IMPORTING JOBS AND EXPORTING FIRMS? ON THE WAGE AND EMPLOYMENT IMPLICATIONS OF ITALY'S TRADE AND FOREIGN DIRECT INVESTMENT FLOWS

by

Riccardo Faini - Anna M. Falzoni - Marzio Galeotti
Rodolfo Helg - Alessandro Turrini[1]

Abstract

International economic integration is often blamed for the deteriorating fortunes of unskilled workers in industrial countries. We look at the labor market impact of trade and foreign direct investment in the case of Italy. Our empirical framework allows for trade, technology and factor supply effects. We find that international trade did not contribute to Italy's labor market problems. Indeed, given that Italy holds quite a distinct pattern of trade specialization, compared to other industrialized countries, international integration as reflected in falling import prices may have boosted the demand for labor there. We also argue that the inability of the Mezzogiorno's economy to adjust to the changing international environment is one of the main stumbling blocks in Italy's economy. Finally, we find that greater firm's mobility may have weakened the power of trade unions and contributed to wage moderation.

JEL Classification: F16, F23.
Keywords: international trade, foreign direct investment, wages, employment.

Corresponding author: Riccardo Faini, International Monetary Fund, 700 19th Street NW, Washington DC 20431 (USA). Tel: (1 202) 623 6990. Fax: (1 202) 623 4949. Email: rfaini@imf.org.

This paper is substantially revised version of the one prepared for the conference "Le nuove frontiere della politica economica 5 - Italy after EMU", Rome, May 18th, 1998. We thank for helpful comments our discussants Giampaolo Galli and André Sapir as well as Gino Gancia, Micol Levi and Loredana Magrì for superb research assistance. We also thank two anonimous referees and one of the Associate Editors for the the suggestions and comments.

[1] Riccardo Faini (IMF and University of Brescia), Anna M. Falzoni (University of Bergamo and Bocconi University), Marzio Galeotti (University of Bergamo), Rodolfo Helg (LIUC), Alessandro Turrini (University of Bergamo and Bocconi University).

Financial support from CNR to Centro Studi Luca D'Agliano and from Bocconi University "Ricerca di Base" is gratefully acknowledged.

1. Introduction

Should globalization be blamed for the deteriorating fortunes of unskilled workers in industrial countries? To what extent does increasing competition from developing countries imports displace jobs in relatively advanced countries? Is the outsourcing of production to low wage countries responsible for the weakening power of unions and for falling wages? Is policy intervention required to alleviate the supposedly negative impact of international economic integration?

These questions are raised with increasing frequency not only in academic and policy circles, but also among the public at large. There is indeed growing concern that globalization – the increasing international integration of markets for goods, factors, and technology - may 'not be a bowl of cherries' (Rodrik, 1999). The popular literature is now ripe with apocalyptic descriptions of the calamities befalling industrial countries if they persevere on the road of economic integration with the developing world. Too often, though, economists have answered these concerns with a shrug. This may well be the wrong attitude. Fears or beliefs that globalization may aggravate labor market conditions could well give new ammunition to the advocates of trade protection. Even in the US, where unemployment is at its lowest levels in 25 years, the Clinton administration is meeting with fierce resistance in its attempts to further liberalize international trade. Jobs may have not moved to Mexico in the aftermath of the NAFTA Treaty; even so, very few observers would doubt that any rise in US unemployment would renew the pressure for trade protection. Conditions are even more precarious in Europe, where unemployment has reached more than 10 % of the labor force. Moreover, both Europe and the US are committed, under the Uruguay Round agreement, to liberalize in a not-so-distant future some highly sensitive sectors such as agriculture, textile and clothing and automobile. With rapidly approaching deadlines for liberalization, political pressure for continuing trade protection may well increase, particularly in Europe if unemployment stays at its record highs. At the same time, any attempts by industrial countries to delay previous liberalization commitments may well derail the whole process of international trade liberalization.

Whether increasing international integration is responsible for the worsening labor market performance in industrial countries is therefore a crucial question, that may well impinge on future policy choices. Answering this question is however a difficult task. Some facts are virtually undisputed, namely that the lot of unskilled workers in industrial countries has deteriorated markedly since the early eighties and that this deterioration has manifested itself in falling real wages in the US and the UK and in growing unemployment in continental Europe. Unfortunately, this is where the consensus stops. There is not yet any generally agreed view on the causes of this evolution. Globalization is just one possible way, and not necessarily the most plausible one, to explain the deteriorating labor market conditions in industrial countries. Other factors, in particular skill-biased technological change, may well account for the shift in demand away from unskilled workers. The empirical literature has failed so far to achieve a consensus on the relative role of international trade versus technical change in affecting labor market trends. Methodological problems go some way in explaining this state of affairs. Most studies have typically sought to assess the contribution of just one factor, say international trade, imputing any residual effects to the other factor.[2] This approach is

[2] For a survey on these studies see, among others, Cline (1997) and Slaughter – Swagel (1997).

far less than satisfactory, as it fails to provide independent measures of the various factors at work. At the same time, however, it has proved difficult to specify a unified framework that disentangles the role of technical progress and globalization. To a large extent this is still a challenge for empirical analysis.

The purpose of this paper is twofold. First, we plan to test a relatively novel approach to disentangle the effects of trade and technology. Second, we focus in our empirical analysis on the labor market impact of globalization for the case of Italy. We will argue that the Italian case provides several interesting insights. Italy indeed holds a quite atypical pattern of trade specialization when compared to other industrialized countries. Moreover, trade and foreign direct investment seem to have an opposite impact on the labor market outcome, contrary to what is found in other cases. Finally, the regional dimension of unemployment plays a paramount role.

The remainder of the paper is organized as follows. In the next section, we review the main labor markets trends in Europe and in Italy. We then turn to presentation of some stylized facts related to the pattern of trade specialization and foreign direct investment in Italy (sections 3 and 4). Section 5 seeks to identify the relative roles of factor endowments, trade and technology in affecting labor market conditions. Section 6 adds a regional dimension to the analysis by distinguishing between Northern and Southern Italy. An additional channel, through which increasing international integration might affect the labour market, is via induced change in labour demand elasticities (indipendently from changes in relative factor prices). In section 7 we try to determine whether international competion via trade and factor capital mobility has an effects on Italian labor-demand elasticities Concluding remarks close the paper.

2. Main Labor Market Trends

The conventional story about Europe's, and Italy's, labor market runs as follows. Initially, in the early seventies, European unemployment was quite low, even when compared to the US. The situation however changed radically in the aftermath of the two oil shocks, whose effects were anyway subsequently reversed by the dramatic drop in the real price of oil, and during the eighties, a decade also characterized by a number of shocks, ranging from the globalization of production, the greater opening to trade and the accelerated pace of technological progress. All these shocks shared a common feature, namely they resulted in a substantial drop in the relative demand for (unskilled) labor. In a flexible economy, such as the US, falling demand for labor led to a drop in real wages. In rigid Europe, this shift translated mainly into higher unemployment. According to Richard Freeman, "the rise in joblessness in Europe is the flip side of the rise in earnings inequality in the US" (Freeman, 1995).

There is unquestionably some truth in this story. Europe's labor markets are far more rigid than in the US. Employment protection regulations are much stricter in Europe (OECD, 1994), particularly in its Southern rim (Italy, Spain and Portugal). Similarly, standards regulating working time, fixed-term contracts, minimum wages and employee's representation are quite stricter in Europe than in the US. Once again, Southern European countries are the most inflexible (Nickell, 1997). Yet, this does not seem to translate in substantially higher unemployment among unskilled workers. Consider Table 1, that shows unemployment rates as a function of educational levels. The expectation is that workers with a more limited education should have been hit harder by

unemployment, particularly in Europe where minimum wage regulations supposedly prevented relative wages to adjust to relative demand shifts. However, this is not what Table 1 shows. The striking fact is that unemployment among low educated workers is substantially higher in the US and in the UK, namely in the economies with a 'flexible' labor market, compared to say Germany and Italy, that according to the standard view should be characterized by widespread rigidities. Only France seems to fit the conventional view of European unemployment falling disproportionately on low-skilled workers.

The data in Table 1 do not obviously tell the whole story. Clearly, focusing on one year only may bias the picture. While it is true that unemployment rates among the unskilled are often lower in Europe than in the US, still this does not exclude that low skilled workers have been hit harder by the shocks during the eighties. If we take a longer view, we find indeed that, at least in Italy, unemployment has grown somewhat faster for workers with low educational levels (Figure 1). Notice that this happened despite the fact that the composition of the labor force changed somewhat radically, with a dramatic fall in the share of unskilled workers and a compensating increasing in the share of workers with a high-school and a university degree (Figure 2). Clearly, the trends in unemployment rates depicted in Figure 1 do not reflect shifts in relative supply. They may reflect either shifts in demand or, equally plausibly, a market reactions to trade union activities that in the seventies unduly favored unskilled workers. At any rate, the fact is that the evidence so far shows that for Italy unemployment does not fall disproportionately on low-skilled and uneducated workers.[3]

The flip coin of employment is of course wages. We would expect that shifts in relative labor demand lead to a changing structure of relative wages. However, if the net impact of demand and supply shifts is negligible or if relative wages are rigid say because of trade union activity, relative wages may not change much. This is indeed what seems to have happened in Italy. Admittedly, there is some evidence that skilled wages increased more markedly than unskilled ones during the early eighties (Erickson - Ichino, 1995; see however Sestito, 1991, for a different view), but this may just reflect the overdue reaction to the compression of relative wages that resulted from the combination of high inflation and the peculiar system of wage indexation that prevailed in Italy between 1975 and 1985[4]. Taking a somewhat longer-term view shows a different picture. Bella - Quintieri (1995) focus on relative wages in industrial firms (with more than 20 employees): they find that between 1975 and 1989 the wage of blue collar workers increased at an average nominal rate of 5.3% against 4.2% for white collar workers, indicating a decline rather than a rise in the skill premium. The more recent evidence is even less clear-cut. De Nardis - Paternò (1997) find that relative wages between blue and white collars remained extremely stable between 1986 and 1993. We have extended their analysis to more recent years: we find that the relative wage of blue collar workers fell from 0.74 in 1992 to 0.72 in 1995. Again, there is little or no indication that relative wages have shifted in favor of skilled workers.

[3] Other features of the Italian labor markets are also at odds with the conventional story. For instance, we would expect that in an economy, such as Italy, with high firing and hiring costs, labor turnover should be relatively low. Yet, this is not what the data show. Existing comparative evidence (Contini *et al*., 1996) indicates that gross job turnover is equal to 20.5% in the US, 23.3% in France and 19.9% in Italy. Clearly, the figures are not substantially different between regulated and less regulated economies. Bertola - Rogersson (1996) argue that centralized wage setting in Europe prevents wages from adjusting to idiosyncratic firm shocks and can account therefore for the finding of a high labor turnover.

[4] The wage agreement in 1975 basically stipulated that all wages would increase by an equal absolute amount in response to inflation. Obviously, soaring inflation meant a drastic compression of wage differentials.

Summing up the evidence so far, the Italian pattern seems that of equally distributed unemployment among skill class and stable wage differentials. This partly motivates our approach in the remainder of this paper that will focus mainly on the aggregate demand for labor and will neglect the skilled versus unskilled dimension.

