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8 Wage Differentials in Italy: Market Forces, Institutions, and Inflation

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During the 1970s, Italy experienced an impressive compression of wage differentials, similar to the better-known situation in Sweden. Most evidence suggests that this compression came to a stop around 1982–83, coincident with a major institutional change (in the form of the escalator clause in Italian union contracts), a major economic change (the slowdown in inflation), a major technological change (industrial restructuring and the computer revolution), and a major political change (the loss of support for unions and their egalitarian pay policies). There is some slight evidence of a reopening of differentials since then, but the evidence is uneven, and, even where a reopening is apparent, the degree of inequality is still generally below the level of the early- to mid-1970s.

In this paper, we analyze the evolution of wage differentials across skill and occupation levels and individual characteristics in Italy for workers employed in the regular sector of the economy: workers who are not self-employed, have

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"above-ground" jobs, and are not covered by special low-wage training contracts. The evidence that we provide is consistent with the view that unions were able to push for institutional reforms that compressed wage differentials in the 1970s and that this egalitarian trend has been only partially, if at all, reversed in the 1980s. While we cannot definitively distinguish among the relative influences of institutions, market forces, technology, and politics on the evolution of earnings inequality in Italy, our analysis of skill-level differentials and our comparison at the individual level with the more laissez-faire system of the United States suggest that both inflation and egalitarian wage-setting institutions have importantly influenced Italian wage outcomes.

In section 8.1, we describe the stylized evidence on the recent evolution of wage differentials across industries, occupation levels, and individuals. We then briefly lay out, in section 8.2, the institutional setup of wage determination in Italy. We also examine the evolution of the compensation structure and its effects on wage differentials across skill levels in metal-manufacturing, concentrating in particular on the effects of inflation. Our primary findings here are that the main "market" portion of wages (the individually contracted part) and the main "institutional" portion (the escalator payments) largely serve to cancel each other out but that inflation did have a significant effect on wage compression before 1983, less so recently. In section 8.3, we examine the determinants of annual wage and salary income and the degree of inequality at the individual level, comparing raw inequality and earnings regressions from a representative sample of Italian households with the U.S. Current Population Survey; we find a more compressed compensation structure in Italy along almost all dimensions and a weak trend toward less inequality, in marked contrast to the situation in the United States. Finally, in the concluding section, we examine the possible effects of this compression on self-employment, the underground economy, and low-wage training contracts, three mechanisms that may have increased overall inequality in Italy but are not captured in our quantitative analysis of the regular sector of the economy.

8.1 Raw Evidence on Italian Earnings Inequality

The main focus of this paper is on earnings inequality across skill and occupation categories within sectors and across individual characteristics. First, however, we examine some aggregate data on differentials across sectors. Figure 8.1 displays the coefficient of variation of blue-collar hourly wages across industries from 1974 to 1985 (after which the series was discontinued). The figure indicates a clear compression of differentials until 1982; after 1982, the dispersion of blue-collar wages increased somewhat but remained below its 1974 level in 1985. Again, this measure of inequality is not our primary interest, but it goes back the furthest and is consistent with the view that differentials have not significantly widened recently.

Figure 8.2 presents the ratio between average white-collar and average blue-

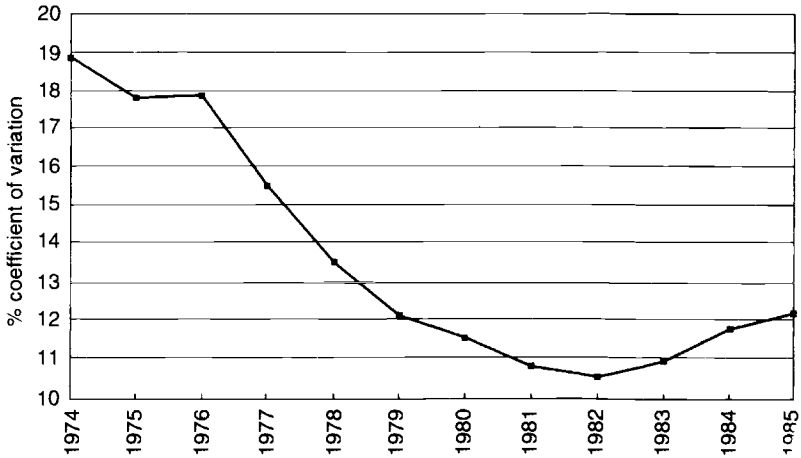

Fig. 8.1 Dispersion of blue-collar hourly wages across industries
Source: Ministry of Labor.

collar monthly wages within the metal-manufacturing sector. Two series are presented here: the Assolombarda series, consisting of metal-manufacturing firms in the Milan area, and the Federmeccanica series, consisting of metal-manufacturing firms nationwide.[1] Once again, we observe an unambiguous compression until 1983, followed by no clear trend in the Assolombarda series and some evidence of a widening of differentials in the Federmeccanica series, but not to the level of the mid-1970s by the beginning of the 1990s.

Finally, table 8.1 displays the standard deviation of the logarithm of annual earnings from employment from a survey conducted for the Bank of Italy over the period 1977–87 (excluding 1981 and 1985).[2] At this individual level, we find a continuing downward trend in inequality; in section 8.3 below, we analyze this downward trend and the determinants of individual labor income.

Overall, then, we do not see a clear trend toward a *significant* widening of wage inequality in these findings, although the aggregate evidence does seem to indicate a leveling off of wage compression around 1982–83. In the next section, we will see what the institutional setup of wage determination can tell us about the trends that we observe here.

1. These data sets have been previously analyzed in ASAP (1986–91) and Carniti Commission (1988). They are described in greater detail in the data appendix, along with the other data sets used in this paper.

2. The number given is the standard deviation of the log of earnings from employment for full-time, full-year, nonagricultural, non-self-employed workers between the ages of eighteen and sixty-five. This data set is further explained and analyzed in sec. 8.3 below and in the data appendix.

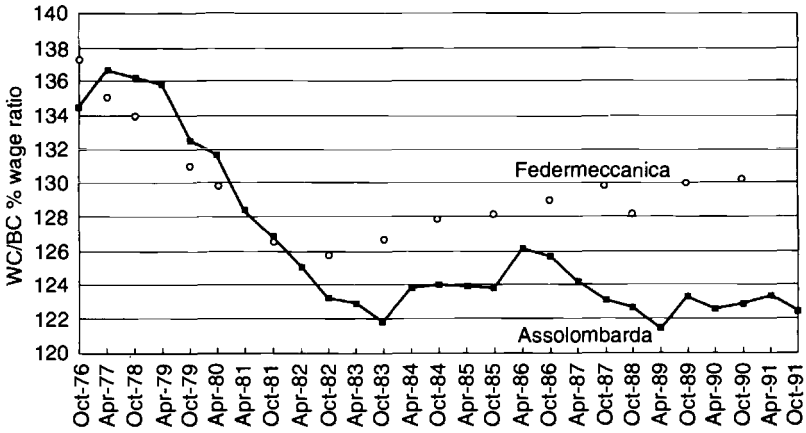

Fig. 8.2 White-collar/blue-collar monthly wage differential in metal-manufacturing

Sources: Assolombarda, Milan; Federmeccanica, nationwide.

Note: The Federmeccanica data refer to December in each year.

8.2 Institutional Framework and Wage Differentials: Descriptive Evidence from the Metal-Manufacturing Sector

8.2.1 The Actors

Three major unions (CGIL, CISL, UIL) have represented workers in Italy during the postwar period.[3] These unions had their origins at the beginning of the cold war with the splitting of a unified union under government and U.S. pressures aimed at isolating the Italian Communist Party (PCI). The three unions were initially, and to some extent still are, characterized by different political inspirations, more or less related to the three main strains of Italian politics: Communist, Christian Democratic, and Social Democratic, respectively. The political pressures to split the Italian labor movement were, however, not entirely successful, given that, after a decade and for most of the remaining postwar period, the three unions have acted together, following a unified strategy, particularly in pursuing egalitarian compensation policies. As we shall see below, it is only recently that they have disagreed on some major substantive issues, in particular on the reform of the indexation system.

It should be noted that CGIL, CISL, and UIL are confederations of sectoral unions. The extent to which bargaining strategies are coordinated across sectors is not, however, immediately clear. Yet some sectors seem to have played a leading role in the bargaining process; this is particularly true for the metal-manufacturing sector, on which we focus our analysis in this section. Contracts

3. For more extensive English-language analysis of Italian industrial relations history and structure, see Neufeld (1960), Giugni (1984), and Locke (1992).

Table 8.1 **Dispersion of Individual Annual Labor Income**

	1977	1978	1979	1980	1982	1983	1984	1986	1987
SD of logarithms	.46	.44	.44	.41	.42	.41	.39	.38	.37

Source: Bank of Italy.

in metal-manufacturing cover a vast array of industries, including all metal transformation activities: industrial, electrical, and transportation machinery, computers, other precision instruments, and several smaller metal and machinery industries.[4] Unions have traditionally had their strongholds in these industries, and, therefore, metal-manufacturing contracts have often been the first to introduce significant pro-worker rules later extended to other sectoral bargaining units. On a few occasions, metal-manufacturing contracts have even been translated into law.

All private industrial employers are represented by a single association (Confindustria) that has traditionally played the leading role in bargaining. Other similar associations represent employers in the other main sectors (trade, other services, artisans, agriculture), and an important role is also played by the association of companies that are partially owned by the government (Partecipazioni Statali) but operate under market rules. Finally, the role of the public administration as an employer has become increasingly important, particularly in recent years, during which, in contrast to the past, industrial relations outcomes in the public sector have started to influence the private sector.[5]

The relative strength of workers' unions and employers' associations and the extent to which they have been able to achieve their bargaining goals have gone through quite substantial swings in the postwar period; we identify three major phases here. The 1950s and 1960s were a period of relative weakness for unions, although some initial steps were undertaken toward the construction of the strongly pro-worker legislation that now characterizes Italian industrial relations.[6] The *Autunno Caldo* (Hot Autumn) of 1969 was the first important turning point: a period of widespread social unrest and acute class conflict that gave unions enormous popular support and bargaining power. The result was a tremendous pro-worker shift in legislation and bargaining outcomes: the most important example is the Statuto dei Lavoratori (Charter of workers rights) that

4. Metal-manufacturing workers accounted for approximately one-third of all non-self-employed industrial workers and one-tenth of all non-self-employed workers in 1990; we say *approximately* because it is not possible to know exactly how many workers are covered by the terms of the metal-manufacturing contract. Metal-manufacturing production accounted for 38 percent of total industrial production. Source: Confindustria.

5. Particularly important was the wave of contract renewals in public administration in the late 1980s that granted large wage increases to public-sector workers and apparently caused a ratchet effect on private-sector workers.

6. For example, laws on layoffs and firing, on the protection of female workers, and on the prohibition of gender- and region-based contractual pay differences.

provided the world-famous Italian workers' protection against firing as well as other significant labor market regulations that heavily constrained the freedom of employers in the labor market.

