inflation. Periods of monetary expansion alternated with severe restrictions. Inflation surprises could be substantial. This policy could not be pursued indefinitely without jeopardizing Italian households' high propensity to save. Figure A1 shows that households' financial savings (adjusted for inflation) were actually negative in 1980. They became positive again as the disinflationary policy pursued by the authorities took effect. Together with the rise in real interest rates throughout the world, this undoubtedly played a key role in fostering the tightening of Italian monetary policy at the end of the 1970s.

Giavazzi and Spaventa emphasize domestic causes of the change in policy. Inflation was increasingly out of control, unions were no longer willing to tolerate the effects of inflation in raising taxes where the tax system is not inflation-neutral, and the realized real return on savings was frequently negative. These domestic factors were important but so too were external factors: the EMS and the change in US monetary policy. All the leading industrial countries adopted tighter monetary policy at the end of the 1970s, and it is no accident that its timing in Italy – the official discount rate increased from 10.5% to 15% between October and December 1979 – coincided with Paul Volcker's appointment as Chairman of the Federal Reserve.



**Figure A1. Households' financial savings (%)**

Source: Bank of Italy.

Notes: (1) Real rate of return, net of tax, on money and securities; (2) Adjusted for inflation.



There is an interesting parallel between the Italian experience of the 1970s and 1980s and the earlier experience in the post-war period (see Lutz, 1950). Then too a period of high inflation was used to reduce the real debt burden and to attenuate the rigidity of real wages. The stabilization plan was based primarily on two interventions: monetary control, in particular the breaking of the link between budget deficits and the monetary base, and the stabilization of the exchange rate. Lutz (1950) argued that inflation in Italy in the period 1946–47 was a deliberate, albeit difficult, economic policy choice: the government had rejected a monetary reform as impracticable and was therefore, faced with two alternatives: stifling excess purchasing power by means of rationing and controls or allowing it to be absorbed by rising prices and incomes. The first alternative was turned down in view of the negative consequences it would have had for the economy, put into a dirigiste straitjacket. Inflation was the only way left to achieve rapid adjustment. Inflation, in fact, reflected both a high liquidity of banks – able to meet rapid growth of the demand for loans – and a very large money-financed budget deficit. This is why Lutz notes that the economic recovery and the achievement of prosperity after the inflationary burst, hinged upon the stabilization of public finances.

The analogy with recent experience is easy to perceive. Monetary stabilization led both to the so-called ‘divorce’ between the Treasury and the Bank of Italy and to the stabilization of the lira. Furthermore, one of the aims of the stabilization programme was to restore Italian households’ traditionally high propensity to save. There are, however, also substantial differences. The most significant concerns fiscal policy. The post-war inflation virtually wiped out the public debt, leaving the public finances sound when stabilization was undertaken. In contrast, when stabilization was introduced in the 1980s, the basic factors which had widened the gap between government expenditure and revenue were still at work. On top of this, the 1980s have seen unprecedented real interest rates worldwide, which have exacerbated the fiscal problem.

**The costs of disinflationary policy.** Finally, I address the cost of disinflation which the authors agree was lower in Italy than in the UK.

In contrast to the UK, Italian disinflation was accompanied by an incomes policy, a gradual reduction in wage indexation in the early 1980s, and by a progressive tightening of exchange-rate policies within the EMS. Second, Italy’s disinflation involved a much more gradual tightening of monetary policy. Last but not least, it was not accompanied by a rehabilitation of the public finances.

Has bond-financed debt simply postponed the costs of Italian disinflation? A large public debt is a potential cause of financial instability,

especially when as in recent years the real interest rate on the debt exceeds the real growth rate of GDP. The accompanying risk of debt feeding on itself and spiralling out of control should convince the fiscal authorities to take more decisive action, initially by ensuring that, net of interest payments, the budget is brought into surplus.

History suggests that the relationship between the real interest on the public debt and the real growth rate of the economy should improve in the long run. It is much more usual for real interest rates to be below the rate of real economic growth (Galli and Masera, 1988). It is worth noting that there is a greater awareness today of the debt problem in view of the integration of financial markets in general and the European Financial Area in particular.