There is a further aspect of Italy's unemployment that cannot be neglected, namely its regional dimension. To a large extent, Italy's unemployment problem is concentrated in the backward areas of the Mezzogiorno. The figures are striking. Unemployment in July 1997 was 21.9% in Southern Italy against 6.9% in the rest of the country. The gap has been steadily increasing, particularly during the eighties (Figure 3): the unemployment differentials between Northern and Southern Italy was 2% in 1972, 5,8% in 1980 and then climbed to 13,2% in 1992. Table 2 takes a closer look at the composition of regional unemployment, both by educational levels and by age. Three facts stand out. First, unemployment in South is more than twice that in the North independently of the educational and age group. Second, unemployment is concentrated among the youth in all regions. Third, higher educational skills are not a remedy against the threat of unemployment, except for older workers. Indeed, youth unemployment rates are typically higher for those who hold a university degree.

The more precarious unemployment situation in the South does not reflect a greater degree of market rigidities. Actually, labor markets in the South are under many respects more flexible than in the North. The rate of gross job turnover is 17.8% in the North-West of Italy, 23.6% in the North-East, 20.1% in the Center and 32.5% in the South (Contini *et al.*, 1996). Similarly, econometric estimates show that, even after controlling for individual skills, sex and age as well as for the size, age and sector of the firm, the probability of employment separation is substantially higher in the South (Contini *et al.*, 1996). On the negative side, however, the probability of finding a job is relatively low in the Mezzogiorno. Only 48% of those who lost (or left) their job in the South are back into (regular) employment after 24 months. The same figure is 62% in the North-East region, which shares with the South a relatively high rate of employment outflows. The overall picture therefore is that of a region, the Mezzogiorno, where employment is highly volatile but finding a job is relatively difficult. Clearly, firing restrictions are not the issue here. What matters is the lack of employment creation which in turn is likely to reflect both depressed demand and uncompetitive wage levels. Adding to job destruction, through trade or technology, would most likely meet with great hostility and resistance.

3. Italian Comparative Advantage

The charge that international trade should be blamed for the deterioration of labor market conditions in industrial countries is not groundless. Actually, it is strongly rooted in well-received international trade theory. The crucial point is that trade will definitely hurt some groups in the economy. Consider the basic Hecksher-Ohlin-Vanek model, where countries trade because of their different factor endowments, and ship abroad, embodied in their exports, the services of their abundant factor, while importing those of their scarce factor. Trade therefore makes the scarce factor in an economy somewhat less scarce and helps depress its real reward. This is the basic intuition underpinning the Stolper-Samuelson theorem, according to which a fall in the relative price of a commodity should induce a drop in the real reward of the factor that it used intensively to produce that good. Accordingly, trade should depress the real wage in industrial countries given that

they are capital (or skill) abundant and labor scarce. In this set-up, the increasing international integration will affect the labor market outcome through two main channels. First, falling trade costs, brought by better communication facilities and the reduction in policy barriers to trade, leads by definition to a fall in the price of imported goods. Given that industrial countries typically import unskilled-intensive commodities, this price shock should prompt a decline in the wage of unskilled workers. Second, globalization also means that labor-abundant countries such as China, India and Indonesia, which account for almost half of the world population, play an increasing role on the international trade arena, thereby raising the effective worldwide supply of unskilled workers and putting further pressure on their wage. On both counts, therefore, globalization should hurt unskilled workers in industrial countries.

This scheme however does not fit very well the case of Italy. A simple comparison of factor endowments with other industrialized countries shows that Italy is relatively labor abundant (Figure 4)[5]. Hence, given that Italy trades mainly with the more developed countries, imported goods should be relatively capital-intensive. Falling trade costs and declining import prices should as a result make owners of capital worse off and workers better off. In other terms, Italy ought to be situated on the 'other' side of the Stolper-Samuelson divide, compared to other industrialized countries. This does not mean that Italian workers will unambiguously benefit from the expansion of trade opportunities. First, Italian workers are likely to be hurt by the larger supply, and the consequent price decline, of labor-intensive goods brought by the increasing participation of developing countries to international trade. Second, the geographical bias toward industrial countries may reflect the past trends in trade liberalization that unduly penalized developing countries. There are no reasons to believe that these trends will or should continue in the near future. Under both counts, the set of Italian trade partners is likely to change. Hence also its relative factor endowment might change given that the emergence of new trading partners has increased the overall abundance of labor in the rest of the world. Overall, at least in the Italian case, the income distribution effects of increased integration (including the greater participation of developing countries to trade) are a priori ambiguous.[6]

The notion that Italy's comparative advantage is somewhat unconventional receives further support from the direct analysis of the Italian pattern of international specialization. It can be synthetically characterized as being polarized and relatively persistent over the years. The first feature is described by the very strong specialization in traditional sectors and in some specialized suppliers industries, and the very weak position in scale economy based sectors and, especially, in high-tech industries (Iapadre, 1996). [7] This picture is robust to the taxonomy adopted. Figure 5 shows the evolution over time of the Balassa index of revealed comparative advantages (RCA) for the manufacturing sector and for three macro-sectors defined on the basis of factor intensity in production (Garnaut - Anderson, 1980). In 1995 the RCA for the unskilled intensive sectors is

[5] See De Nardis - Paternò (1997) for an illuminating discussion of Italy's pattern of trade and its implications for the 'trade and jobs' debate. Further useful evidence comes from Cipollone - Sestito (1998).

[6] A similar ambiguity arises if we accept that factor prices are not equalised via trade. In this case, the prediction of Stolper-Samuelson theorem are not driven anymore by the standard (global) definition of factor abundance, but by the local one (Davis, 1996). The latter is based on the comparison of capital-labour ratios among "similar" countries (i.e. belonging to the same cone of diversification). Since Italy is an intermediate country from the point of view of factor abundance and assuming for the sake of simplicity the existence of only two cone of diversification, the ambiguity in this context arises since we don't know whether Italy will enter the cone of the more capital abundant countries or that of the more labour abundant one.

[7] The macro-sectors considered here are those corresponding to the Pavitt's (1984) taxonomy.

around 2 (i.e. strong specialization), while it is below one for the high-tech sectors.[8] That the Italian pattern of trade has been quite stable, at least within the manufacturing sector, is clearly shown in Figure 5.[9]

Overall, therefore, both the observed pattern of trade and the evidence on factor endowments seem to suggest that Italy has a comparative advantage in labor-intensive productions. Does such a pattern of specialization make Italy particularly vulnerable to the competition of the new labor-abundant entrants? This concern is often raised, especially in the press. It may well be warranted, but some other elements about Italy's pattern of trade should also be considered. In fact, as soon as we move to a less aggregate level of analysis (both in terms of sectors and of production factor definition), the picture becomes more complex. It is a common finding indeed that within the traditional/labor intensive sectors Italy is mainly specialized in the top end of the vertically differentiated spectrum of products. Many of these products are characterized by a relative high level of skill intensity and by a low price elasticity of demand.[10] By catering to the price inelastic segments of the market for differentiated goods, Italian firms and workers may then be less exposed to developing countries competition. Once again, therefore, the labor market impact of international trade is a priori ambiguous and only empirical evidence can cast light on this issue.

The pattern of Italy's trade may also be affected by the dualistic nature of the Italian economy, with the North in particular enjoying a much larger capital-labor ratio than the South. In the absence of perfect factor mobility this would imply different comparative advantages. However, the pattern of regional production between the North and the South do not differ much. The fact that differences in endowments are not reflected into a different pattern of output specialization among regions can most likely be predicated on the system of centralized wage setting that imposes a common wage all over the country and perhaps also on the distortionary impact of public enterprises output and investment decisions.

4. Foreign Direct Investments and the Labor Market

Another aspect of the link between globalization and the labour market, is represented by the role of multinational enterprises (MNEs) in locating or relocating production and jobs in different countries. A distinction is usually made between relocation through Foreign Direct Investments (FDIs) within developed countries and from developed to developing countries.[11] As a whole, a neutral or positive employment effect is generally expected by investments in developed countries. On the contrary, the location of production, or parts of it, in developing countries has been linked by some to the losses of jobs and the rise of unemployment (particularly of unskilled workers) in developed countries. The reason is that increased internationalization, that in turn reflects a greater ease of relocation of production, may bring unskilled labor in developed countries into more direct competition with their counterparts in low-wage countries.

[8] The RCA is here defined as the Italian share of world exports in the i-th sector divided by the same share referred to total Italian exports.

[9] The pattern of specialisation is relatively stable also when it is measured on the basis of production rather than trade data (Amiti, 1997). For an attempt to explain this stability utilising a factor proportion-external economies framework see Epifani (1998).

[10] Not all, however. For a distinction between the low price-elasticity textile sectors and high price-elasticity clothing sectors see Faini (1991).

[11] For a discussion on this issue, see United Nations (1994) and WTO (1996).

In recent years, a number of authors have investigated the interplay of multinationals' activities and labor markets. One of the most studied aspect of home country effects has been whether employment of foreign affiliates of a home country's firms is a 'substitute' or a 'complement' to home country employment of the parent firms. Due to the lack of firm-level data, only a few studies on US multinationals really analyzed the potential substitution effect on domestic (or parent) employment of production abroad. They find that domestic employment and overseas affiliate employment are complementary, but only weakly so, (Slaughter, 1995) or that substitution is low (Brainard - Riker, 1997a)[12]. Other studies have focused on whether production abroad tends to raise or lower the labor intensity of home production. Results however tend to be largely inconclusive (Blomstrom – Fors - Lipsey, 1997; Bassino, 1998).[13]

What has happened in Italy? Is the declining number of employees in the manufacturing sector to be associated to international production of Italian multinationals? Looking at the recent trend of Italian FDIs, this concern could be justified. In fact, while for much of the post-war period, Italy appears to play a relatively minor role as international investor, in the last decade, the trend of outward FDIs has showed a considerable upswing and, since 1990, Italy has become a net investor.[14]

The answer to the question about the process of substitution between labor employed in Italy and in foreign affiliates can only be incomplete due to the complexity of the issue, the lack of data and of a clear counterfactual.[15] Existing evidence does not indicate that the internationalization of Italian firms has been the primary cause of domestic unemployment in the manufacturing sector as a whole.[16] It is true that in the period 1985-1995, domestic employment declined by about 496,000 units, while employment in foreign affiliates increased by approximately 337,000 units. However, the picture is quite different between the two sub-periods, 1985-1990 and 1990-1995. In the second half of the 1980s, domestic manufacturing employment was slightly increasing and foreign employment of Italian multinationals almost doubled (from 229 to 401 thousands of employees). In the first half of 1990s, with domestic manufacturing employees declining by more than 500 thousand units, employment in foreign affiliates increased by only 165,600 units. Most of the growth in foreign

[12] In contrast, Brainard - Riker (1997b) find that there is strong substitution between workers at affiliates in alternative low wage locations, where the activities most sensitive to labor costs are performed.

[13] The difficulty in all these studies is the lack of counterfactual situations about what would have happened in the absence of multinational expansion.

[14] Italian outward FDI stock increased from $14.5 billion in 1985 to $125 billion in 1997. As a percentage of gross domestic product, the stock of FDI more than doubled to 10.6%, but it remains below the share of other major European countries (France: 13.1%, Germany: 12.4%, United Kingdom: 30.7%) (United Nations, 1998). The Italian catching up in the internationalization process seems to be concentrated on outward investment. In fact, as a host, Italy experienced a steady decline in its share of global inflows.