During the 1970s, the achievement of an egalitarian distribution of income was one of the focal objectives of unions, and, given their relative strength during this period, they were able to induce a strong compression of wage differentials. Several collective contracts in the early 1970s granted equal contractual increases to all workers, and in 1975 a new indexation system, to which we return below, provided for equal increases to all workers for each percentage point of inflation. The slogan "equal pay for all work" would have been subscribed to by most union leaders during this period, and it is difficult to doubt that a large part of the compression of wage differentials observed in the 1970s (discussed above) was caused by the unions' successful pursuit of egalitarian pay policies.

The march against unions by forty-thousand high-level white-collar workers in Turin (the location of Fiat) in the fall of 1980 may be considered the second turning point. The compression of wage differentials had reached a threshold of unacceptability for high-skilled workers, and their opposition to egalitarianism, probably latent in the previous years, came explicitly to the surface. In the meantime, the process of heavy plant restructuring, spurred by the oil shocks and begun in the late 1970s, had extended to a large part of the industrial sector, resulting in major layoffs in the industrialized regions. The unions progressively began to lose members and public support, owing in no small measure to their inability to protect less skilled workers from layoffs and the opposition of the highly skilled workers to egalitarianism.

Table 8.2 presents some illustrative figures on this recent diminution of union strength. The first two columns report measures of strike activity for the national industrial sector and for the Lombardy metal-manufacturing sector, respectively: both series display a significant decrease in the number of hours lost to labor conflicts after 1983.[7] The last column reports union membership for the metal-manufacturing sector in the Milan area. Different definitions of *Milan area* in the publications from which these numbers were taken cast doubt on the exact comparability of these numbers across years. We are, nevertheless, confident about the basic message that can be taken from this column: union membership has been steadily falling since the mid-1970s, with a significant drop at the beginning of the 1980s.

The result of these trends was a loss of bargaining power from which the three traditional major unions do not seem to have recovered. Furthermore,

7. An additional interesting fact concerning the significant reduction of strike activity in 1978 is that that was the year of the kidnapping of the Christian Democratic leader Aldo Moro by the Red Brigades. A government of national solidarity against terrorism and the economic crisis, with the external support of the PCI, was put in power on that occasion. The general feeling of national solidarity against the Red Brigades, shared by the PCI, contributed to the decrease in strike activity.

Table 8.2 **Labor Conflicts and Union Membership, 1974–90**

Year	Average Number of Hours Lost to Strikes per Month (entire industrial sector)[a]	Total Number of Hours Lost to Strikes per Year (metal-manufacturing, Lombardy)[b]	CGIL, CISL, and UIL Members (metal-manufacturing, Milan area)[c]
1974	6,516		196,022
1975	8,424	19,930	200,288
1976	10,653	29,553	193,738
1977	4,138	17,598	191,108
1978	2,604	7,773	184,721
1979	9,685	28,947	183,486
1980	11,859	18,549	179,434
1981	4,067	10,872	115,340
1982	4,369	25,267	102,524
1983	6,216	19,035	91,568
1984	800	5,676	78,574
1985	1,276	4,531	72,717
1986	1,182	2,894	67,854
1987	642	2,705	42,819
1988	1,161	1,190	40,366
1989	622	2,271	
1990	1,953		

Source: These data were collected at the FLM historical archive in Milan.

[a]Average of the January, April, July, and October number of hours lost to strikes in millions, from the Bank of Italy.

[b]Total number of hours lost in each year in thousands, from the Instituto Nationale di Statistica's *Annuario di statistiche del lavoro.*

[c]Number of members of the FLM (federation of metal-manufacturing workers); this is the confederation that jointly organizes CGIL, CISL, and UIL workers in metal-manufacturing.

new corporative unions representing small groups of workers in crucial positions have acquired substantial power, particularly in public-sector services, exacerbating the current weakness of the traditional Italian labor movement. All this adds up to a labor movement with a diminished ability (and perhaps willingness) to push through egalitarian pay policies.

8.2.2 The Bargaining Structure and the *Inquadramento*

On the basis of an extensive interpretation of the Constitution, and in the absence of rules concerning unions' certification, collective contracts signed by the three main unions have erga omnes validity as far as compensation is concerned (i.e., they apply to all workers regardless of union status).[8] Therefore, in Italy, union membership may differ dramatically from union coverage: the latter is always virtually 100 percent within each unit for which a collective

8. The literature on the Italian bargaining structure and on the *inquadramento* is large; we draw in particular on Carinci (1987) and Ichino (1992).

contract is signed. Furthermore, collective contracts have on a few occasions been translated into law. Hence, the influence of unions has reached those parts of the economy that the unions have not directly organized.

Bargaining takes place at the national, sectoral, provincial, and firm levels. Essentially, all aspects of labor relations may be a subject of negotiations, as long as the bargaining outcome is at least as favorable for the workers as what is implied by the law. Bargaining at the national or provincial level can be characterized as a state-contingent process in the sense that it usually occurs when specific issues of general relevance need to be discussed; as far as compensation differentials are concerned, the most important issue discussed at the national level has been the indexation system. In contrast, sectoral and firm-level bargaining are better characterized as time-contingent processes. Typically, sectoral contracts last approximately three years, and, after the signing of each sectoral contract, bargaining at the firm level begins. The sectoral contract provides a wage floor for the firm level, but bargaining does not necessarily occur at the firm level. Indeed, during the early 1980s, Confindustria often advised its members not to bargain on wages at the firm level; moreover, in many firms at that time unions did not have enough strength to push the discussion of wage increases beyond those granted by the sectoral contract.

Many of the outcomes of collective agreements are differentiated across workers according to a skill ranking system. The law first divides non-self-employed workers into four categories: blue-collar workers, white-collar workers, *quadri,* and managers. The nature of the occupation, whether manual or intellectual, traces the borderline between blue-collar workers and the other categories, while the amount of directive responsibilities traces the distinctions among the higher categories. High-level white-collar workers with directive responsibilities, known as the *quadri,* were first recognized by the law as a separate category in 1985. However, after the march of the forty thousand in 1980, collective contracts and employers acting independently from the contracts had already started to grant them some preferential treatment. The process that led to the recognition of the *quadri* as a separate category was one of the many signs that the compression of differentials achieved in the 1970s had gone too far for the unions' constituencies and the public at large.

Within the ranks of the nonmanagerial workers, collective contracts at the sectoral level further subdivide workers into several quasi skill categories called *inquadramento* levels. Wages and working conditions are attached to these levels, and contracts establish which types of workers are in which level; instead of job descriptions, there are *inquadramento* descriptions.

In the 1950s and 1960s, there were different *inquadramento* levels for blue-collar and white-collar workers, while the *quadri* category did not yet exist. The distinction between blue-collar and white-collar workers was, however, in evident contrast to the egalitarian goals of the unions. Therefore, during their period of strength in the early 1970s, the unions tried to push, through collective bargaining, for the *inquadramento unico:* a single ranking structure for

blue-collar and white-collar workers. The goal was to make explicit the equivalence of the skill content of manual and intellectual work. The attempt was, however, only partially successful, with blue- and white-collar workers ranked together only in the bottom half of the *inquadramento* and only white-collar workers ranked in the upper half.

In the metal-manufacturing sector, for example, there are eight *inquadramento* levels.[9] All blue-collar workers are ranked in the first five levels; some blue-collar workers with directive responsibilities are called *intermediates* and are ranked in the fourth and fifth levels. White-collar workers are ranked in all levels but the first. Finally, the *quadri* are ranked in the seventh level. Thus, despite the egalitarian gains of the unions, it is possible to identify fifteen different skill ranks of workers in metal-manufacturing: five blue-collar levels, two intermediate levels, seven white-collar levels, and one level for the *quadri*.

Our analysis in this section is based on the average monthly wages for these categories of workers for samples of firms from two data sets. The Assolombarda data set is collected by the Lombardy section of Confindustria from questionnaires sent to metal-manufacturing firms in the Milan area. This data set provides fairly disaggregated information on the components of the compensation package. The Federmeccanica data set is collected by the metal-manufacturing section of Confindustria and is based on firms in the whole country, but it provides more limited information on components of the compensation package.[10]

First, we believe that it is important to get a sense of the extent of the homogeneity of these fifteen categories across firms, in terms of monthly compensation. From the Assolombarda data set, we have access to the average monthly wages paid by each firm to the workers in each of the fifteen categories for the years 1983–90. The *inquadramento* level of the workers explains approximately 80–90 percent of the total variance of average monthly wages across *inquadramento* levels and firms. Furthermore, the (employment-weighted) within-*inquadramento* coefficient of variation of the average monthly wages paid across the firms in the sample is never above 10 percent (i.e., the standard deviation is never larger than 10 percent of the mean).

Looking separately at blue-collar and white-collar workers, there is the most homogeneity within the central ranks of each of the two groups. It should be kept in mind, however, that very few firms in the Assolombarda data set rank workers in the lowest blue-collar and white-collar levels, so the coefficients of variation are not very significant for these two levels. In the rest of our analysis based on the Assolombarda data set, we will drop these two levels. Intra-*inquadramento* pay for white-collar workers seems to be on average less homogeneous than for blue-collar workers, and for high white-collar levels the coef-

9. The levels are numbered from 1 to 7, but an additional category called *5-super* has been added between the fifth and the sixth levels.

10. Further descriptions of these two data sets are provided in the data appendix.

ficient of variation is significantly larger. There is, then, apparently less pay homogeneity across firms at high *inquadramento* levels.

Since we do not have access to individual wages in these data sets, we have little to say about within-firm variability. Limiting ourselves to differences across firms, we take the above as evidence that *inquadramento* levels explain a large part of the variability of monthly compensation. In other words, workers in a given level seem to receive fairly similar wages in different firms, although this is less true the higher the skill level. If one is willing to believe that wage homogeneity reflects skill homogeneity, and in the absence of better measures, *inquadramento* levels can then be considered as fairly satisfactory proxies for skill ranks.

The distribution of workers across *inquadramento* levels has undergone interesting changes in recent years. The Federmeccanica data set contains information on the proportion of workers in each level that is comparable across years. Between 1976 and 1991, the proportion of blue-collar workers in the nonmanagerial metal-manufacturing labor force decreased from 75.8 to 63.5 percent. This decrease seems to have been mainly due to a decrease in the proportion of workers in the three lowest *inquadramento* levels; since relatively few workers are ranked in the first two levels, most of the decrease in the blue-collar fraction of the labor force comes from the third level. As for white-collar workers, the increase in their proportion of the labor force is almost entirely due to an increase in the proportion of workers ranked in the two highest levels. These trends are particularly evident between 1976 and 1987.

This evidence suggests that the metal-manufacturing sector underwent a significant change in the composition of its labor force across *inquadramento* levels between 1976 and 1987. There are two principal interpretations of this change in composition. First, inasmuch as the *inquadramento* levels reflect skill levels, there may have been a shift away from lower skills and toward higher skills. Unfortunately, with our data, we have no way of measuring how much of this shift was due to labor demand forces and how much to labor supply forces.