The interest burden of a given public debt can be altered by adopting new instruments for government borrowing, such as index-linked securities. By removing inflation risk, these may allow the government to borrow at a lower real interest rate on average. But they have a second effect. With high inflation and high nominal interest rates, fixed nominal coupon bonds skew the real burden of interest payments into the early lifetime of the bond; in contrast, index-linked securities spread it evenly throughout the life of the bond. Hence, the introduction of index-linked securities may provide a temporary breathing space to get other aspects of the budget under control. Spaventa and Giavazzi do not discuss this in their paper. I trust, however, that the Treasury Committee of which Professor Spaventa is Chairman and Professor Giavazzi a member, will suggest more refined techniques of debt management that will contribute to the stabilization of the debt-income ratio.

### **General discussion**

Manfred Neumann expressed strong reservations about the data. He could not believe that agents would accept fiscal drag, while at the same time having full indexation. His suspicion about the data also arose from the apparent persistence of agents' forecast errors with respect to inflation. Rudiger Dornbusch argued, however, that this was no indication of a problem with the data. He was not aware of any piece of evidence suggesting that agents do not make persistent forecast errors. David Begg also explained that he was not bothered by the persistence of errors, given that the main source of uncertainty during the period was the policy of the government. In this context, the market will place its bets while assessing the probability of a change of policy regime. In all periods where a change actually takes place, it can then look as if expectations were biased.

There was a discussion among the panel members centred around the issue of whether capital was extensively scrapped during the second half of the 1970s. Colin Mayer thought that some indirect evidence of significant capital scrapping could be inferred from the data presented by the authors. Indeed, their data suggest a fivefold increase in the rate of return on gross capital stock between 1975 and 1980, whereas during the same period net margins increased by four percentage points. This suggests that the output-capital ratio has increased by a factor of 3.5. Some of it might of course be due to an increase in output, but a comparison with France indicates that an increase in output does not tell the whole story. Such a large increase in the output-capital ratio will have to be explained by a fall in the capital base. On this topic, Luigi Spaventa also said that there was some direct evidence, in terms of the scrapping of entire industrial sectors.

A comparison was repeatedly made between the Italian and the UK experience of disinflation. Given that Italy had achieved disinflation at a lower cost than the UK, Georges de Menil wondered whether Mrs Thatcher should have devalued the pound sterling, engineered an investment boom and subsequently joined the EMS! Begg reminded the panel that at the time there were indeed some opponents to the revaluation of the pound. According to Rainer Masera, a conclusion at the present time would be premature; one has to see whether the Italian government will solve its debt problem, and at what cost, before a judgement can be made.

## Appendix

In this appendix we formalize the parable of Section 3.1 in the text. Let  $m$  be nominal margins.  $\omega$  is the nominal wage,  $v$  is the real price of materials. Nominal margins are equal to the price minus variable costs, so that:

$$p = \alpha\omega + m + \beta vp$$

We now define real wages and real margins respectively equal to:

$$\tilde{\omega} \equiv \omega/p, \quad \tilde{m} \equiv m/p$$

The economy is hit by a terms of trade shock equal to  $v$ . Wages are indexed. We shall consider two cases. In the first the economy trades only with the oil exporter at given relative prices, and wages are indexed to the price of domestic output. In the second the economy also trades with another industrial country, and wages are indexed to a basket of domestic and foreign final goods.

*Case 1*

As  $\dot{w}/w = \dot{p}/p$ , after an increase in the relative price of materials real margins fall by:

$$\dot{m} = -\beta\dot{v}$$

There is a progressive tax on labour incomes with elasticity  $\eta > 1$ . Nominal revenues per unit of output are:

$$t = \alpha\tau\omega_t^\eta \quad \eta > 1$$

Initially the government finances a given level of expenditure raising taxes on labour income by the amount:

$$\alpha\tau\omega_0^\eta$$

The net revenue per unit of output after a price rise is:

$$\alpha\tau\{[\omega_0(1+\pi)]^\eta - \omega_0^\eta(1+\pi)\}$$

where  $\pi \equiv \dot{p}/p$ .