[15] The main source of information on Italian multinationals and their affiliates is provided by the Reprint database, developed at the Department of Economics and Production of the Milan Polytechnic. The database is updated every two years. According to the Reprint database, at the end of 1995, there were 622 Italian multinational enterprises (MNEs) with 1842 foreign affiliates, of which almost three fourth were under majority ownership. Total employment abroad amounted to 595,547 units, roughly 12.6% of Italian domestic industrial employment (Cominotti - Mariotti, 1997).Despite its attempt to achieve a comprehensive coverage, there are some indications that the data underestimate the outward FDI by Italian companies, particularly by small and medium sized firms.

[16] The database Reprint provides data on the number of Italian parents, the number of foreign affiliates, employees and sales of foreign affiliates. Unfortunately, data on parents' employment are not available and it is not possible to analyse the substitution/complementarity issue within multinationals, that is between parents and foreign affiliates.

affiliates between 1990-1995 took place in Central and Eastern Europe (+90,000 employees) and Less Developed Countries. Conversely, the strong growth in foreign affiliates employment during the 1980s should be almost entirely attributed to Developed Countries (90% of the total increase). Whether substitution between domestic and overseas employees has taken place (as it is likely for FDIs in Transition and Developing Countries), it seems to explain only a limited part of the job losses in the Italian manufacturing sector.

Specific patterns appear in the different industries (Table 3). On the whole, major changes in domestic employment do not correspond to major increases in employment of foreign affiliates. Looking at the traditional sectors (textile, leather and wood), where we expect to find a major trend towards the relocation of production in low-wage countries, only the textile and apparel sector shows a significant increase in foreign employment; in the other two cases the number of jobs lost in Italy is not comparable with the few gained abroad. Even if we focus on the ratio of employees in foreign affiliates to sectoral employment in domestic firms, the pictures does not change much. The ratio increased markedly for the textile and apparel sector, but the initial level was too low for this process to make a substantial dent on domestic employment (Table 4).

5. Changing Labor Demand: Disentangling International Trade and Technology

Factor endowment information indicate that, compared to other industrial countries, Italy is relatively labor-abundant. Italian workers as a result should benefit, or at least suffer less, from greater trade openness. This presumption is supported by a first pass through the data. Consider Figure 6 that compares the behavior of the unemployment rate with the trade balance and the rate of import penetration from the rest of the world and from developing countries. There appears to be little or no relationship between labor market conditions, as measured by the unemployment rate, and this set of trade indicators. For instance, between 1987 and 1991 unemployment was on a downward trend. Yet, this was precisely the time of rising import penetration and deteriorating trade balance[17]. Moreover, contrary to other industrial countries, there are no indications of growing import penetration from developing countries. Indeed even if, as we do, one excludes oil-exporting countries, the share of less developed countries imports in Italy's GDP shows no upward trend during the eighties. It would be hard to claim, on the basis of these data, that import penetration particularly from low wage countries should be blamed for rising unemployment in Italy.

Clearly, the evidence so far is at best suggestive. First, it does not allow for the fact that trade shocks are typically felt first and foremost at the sectoral level. We shall address this issue in the next section. More important, simple correlations between trade and labor market variables neglect the fact that trade, wages and employment are all endogenous. Further, we cannot disentangle trade and technology from disequilibrium cyclical phenomena. Only general equilibrium analyses can capture the complex links that exist between trade flows on the one hand and the labor market outcome on the other. These considerations place a tall requirement on the empirical analysis and we can only hope to take a first cut at these issues.

Before describing our chosen approach, it is useful to briefly discuss how the literature has typically tried to assess the labor market impact of trade and, in doing so, to distinguish it from that of technology. Borjas *et al.* (1992) provide a convenient reference. What they do is to compute the

[17] Clearly, these evolutions might simply be explained by the business cycle.

factor content of trade, namely the amount of capital, skilled and unskilled labor embodied in the flows of exports and imports. By definition, exports reduce the 'effective' supplies of factors in the economy while imports increase them.

Borjas *et al*. (1992) are then able to assess by how much trade affected the net supply of a given factor in the economy. They then apply available estimates of the elasticity of factor substitution to gauge the impact of trade-induced factor supply changes on relative wages. Their conclusion is that, for the US, trade has contributed significantly, more than 30%, to the fall in the relative wages of unskilled workers and thus to the rise in earning inequalities. They attribute the remaining effect to skilled-biased technological progress.

This approach suffers from many shortcomings. First, it treats trade quantities as exogenous rather than trade prices, a capital sin from the point of view of international trade theory[18]. Second, it fails to properly identify the trade shocks and distinguish them from technology effects. The point is made more clearly in Deardorff - Hakura (1994). Consider a simple economy with two sectors (say shoes and computers) and two factors (capital and labor). The economy is assumed to be abundant in capital and to hold a comparative advantage in computers. Suppose that technology improves in the computer sector. There will be two effects: on the one hand, the return to capital will rise and that of labor will fall; on the other, the computer sector will expand and the shoe sector will contract; this will in turn lead to a larger demand for imported shoes (the supply of shoes is down, but the demand is up, given that total income is up). With balanced trade, also exports will increase. Interestingly enough, this will generate a negative relationship between trade and real wages, even though the culprit of rising inequality is technological progress. Simple-minded analyses of the link between trade variables and inequality would mistakenly conclude that trade is a major factor behind rising inequality. This example shows the potential pitfalls of focusing on the simple correlation of two endogenous variables, trade and wages.

One way out of this impasse is to rely on a general equilibrium framework. One possibility is the so called "one-cone" Heckscher-Ohlin-Samuelson (H-O-S) approach. In this case changes in industry product prices are regressed on industry factor cost shares in order to estimate national factor prices changes (see, for example, Baldwin - Cain 1997). A major limitation of this approach is that factor endowments are not allowed to have any effect on factor prices. [19]

Duality theory provides an alternative and more satisfactory framework that allows for trade, technology and factor supply effects. One obvious advantage of this approach is that it is fully consistent with the basic tenets of general equilibrium trade theory. Consider for instance the GDP function first introduced by Samuelson (1953) and then popularized by Dixit - Norman (1980). The GDP function holds that the maximized value of domestic product is a function of exogenous traded good prices *(p)*, technology conditions *(q)* and fixed factor supplies *(n)*, i.e. $r(p, q, n)$. Moreover, this approach is consistent with the existence of joint production, non-traded goods and variable factors. As a consequence, it is more general than the standard one-cone (H-O-S) framework. The crucial point is that (net) output supplies and factor rewards can be simply obtained as the first-derivatives of $r(p, q, n)$ with respect to p and to n respectively. Moreover, from the empirical side, the GDP function can be simply implemented based on the pioneering works of Christensen –

[18] Deardorff (1997) shows that only under very restrictive additional restrictions to the H-O-S framework, it is possible to generate a mapping from the factor content of trade to factor returns differentials.

[19] Note that the Stolper-Samuelson (S-S) theorem mantains its validity also in certain imperfectly competitive enviroments. What is essential is the existence of a biunivocal relationship between relative product prices and relative factor prices. For example, in a monopolistic competitive market structure, the zero profit condition is sufficient for the existence of the relationship (Helpman - Krugman, 1985). The S-S theorem collapses as soon as the factor price insensitivity theorem (Leamer, 1995) does not hold.

Jorgenson - Lau (1971) and of Diewert (1974), who have developed flexible functional forms that can be thought as second-order approximations to the true but unknown form of the GDP function. This approach has been pioneered into international trade by Kohli (1991) and more recently by Harrigan (1997, 1998).

Relying on a standard translog specification for the function *r(p, q, n)*, we consider a simple model with one composite output, one variable factor (imports) and two fixed factors (labor and capital). Technological progress is captured by a simple time trend, but we also allow for the possibility that the rate of innovation may be non-neutral. Imports are treated as intermediate rather than final goods, as is customarily done in international trade theory, on the ground that all imports must be subject to some domestic processing before they can be sold on the domestic markets. Our model departs from the traditional trade framework also because it does not rule out joint production and, more crucially, assumes a unique (composite) output. In this set-up, a terms of trade improvement, can cause both factor prices to decline, whereas in the traditional trade model factor prices move in opposite directions in response to changes in output prices. Let the (real) GNP function be:

$$\begin{aligned}&\ln(GNP/p_Y) = \alpha_0 + \alpha_M \ln(p_M/p_Y) + \alpha_L \ln(L/K) + \alpha_T t + \\ &0.5\{\beta_{MM}[\ln(p_M/p_Y)]^2 + \beta_{LL}[\ln(L/K)]^2 + \beta_{TT} t^2\} + \beta_{ML} \ln(p_M/p_Y)\ln(L/K) + \\ &\beta_{MT} \ln(p_M/p_Y) t + \beta_{LT} \ln(L/K) t\end{aligned} \qquad (1)$$

where p_M and p_Y are the prices of imports and of the composite output respectively, L and K are the supplies of labor and capital, and t is a time trend.[20]

Differentiating (1) with respect to its arguments yields four share equations, generally defined as $s_i = p_i Z_i / GNP$ $(i=M,Y,L,K)$, where p_i stands for the price and Z_i for the quantity of imports (M), output (Y), labor (L), and capital (K) respectively. All shares are defined to be positive, except that for imports (a negative output) where $s_M<0$. Moreover, given the two adding-up constraints $(s_M+s_Y=1$ and $s_L+s_K=1)$, only two equations need to be estimated, namely:

$$s_M = \alpha_M + \beta_{MM} \ln(p_M/p_Y) + \beta_{ML} \ln(L/K) + \beta_{MT} t \qquad (2)$$

$$s_L = \alpha_L + \beta_{LL} \ln(L/K) + \beta_{ML} \ln(p_M/p_Y) + \beta_{LT} t \qquad (3)$$

With a Cobb-Douglas specification, only the constant terms would appear in the equation. In the translog model, however, the shares are a function of relative prices and relative factor supplies, as indicated by the coefficients β_{ij}. The two coefficients associated with the time trend t, β_{MT} and β_{LT}, measure the bias in the technological progress. In the estimation, we also add to both equations a lagged dependent variable, to control for dynamic effects. Equations 2 and 3 are jointly estimated by an iterated Zellner procedure. However, we recognize that employment and also commodity prices may be endogenously determined and use an instrumental variable procedure to control for this eventuality.

[20] In writing (1) we have imposed symmetry and linear homogeneity both in prices and in factor supplies.

The sample period covers the years between 1951 and 1995. National accounts provide the source of most of the data. Details on the data, variable construction, and the full set of estimated coefficients of (2) and (3) are given in the Appendix.[21]

Given that the point estimates of the coefficients are sometimes difficult to interpret, we report in the text the price and the quantity elasticities. We first show, in Table 5, the elasticities derived from the Zellner estimates. As expected, we find that import demand is negatively related to its own price. Moreover, the price elasticity of import demand tends to grow bigger over time, from 0.53 in 1955 to 0.94 in 1995. We also see that an increase in the price of the composite domestic good, i.e. a terms of trade improvement, results in an expansion of output. This effect is however quite small in size given that both capital and labor are fixed and only imports are allowed to vary. Of considerable interest here are the so-called Stolper-Samuelson derivatives, namely the effects of changes in output prices on factor rewards.[22] We find that an increase in the price of imports is associated with a fall in the wage rate. This implies that the fall in trade barriers brought about, say, by falling transport costs or trade liberalization should lead, through its effect on import prices, to an increase in the real wage rate. Whereas this finding is in principle consistent with the notion that imports are relatively capital-intensive, we also see that the increase in p_M causes the return to capital p_K to fall as well. Intuitively, a decline in p_M, namely a terms of trade improvement, is associated with a increase in the reward of both domestic factors. It should be noticed however that the increase in the wage rate p_L attendant on a fall in p_M is somewhat less pronounced than the rise in the return to capital p_K, 0.19% vs. 0.27% in 1995. As a result, a decline in p_M shifts the distribution toward capital, although the effect is relatively small. Also of interest are the Rybczynski derivatives that measure the impact of changing factor supplies on output. The main result here is that an increase in either the supply of labor or the supply of capital will lead to a rise in imports; however, the two effects are fairly similar in size. Notice that this is consistent with the finding that import prices have similar effects on wages and on the return to capital.