Second, these trends may simply be the result of internal promotions during a period in which employment growth in the metal-manufacturing sector was minimal. In centralized bargaining systems, upgrading is a typical response to market forces pushing for more wage dispersion, resulting ultimately in an implicit form of wage drift. Again, however, with our data we cannot disentangle the extent to which these trends in the composition of the labor force reflect technological shifts toward more skill-intensive production and the extent to which they represent a form of wage drift. While reading the succeeding sections, however, keep in mind that, on top of the wage drift that we will explicitly measure (as the non–collectively contracted portion of the compensation package), wage drift is also likely to have taken place implicitly through promotions.

Table 8.3 The Structure of the Typical Compensation Package

Contractual minimum (sector)

+

Scala mobile component (sector, nation, or law)

= Contractual compensation
+ Collective superminimum (firm)
+ Individual superminimum (individual)
+ Seniority increase (sector)
+ Production premium (sector/firm)

= Base monthly compensation
+ Extraordinary pay (sector, law)
+ Overtime payments (sector, law)

= Monthly compensation × 12
+ 13th–14th months, etc. (sector/law)
+ Other annual bonuses (sector/firm)

= Total annual compensation
+ Severance pay (law)

= Total compensation

Note: The bargaining level at which the component is discussed, or whether it is determined by law, is in parentheses.

8.2.3 The Compensation Structure and Compensation Differentials

The structure of the typical compensation package for an Italian industrial worker is detailed in table 8.3.[11] The contractual minimum is determined at the sectoral bargaining level; the indexation system (*scala mobile*, "escalator"), regulated by sectoral bargaining or by law, is thought of as protection for the purchasing power of the contractual minimum. These two components make up the contractual compensation. Bargaining at the firm level adds to this floor a wage increase called the *collective superminimum* and a component called the *production premium;* the latter component originally had an incentive function that was abandoned in the 1970s under union pressure, although it still remains in the compensation package. More recently, annual bonuses, sometimes in the form of profit sharing, and plant-level incentive components have also been introduced into firm-level bargaining; seniority increases, in contrast, have always been determined at the sectoral level. The individual superminimum is the last component of the so-called base monthly compensation; it is determined by the employer outside any direct influence by unions—as we

11. The data sets on which this section is based have been used by several previous researchers. This section owes a great deal to that literature, particularly ASAP (1986–91), Carniti Commission (1988), Biagioli (1985, 1988), Frey (1988), Bordogna (1988), and Lucifora and Presutto (1990).

will see, because of this feature, it has played a significant role in the determination of wage differentials.

Adding some minor extraordinary payments and overtime payments,[12] we get to the total monthly compensation. The annual compensation is not just equal to twelve monthly installments, however, because, in addition to the annual bonuses mentioned above, at least one (by law), or two, or in some cases up to four additional "months" are added according to the sectoral contracts. Finally, severance payments are granted by law in any case of job separation.

Not all these components are equally important, particularly as far as wage differentials are concerned. As shown in table 8.4, the contractual minimum, the cumulated *scala mobile* payments,[13] and the individual superminimum accounted for between 80 and 90 percent of the total monthly wage in 1991 in each *inquadramento* level, although their relative weights varied, as will be discussed below. Furthermore, because overtime payments, severance payments, and thirteenth-month (and above) installments depend on the base monthly compensation, the behavior of these three components essentially shapes the behavior of the entire compensation package. In the remainder of this subsection, we describe the evolution and the determinants of these three key components.

The Contractual Minimum

As previously mentioned, the floor of the entire wage structure is the contractual minimum, established at the sectoral bargaining level. For each *inquadramento* level, and for each year of the contract, a minimum wage is agreed on. As shown in table 8.4, this component amounted to approximately 30 percent of the total monthly wage in each *inquadramento* level in 1991.

With the exception of a few contracts in the early 1970s, contracted minimum increases have always displayed some differentiation across *inquadramento* levels. Nevertheless, the compression of differentials for contracted levels continued until the end of the 1970s. For metal-manufacturing in the Milan area, these trends are shown in figure 8.3.[14] In 1976, the contracted minimum for white-collar workers in the seventh level was 80 percent more than for blue-collar workers in the second level. This percentage fell to 60 percent in 1979 and then grew more or less steadily up to 1991: in this year, the highest contracted minimum was almost twice the lowest.

Figure 8.3 also shows the same dispersion measure for total monthly com-

12. The minor extraordinary payments are payments for missions or compensating payments for specific job characteristics, e.g. overtime payments are not included in the monthly compensation data that we use in the rest of this section.

13. Here and elsewhere in the figures and tables, we refer to *scala mobile* payments cumulated since 1981.

14. Each point in this figure represents a compensation ratio between the seventh white-collar level and the second blue-collar level, with the exception of the upper observations on monthly compensation after 1987 (see n. 15 below).

Table 8.4 **Main Components of the Monthly Wage as a Percentage of the Total, Milan Area Metal-Manufacturing Sector, 1991**

Inquadramento Level	Contractual Minimum	*Scala Mobile*	Individual Supermin.	Collective Supermin.	Other
BC2	31.47	58.38	.51	2.67	6.96
BC3	31.62	53.12	1.30	2.95	11.01
BC4	31.76	49.91	3.27	4.01	11.05
BC5	32.35	45.62	3.54	3.96	14.53
IN4	31.19	49.06	6.75	2.60	10.40
IN5	30.35	42.80	12.10	4.54	10.20
WC3	31.54	53.00	3.04	4.44	7.97
WC4	31.22	49.08	4.83	5.86	9.01
WC5	31.53	44.47	9.92	5.18	8.90
WC5S	30.28	39.56	14.37	4.15	11.63
WC6	30.18	35.57	21.48	5.16	7.62
WC7	29.47	27.91	30.06	4.22	8.34
QU7	26.15	23.11	38.59	4.16	7.98

Source: Assolombarda.

pensation.[15] This differential is larger than the contracted one in every year and is U shaped, with a minimum in 1983; this minimum occurs four years after the minimum of the contracted differential. In other words, despite the fact that contracted differentials began to widen in the late 1970s, total differentials continued to compress. If the contracted minimum plus the *scala mobile* component is considered (the third series displayed in fig. 8.3), the max/min ratio for this series also keeps decreasing until 1983. This evidence suggests that, in conjunction with the indexation system, inflation bore major responsibility for the compression of monthly wage differentials between 1979 and 1983.

The Scala Mobile

Indexation has a long and conflict-ridden history in Italy, full of consequences for the evolution of wage differentials.[16] The first escalator (*scala mobile*) was introduced in bargaining at the national level immediately after the war. For each unit increase in the price index, equal wage increases (called *punti di contingenza* = points) were paid to workers in all sectors and *inquadramento* levels, but the increases were differentiated by region (lower in the

15. After 1987, the figure reports two max/min rations for total compensation. The upper one uses the average wage of the *quadri* as the *max*. This should not necessarily be interpreted as a widening of differentials with respect to previous years since the category of the *quadri* was created by splitting the seventh white-collar category. As discussed above, the *quadri* started being treated differently long before this split. The figure indicates, however, that the differential treatment of the *quadri*, hidden in the seventh level before 1987, was indeed significant.

16. For additional information on the debate concerning the *scala mobile* and on its history, see D'Apice (1975), Quarchioni (1979), CNEL (1981), Alleva (1986), Faustini (1987), and Mariani (1991).

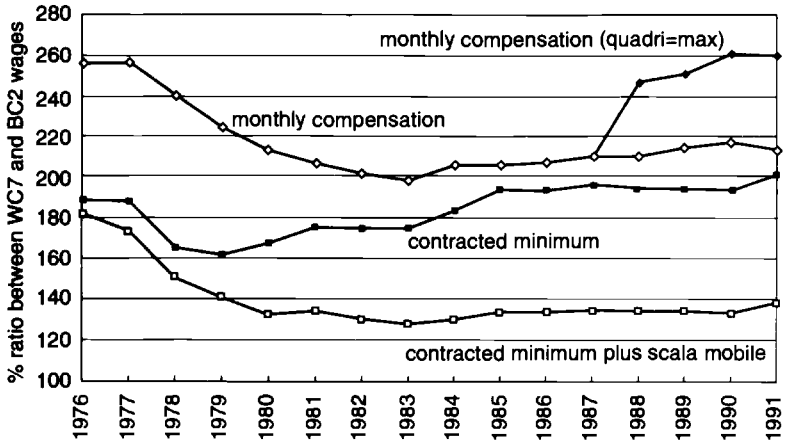

Fig. 8.3 Max/min ratios across *inquadramento* levels, Milan area metal-manufacturing sector
Source: Assolombarda.

south), gender (lower for women), and age (lower for young workers). A reference basket of goods was established that remains essentially unchanged today. The agreement, initially proposed by Confindustria, was explicitly interpreted by the parties as an exchange of indexation for social peace.

The provision of equal *scala* payments for all workers (which ensured 100 percent coverage for the mean worker's contracted wage in 1946) clearly induced a compression of wage differentials. It also essentially provided zero coverage for subsequent contracted wage increases; yet, on the other hand, since the *punti di contingenza* were paid for each unit increase in the price index (rather than for each percentage point drop in the mean worker's real wage, e.g.), this system accelerated the reaction of wages to inflation. Such a system, therefore, requires periodic adjustments, first to provide coverage for subsequent contracted wage increases, and second to reduce the built-in acceleration of the wage-price spiral.

The compression of differentials caused by this indexation system, in conjunction with the high postwar inflation, soon led to calls for the elimination of the egalitarian aspects of the escalator. The system was slightly changed in 1951: the new system was still based on points, but the escalator increases were differentiated to provide 100 percent coverage for each *inquadramento* level and to maintain inter-*inquadramento* differentials on a 100–239 scale from the lowest blue-collar level to the highest white-collar level. All other aspects remained unchanged, including zero coverage for future wage increases and the built-in accelerator.

The *scala mobile* maintained this same basic structure until the mid-1970s, with periodic readjustments to provide coverage for interim contracted wage

increases and to reduce the reaction speed of the escalator. One major change, concerning not only the indexation system but also contracted wages, was the elimination by law of *scala mobile* payments and contracted wage differentiation by gender, age, and region. The escalator, originally introduced in bargaining, was extended by law to the entire industrial sector in 1960. With few exceptions (the financial sector, e.g.), it was extended through contracts to the rest of the economy, although its nontrivial drawbacks in terms of coverage and the wage-price spiral were already evident.

Then, when union strength increased dramatically after the *Autunno Caldo,* the unions sought changes in the system. Most obviously, the egalitarian aspirations of the early 1970s clashed with the differentiation of *scala mobile* payments across *inquadramento* levels; in addition, given the large contracted wage increases of the early 1970s, and despite the periodic readjustments, the coverage provided by the system had decreased. Finally, the first appearance of oil shock inflation suggested to the unions the need for better protection of real wages.

At the unions' request to Confindustria, a return to a fully egalitarian escalator was negotiated in 1975: the parties agreed on a two-year transition to a system where all workers would receive, at a quarterly frequency, equal escalator increases for each point increase of the price index in the previous quarter (i.e., similar to the 1945–46 system, but without differentiation by region, gender, and age).[17] The *scala* point was set equal to the highest point of the previous system (upward equalization). In addition, a quite substantial fixed sum was paid to all workers as compensation for the lack of full coverage of interim wage increases under the old system. A 1977 law prohibited escalator systems more favorable to workers than the escalator negotiated in 1975; this implied de facto legal extension of the industrial sector escalator to the entire economy.