The government now grants a subsidy  $s_t$  per unit of output in the form of a proportional contribution,  $\sigma$ , on the wage per unit of output:

$$s_t = \sigma\alpha\omega_t = \sigma\alpha\omega_0(1+\pi)$$

Let  $\omega_0 = 1$ , and let the net revenue from the price rise be fully devoted to subsidies: the contribution on the wage that can be financed is:

$$\sigma = \tau[(1+\pi)^{\eta-1} - 1]$$

Consider now a country with fixed real wages that wants to grant a subsidy such as to bring real margins back to their pre-shock level. We can compute by how much the price must rise to finance such a subsidy. The subsidy required is:

$$s = p\beta\dot{v}$$

i.e.

$$\sigma = (\beta\dot{v})/(\alpha\tilde{\omega})$$

The price rise required to finance the subsidy is:

$$(1+\pi)^{\eta-1} = (1/\tau)[(\beta\dot{v})/(\alpha\tilde{\omega})] + 1$$

where

$$\pi = (1/\tau)[(\beta\dot{v})/(\alpha\tilde{\omega})] \quad \text{for } \eta = 2$$

Similarly we could compute price rises to finance any other recovery of margins – for example to bring real margins back to the level they would have been in the case of fixed nominal wages and nominal margins.

## Case 2

Wages are now indexed to a basket of home and foreign final goods:

$$\dot{w}/w = \lambda(\dot{p}^*/p^* + \dot{e}/e) + (1 - \lambda)\dot{p}/p,$$

where  $p^*$  is the foreign currency price of foreign final goods, and  $e$  is the nominal exchange rate with the other industrial country. We shall assume for simplicity that  $\dot{p}^* = 0$ . The rate of inflation now is:

$$\pi = \frac{(\dot{m}/m)\tilde{m} + \alpha\lambda\tilde{w}(\dot{e}/e) + \beta\dot{v}}{\tilde{m} + \alpha\lambda\tilde{w}}$$

The change in real margins is:

$$\dot{m} = \tilde{m}(\dot{m}/m - \pi) = \frac{\alpha\lambda\tilde{w}(\dot{m}/m - \dot{e}/e) - \beta\dot{v}}{\tilde{m} + \alpha\lambda\tilde{w}} \tilde{m}$$

The change in real margins now depends on the change in nominal margins, so that there exists a rate of inflation such as to prevent a fall in real margins. That rate of inflation, however, causes a real appreciation in the home country, for the dynamics of the real exchange rate are given by:

$$(\dot{e}/e) - \pi = \frac{\tilde{m}(\dot{e}/e - \dot{m}/m) - \beta\dot{v}}{\tilde{m} + \alpha\lambda\tilde{w}}$$

If  $(\dot{m}/m) = (\dot{e}/e) + (1/\alpha\lambda\tilde{w})\beta\dot{v}$ , as required to keep real margins constant, the real exchange rate will appreciate by  $\beta\dot{v}/\alpha\lambda\tilde{w}$ .

Subsidies are now used to restore profit margins preventing a real appreciation (or even engineering a real depreciation); the nominal exchange rate will have to move to provide inflation sufficient to finance the subsidies.

The real exchange rate will remain constant (or depreciate) depending on:

$$\dot{m}/m \leq \dot{e}/e - (\beta\dot{v})/\tilde{m}$$

Substituting this expression in the equation showing the dynamics of real margins, we obtain the subsidy required to keep real margins unchanged:

$$s \geq p\beta\dot{v}$$

The inflation rate is:

$$\pi \leq \dot{e}/e$$

where the inequality signs hold if the target is a real depreciation.

To finance the subsidies it is necessary that:

$$\sigma = \tau[(1 + \pi)^{\eta-1} - 1] \geq (\beta\dot{v})/\alpha\tilde{w}$$

Consider for simplicity the case  $\eta = 2$ : then the rate of depreciation required to finance the subsidies is:

$$\dot{e}/e \geq (1/\tau)(\beta\dot{v}/\alpha\tilde{w})$$

By granting subsidies and suitably changing the nominal exchange rate it is always possible to keep real margins constant and achieve any desired value of the real exchange rate.

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