Three-stage least squares results (Table 6) are broadly similar. The major difference stems from the Stolper-Samuelson and the Rybczynski derivatives. Indeed, when we control for potential endogeneity problems, we see that changes in import prices have a substantially stronger impact on the return to capital compared to that on wages, suggesting that terms of trade shocks are not distributionally neutral. Similarly, increases in the capital stock have a definitely larger impact on imports than changes in labor supply.

Our estimates also allow to cast some light on the bias of technological progress, which is captured in either equation by the coefficients on the time trend. In the multivariate estimates, both coefficients on the time trend are not statistically different from zero. However, the three-stage least squares estimates suggest the existence of labor-saving technological progress, but no significant technological bias in imports use.

We can use our estimates for a simple decomposition exercise. Between 1982 and 1995, the labor share of GDP has fallen from 0.72 to 0.65. At the same time, real wages have steadily increased. How much of this evolution can be attributed to the effect of technological progress, the

[21] Our initial estimates showed that both convexity in output prices and concavity in input quantities, two basic theoretical restrictions, were always satisfied, at least locally.

[22] This is somewhat a misnomer given that the conditions for the S-S theorem are not necessarily satisfied in our set-up.

behavior of relative prices and factors accumulation ? Our estimated elasticities can be used to answer precisely this question. Based on the instrumental variables estimates, we find that technological progress account for most of the decline between 1982 and 1995 of the labor share, almost 98%, while the evolution of relative factor quantities and relative commodity prices basically offset each other. Turning to the evolution of factor rewards, the rise in the capital labor ratio explains most of the increase in the real wage and helps offset the impact of labor-saving technological progress[23]. Once again, relative commodity prices only play a relatively minor role.

The analytical framework used above is clearly not without limitations and difficulties. In particular, the assumption of a competitive economy may not be too palatable. The results obtained from the empirical analysis should therefore be cautiously regarded and in the next section we remove some of these restrictive assumptions. Yet, overall our findings suggest that, contrary to technology, trade cannot explain much of the evolution of labor market conditions in Italy. It is worth at this point taking a closer look at both the sectoral and the regional dimension of the trade-employment link.

6. Changing Labor Demand: The Regional Dimension

Trade shocks are typically felt at the sectoral level. Moreover, sectoral interests can often represent a stumbling block to freer trade. Yet, we find little support in the data to the notion that there may be strong effects of trade on employment even at the sectoral level. Table 7 shows the change in sectoral import penetration from 1987 to 1991 and from 1992 to 1996 and compares it to the pattern of employment performance over the same periods. Between 1992 and 1996, manufacturing employment declined at an average annual rate of 1.7%. During the same period the rate of import penetration increased by 4.2%. However, it is hard to detect any significant links between labor market and trade variables at the sectoral level. Imports coefficients rose very markedly in the leather and shoes and in the electrical machinery sectors, by 11.5% and by 8.4 % respectively. Yet, in both of these sectors the employment performance was somewhat better than the aggregate one, -1.3% and + 0.3% respectively. Conversely, sectors which suffered the heaviest job losses, chemical, transport equipment and mining, were not characterized by above average import increases. Unsurprisingly, the correlation coefficient between the change in sectoral import penetration and employment growth is very small, -0.17. The Spearman's rank correlation coefficient is negative, but far from being significant, lending no support to the view that there are strong negative effects of trade on sectoral employment. The findings are basically the same if we focus on the 1987-1992 period or if we use the level, rather than the change, of import penetration. Similarly, if we compare import penetration with the rate of employment outflows, we find a negative rather than a positive correlation.

The evidence so far does not lend support to the view that trade may have strong sectoral effects on the labor market outcome. Yet, it does not control for other factors that may affect the trade-employment link and whose neglect may bias our results. Grossman (1987) and Revenga (1992) have developed a more complete framework to assess the sectoral effects of trade. They consider a simple set-up with many industries and imperfect factor mobility across sectors. They

[23] This is in contrast with one implication of the "factor-price insensitivity" theorem according to which "small" changes in relative factor endowments should not have any effect on relative factor prices. This is another reason to adopt a framework of analysis more general than the "one cone" H-O-S one.

also assume that imported and domestically produced goods are imperfect substitutes in each sector. We draw on their work and estimate the following two equations:

$$\ln(p_L)_{it} = \alpha_{1i} + \alpha_2 \ln U_t + \alpha_3 \ln(\tilde{p}_L)_{it} + \alpha_4 \ln(p_M / p_Y)_{it} + \alpha_5 TFP_{it} \quad (4)$$

$$\ln L_{it} = \beta_{1i} + \beta_2 \ln U_t + \beta_3 \ln(\tilde{p}_L)_{it} + \beta_4 \ln(p_M / p_Y)_{it} + \beta_5 TFP_{it} \quad (5)$$

The dependent variables in equations (4) and (5) are the real wage (p_L) and the employment level (L) respectively.[24] The two indices run over time (t) and sectors (i). The aggregate unemployment rate (U) is a proxy for cyclical fluctuations in demand, while the alternative real wage ($\tilde{p}_L$) is the value of the outside option for the worker, which we take to be equal to the wage rate in the tertiary sector. Finally, import competition is measured by the relative sectoral import price (p_M/p_Y), while technological progress is captured by a sectoral measure of total factor productivity (TFP). The latter variable however had no discernible effects in our estimates. Dropping it, as we have done, does not affect the remaining coefficients. Notice that these reduced form equations are compatible with both perfectly and imperfectly competitive specifications of the labor market equilibrium. Lack of identification does not however preclude the analysis of trade shocks. With respect to the approach of the previous section we gain in generality by allowing for labour market rigidities at the cost, however, of the absence of a general equilibrium framework.

Our sample contains nine manufacturing sectors, fifteen years of data (1980-1994), and two regions: the North (here defined as northern plus central regions) and the South. We estimate the two equations separately for each region, to assess whether there are significant differences in the labor market response to trade and (regional) unemployment shocks. Given the limited time dimension, we pool all the industries for each region imposing the constraint that the slope coefficients are the same across industries (and over time). Sectoral intercepts are allowed to differ.

The results of the estimates for the North are presented in Table 8. The first two rows in the table correspond to the simple fixed industry effects specification. The goodness of fit is quite good especially for the employment equation. The unemployment rate has the expected negative sign in both equations, whereas the alternative wage has a significant and positive (negative) effect on wages (employment). Finally, import competition doesn't seem to have any effect on either wages or employment. Any inference at this stage might be, however, incorrect if the maintained assumption of diagonal variance-covariance matrix is not warranted. In fact, when we adopt a GLS estimation procedure that allows for heteroschedasticity with cross section correlation and panel specific autoregression of the first order in the residuals, we find that a decrease in real import prices induces a reduction of both employment and the wage rate. The point estimates imply that a 10% reduction in the price of the import substitute induces on average a 1.2% reduction in both the real wage and the employment for our manufacturing sectors. The point estimates are different from those obtained by Grossman (1987) and by Revenga (1992) for the US, who found a larger elasticity of employment and a smaller elasticity of wages to import price shocks. Their results can be interpreted to indicate that in the US intersectoral labor mobility is relatively high and sectoral demand shocks

[24] All nominal variables have been deflated with the consumer price index. For a detailed description of the data and variable construction see the Appendix.

have therefore negligible effects on wages. Our results suggest that in Italy wages more than employment respond quite substantially to outside shocks, at least in the North.

Table 9 presents the results for the South. The fixed effect estimates highlight a clear situation of misspecification: the set of variables included has no explanatory power. Moving to the GLS estimates, only for the employment equation are the results satisfactory: the southern unemployment rate and the relative import prices have the expected signs, but the southern alternative wage is not significant. The wage equation is instead clearly misspecified. These findings are likely to reflect the institutional set up of the Italian wage setting process where trade unions tend to set a common wage across all regions independently of labor productivity differentials and more generally of local labor market conditions. There is indeed evidence (Bodo - Sestito, 1994; Faini, 1995) that the Southern unemployment rate doesn't have any effect on the behavior of wages either at the national or at the local level. The consensus is that southern unemployment rate has had a very small weight within the trade union objective function.

We capture these facts by dropping altogether the Southern wage equation (the implicit assumption is that the Southern wage rate is determined simply on the basis of the labor market conditions in the North) and by assuming that employment in the Mezzogiorno responds, in addition to the Southern unemployment rate, to the same factors that determine Northern (and thereby national) wages. The results are presented in Table 10. Both the OLS-fixed effect and the GLS estimates show that the unemployment rate of the South does not have any explanatory power. The other variables have all the expected sign, even if the goodness of fit of the regression is not as good as for the corresponding equation of the North. Our parameter of interest, the employment elasticity to the import price, is significant only in the GLS estimates. The point estimates of the coefficients show that import competition may have a slightly stronger impact on Southern employment than that in the North. Overall, our results suggest that import competition has a significant but weak impact on sectoral employment in both regions.

7. Changing Labor Demand: The Role of Foreign Direct Investments

The evidence in section 4 seemed to suggest that the growth of multinational production cannot account for the fall in manufacturing employment, at least in Italy. Yet, as forcefully argued by Rodrik (1997), the greater ease in relocating production may still have substantial effects on the labor market outcome through its impact on the bargaining power of firms and workers. The reason is that globalization may influence not only the *position* of the labor demand curve, but also the *wage elasticity* of labor demand and thereby the extent of union power. The intuition is simple. When economies become more integrated, competition in product markets will increase and the demand for labor will generally become more elastic. Moreover, both trade and the enhanced international mobility of firms will make domestic labor more substitutable with foreign factors of production. The market power of unions will thus decline. As Rodrik argues: 'the greater substitutability of labor also alters the nature of bargaining between workers and employers and contributes to the weakening of unions' (1997, 23). Slaughter (1997) has provided some evidence supporting this view. He documents that, in the United States, demand for production labor has become more elastic in five of eight industries within manufacturing. At the same time, Slaughter indicates that there also appears to be a large unexplained residual in the pattern of factor demand elasticities. Recently, other studies

have addressed this issue focusing on the effects of globalization on labor markets in which unions are active.[25]

This issue is particularly important in Italy, as well as in other European countries, because of the prominent role of trade unions in the wage setting process. In what follows, we draw, partly, on Slaughter (1997) and try to determine the effects of trade and international production on labor-demand elasticities. We follow a two-stage approach. We first estimate the elasticities of labor demand with respect to wages using a panel of 14 Italian manufacturing industries. We then compute the linear correlation coefficients and the Spearman's rank correlation coefficients between these estimated elasticities and a few measures of multinational involvement and international integration. In the first stage, we use data for the period 1985-1995 to estimate a panel of 14 labor demand equations, one for each manufacturing sectors. We take a simple error correction specification and regress the change in labor quantities on real wages and on a measure of sectoral value added. We interpret the wage coefficients as labor-demand elasticities. The specification of the labor-demand equation is the following:

$$\Delta \ln L_{it} = \alpha + \beta_i \ln W_{it-1} + \gamma \Delta \ln VA_{it} + \delta (\ln VA_{it} - \ln L_{it-1}) \qquad (6)$$

where $W_{it,}$ L_{it} and VA_{it} respectively denote the real product wage, employment and real value added in sector i ($i = 1,\ldots, 14$) at time t. Equation (6) implicitly assumes that labor demand responds to output in the long-run with a unitary coefficient for all sectors. However, we do not constrain the response to wage shocks to be the same across sectors, since we are interested in assessing the sectoral variation in the pattern of wage elasticities. Our results show that, for all the 14 sectors in our sample, labor demand is negatively related to real product wages (see the Appendix).