Somewhat surprisingly, the two major drawbacks of the previous system (zero coverage of subsequent contracted increases and acceleration of the wage-price spiral) remained in place, while the potential for dramatic compressionary effects on wage differentials in a country already facing double-digit inflation was built in. In addition, the average coverage was dramatically raised by the upward equalization of the *punti,* increasing real rigidities potentially incompatible with the consequences of the oil shocks.

Indeed, between 1975 and 1983, while inflation fluctuated between 10 and 20 percent (fig. 8.4), the potential for wage compression became a reality, as shown by the evidence presented in the first section and in figure 8.3 above: the dispersion of all the measures that we consider (except the contracted minimum alone), and in particular the contracted plus *scala mobile* component of the compensation package, displays a continuing compression until 1982–83.

17. Note the similarity of this system to the escalator clauses in many U.S. union contracts: in the automobile and aerospace industries, e.g., cost-of-living clauses often specify across-the-board cents-per-hour wage increases for given increases in the consumer price index.

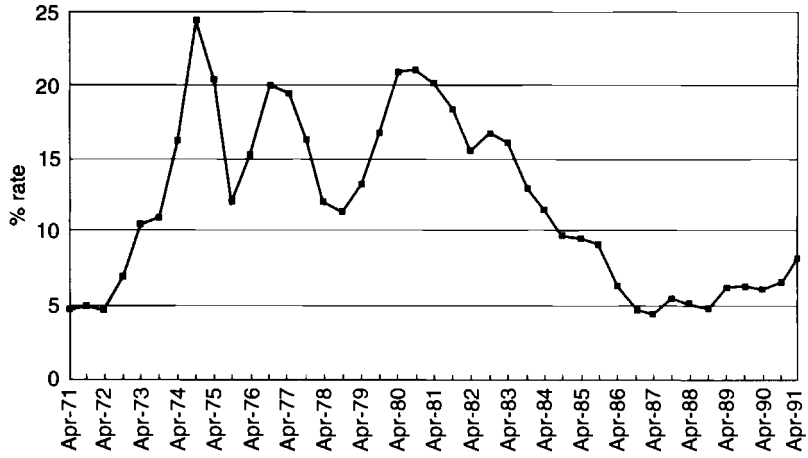

Fig. 8.4 Annual inflation in Italy
Source: Bank of Italy.

Despite increasing opposition by highly skilled workers to wage compression, unions remained attached to the egalitarian nature of the *scala mobile.* They also opposed any attempts to cut the degree of coverage and the reaction speed of the escalator.

On these latter issues, however, the three unions came to fundamental disagreement after many years of unified action. In 1983, CISL and UIL joined in an agreement with employers (spearheaded by the government) that implemented a 15 percent downward adjustment in the degree of coverage, followed in 1984 by a predetermined cap on *scala* payments. The Communist majority within the CGIL opposed the agreements, and together with the PCI they pushed for a referendum against the 1984 agreement. The referendum, held in 1985, acquired a political importance that went far beyond the relevance of the money involved: it became a referendum on the *scala mobile.* The result was a defeat for the PCI and the CGIL that signaled the end of the old indexation system.

On the wave of the referendum results, Confindustria was strong enough to reject the old indexation system as a whole. However, the bargaining process over a new system between Confindustria and the unions came to a dead end. The government was therefore compelled to intervene directly in order to avoid social unrest, doing so in 1986 with a law on indexation that imposed a new public-sector escalator on the entire economy. The point-based system was abandoned for something analogous to a progressive tax system: 100 percent coverage for a portion of the contracted compensation (equivalent to the contractual minimum of a medium-level worker), with the remainder up to the total contractual compensation (contractual minimum plus *scala mobile:* see table 8.3 above) indexed at 25 percent. All other compensation components

were uncovered. The average overall degree of indexation was approximately 50 percent for blue-collar workers and 40 percent for white-collar workers.

The law expired in 1990 and was extended for one year in the hopes that the parties would reach a solution. In December 1991, the parties decided to suspend the existing indexation system (begun in 1986) and to open, in June 1992, a new bargaining round aimed at a comprehensive reform of the entire compensation system, including indexation. The trade unions, the employers, and the government came to a first agreement at the end of July 1992. Despite the strong opposition of the Communist left in the CGIL, the July agreement brought the death of the *scala mobile:* in exchange for the elimination of the indexation system, Italian workers were to receive monthly lump-sum payments beginning in January 1993 equal, for everyone, to slightly more than 1 percent of the monthly wage of the lowest-level blue-collar worker in 1990. In addition, bargaining at the firm level was suspended by the July agreement until the end of 1993.[18]

This agreement clearly has the flavor of a large concession from workers to employers, and in fact it generated much opposition among some union members. In addition, the subsequent exchange rate crisis of the lira, initiated in September 1992 and followed by a stabilization program proposed by the government, made the July agreement even more difficult for the unions' base constituency to accept: the devaluation generated a widespread fear of growing inflation in the absence of indexation, while the stabilization program (more taxes and fewer social expenditures) contradicted some of the commitments made in July by the government.

Returning to the 1986 reform, it apparently did not induce very much differentiation across *inquadramento* levels: figure 8.3 above indicates that the max/min ratio of the contracted minimum plus *scala mobile* component increased only slightly in the late 1980s, although the differential for the contracted increase shows a more marked upward trend. We see in table 8.4 above that, in 1991, the portion of total compensation accounted for by the *scala mobile* payments cumulated since 1981 still shrinks as we move to higher *inquadramento* levels; during the 1980s, the indexation system did not fully protect the wages of highly skilled workers. Table 8.4 seems, however, to suggest that the third main component of the compensation package, the individual superminimum, has at least partially compensated the highly skilled workers for the low coverage provided by the *scala mobile* system.

The Collective and the Individual Superminima

Bargaining at the firm level has clearly influenced wage differentials. The main portion of the compensation package that is determined at this level is the collective superminimum (see table 8.3 above). The ratio between the high-

18. As for the comprehensive discussion of the entire compensation structure, the agreement mentions only a generic commitment of the parties to discuss the issue in future bargaining rounds.

est and the lowest *inquadramento* levels for the cross-firm average of this wage component (from the Assolombarda data set) ranged from 233 in 1976 to 339 in 1991, while for the contracted minimum the ratio ranged from 187 to 201 over the same time period; however, the collective superminimum ratio is still relatively small if we compare it to the ratio for the individual superminimum, which ranged from 3,670 in 1976 to 12,708 in 1991.

The individual superminimum is the part of the monthly wage that is determined by the employer specifically for each worker and, therefore, is the only component of the compensation package that is not regulated by collective bargaining or by the law. As shown in table 8.4 above, this component is practically insignificant at low *inquadramento* levels but grows to almost 40 percent of the compensation package at the highest white-collar level. All together, this evidence suggests that the individual superminimum is the main instrument by which individual employer-worker bargaining influences wage dispersion.

Some interesting descriptive evidence on the role of this component is provided in table 8.5. This table, based on Federmeccanica data, displays the following decomposition of the annual increase in monthly compensation:

$$\log\left(\frac{WT_t}{WT_{t-1}}\right) = \log\left(\frac{WCS_t}{WT_{t-1}}\right) + \log\left(\frac{WT_t}{WCS_t}\right),$$

where WT = total monthly compensation, WCS = contracted minimum wage plus cumulated *scala mobile,* and t indexes years. That is, the total percentage monthly wage increase between two years can be decomposed into the sum of the percentage increase due to the *scala mobile* and the contract, plus the log of the ratio between the total wage and the contracted plus *scala mobile* portion. This last term is known in the literature as the *drift rate* (see, e.g., Hibbs and Locking 1991). Table 8.5 presents, for each *inquadramento* level, the averages of these three terms for the periods 1976–82 and 1983–90. This data set does not offer separate information on the individual superminimum, and therefore we can examine only the overall drift. We know, however, from the evidence presented above that, as far as differentials are concerned, the individual superminimum is the most important component of the drift.

Looking at total wage growth in the different *inquadramento* levels, the compression of wage differentials in the first subperiod and the expansion in the second appear evident.[19] But what is most striking in this table is the existence of a scissor between the drift rate and the increase due to the contract plus the *scala mobile,* which grows larger as we move across *inquadramento* levels. Notice also that, in the second subperiod, the size of the scissor clearly widens, particularly in the higher white-collar levels. Combining the evidence provided by this table and by figure 8.3 above, it seems that the disequalizing effect of the drift rate became greater in the second subperiod, when inflation

19. Keep in mind that, while white-collar *inquadramento* levels are listed after blue-collar levels in the table, blue- and white-collar workers in the same level are comparable in terms of the contracted portion of the compensation package.

Table 8.5 **Decomposition of the Total Monthly Wage Increase in the Nationwide Metal-Manufacturing Sector**

	1976–82 Averages			1983–90 Averages		
Inquadramento Level	Total Wage Growth	Drift	Contract Plus *Scala*	Total Wage Growth	Drift	Contract Plus *Scala*
BC1	18.50	13.71	4.79	7.54	12.07	−4.53
BC2	17.61	16.33	1.28	7.43	14.31	−6.88
BC3	17.18	19.49	−2.32	7.90	19.40	−11.51
BC4	16.90	20.77	−3.87	7.96	21.52	−13.56
BC5	16.57	22.29	−5.72	8.20	24.81	−16.60
IN4	16.51	28.32	−11.81	8.01	27.69	−19.68
IN5	15.60	33.89	−18.28	8.27	31.08	−22.81
WC2	17.87	13.79	4.08	6.93	10.12	−3.18
WC3	17.55	20.45	−2.90	7.05	17.81	−10.75
WC4	17.04	25.20	−8.16	7.07	21.92	−14.85
WC5	15.64	29.48	−13.84	7.88	29.75	−21.87
WC5S	15.06	33.35	−18.28	7.98	34.01	−26.04
WC6	13.92	41.00	−27.08	8.59	45.92	−37.33
WC7	14.91	62.11	−47.20	10.08	73.36	−63.29

Source: Federmeccanica.

was lower, but that this component has acted primarily to offset the equalizing effect of the escalator.

8.2.4 Inflation and Wage Dispersion

Given the evidence presented above, it can be argued that inflation affected wage differentials through two interrelated channels, one direct and one indirect. The direct channel worked through the egalitarian indexation mechanism and generated a compressionary effect on the wage distribution. The indirect channel worked instead through the drift: the higher inflation, the greater is likely to have been the extent of the use of the drift on the part of employers to offset the compression caused by the *scala mobile;* this second channel generated an expansionary effect on the wage distribution.