When we plot the estimated sectoral elasticities together with the measures of international integration (Figures 7 and 8) and compute the relevant correlation measures, we find some support to the hypothesis that greater globalization is associated with larger elasticities. The correlation coefficients have indeed the expected positive sign. The sectors with a higher share of employees in foreign affiliates, a proxy of the level of multinational involvement, or with a higher degree of trade openness show a high elasticity of labor-demand.[26] The Spearman's rank correlation coefficient is higher (+0.7) and more significant when we measure globalization with the share of employees in foreign affiliates rather than with the degree of trade openness. These results seems to support the idea that as firms increasingly produce outside Italy, workers and unions find themselves in a weaker bargaining position. Yet, the results reported here represent only a preliminary attempt to investigate these questions. We have only exploited the cross-section variation in the pattern of labor demand elasticities. To fully study this issue, we would need to investigate the time patterns of both globalization and wage elasticities and assess whether sectors that have registered a substantial increase in their degree of international involvement have also witnessed a rise over the same period in the elasticity of their labor-demand with respect to wages. For this, we need however additional data on multinational involvement, particularly over a longer time period.

[25] In a theoretical framework, Zhao (1998) shows that FDI depresses the negotiated wage in the unionized sector. Similar conclusions are reached by Vandenbussche - Konings (1998) studying the differences of an increase in national versus international competition under endogenous wage formation for different types of market structure.

[26] We have also considered the export orientation, but we found that Spearman's rank correlation coefficient has the negative sign and is not significant.

8. Conclusions

In summary, our evidence suggests that international trade should not be blamed for Italy's labor market problems. On the contrary, if there has been any role of trade, it seems to have been rather favorable, as a consequence of the pattern of comparative advantage of the Italian economy in low-skill, high labor-intensive productions. Taken our evidence at the extreme, Italy should be placed among those countries whose labor force is likely to gain from the operating of the Stolper-Samuelson effect. This picture, however, will hardly remain unchanged in the future. Both because the implementation of the Uruguay Round (especially the phasing out of the Multifibre Agreement) and an increased role for Less Developed Countries in world trade, pressures in labor-intensive sectors will emerge.

Our empirical analysis shows that while wages in the North of Italy responds in a fairly flexible way to trade shocks and unemployment, this is not the case in the Mezzogiorno. The economy in this region, its wages and its employment levels, seem to be determined more by what happens in Northern Italy than by its own economic situation. This evidence may be explained by centralized wage-setting, and the consequent imposition of a common wage structure across regions. Such an institutional constraint may contribute to make the Mezzogiorno more vulnerable to the fall in the price of agricultural products and labor intensive manufactures that may ensue both from the implementation of the Uruguay Round and from greater participation of developing countries to world trade. Responding to these challenges would instead require increased flexibility and economic resilience.

A final point that we address in this paper concerns firm's mobility. Italian firms, perhaps because of their relatively small size, the large role of state-owned firms and trade union resistance, have invested relatively little abroad. This trend is coming to an end. Outward foreign direct investment has grown substantially in the nineties. This new evolution should be greeted with favor. It raises however a few concerns, to the extent that it may signal the loss of competitiveness of the Italian economy. Further events and further empirical work may be very informative.

There may be some truth in this interpretation. We believe that it is not enough to dismiss these fears by simply pointing to the large trade and current account surpluses as indication of the fundamentally good health of the Italian economy. Actually, it is quite plausible that the improvement in Italy's external accounts came mostly because of tight fiscal and monetary policies since 1992. There is no contradiction therefore between the twin findings that Italy imports jobs through trade and exports them through foreign direct investment. The first fact mostly reflects the stance of macroeconomic policies, while the latter depends on basic factors such as comparative advantage and competitiveness. Addressing these issues will be of crucial importance, particularly for the destinies of the Mezzogiorno economy. In his survey of the impact of globalization, Sapir (1999) argues that "the solution, like the problem, lies not in Beijing or Delhi, but in Paris or Frankfurt". We would add that in Italy the solution and the problem lie in Naples and in Palermo, rather than in Milan or Rome.

References

AMITI M. (1997), "Specialization Patterns in Europe", CEPR Discussion Paper No.363.

BALDWIN R.E. - CAIN G.G. (1997), "Shifts in US Relative Wages: The Role of Trade, Technology, and Factor Endowments", NBER Working Paper No. 5934.

BASSINO J.P. (1998), "Japanese FDI in East Asia and Job Destruction in Japan's Manufacturing", paper presented at the CEPR/ISESAO Conference "European Network on the Japanese Economy", Milan 16/17 January 1998.

BELLA M. - QUINTIERI B. (1995), "Employment Determination in an Open Economy: The Impact of Trade on Industry Employment in Italy", in *Patterns of Trade, Competition and Trade Policies*, ed. by B.Quintieri, Avebury.

BERTOLA G. - ROGERSSON G. (1996), "Institutions and Labor Reallocation", Banca d'Italia, Temi di Discussione No.272.

BLOMSTROM M. – FORS G. - LIPSEY R.E. (1997), "Foreign Direct Investment and Employment: Home Country Experience in the United States and Sweden", *Economic Journal*, vol. 107, pp. 1787-1797.

BODO G. - SESTITO P. (1994), *Le Vie dello Sviluppo*, Bologna, Il Mulino.

BORJAS G. – FREEMAN R. – KATZ L. (1992), "On the Labor-Market Effects of Immigration and Trade", in *Immigration and the Work Force*, ed. By G.Borjas - R.Freeman, Chicago, University of Chicago Press.

BRAINARD S.L. - RIKER D. (1997a), "Are US Multinational Exporting US Jobs?", NBER Working Paper No.5958.

BRAINARD S.L. - RIKER D. (1997b), "U.S. Multinationals and Competition from Low Wage Countries", NBER Working Paper No.5959.

CIPOLLONE P. - SESTITO P. (1998), "Globalizzazione e Mercato del Lavoro: Il Caso Italiano", in *Globalizzazione e Stato Sociale*, ed. by N.Acocella, Bologna, Il Mulino.

CLINE W. (1997), *Trade and Wage Inequality*, Washington, Institute for International Economics.

COMINOTTI R. - MARIOTTI S. (1997), *Italia Multinazionale 1996*, Milan, F.Angeli.

CONTINI B. – MALPEDE C. – PACELLI L. – RAPITI F. (1996), "La Mobilità del Lavoro in Italia", in *La mobilità della società italiana*, ed. by G.Galli, Rome, SIPI.

CHRISTENSEN L. – JORGENSON D. - LAU L. (1971), "Conjugate Duality and the Transcendental Logarithmic Production Function", *Econometrica*, vol. 39, pp. 255-256.

DAVIS D.R. (1996), "Trade Liberalization and Income Distribution", HIID Discussion Paper No.551.

DEARDORFF A. (1997), "Factor Prices and Factor Content of Trade Revisited: What is the Use ?", RSIE Discussion Paper No. 409.

DEARDORFF A. - HAKURA D. (1994), "Trade and Wages: What are the Questions ?", in *Trade and Wages: Leveling Wages Down?*, ed. by J. Bhagwati - M. Kosters, Washington, AEI.

DE NARDIS S. - PATERNÒ F. (1997), "Scambi con l'Estero e Posti di Lavoro. L'industria Italiana nel Periodo 1980-95", CSC Working Paper No.13.

DIEWERT W. (1974), "Applications of Duality Theory", in *Frontiers of Quantitative Economics*, ed. by M. Intriligator - D. Kendrick, vol. II, Amsterdam, North Holland.

DIXIT A. - NORMAN V. (1980), *Theory of International Trade*, Cambridge, Cambridge University Press.

EPIFANI P. (1998), "Sulle Determinati del Modello di Specializzazione Internazionale dell'Italia", LIUC Working Paper No.52.

ERICKSON C. - ICHINO A. (1995), "Wages Differentials in Italy. Market Forces, Institutions and Inflation", in *Differences and Changes in the Wages Structure*, ed. by R.Freeman - L.Katz, Chicago, University of Chicago Press.

FAINI R. (1991), "Competitività di Prezzo e di Qualità: Le Esportazioni del Settore Tessile-Abbigliamento", in *Rapporto sul Commercio Estero 1990*, Rome, ICE.

FAINI R. (1995), "Flessibilita', Gabbie Salariali e Ruolo del Sindacato nel Mezzogiorno", in *Le Frontiere della Politica Economica*, Milan, Il Sole 24 Ore Libri.

FREEMAN R. (1995), "Are Your Wages Set in Bejing ?", *Journal of Economic Perspectives*, vol. 9, pp. 15-32.

GARNAUT R.G. - ANDERSON K. (1980), "Asean Export Specialization and the Evolution of Comparative Advantage in the Western Pacific Region", in *Asean in a Changing Pacific and World Economy*, ed. by A.Garnaut, Canberra, Australian National University Press.

GROSSMAN G. (1987), "The Employment and Wage Effects of Import Competition in the United States", *Journal of International Economic Integration*, vol. 2, pp.1-23.

HARRIGAN J. (1997), "Technology, Factor Supplies, and International Specialization: Estimating the Neoclassical Model", *American Economic Review*, vol. 87, pp. 475-494.

HARRIGAN J. (1998), "International Trade and American Wages in General Equilibrium", 1967-1995", NBER Working Paper No.6609.

HELPMAN E. - KRUGMAN P.R. (1985), *Market Structure and Foreign Trade*, Cambridge, MIT Press.

IAPADRE P.L. (1996), "Stabilità Qualitativa ed Attenuazione degli Squilibri nel Modello di Specializzazione dell'Economia Italiana (1973-95)", in *Rapporto sul commercio estero 1995*, Rome, ICE.

KOHLI U. (1991), *Technology, Duality and Foreign Trade*, London, Harvester Wheatsheaf.

LEAMER E.E. (1995), "The Heckscher-Ohlin Model in Theory and Practice", Princeton Studies in International Finance No. 7.

NICKELL S. (1997), "Unemployment and Labor Market Rigidities: Europe versus North America", *Journal of Economic Perspectives*, vol.11, pp. 55-74.

OECD (1994), *Job Study: Evidence and Explanations*, Paris, OECD.

PAVITT K. (1984), "Sectorial Patterns of Technological Change: Toward a taxonomy and a Theory", *Research Policy*, vol.13, pp. 343-373.

REVENGA A. (1992), "Exporting Jobs: The Impact of Import Competition on Employment and Wages in US Manufacturing", *Quarterly Journal of Economics*, vol. 92, pp. 255-284.

RODRIK D. (1997), *Has Globalization Gone too Far?*, Washington, DC, Institute for International Economics.