Since the percentage increase in total wage dispersion is a function of changes in the dispersion due to the escalator and to the drift, one can estimate the reduced-form overall effect of inflation on the change in total wage dispersion and thus get a sense of which of these two channels prevailed. The results of this reduced-form estimation are contained in the following equation, estimated over the period 1976–90 on Federmeccanica data:

$$\log\left(\frac{\mathrm{VWT}_t}{\mathrm{VWT}_{t-1}}\right) = \underset{(0.06)}{0.19} - \underset{(0.41)}{1.57} \cdot \mathrm{INFLATION} + \underset{(0.04)}{0.01} \cdot \mathrm{CONTRACT} - \underset{(0.05)}{0.06} \cdot \mathrm{QUADRI},$$

where VWT is the variance of the log of monthly wages across *inquadramento* levels (excluding the *quadri*), CONTRACT is a dummy variable that takes the value one in the years in which a contract is signed, and QUADRI is a dummy variable that takes the value one for the years in which the *quadri* were separated from the seventh white-collar level. Inflation, through the *scala mobile* and the drift, clearly had a strong negative and significant effect on the percentage change in wage dispersion. Therefore, the disequalizing effect of the wage drift was not strong enough to offset completely the compression of differentials caused by the indexation system.

On the other hand, when we distinguish between the two subperiods analyzed in table 8.5, we obtain the following result:

$$\log\left(\frac{\mathrm{VWT}_t}{\mathrm{VWT}_{t-1}}\right) = \underset{(0.08)}{0.07} - \underset{(0.52)}{0.96} \cdot \mathrm{INFLATION1} - \underset{(1.13)}{0.23} \cdot \mathrm{INFLATION2} + \underset{(0.04)}{0.03} \cdot \mathrm{CONTRACT} - \underset{(0.04)}{0.05} \cdot \mathrm{QUADRI},$$

where INFLATION1 (INFLATION2) is equal to inflation for the years 1976–82 (1983–90) and zero otherwise, and the other variables are defined as above. Here we see that inflation significantly compressed wages only until 1982. After 1982, inflation does not seem to have affected wage differentials, despite the persistently egalitarian nature of the escalator. This suggests that, in the second subperiod, the disequalizing effect of the drift became relatively stronger and capable of practically offsetting the effect of the escalator.

What we have found, then, is that a large part of the compression generated by twenty years of inflation and egalitarian institutions seems still to be present. We next see what we can learn from individual data and a comparison with the United States, where egalitarian wage-setting institutions clearly play a much less significant role.

8.3 Individual Characteristics and Earnings Inequality: A Comparison of Italy and the United States

We now turn to an analysis of individual level data on the determinants of annual wage and salary earnings in Italy, using the United States as a benchmark. We first describe the trends in educational attainment and the age structures of our samples of workers in the two countries over the period under study, 1978–87, finding roughly similar age structures and a higher average level of educational attainment in the United States but a trend toward more educated workforces in both countries. We then examine returns to schooling and experience and measures of overall earnings inequality in the two countries. Our main findings here are that overall inequality and returns to skill (as measured by the variability of actual and residual log earnings and the return to a college degree) are unambiguously higher in the United States than in

Italy and that, while inequality has clearly increased in the United States, the pattern is less clear in Italy—indicating, if anything, a trend toward a less unequal distribution.

8.3.1 Data

The Italian data source is a representative household survey collected by a private company for the Bank of Italy over the period 1978–87, excluding 1981 and 1985; we refer to this data set as the *BDI*.[20] For the United States, we use the March Current Population Survey (CPS). Several data limitations for the BDI require discussion. First, the earnings variable is annual earnings from employment net of taxes, which does not have an exact equivalent in the CPS; we use CPS annual gross wage and salary earnings.[21] Schooling and age are not continuous in the BDI, but they are segmented into five and six categories, respectively (schooling categories: no schooling, completed elementary, completed junior high, completed high school, and college or higher degree; age categories: under twenty-one, twenty-one to thirty, thirty-one to forty, forty-one to fifty, fifty-one to sixty-five, and over sixty-five); for our comparative regressions, we similarly segment the CPS data, making the schooling categories none = completed grade 0–5; elementary = completed grade 6–8; junior high = completed grade 9–11; high school = completed grade 12–15; and college+ = completed grade 16+. Note that the BDI does not contain information on the worker's *inquadramento* level.

Finally, we restrict our samples to full-time, full-year nonagricultural workers between the ages of eighteen and sixty-five who are not self-employed. Earnings are not top coded in the BDI; we impute top-coded CPS annual earnings at 1.45 times the annual top-code amount (following Katz and Murphy 1992). We conduct all our analyses separately for men and women.[22]

8.3.2 Age and Educational Composition of the Labor Forces

First, we examine the levels and changes of the age and occupational structures in the two countries. Table 8.6 presents the sample proportions for the five schooling and five age categories in the two countries for men and women in 1978 and 1987. Note in particular the generally higher level of schooling in the United States and the rough similarity of the age distributions. From the beginning of this period to the end of this period, the proportion of Italian men

20. These data were previously analyzed in Cannari, Pellegrini, and Sestito (1989) and Sestito (1990), who estimated earnings functions for Italy and examined the residual variance, concluding that there has been no significant increase in inequality. We thank them for their insights and the Bank of Italy for providing the data. The survey was conducted in 1981, but the data in that year deviate from the adjacent years along enough dimensions to be highly suspect; we exclude it. No survey was conducted in 1985.

21. We discuss the Italian tax system and its possible effects on earnings inequality below.

22. The male/female earnings differential is greater in the United States than in Italy and is dropping faster in the United States. For an analysis of the gender earnings gap in Italy and elsewhere, we refer the reader to Blau and Kahn (chap. 3 in this volume).

Table 8.6 **Sample Percentages of Age and Education Categories, Italy and the United States, 1978 and 1987**

	Men		Women	
	1978	1987	1978	1987
Education: Highest level completed				
None:				
Italy	4.0	1.2	3.0	1.2
United States	2.2	1.3	1.2	.7
Elementary:				
Italy	31.0	21.3	24.0	14.0
United States	7.7	4.5	5.5	2.7
Junior High:				
Italy	31.7	36.8	28.5	27.7
United States	12.0	9.0	10.8	6.6
High School:				
Italy	25.2	30.0	33.8	40.8
United States	56.0	57.8	64.9	66.0
College+:				
Italy	8.1	10.6	10.7	16.2
United States	22.1	27.4	17.7	24.0
Age category				
18–20:				
Italy	3.6	1.6	7.1	2.6
United States	2.9	1.9	4.2	2.2
21–30:				
Italy	23.5	21.0	34.9	27.7
United States	27.3	27.3	31.7	30.4
31–40:				
Italy	26.7	29.3	27.5	33.4
United States	26.7	32.1	22.1	30.4
41–50:				
Italy	23.5	27.5	21.0	25.1
United States	21.2	21.0	20.4	20.7
51–65:				
Italy	22.8	20.6	9.5	11.2
United States	21.9	17.8	21.7	16.2
Experience				
Italy	25.7	25.3	19.9	20.9
United States	22.0	20.7	21.2	19.8

Sources: Bank of Italy, U.S. Current Population Survey.

Note: For education and age categories, the number given is the percentage of the particular gender's total sample of full-time, full-year nonagricultural workers who are not self-employed, aged 18–65, accounted for by particular category. Highest level of education completed in United States: none = completed grade 0–5, elementary = 6–8, junior high = 9–11, high school = 12–15, college+ = 16+. Experience = mean of age category minus years to completion of schooling category minus six.

in this sample who had not completed high school fell 11 percent (from 66.7 to 59.3 percent), while the proportion of their American male counterparts who had not completed high school fell 32 percent (from 21.9 to 14.8 percent); the proportion of Italian men with college degrees rose 31 percent, and the proportion of American men with college degrees rose 24 percent. For Italian women, the proportion who had not completed high school fell 23 percent, and the proportion with college degrees rose 51 percent; the corresponding numbers for American women in the CPS sample are −43 percent and 36 percent. In both countries, then, there was a trend toward greater educational attainment among full-time workers over this period.[23] We return to these findings and their possible roles in explaining the trends in overall inequality.

8.3.3 Educational Earnings Differentials

We now examine differences and changes in the return to human capital characteristics. Looking first at the raw evidence on the influence of schooling on earnings, significant cross-country differences appear to exist in education-earnings profiles. Table 8.7 presents raw (completed high school)/(did not complete high school) and (college degree)/(completed high school) average earnings ratios for men and women in each country for four age groups (combining the youngest two in table 8.6 above to create the eighteen to thirty category). Both ratios rise in every age-gender group from the beginning of the period to the end of the period among Americans, and the college/high school gap rises in all groups but one in Italy (men forty-one to fifty). Yet the high school/(less than high school gap was smaller in 1987 than in 1978 in six of the eight age-gender groups in Italy (except age thirty-one to forty for both men and women). By 1987, the ratios for Americans were greater than or equal to the corresponding ratios for Italians in every age-gender group.

Differences also seem to exist in the shape of the raw education-earnings profiles. In most cases, the college/high school gap is greater than the high school/less than high school gap in the United States, but the opposite is often true in Italy, particularly among the older cohorts and in the later years. This suggests that education-earnings profiles tend to be convex in the United States and concave in Italy.

23. We can use these five age and five schooling levels to create twenty-five age-schooling categories, the finest division possible for the Italian sample along the dimensions of schooling and experience. For Americans, both men and women in both 1978 and 1987, the largest age-education categories are always high school aged twenty-one to thirty and thirty-one to forty. The largest age-education categories in 1978 for Italian men were junior high aged twenty-one to thirty and elementary aged fifty-one to sixty-five and in 1987 junior high and high school aged thirty-one to forty. In 1978 the largest categories for Italian women were high school and junior high aged twenty-one to thirty and in 1987 high school aged twenty-one to thirty and thirty-one to forty (as in the United States). Apart from the generally higher level of schooling in the United States, the two countries look reasonably similar in terms of the distribution of age cohorts within schooling categories, and all the distributions seem to be moving toward older and more educated populations (although the share in the oldest category, fifty-one to sixty-five, drops for everyone but Italian women).

Table 8.7 **Education/Earnings Ratios by Age Groups, Italy and the United States, 1978–87 (excluding 1981 and 1985)**

	1978	1979	1980	1982	1983	1984	1986	1987
Men								
18–30:								
Italy [A]	1.13	1.14	1.23	1.21	1.16	1.14	1.20	1.11
Italy [B]	1.25	1.18	1.24	1.13	1.22	1.25	1.29	1.38
United States [A]	1.27	1.27	1.24	1.22	1.31	1.32	1.31	1.35
United States [B]	1.26	1.24	1.23	1.29	1.33	1.35	1.43	1.48
31–40:								
Italy [A]	1.18	1.27	1.22	1.23	1.16	1.18	1.15	1.19
Italy [B]	1.14	1.02	1.07	1.06	1.25	1.08	1.08	1.27
United States [A]	1.31	1.34	1.35	1.41	1.37	1.35	1.41	1.40
United States [B]	1.29	1.27	1.24	1.26	1.31	1.34	1.41	1.41
41–50:								
Italy [A]	1.36	1.51	1.31	1.30	1.29	1.30	1.29	1.23
Italy [B]	1.24	1.01	1.25	1.21	1.19	1.24	1.07	1.19
United States [A]	1.32	1.30	1.30	1.35	1.43	1.38	1.40	1.40
United States [B]	1.43	1.43	1.44	1.41	1.45	1.45	1.49	1.49
51–65:								
Italy [A]	1.51	1.36	1.33	1.39	1.31	1.44	1.34	1.36
Italy [B]	1.28	1.45	1.33	1.12	1.33	1.29	1.32	1.31
United States [A]	1.33	1.32	1.32	1.32	1.38	1.32	1.36	1.36
United States [B]	1.56	1.51	1.51	1.50	1.56	1.56	1.59	1.58
Women								
18–30:								
Italy [A]	1.24	1.22	1.14	1.16	1.10	1.21	1.18	1.17
Italy [B]	1.06	1.02	1.23	1.14	1.28	1.13	1.28	1.30
United States [A]	1.24	1.24	1.22	1.33	1.31	1.33	1.38	1.30
United States [B]	1.31	1.33	1.35	1.38	1.37	1.38	1.45	1.51
31–40:								
Italy [A]	1.20	1.32	1.15	1.24	1.38	1.24	1.23	1.24
Italy [B]	1.01	1.05	1.01	1.06	1.04	1.08	1.04	1.03
United States [A]	1.35	1.23	1.29	1.35	1.43	1.39	1.40	1.46
United States [B]	1.44	1.46	1.43	1.37	1.40	1.41	1.42	1.48
41–50:								
Italy [A]	1.39	1.30	1.33	1.37	1.19	1.32	1.26	1.27
Italy [B]	1.08	1.05	.98	1.06	1.10	1.09	1.08	1.11
United States [A]	1.33	1.27	1.29	1.34	1.36	1.33	1.41	1.46
United States [B]	1.44	1.47	1.43	1.39	1.46	1.44	1.47	1.50
51–65:								
Italy [A]	1.46	1.61	1.38	1.38	1.43	1.37	1.38	1.40
Italy [B]	.91	1.01	1.20	1.06	1.21	1.08	1.06	1.06
United States [A]	1.34	1.36	1.34	1.39	1.42	1.32	1.34	1.41
United States [B]	1.42	1.43	1.50	1.37	1.40	1.52	1.50	1.46

Sources: Bank of Italy, U.S. Current Population Survey.

Note: Italy[A] and United States[A] = completed high school/did not complete high school average earnings ratio. Italy[B] and United States[B] = college degree or more/completed high school average earnings ratio. Earnings = annual wage and salary earnings, full-time, full-year nonagricultural workers who are not self-employed, aged 18–65. Before tax in United States, after tax in Italy.

We investigate these education-earnings relations further by comparing the coefficients from logarithmic earnings functions estimated separately for men and women in the two countries. Tables 8.8 and 8.9 present the coefficients on experience (defined as the mean of the age category occupied by a given observation minus the years to completion of the schooling category minus six), experience squared, and three schooling levels (up to completed elementary, completed junior high, and college degree plus; completed high school is the excluded category) for the years 1978–87 for men and women, respectively.

There are several interesting results from these regressions. First, judging by the adjusted R^2's, the explanatory power for the regressions are roughly comparable across the two countries within gender groups. Second, while the returns to high school as well as college are clearly rising for both men and women in the United States, the trend is much less clear in Italy—indicating, if anything, a weak trend toward lower returns to high school (relative to those with elementary or less in particular) and higher returns to college.[24]

Third, making within-gender comparisons across the two countries, in each period the returns to high school and college are higher and the experience-earnings profile steeper for American men than for Italian men (excepting the return to completing high school relative to completing junior high in 1982). While Italian women begin with steeper experience-earnings profiles and a greater earnings deficit at the lowest education category compared to American women, these relations are reversed by the end of the period after the greater growth in returns to education and experience among American women (the return to a college degree is much greater for American women than for Italian women throughout, but the gap is larger at the end of the period).

Finally, making within-country comparisons across the genders, American men and women have roughly similar returns to high school and college, while Italian women have a greater return to a high school degree than Italian men when the comparison group is elementary or less, and Italian men have a somewhat greater return to college.

8.3.4 Overall Earnings Inequality

The trends in overall inequality are shown in table 8.10, which displays five measures of earnings inequality for men and women: the 90-10 log earnings differential, the 90-50 log earnings differential, the 50-10 log earnings differential, the standard deviation of log earnings, and the standard deviation of log earnings residuals from separate regressions by gender-year-country cells (i.e., the regressions presented in tables 8.8 and 8.9 above) as well as the standard deviation of log earnings for men in industry in Italy and manufacturing in the United States. In all cases but the 50-10 differential for women in the earlier

24. Note the large jump in returns to college for men in 1983. This jump comes primarily from those employed in public administration; the return for those employed in industry actually falls slightly.

Table 8.8 **Earnings Function Coefficients for Men in Italy and the United States, 1978–87 (excluding 1981 and 1985)**

	1978	1979	1980	1982	1983	1984	1986	1987
Experience (divided by 10):								
Italy	.39	.41	.34	.36	.36	.35	.34	.27
	(.03)	(.04)	(.03)	(.02)	(.03)	(.02)	(.02)	(.02)
United States	.45	.43	.42	.43	.45	.44	.48	.46
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Experience squared (divided by 1,000):								
Italy	−.55	−.56	−.50	−.50	−.49	−.48	−.46	−.36
	(.05)	(.05)	(.05)	(.04)	(.04)	(.04)	(.03)	(.03)
United States	−.70	−.65	−.63	−.63	−.66	−.64	−.69	−.67
	(.02)	(.02)	(.02)	(.02)	(.02)	(.03)	(.02)	(.03)
Elementary or less:								
Italy	−.35	−.39	−.36	−.37	−.34	−.34	−.34	−.32
	(.02)	(.03)	(.02)	(.02)	(.02)	(.02)	(.01)	(.02)
United States	−.39	−.41	−.41	−.41	−.46	−.42	−.47	−.47
	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)	(.02)	(.02)
Junior high:								
Italy	−.21	−.24	−.23	−.26	−.23	−.23	−.23	−.19
	(.02)	(.03)	(.02)	(.02)	(.02)	(.02)	(.01)	(.01)
United States	−.23	−.24	−.25	−.25	−.28	−.26	−.29	−.31
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)

College+:								
Italy	.22	.14	.18	.15	.27	.21	.16	.26
	(.03)	(.04)	(.03)	(.03)	(.03)	(.03)	(.02)	(.02)
United States	.35	.32	.32	.33	.37	.39	.43	.43
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
$\bar{R}^2$:								
Italy	.23	.24	.25	.26	.29	.23	.27	.23
United States	.23	.22	.19	.21	.22	.19	.22	.23
No. of observations:								
Italy	1,767	1,637	1,610	2,201	2,250	2,019	3,766	3,192
United States	22,391	22,827	27,324	23,566	22,244	22,640	23,955	23,692
Average earnings ($US):								
Italy	6,436	7,442	8,975	7,978	7,913	7,888	10,861	13,819
United States	15,991	17,186	18,595	22,145	23,578	24,419	27,070	28,237

Sources: Bank of Italy, U.S. Current Population Survey.

Note: Dependent variable = log of annual wage and salary earnings, full-time, full-year nonagricultural workers who are not self-employed, aged 18–65, before tax in United States, after tax in Italy. Excluded education category = completed high school; all regressions also contain a constant. Standard errors are in parentheses.

Table 8.9 **Earnings Function Coefficients for Women in Italy and the United States, 1978–87 (excluding 1981 and 1985)**

	1978	1979	1980	1982	1983	1984	1986	1987
Experience (divided by 10):								
Italy	.30	.27	.23	.24	.19	.20	.28	.18
	(.04)	(.04)	(.04)	(.04)	(.04)	(.03)	(.03)	(.02)
United States	.21	.22	.23	.22	.25	.25	.27	.30
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Experience squared (divided by 1,000):								
Italy	−.50	−.45	−.39	−.33	−.25	−.29	−.43	−.24
	(.09)	(.08)	(.08)	(.08)	(.08)	(.06)	(.05)	(.05)
United States	−.34	−.36	−.36	−.36	−.42	−.42	−.44	−.50
	(.03)	(.02)	(.02)	(.03)	(.03)	(.03)	(.03)	(.03)
Elementary or less:								
Italy	−.44	−.50	−.43	−.49	−.43	−.44	−.42	−.39
	(.04)	(.04)	(.05)	(.04)	(.04)	(.04)	(.03)	(.03)
United States	−.37	−.35	−.40	−.40	−.40	−.38	−.42	−.45
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Junior high:								
Italy	−.22	−.21	−.13	−.17	−.20	−.21	−.21	−.20
	(.04)	(.04)	(.03)	(.03)	(.03)	(.03)	(.02)*	(.02)

United States	−.25	−.22	−.23	−.27	−.28	−.25	−.29	−.31
	(.01)	(.01)	(.01)	(.01)	(.02)	(.02)	(.02)	(.02)
College+:								
Italy	.08	.08	.13	.15	.18	.13	.12	.14
	(.05)	(.05)	(.05)	(.04)	(.04)	(.03)	(.03)	(.02)
United States	.36	.36	.38	.36	.38	.39	.43	.45
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
$\bar{R}^2$:								
Italy	.16	.21	.15	.17	.17	.20	.19	.21
United States	.16	.16	.15	.15	.15	.14	.16	.18
No. of observations:								
Italy	838	820	829	1,104	1,101	1,073	1,991	1,797
United States	12,204	12,999	16,055	14,886	14,981	15,547	16,493	16,807
Average earnings ($U.S.):								
Italy	4,787	5,683	7,072	6,216	6,321	6,129	8,395	10,684
United States	9,242	10,051	10,936	13,198	14,397	15,265	17,226	18,128

Sources: Bank of Italy, U.S. Current Population Survey.

Note: Dependent variable = log of annual wage and salary earnings, full-time, full-year nonagricultural workers who are not self-employed, aged 18–65, before tax in United States, after tax in Italy. Excluded education category = completed high school; all regressions also contain a constant. Standard errors are in parentheses.