RODRIK D. (1999), "Globalization and Labor", in *Market Integration, Regionalism and the Global Economy*, ed. by R.Baldwin - D.Cohen - A.Sapir, Cambridge, Cambridge University Press, forthcoming.

SAMUELSON P. (1953), "Prices of Factors and Goods in General Equilibrium", *Review of Economic Studies*, vol. 21, pp. 1-20.

SAPIR A. (1999), "The Impact of Globalization on Employment in Europe", in *Trade and Jobs in Europe: Much Ado About Nothing?*, ed. by M. Dewatripont – A. Sapir – K. Sekkat, Oxford, Oxford University Press.

SESTITO P. (1991) "Costanti e Variazioni nella Struttura dei Differenziali Retributivi in Italia", in *Ricerche applicate e modelli per la politica economica*, Rome, Banca d'Italia.

SLAUGHTER M.J. (1995), "Multinational Corporations, Outsourcing, and American Wage Divergence", NBER Working Paper No.5253.

SLAUGHTER M.J. (1997), "International Trade and Labor-Demand Elasticities", NBER Working Paper No.6262.

SLAUGHTER M.J. – SWAGEL P.(1997), "The Effect of Globalization on Wages in the Advanced Economies", in *Staff Studies for the World Economic Outlook*, Washington, International Monetary Fund.

UNITED NATIONS (1994), *World Investment Report. Transnational Corporations, Employment and the Workplace*, New York and Geneva.

UNITED NATIONS (1998), *World Investment Report. Trends and Determinants*, New York and Geneva.

VANDENDUSSCHE H. - KONINGS J. (1998), "Globalization and the Effects of National versus International Competition on the Labor Market. Theory and Evidence on Belgian Firm Level Data", paper presented at the CEPR Workshop "Product Quality, Labor Productivity and Trade", Bonn, 23/24 January 1998.

WTO (1996), *Annual Report*. *Trade and Foreign Direct Investment*, vol.I, Geneva, WTO.

ZHAO L. (1998), "The Impact of Foreign Direct Investment on Wages and Employment", *Oxford Economic Papers*, vol. 50, pp.284-301.

Appendix

This Appendix provides information on data sources and variable construction, and present detailed results of the empirical work carried out in the paper.

Section 5

We used both the current and the constant prices values of Gross Domestic Product, imports of goods and services, exports of goods and services, gross fixed capital formation, public and private consumption expenditures. The import share is calculated as the negative of the ratio between Imports and GDP, both in current prices. The labor share is the ratio between the total wages (the product of total employment and of the average wage) and GDP in current prices. The relative price term is the ratio of the import price deflator to the output price (a deflator constructed as the average of exports, investment, public and private consumption deflators). Finally, the labor-capital ratio is defined as the ratio of total labor units and the constant value of fixed capital.
We take current and constant values of all the aggregate variables over the period 1951-1995 from Golinelli (1997), *Contabilità Nazionale in base 1990: 1951-1996*, with the exception of the capital stock data which are taken from Pagliano - Rossi (1992), "The Italian Saving Rate: 1951 to 1990 Estimates", Banca d'Italia, Temi di discussione No.169.
Tables 1A and 2A present the estimated results of the equations (2) and (3). The first table presents the SUR regressions, the second table the 3SLS regressions. The coefficients f_M and f_L are those associated with the lagged dependent variable of each equation.

Table 1A: Import and Labor Share Equation Estimation from Two-input Translog Variable Profit Function Estimate (SUR Regressions)

Parameter	Estimate	Standard Error		T-statistic
a_M	-0.0372	0.0149		-2.492
b_{MM}	-0.0631	0.0341		-1.8497
b_{ML}	0.0280	0.0364		0.7698
b_{MT}	-0.0008	0.0005		-1.3893
a_L	0.1271	0.0786		1.6156
b_{LL}	-0.0740	0.0648		-1.1424
b_{LT}	-0.0010	0.0009		-1.2236
f_M	0.7468	0.1000		7.4641
f_L	0.8257	0.1121		7.3676
s_M equation	R^2 = 0.8801	SE = 0.015	DW=1.89	SSR = 0.010
s_L equation	R^2 = 0.7062	SE = 0.012	DW=1.84	SSR = 0.006

Table 2A: Import and Labor Share Equation Estimation from Two-input Translog Variable Profit Function Estimate (3SLS Regressions)

Parameter	Estimate	Standard Error	T-statistic
a_M	-0.0458	0.0265	-2.763
b_{MM}	-0.0703	0.0336	-2.090
b_{ML}	0.0498	0.0444	1.1205
b_{MT}	-0.0007	0.0005	-1.4094
a_L	0.1760	0.0876	2.0105
b_{LL}	-0.1309	0.0694	-1.8856
b_{LT}	-0.0017	0.0009	-1.7527
f_M	0.6828	0.1103	6.1283
f_L	0.7602	0.1240	7.3676
s_M equation	R^2 = 0.8823	SE =0.015 DW=1.79	SSR = 0.010
s_L equation	R^2 = 0.6958	SE =0.012 DW=1.78	SSR = 0.007

Section 6

The sample covers nine NACE-CLIO manufacturing sectors over the 1980-1992 period.
Sectoral NACE-CLIO import price indexes are constructed from average unit values for three digit ISIC sectors taken from OECD (1994), *FLUBIL: Flux Bilateraux de Commerce Exterieur*, Paris. Three digit ISIC sectors are aggregated in order to reconstruct the nine NACE-CLIO manufacturing sectors. Average unit values (base year 1980) expressed in US dollars are converted into Italian lira using nominal exchange rates, taken from OECD (1994), *STAN Statistical Analysis Database*, Paris. The import price indexes have been deflated either by the Italian consumer price index or by sectoral value added deflators taken from ISTAT (1997), *Contabilità Nazionale: Conti Economici Regionali*, Rome.
The wage variable is measured as regional average gross earnings (minus social costs paid by the employer) of workers employed in each of the nine NACE-CLIO manufacturing sectors. The alternative wage is given by regional average gross earnings (minus social costs paid by the employer) of workers employed in trade related services. To obtain real wages, industry-level average earnings are deflated by the Italian consumer price index. Regional employment is measured by number of employees. All values are taken from: ISTAT (1997), *Contabilità Nazionale: Conti Economici Regionali*, Rome.
Regional unemployment rates are taken from ISTAT (1986), *Statistiche del Lavoro*, Rome (for the period 1980-84) and from ISTAT (various issues), *Rilevazione delle Forze di Lavoro*, Rome (for the period 1985-92).
TFP series are come from OECD (1997), *International Sectoral Data Base*, Paris.

Section 7

The sample covers fourteen NACE-CLIO manufacturing sectors over the 1985-1995 period. For all the variables, the database used was ISTAT (1998), *Contabilità Nazionale: Conti Economici Nazionali*, Rome.
For each manufacturing industry of the NACE-CLIO classification, sectoral wages are deflated by the corresponding sectoral value added price.
Table 3A presents the results of Random Effects Estimation of equation (6).

Table 3A: Labor Demand Estimation

Parameter	Estimate	Standard Error	t-statistic
α	0.820	0.112	7.299
γ	0.118	0.043	2.738
δ	0.210	0.028	7.602
β_1	-0.095	0.024	-3.998
β_2	-0.079	0.022	-3.543
β_3	-0.086	-0.022	-3.879
β_4	-0.075	0.021	-3.507
β_5	-0.077	0.021	-3.604
β_6	-0.093	0.025	-3.645
β_7	-0.080	0.022	-3.651
β_8	-0.078	0.022	-3.598
β_9	-0.082	0.022	-3.693
β_{10}	-0.066	0.021	-3.201
β_{11}	-0.076	0.024	-3.176
β_{12}	-0.075	0.023	-3.242
β_{13}	-0.084	0.023	-3.673
β_{14}	-0.084	0.024	-3.541
Hausman Test = 10.314	R^2 = 0.6526	DW = 1.487	SE = 0.0077	SSR = 0.0082

Table 8 – North

Dep. Variable	Method	Constant	Unempl. Rate N.	Altern. Wage N.	Import Prices	R^2	F test / c^2 (A)	F test / c^2 (B)
Employment	LSDV	9.785	-0.260	-0.455	0.031	0.702	82.45	2743.680
		(10.560)	(-7.916)	(-5.398)	(0.496)		[3, 105]	[8, 105]
Wage	LSDV	6.383	-0.289	0.180	0.057	0.395	22.88	1677.631
		(6.131)	(-7.834)	(1.903)	(0.814)		[3, 105]	[8, 105]
Employment	GLS	8.537	-0.258	-0.366	0.118	-	89326.43	80432.71
		(24.796)	(-17.185)	(-11.694)	(6.325)		[11]	[8]
Wage	GLS	6.255	-0.246	0.172	0.122	-	78978.71	78445.62
		(19.992)	(-14.350)	(6.146)	(13.267)		[11]	[8]

NOTES:
- In round brackets t statistic
- In square brackets degrees of freedom
- GLS allows for heteroscedasticity with cross section correlation and panel specific AR(1)
- χ^2 is presented when the estimation procedure is GLS
- (A) overall significance test
- (B) industry dummies significance

Table 9 - South

Dep. Variable	Method	Constant	Unempl. Rate S.	Altern. Wage S.	Import Prices	R^2	F test / c^2 (A)	F test / c^2 (B)
Employment	LSDV	5.369	-0.043	-0.144	0.098	0.153	6.34	362.870
		(2.248)	(-0.345)	(-0.613)	(0.649)		[3, 105]	[8, 105]
Wage	LSDV	5.636	0.083	0.186	0.175	0.055	2.07	302.908
		(2.538)	(0.709)	(0.853)	(1.239)		[3, 105]	[8, 105]
Employment	GLS	4.072	-0.123	-0.009	0.100	-	7909.19	6734.60
		(7.285)	(-3.329)	(-0.170)	(4.238)		[11]	[8]
Wage	GLS	5.179	-0.31	0.229	0.042	-	5091.36	5000.28
		(6.786)	(-0.605)	(3.020)	(0.971)		[11]	[8]

NOTES:
- In round brackets t statistic
- In square brackets degrees of freedom
- GLS allows for heteroscedasticity with cross section correlation and panel specific AR(1)
- χ^2 is presented when the estimation procedure is GLS
- (A) overall significance test
- (B) industry dummies significance

Table 10 - South with Northern variables

Dep. Variable	Method	Constant	Unempl. Rate S.	Unempl. Rate N.	Altern. Wage N.	Import Prices	R^2	F test / c^2 (A)	F test / c^2 (B)
Employment	LSDV	5.816	0.036	-0.225	-0.220	0.181	0.214	7.08	385.597
		(1.606)	(0.256)	(-2.870)	(-0.674)	(1.230)		[4, 104]	[8, 104]
Employment	GLS	5.869	0.031	-0.219	-0.214	0.161	-	6062.11	5932.21
		(7.560)	(0.844)	(-8.407)	(-3.075)	(6.244)		[12]	[8]

NOTES:
- In round brackets t statistic
- In square brackets degrees of freedom
- GLS allows for heteroscedasticity with cross section correlation and panel specific AR(1)
- χ^2 is presented when the estimation procedure is GLS
- (A) overall significance test
- (B) industry dummies significance

Table 1 -Unemployment Rates and Educational Levels (males, 1994)

Educational Level	Low	High	Difference
Italy	6.4	4.4	2.0
France	13.5	5.9	7.6
Germany	9.0	3.3	5.7
United States	12.8	2.8	10.0
United Kingdom	18.8	4.0	14.8

Source : OECD (1997)

Table 2 - Unemployment Rates

	Educational Level			
	University	**High School**	**Others**	**Total**
Northern Italy				
age 15-29	22.82%	15.49%	11.95%	14.06%
Total	5.78%	7.67%	6.32%	6.46%
Centre				
age 15-29	29.28%	28.44%	20.51%	25.06%
Total	7.78%	12.67%	9.18%	9.70%
Southern Italy				
age 15-29	48.84%	51.25%	40.62%	44.63%
Total	10.54%	23.81%	21.30%	20.43%

Source : ISTAT (1997)

Table 3 - Change in Employment (1985-1995)

	Change in Employment in Italy	Change in Employment in Foreign Affiliates
Ferrous & Non-Ferrous Metals	-57800	19851
Non-Metallic Mineral Products	-5100	25229
Chemical Products	-19000	18191
Metal Products	-96000	7362
Agricultural & Industrial Machinery	-37100	31460
Office Machinery	-15400	7071
Electrical Apparatus	-21500	15586
Motor Vehicles	-63300	101739
Food, Beverages & Tobacco	-31200	71676
Textile & Apparel	-49800	30093
Footwear & Leather	-35400	6986
Wood & Wood Products	-58200	8574
Paper, Paper Products & Printing	-13000	1434
Rubber & Plastic Products	6900	-7764
Total Manufacturing	-495900	337488

Source :Database *Reprint* ; ISTAT "CENA"

Table 4 - Share of Employees in Foreign Affiliates

	1985	1991	1995
Ferrous & Non-Ferrous Metals	10.53%	24.46%	31.07%
Non-Metallic Mineral Products	1.87%	4.05%	9.95%
Chemical Products	6.31%	11.04%	14.04%
Metal Products	0.40%	1.26%	2.03%
Agricultural & Industrial Machinery	2.88%	8.43%	10.82%
Office Machinery	11.87%	48.31%	22.02%
Electrical Apparatus	12.51%	20.83%	18.40%
Motor Vehicles	12.75%	41.57%	50.55%
Food, Beverages & Tobacco	3.66%	12.06%	23.98%
Textile & Apparel	1.07%	2.90%	4.61%
Footwear & Leather	0.71%	1.14%	3.87%
Wood & Wood Products	0.89%	2.12%	3.50%
Paper, Paper Products & Printing	3.95%	11.04%	4.77%
Rubber & Plastic Products	17.70%	17.80%	13.03%
Total Manufacturing	4.58%	10.89%	12.59%

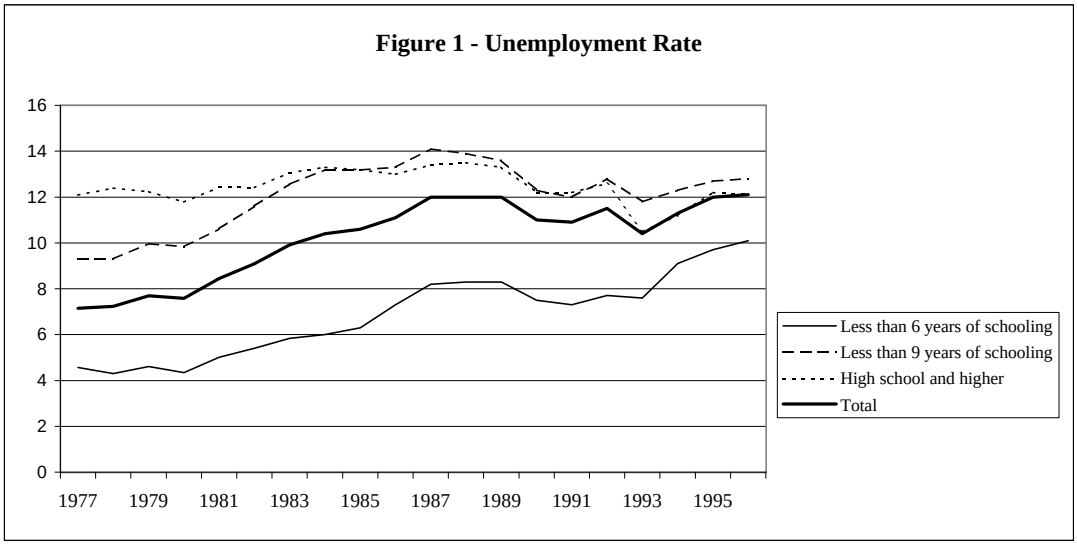
Source :Database *Reprint* ; ISTAT "CENA"

Notes : The share of employees in foreign affiliates is defined as the ratio of employees in foreign affiliates to sectoral employment in domestic firms.

Table 6: Two-input Translog Variable Profit Function: Elasticity Esimates for Selected Years (3SLS Regressions)

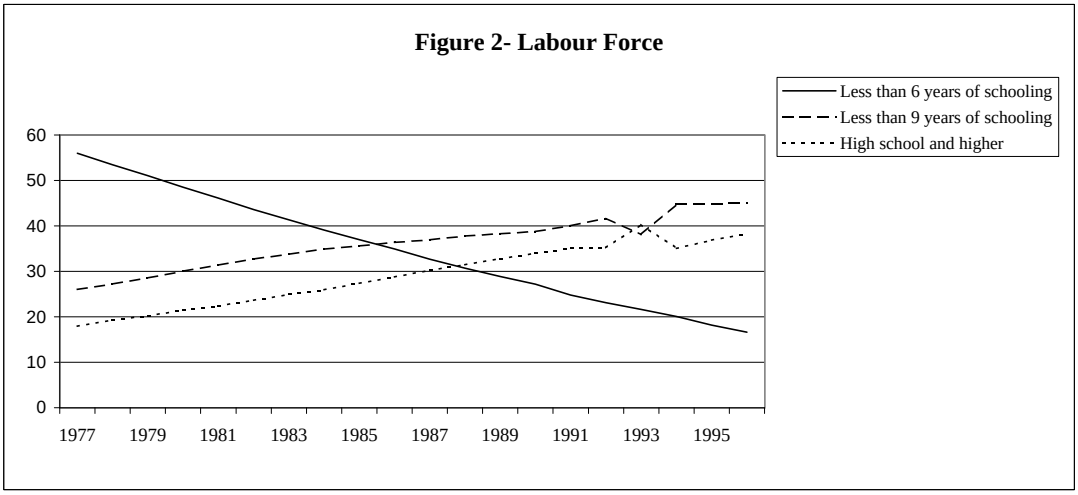
	1955	1965	1975	1985	1995
Price Elasticities of Import Demand and of Output Supply:					
dlnM/dlnPm	-0.46174	-0.54386	-0.85479	-0.91938	-0.90433
dlnM/dlnPy	0.46174	0.54386	0.85479	0.91938	0.90433
dlnY/dlnPm	-0.04527	-0.05901	-0.14385	-0.17065	-0.16407
dlnY/dlnPy	0.04527	0.05901	0.14385	0.17065	0.16407
Quantity Elasticities of Labor and Capital Inverse Factor Demands:					
dlnPl/dlnL	-0.51534	-0.52251	-0.46273	-0.51539	-0.62235
dlnPl/dlnK	0.51534	0.52251	0.46273	0.51539	0.62235
dlnPk/dlnL	1.08447	1.07198	1.18602	1.08438	0.92220
dlnPk/dlnK	-1.08447	-1.07198	-1.18602	-1.08438	-0.92220
Price Elasticities of Inverse Labor and Capital Factor Demands (Stolper-Samuelson Elasticities):					
dlnPl/dlnPm	-0.05317	-0.06571	-0.15001	-0.17239	-0.15858
dlnPl/dlnPy	1.05317	1.06571	1.15001	1.17239	1.15858
dlnPk/dlnPm	-0.22557	-0.23659	-0.33648	-0.34478	-0.31506
dlnPk/dlnPy	1.22557	1.23659	1.33648	1.34478	1.31506
Quantity Elasticities of Import Demand and of Output Supply (Rybczynski Elasticities):					
dlnM/dlnL	0.21977	0.26315	0.47325	0.45936	0.37235
dlnM/dlnK	0.78023	0.73685	0.52675	0.54064	0.62765
dlnY/dlnL	0.63296	0.62791	0.67793	0.63728	0.55626
dlnY/dlnK	0.36704	0.37209	0.32207	0.36272	0.44374

Figure 1 - Unemployment Rate



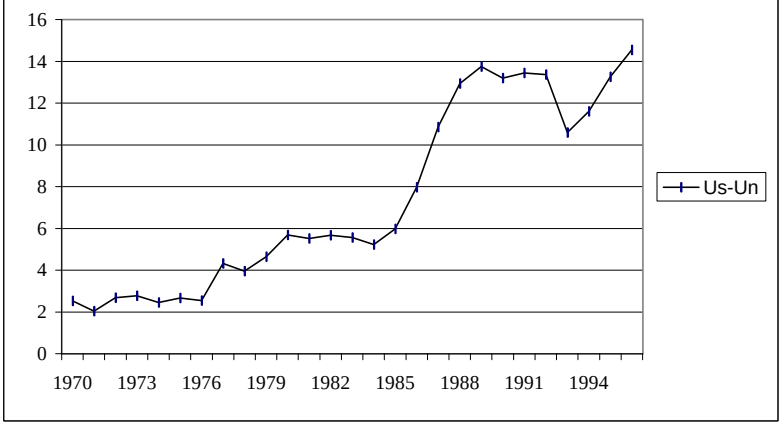
Source : ISTAT "Annuario Statistico", various issues
Notes :Unemployment Rate is defined as : (Searching Job People)/(Labour Force)

Figure 2- Labour Force



Source : ISTAT "Annuario Statistico", various issues

Figure 3 - Regional Unemployment Differentials (%)



Source : ISTAT (1986), "Statistiche del lavoro".
ISTAT, Rilevazione delle forze di lavoro, various issues.