Table 8.10 **Measures of Inequality of Log Earnings, Italy and the United States**

Year	90-10 Differential	90-50 Differential	50-10 Differential	SD	SD of Residuals	SD in Industry
Italian men						
1978	.827	.470	.357	.402	.353	.409
1979	.742	.336	.405	.410	.358	.420
1980	.742	.377	.365	.367	.319	.377
1982	.762	.405	.357	.373	.320	.387
1983	.724	.361	.363	.370	.311	.364
1984	.693	.379	.314	.374	.328	.333
1986	.729	.419	.310	.337	.288	.317
1987	.734	.446	.288	.355	.311	.371
						SD in Manufacturing
American men						
1978	1.206	.533	.672	.531	.466	.471
1979	1.216	.549	.668.	.535	.473	.512
1980	1.261	.565	.696	.578	.522	.509
1982	1.257	.564	.693	.564	.502	.520
1983	1.348	.606	.742	.586	.516	.518
1984	1.379	.598	.781	.632	.570	.543
1986	1.409	.629	.780	.638	.563	.575
1987	1.452	.631	.821	.627	.549	.582
Italian women						
1978	.916	.336	.580	.447	.408	
1979	.869	.256	.613	.437	.388	
1980	.787	.288	.500	.435	.400	
1982	.867	.342	.525	.447	.407	
1983	.860	.314	.547	.427	.388	
1984	.693	.241	.452	.371	.330	
1986	.818	.268	.550	.398	.358	
1987	.693	.251	.442	.343	.305	
American women						
1978	1.082	.548	.535	.484	.443	
1979	1.124	.568	.556	.472	.433	
1980	1.054	.543	.511	.514	.473	
1982	1.099	.560	.539	.510	.471	
1983	1.161	.571	.591	.532	.491	
1984	1.204	.580	.624	.548	.507	
1986	1.253	.616	.636	.556	.509	
1987	1.322	.629	.693	.564	.511	

Sources: Bank of Italy, U.S. Current Population Survey.

years, inequality is greater for Americans than for their Italian gender counterparts. In all but one case, there is evidence of an increase in inequality in the United States and somewhat weaker evidence of a decrease in inequality in Italy—the exception is the 90-50 log earnings differential for men in Italy, which increases steadily after 1979.[25]

We do not have a conclusive explanation for the lack of a U shape in Italian individual level inequality that we see in the aggregate sectoral data presented in the previous two sections. One possible explanation is that the composition of our sample of individuals may lead to results that do not reflect the changes in metal-manufacturing inter-*inquadramento* inequality or the other measures of interindustry and interoccupational inequality presented above. Less than 50 percent of the BDI sample (substantially less for women) is employed in industry, and, when we analyze this sector separately, we do find a rise in the standard deviation of log earnings for men in 1987 to a level above that in 1983,[26] although it still drops from 1983 through 1986 (see the final column of table 8.10). Another possibility is that "industry" contains sectors that had a different experience than metal-manufacturing; unfortunately, we cannot separate out these other sectors in this data set.

8.3.5 Possible Explanations for the Divergent Trends in Overall Inequality in Italy and the United States

We recognize that there are many conceivable explanations for these divergent results on the coefficients in the earnings functions and the dispersion of earnings in the two countries. These range from differences in technology (or the relation of earnings and productivity within individual firms), to differences in the imbalances between the supply of and the demand for skills (including the effect of the price of education on labor supply, college being virtually free in Italy), to the possibility of different methods of non–price rationing in the labor markets (including various types of discrimination), to the changing influence of taxes (which are netted from the Italian but not the U.S. data).

We certainly cannot distinguish definitively among these alternatives at this point. Yet, because we find the difference in the trends of inequality to be so striking, we close this section by examining some possible explanations for the movement toward rising inequality in the United States and stable to falling inequality in Italy, as displayed in table 8.10. An explanation that is logically possible involves the distribution of skills in the two countries: the results reported above might be consistent with a sharper trend toward higher educational attainment among fully employed workers and thus toward greater over-

25. This suggests that, for men, Italian labor market institutions may have succeeded in keeping up wages at the bottom but not in preventing substantial wage drift at the top. The same does not seem to be true for women. Note as well that the 90–50 differential is greater for Italian men than for Italian women, perhaps reflecting the greater returns to a college degree for men in Italy, while most other measures of inequality are greater for Italian women than for Italian men.

26. The sample of women in industry is too small to be reliable.

all inequality in the United States. Recall, however, from the discussion above (table 8.6) that, while the average levels of education are higher in the United States, the trends in educational attainment seem to be going in the same basic directions in the two countries—in fact, the proportion of fully employed workers with college degrees or more has increased more sharply in Italy than in the United States for both men and women.[27]

The findings on the trends in inequality could also be consistent with differential changes in the occupational or industrial structures in the two countries. In fact, the share of blue-collar workers has been falling and the share of white-collar workers rising for both men and women in the Italian sample: the share of blue-collar workers among men fell from 59 percent in 1978 to 49 percent in 1986, while the share of white-collar workers rose from 41 to 51 percent; among women, the share of blue-collar workers fell from 49 percent in 1978 to 40 percent in 1986, and the share of white-collar workers rose from 50 to 60 percent.[28] As for the industrial distribution, the category industry is the largest among men but has dropped over this period from 48 percent of the workers in 1978 to 39 percent in 1986, while the categories public administration and the residual category have been growing. Among women, public administration has always been the largest category (rising from 33 percent of the workers in 1978 to 43 percent in 1986) and has also grown relative to industry; trade is the third largest category among women, as compared to transportation and communications among men.[29]

Overall, then, there has been a shift away from blue-collar and industrial jobs and a shift toward white-collar and public administration jobs among both men and women in Italy over this period. The industry and occupation categories are not strictly comparable with those in the CPS, so we do not present a direct comparison, but these results suggest that Italy has been undergoing a deindustrialization similar to that experienced by other Western countries, indicating that the explanation for the divergence of the trends in inequality will probably not be found here.

Furthermore, when we calculate the effects of between-industry shifts in labor demand on the relative demands for different skill and gender groups in Italy (using the methodology of Katz and Murphy [1992] and Katz, Loveman, and Blanchflower [chap. 1 in this volume], who find evidence of shifts toward more educated workers in the United States and elsewhere) on the basis of six industries and six gender-skill groups, we find a shift against workers with less than a high school degree, a slight shift in favor of workers who completed

27. On the other hand, a given increase in the proportion of college-educated workers might be expected to produce more overall inequality in the United States, given the generally higher returns to schooling.

28. This is consistent with the findings for the metal-manufacturing sector presented in sec. 8.2 above.

29. Note that we use 1986 for the ending date here because the industrial and occupational classification systems changed in 1987.

high school, and a much greater shift toward workers with a college degree or more for both men and women.[30] We conclude that the fall in returns to high school, the less than dramatic rise in the returns to college, and the drop in overall inequality in Italy are not due to between-industry shifts in labor demand away from more educated workers.[31]

The influence of taxes, which are netted from the Italian but not from the U.S. data, is another candidate explanation for the observed trends in inequality in Italy and the United States. The Italian tax system is effectively progressive because of both the structure of marginal tax rates and the lump-sum nature of deductions. While before-tax earnings have been found to be more unequal than after-tax earnings, the progressivity of the tax system seems to have decreased between 1982 and 1987 (see Nardecchia and Patriarca 1992; Ricciardelli 1992; and Di Bella and Parisi 1992). This suggests that, while the influence of taxes might contribute to the difference in the level of inequality in the two samples, it probably does not drive the difference in the trends; if anything, we would expect a bias toward *increasing* inequality in Italian after-tax earnings from the decreasing progressivity of the Italian tax structure over this period.

One additional possibility that we find appealing is that differences in the nature and evolution of labor market institutions in the two countries have contributed to the low and falling inequality in Italy and the high and rising inequality in the United States—specifically, labor market institutions (union contracts and relatively centralized bargaining structures, e.g.) act to narrow earnings inequality to a greater extent in Italy and have not been deregulated or otherwise dismantled to the extent that they have been in the United States. This final interpretation is consistent with the generally lower returns to a college degree and the less steep experience-earnings profiles in Italy as well as the general thrust of the evidence provided in section 8.2 above on the metal-manufacturing sector.

30. The six industries are industry, public administration, trade, public transport and communication, banking, and other. The six gender-skill groups are did not complete high school, completed high school, and college degree for men and women. We use 1978 as the base year and 1986 as the ending year owing to the change in the occupational classification system in 1987. The value of the shift away from men who did not complete high school, as measured by the difference in the logarithms of the indexes of relative demands from 1978 to 1986, is −.132, toward men who completed high school .095, toward men with a college degree .158, away from women who did not complete high school −.003, toward women who completed high school .172, and toward women with a college degree .253.

31. The evidence on the growth of education categories within industries is somewhat more mixed: while the share of workers with a high school degree or above rises or remains stable between 1978 and 1986 in every industry except the residual other, the share with a college degree actually falls slightly in three industries: public administration, banking, and other. This suggests that there may not have been increases in the demand for skilled workers within these industries; keep in mind, however, that public administration and banking are both relatively politically controlled and that their hiring practices may therefore be driven by concerns other than the technological needs for skills (political patronage, e.g.).

8.4 Conclusions: Mechanisms outside the Regular Economy Influencing Overall Italian Wage Inequality

The overall picture of Italy presented in this paper is of a country with a compressed wage structure that is not yet undergoing the rapid decompression experienced elsewhere during the 1980s. The decline of inter-*inquadramento*, interindustry, and blue-collar/white-collar differentials during the 1970s came to a stop and was slightly reversed during the 1980s, but these differentials did not rise back to pre-1980s levels despite the reforms of the mid-1980s. Over the period 1978–87, measures of individual level earnings inequality indicate, if anything, a trend toward a less unequal distribution. This trend is in marked contrast to the experience in the United States, where inequality clearly increased during the 1980s.

There seem to have been three important determinants of this evolution of wage differentials in Italy over the last twenty years. First is the *egalitarian ideology* of Italian unions, which in times of union strength such as the 1970s led to the institutionalization of equalizing practices such as low contracted wage differentials and egalitarian escalator clauses. Second is the dynamic of *inflation* in conjunction with the different escalator regimes that Italy has experienced during this period. Third is the evolution of *technology, productivity differentials,* and related *skill shortages* in the labor markets, which most likely primarily influenced the individually contracted portion of total compensation.

One might have expected that the clear break in the evolution of wage differentials around 1982–83 would have offered the chance to evaluate the relative importance of these factors. However, the simultaneous nature of these processes makes such a task impossible with the available information: the years when the compression of wage differentials came to a stop, or at least to a slowdown, were also the years in which major discontinuities occurred in the evolution of the three factors identified above: union strength, as measured by strike activity and by membership, significantly weakened; inflation, after the explosion of the 1970s, started a downward trend that lasted until the late 1980s; and, finally, the process of industrial restructuring induced by the oil shocks and by the computer revolution likely caused changes in the demanded skill composition of the labor force, not necessarily and not immediately matched by changes in the composition of supplies.

Nevertheless, the evidence provided by the comparison with the United States suggests that the continuing compression in the regular sector likely cannot be attributed to market forces. Both countries appear to have experienced the sort of trend toward a more educated and more heavily white-collar workforce that accompanies deindustrialization. In addition, the analysis of between-industry labor demand shifts provides no evidence of a shift away from more educated workers in either country. Despite these similar labor supply and labor demand indicators, measured inequality has been relatively high

and increasing in the United States and low and decreasing in Italy. Thus, there seems to be room enough for alternative explanations for the Italian case.

It is difficult to deny that egalitarian institutions, and in particular the *scala mobile,* bore a large measure of responsibility for the wage compression of the 1970s. We cannot say how much of that compression was actually expected in 1975 when the *scala mobile* payments were first equalized across all workers; most likely, the probability of many years of inflation in double figures was underestimated at that time.[32] Indeed, the fact that contracted differentials started to increase in 1979, leaving indexation as the primary factor causing compression through 1983, suggests that unions might have realized that the compression was becoming excessive. Yet the 1975 system was not modified until 1983, and only in 1986 was its egalitarian nature substantially changed. The fact that it took so long to reform the *scala mobile* leads to the suspicion that the implied compression was not too far from what the market could bear. On the other hand, episodes like the march of the forty thousand in 1980 and the referendum against the *scala mobile* in 1985 suggest that the compression had already reached the threshold of sustainability by the early 1980s, and indeed in subsequent years the system was changed.

Before the reform of the *scala mobile,* the individual superminimum was the escape valve through which the parties could make bearable the compression caused by inflation. One might even suspect that the disequalizing effect of the drift was part of some kind of implicit agreement between employers and unions to control the compression caused by unexpectedly high inflation. Unions might have been attached to the egalitarian *scala mobile* for internal political reasons, allowing the drift to correct for the unexpected effects. However, we do not have evidence on the validity of these speculations, and, if they were true, one would be left with the question, Why wasn't the excessively egalitarian nature of the escalator system reformed before the mid-1980s if even the majority within the unions may have been dissatisfied with it?

Indeed, had the system been modified by giving more weight to contracted increases, as, for example, in Sweden (see Edin and Holmlund, chap. 9 in this volume), unions might have acquired more control over wage determination and wage dispersion. But precisely the comparison with the Swedish experience suggests that the instrument through which compression is achieved (escalator in Italy, contracted increases in Sweden) is probably irrelevant: what matters is the extent to which compression can be imposed, and in both countries the sustainable threshold was reached around the same period.

32. Franco Mattei, one of the Confindustria experts who bargained the 1975 agreement, wrote afterward, "The compression effect of the new system was perceived, but it was considered as justified in the short period emergency [to protect low wages from the oil shock inflation]. Even myself, looking back at my notes, in November 1974 I did not expect that we would have had an inflation rate around 20% for so many years. I thought that we were at a peak of inflation but that inflation was soon going to be eliminated" (Mattei 1981, 141).

Why, then, were employers unable to undo the compression? For employers, individual superminima were not a costless instrument for controlling wage compression: given the compensation increases granted by the contracts and by the *scala mobile* to low *inquadramento* levels, larger superminima at high levels implied a greater growth in total labor costs. Therefore, the disequalizing potential of individual superminima was somewhat limited by constraints on total labor cost increases. These constraints were likely to have been particularly binding during the period of high inflation, and this might explain why the individual superminima did not fully offset the effect of the *scala mobile* before 1983. Yet the puzzle remains as to why wage inequality did not increase back to its levels of the early 1970s after inflation slowed down, particularly when technological changes probably required, if anything, a more marked trend toward larger compensation differentials across skills, as occurred in the United States and elsewhere.

A credible partial explanation to this puzzle is that other remedies to wage compression, perhaps less costly to employers, seem to have proliferated in the nonregular areas of the economy, not covered by our empirical analysis above. For example, Italy is among the developed countries with the greatest levels and highest recent growth rates of self-employment: nonagricultural self-employment as a proportion of total civilian employment grew from 18.9 percent in 1979 to 22.3 percent in 1990 (OECD 1992).[33] Italian self-employment may be a consequence of the presence of restrictive labor market regulations imposed by unions, in particular hiring and firing costs (Bertola 1990). It is also possible that the compression of wage differentials for non-self-employed workers might have spurred the diffusion of self-employment: some of the highly skilled workers who saw their earnings limited by the egalitarian union policies may have offered themselves as freelancers (perhaps even to the same firms that were previously hiring them as employees) with the aim of getting better returns to their skills. Although we are not aware of any explicit quantitative evidence on this link between wage compression in the unionized sector and self-employment, it seems to be a credible hypothesis, consistent with anecdotal evidence. If this is the case, then the egalitarian efforts of unions have been only partially successful: wages of regular employees may have been compressed, but an increasing number of workers could have avoided the compression by becoming self-employed.

Italy is also well known for having a large underground economy, and, almost by definition, the underground economy is something over which official

33. As a point of comparison, the share of self-employed workers grew from 7.1 percent in 1979 to 7.6 percent in 1990 in the United States. The United Kingdom seems to be the country with the greatest growth of the proportion of self-employed, from 6.6 percent in 1979 to 11.6 percent in 1990. The share of self-employed workers in the complete Bank of Italy survey rises from 17.5 percent in 1978 to 23 percent in 1987; we do not use these observations for the wage inequality calculations in sec. 8.3 above because we have no way of distinguishing full-time self-employed from part-time.

wage-setting institutions and unions have no legal control and minimal influence. As in the case of self-employment, one is tempted to attribute the size of the underground economy to the existence of labor market and fiscal regulation that employers view as burdensome. Indeed, the available estimates of the underground economy for Italy are larger than most estimates for other Western countries, where labor market regulations are generally less restrictive (Dallago 1988, 1990).[34] In line with this view, the compression of wage differentials in the unionized sector could be a stimulant for the underground economy: if some of the compression is achieved by raising low wages (a hypothesized effect of the *scala mobile*), it becomes difficult for employers to profitably maintain "overground" activities involving less skilled workers. Although hiring less skilled workers into underground activities not controlled by unions may not be feasible for large companies, the reader should keep in mind that the Italian productive structure is constituted in large part by very small firms.

Yet, in contrast to self-employment, it is difficult to find any reliable evidence of a significantly increasing trend in the underground economy in Italy in recent years. While the lack of reliability is no doubt in large part inherent in any attempt to measure underground activities, the official statistics that do exist (a revised series of Italian GNP from the central statistical office, ISTAT) show that the nonexplicitly measured portion of national product went from 15.3 percent in 1980 to 17.7 percent in 1985 and then slightly decreased to 16 percent in 1986 (Dallago 1988, 73–75).[35] It thus seems more difficult than in the situation of self-employment to build a prima facie case for a link between the trend in the compression of wage differentials and possible diffusion of the underground economy.

Another manner in which a de facto wider wage distribution may have been achieved despite the compression documented above involves the so called *contratti di formazione e lavoro:* special labor contracts for workers between fourteen and twenty-nine years of age. Permanently introduced by law in 1984 after several previous experiments, they require employers to provide some training in return for lower wages and social contributions. In contrast to standard jobs, the contracts are temporary (twenty-four months); at the expiration of the contract, the employer can decide whether to hire the worker for a lifetime position without having to consider other unemployment queues, and financial incentives for transitions into permanent contracts are provided by the government. The number of young workers hired under these contracts grew from 10,694 in 1984 to 529,297 in 1989. The biggest jump was between 1986

34. Dallago (1988) reports that recent estimates of the Italian underground GDP as a proportion of total GDP range from 6 to 30.1 percent, with most estimates in double figures. For the United States, the analogous estimates range from 2.6 to 33 percent, with very few estimates in double figures. For further discussion of the Italian underground economy, see also Deaglio (1984) and Rey (1985).

35. Note, however, that only a part of this change can be attributed to the actual growth of the underground economy; the rest is due to a revision in statistical techniques.

and 1987, when the number of hirings grew from 229,126 to 402,586; this jump was influenced by a modification to the law providing employers with larger wage and social contribution savings. The number of new *contratti di formazione e lavoro* has started to decline slightly only recently, down to 469,050 in 1990.[36] The available data indicate that approximately 50 percent of these contracts (40 percent in the south) are eventually transformed into permanent contracts (Ministero del Lavoro 1988–91).

The popularity of these contracts among both young workers and employers is consistent with the view that a less compressed wage distribution is welcomed by both groups (possibly at the expense of unemployed older workers, who would have to be hired under standard permanent contracts), particularly given the often-stated charge that these employment relationships do not really serve their official function of providing young workers with meaningful special training. From the employers' point of view, the advantages are fairly obvious, but these contracts are likely to represent a desirable alternative to unemployment or to employment in the underground economy for the young workers as well. Youth unemployment has been relatively high in Italy in recent years: the percentage of total unemployment constituted by job seekers between the ages of fourteen and twenty-four fluctuated around 61–62 percent between 1978 and 1983, declining thereafter to 54 percent in 1987 and to 48 percent in 1990 (OECD 1978–90). Most likely, many of these young workers have been finding jobs in the underground economy. But, even if the amount of underground employment hidden in the official youth unemployment figures is significant, the basic conclusion that we draw from this evidence is unchanged: it seems that, by imposing their egalitarian aspirations on the regular sector of the economy, Italian unions may have ended up limiting the size of this sector.

The evidence that we present in the first three sections of this paper indicates that wage differentials have indeed been compressed in the regular sector of the economy. Yet this concluding section suggests that this very compression may well have contributed to the flight away from the regular sector at both ends of the skill distribution: highly skilled workers may have left to seek the unrestricted returns to self-employment, while less skilled entrants were induced to accept lower-paying training contracts, were forced into the more precarious underground economy, or remained unemployed. These mechanisms may well, in turn, have contributed to a greater overall degree of inequality than is apparent in our analysis of wage differentials in the regular sector of the Italian economy.

36. This amounts to approximately 3 percent of the total nonagricultural paid workforce.

Data Appendix

Assolombarda

Assolombarda is the association of private employers in the Lombardy region. The data set is based on a survey of the associated firms in the Milan area. The survey has been taken in October and April of each year since 1976, but not all the surveys are available, particularly at the beginning of the sample. For each firm and *inquadramento*-level cell, the survey provides the average of each compensation component received by the workers in that cell; individual firms cannot be identified, however. In 1988, there was a change in the design of the survey, but, for the metal-manufacturing sector (the one we analyze), previous data have been readjusted by Assolombarda to ensure comparability across years. We are, however, less than fully confident about the consistency of these readjustments since some apparent discontinuities have not been eliminated; therefore, we use cross-time comparisons in this data set only when the regularity of the data seems acceptable.

We have access to firm-level information only for the October surveys from 1983 through 1990. For the other years we rely on the published averages across firms for each *inquadramento* level.

Bank of Italy

The Bank of Italy survey of Italian households was first collected in 1977. The survey was not conducted in 1985, and the data for 1981 are not considered to be sufficiently representative by the experts at the bank. After 1987, the survey has been conducted biannually.

Data are collected on a representative cross section of Italian households by a private company for the Bank of Italy. The survey has been mainly designed to provide information on consumption and savings behavior; therefore, the information available for the estimation of earnings functions, and in general the information available for labor market research, is somewhat limited.

See also Bank of Italy, "I bilanci delle famiglie Italiane," in *Supplementi al bollettino statistico: Note metodologiche e informazione statistiche* (various years), and "Le indagini campionarie sui bilanci delle famiglie italiane," *Contributi all'analisi economica* (special issue, 1986).

Federmeccanica

Federmeccanica is the national association of private metal-manufacturing firms. This data set is based on a sample of the associated firms and provides, for each *inquadramento* level, the cross-firm average total monthly compensation and the cross-firm average contractual plus *scala mobile* compensation. It also provides the proportion of workers in each *inquadramento* level. Data are available from 1976 through 1990.

Ministry of Labor

This data set is based on a survey of eleven thousand plants and is sponsored by the Ministry of Labor. Until 1977, only firms with more than five employees were included. After 1977, the survey is limited to firms with more than fifty employees.

The data used in figure 8.1 above is the average hourly blue-collar and trainees' compensation, computed as the total monthly base compensation paid to these workers divided by the total number of hours. The series was discontinued in 1985. A new series was started in 1986, but the data are not yet available.

National Accounts

We have used the new series (1970–89) of the national accounts data published by ISTAT (Istituto Nazionale di Statistica, Rome), in *Collana di informazione*, vol. 10 (1990).

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