Table 7: Employment and Imports: Sectoral Trends

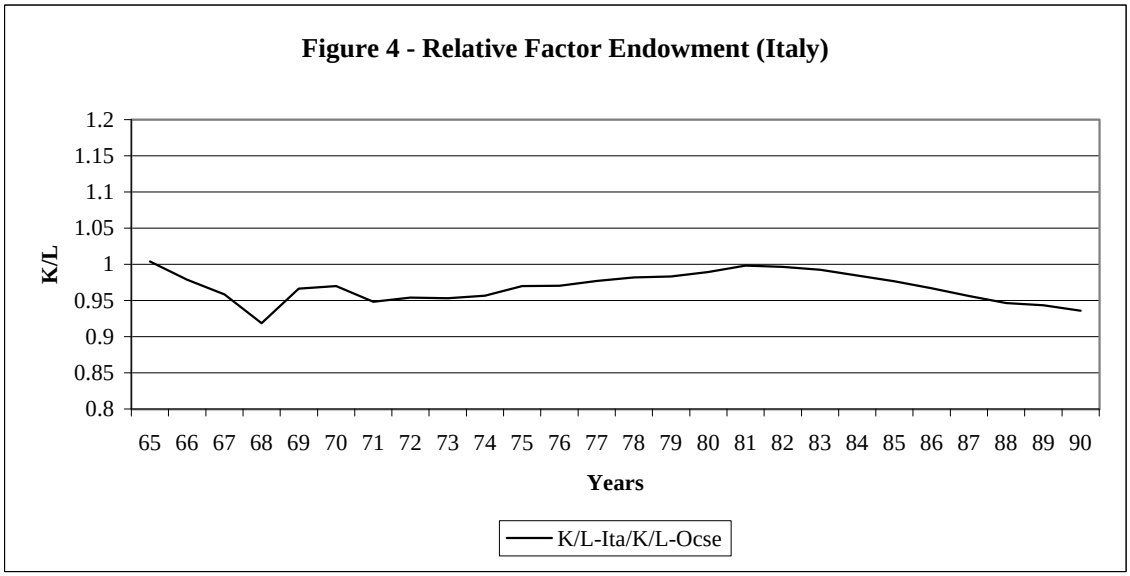
a) Years: '87-'91	Change in Employment (1)	Change in Import Penetration Level (2)	Import Penetration Level (Avrg Value) (2)
Ferrous & Non-Ferrous Metals	-0.03	3.40	30.73
Non-Metallic Mineral Products	0.00	0.80	8.62
Chemical Products	0.00	4.10	27.77
Metal Products	0.00	2.00	5.83
Agricultural & Industrial Machinery	0.00	5.60	26.63
Office Machinery	-0.01	9.80	61.72
Electrical Apparatus	0.00	8.50	32.18
Motor Vehicles	-0.01	15.10	42.07
Food, Beverages & Tobacco	0.00	0.90	15.75
Textile & Apparel	-0.01	2.70	13.55
Footwear & Leather	-0.01	7.00	18.30
Wood & Wood Products	-0.01	1.20	9.10
Paper, Paper Products & Printing	0.00	-1.60	11.33
Rubber & Plastic Products	0.00	2.70	14.83
Total Manufacturing	-0.01	3.70	21.15
		Linear Correlation Coefficient:-0.1604	Linear Correlation Coefficient:-0.3175
		Spearman's rank correlation coefficient:-0.2300	Spearman's rank correlation coefficient:-0.3250
		sign.: 0.4095	sign.: 0.2373

b) Years: '92-'96	Change in Employment (1)	Change in Import Penetration Level (2)	Import Penetration Level (Avrg Value) (2)
Ferrous & Non-Ferrous Metals	-0.038	4.20	35.68
Non-Metallic Mineral Products	-0.024	1.20	10.83
Chemical Products	-0.037	3.80	35.43
Metal Products	-0.021	2.70	8.10
Agricultural & Industrial Machinery	-0.008	3.40	31.53
Office Machinery	-0.015	-0.80	79.33
Electrical Apparatus	0.003	8.40	44.75
Motor Vehicles	-0.033	4.20	57.75
Food, Beverages & Tobacco	-0.017	1.50	17.83
Textile & Apparel	-0.011	3.60	19.08
Footwear & Leather	-0.013	11.50	31.65
Wood & Wood Products	-0.019	1.10	11.23
Paper, Paper Products & Printing	-0.020	2.10	11.78
Rubber & Plastic Products	0.004	2.20	19.03
Total Manufacturing	-0.017	4.20	26.45
		Linear Correlation Coefficient:-0.1693	Linear Correlation Coefficient: -0.0785
		Spearman's rank correlation coefficient:0.0287	Spearman's rank correlation coefficient: 0.0626
		sign.: 0.9191	sign.: 0.8247

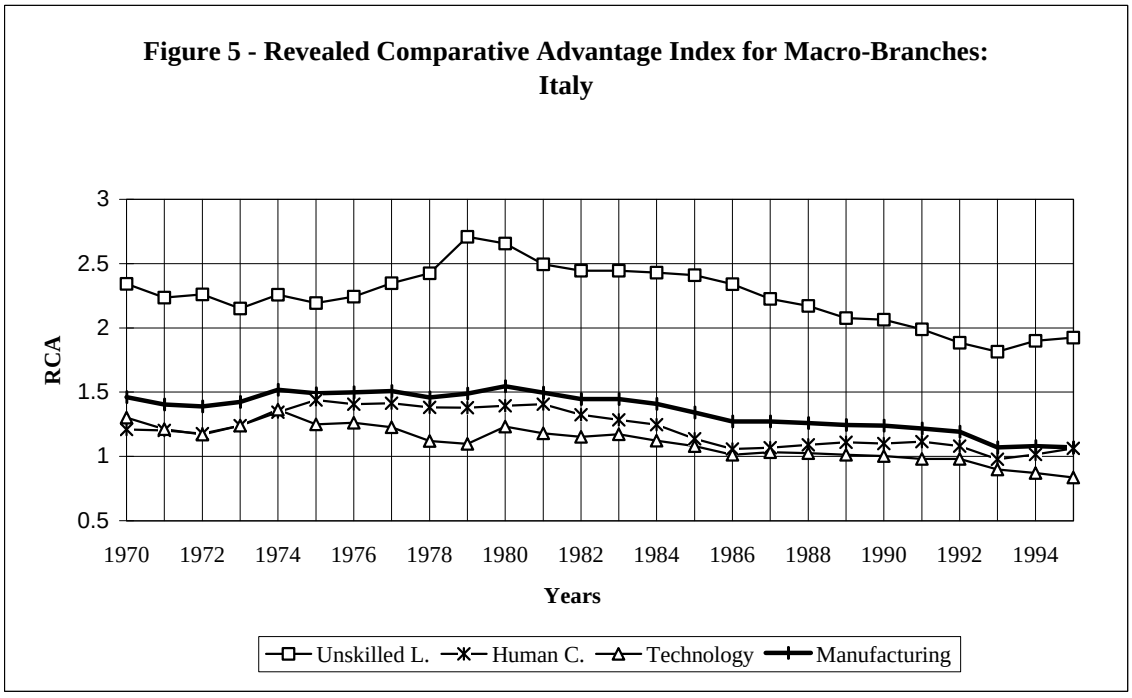
Sources:

(1): ISTAT (1998)

(2): ICE "Rapporto sul Commercio Estero", various issues

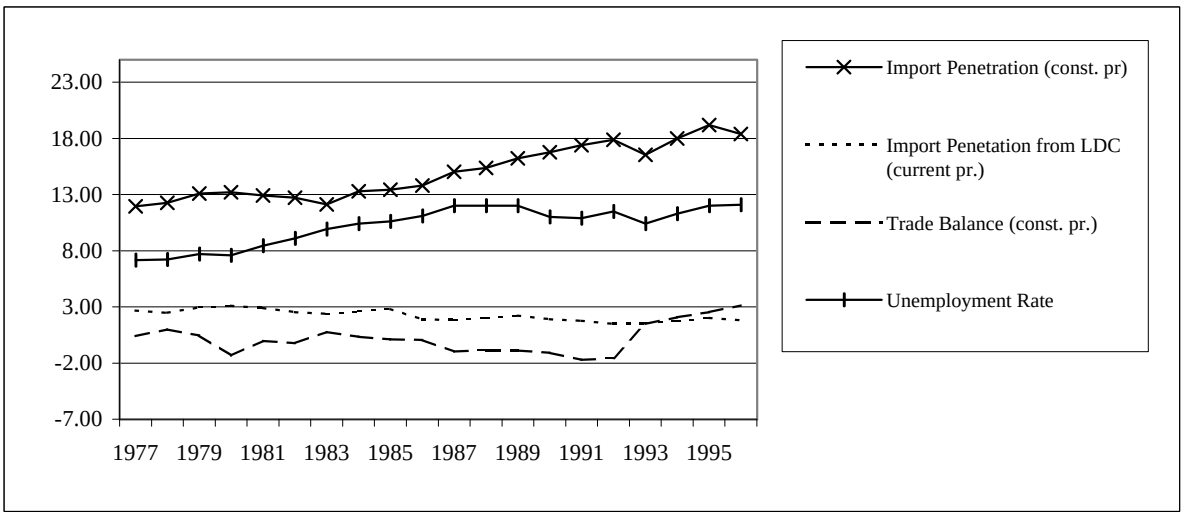


Source: Penn World Tables 5.6



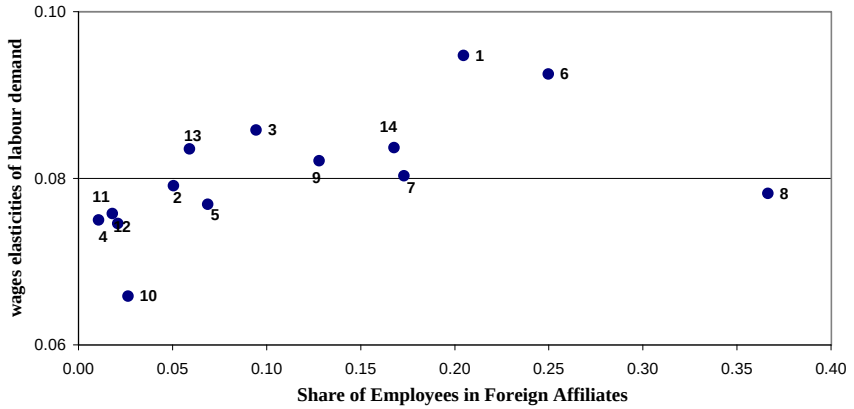
Source: WTDB - NBER and PC - TAS Database

Figure 6 - Trends in Labor Market and International Trade



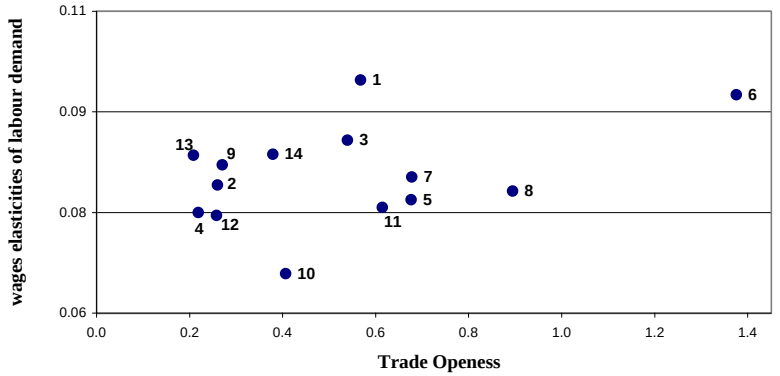
Source : ICE "Rapporto sul Commercio Estero", various issues; ISTAT (1998)

Figure 7 -Share of Employees in Foreign Affiliates and Market Power of Unions



Linear Correlation Coefficient: 0.5289
Spearman Correlation Coefficient:0.7011
Sign. : 0.0052

Figure 8 - Trade openness and the market power of unions



Linear Correlation Coefficient: 0.4042
Spearman Correlation Coefficient:0.2352
Sign. : 0.4183

Sources: Database "Reprint" and ICE "Rapporto sul Commercio Estero", various issues
Notes: "Trade Openess" :(Export + Import)/GDP
"Share of Employees in Foreign Affiliates" :number of employees in foreign affiliates for each sector divided by total employees in Italy for each sector
"Wages Elasticities of Labour Demand": estimate elasticities
Sectors:

Ferrous & Non-Ferrous Metals	1
Non-Metallic Mineral Products	2
Chemical Products	3
Metal Products	4
Agricultural & Industrial Machinery	5
Office Machinery	6
Electrical Apparatus	7
Motor Vehicles	8
Food, Beverages & Tobacco	9
Textile & Apparel	10
Footwear & Leather	11
Wood & Wood Products	12
Paper, Paper Products & Printing	13
Rubber & Plastic Products	14