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WAGE DIFFERENTIALS IN ITALY: MARKET FORCES, INSTITUTIONS, AND INFLATION

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ABSTRACT

During the 1970s, Italy experienced an extreme 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). 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 wage differentials and our comparisons 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 compression in the regular sector of the economy. Yet, this very compression may well have contributed to the flight away from the regular sector of the economy at both ends of the skill distribution, plausibly leading to a greater overall degree of inequality for the whole economy than is apparent from our analysis of wage differentials in the regular sector.

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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 re-opening of differentials since then, but the evidence is uneven, and even where a re-opening is apparent, the degree of inequality is still generally below the level of the early- to mid- 1970s.

In this chapter, we analyze the evolution of wage differentials across skill and occupational levels and individual characteristics in Italy for workers employed in the regular sector of the economy: workers who are not self employed, have "above ground" jobs, and are not covered by special low-wage training contracts. The evidence 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 the next section, we describe the stylized evidence on the recent evolution of wage differentials across industries, occupational levels, and individuals. We then briefly lay out, in section II, the institutional set-up 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 III, 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 United States 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 U.S. Finally, in the concluding section, we examine the possible impacts of this compression on self employment, the underground economy, and low-wage training contracts, three mechanisms which may have increased overall inequality in Italy but are not captured in our quantitative analysis of the regular sector of the economy.

1 Raw Evidence on Italian Earnings Inequality

The main focus of this chapter is on earnings inequality across skill and occupational categories within sectors and across individual characteristics. First, however, we examine some aggregate data on differentials across sectors. Figure 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.

FIG. 1: DISPERSION OF BLUE COLLAR HOURLY WAGES ACROSS INDUSTRIES
(Source: Ministero del Lavoro)

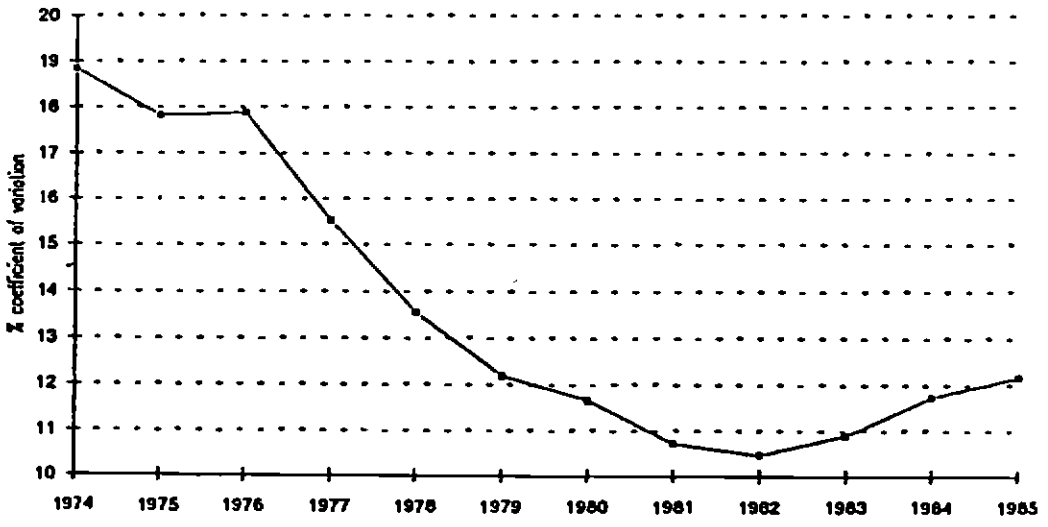
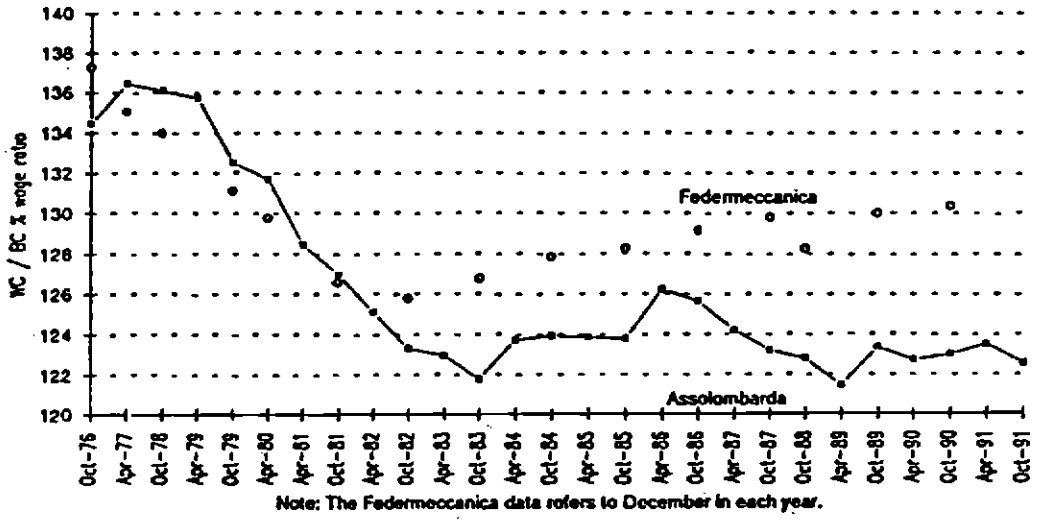


Figure 2 presents the ratio between average white collar and average blue collar monthly wages within the metal-manufacturing sector. Two series are presented here: the Assolombarda series, consisting of metal-manufacturing firms in the Milan area, and the Federmeccanica series, consisting of metal-manufacturing firms nation-wide.[1] Once again, we observe an unambiguous compression until 1983, followed by no clear trend in the Assolombarda series and some evidence

1 These data sets have been previously analyzed in ASAP 1986-1991 and Carniti Commission 1988. They are described in greater detail in the data appendix, along with the other data sets used in this chapter.

of a widening of differentials in the Federmeccanica series, but not to the level of the mid-1970s by the beginning of the 1990s.

FIG. 3: WHITE COLLAR / BLUE COLLAR MONTHLY WAGE DIFFERENTIAL
(Metalmeccanics. Sources: Assolombarda, Milan; Federmeccanica, whole country)



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

Finally, Table 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 1977-1987 (excluding 1981 and 1985).[2] At this individual level, we find a continuing downward trend in inequality; in Section III, we analyze this downward trend and the determinants of individual labor income.

TABLE 1 DISPERSION OF INDIVIDUAL ANNUAL LABOR INCOME

Year	1977	1978	1979	1980	1982	1983	1984	1986	1987
Standard Deviation of logarithms	0.46	0.44	0.44	0.41	0.42	0.41	0.39	0.38	0.37

Source: Banca D'Italia

Overall, then, we do not see a clear trend toward significant widening of wage inequality in these findings, though the aggregate evidence does seem to indicate a leveling off of wage

2 The number given is the standard deviation of the log of earnings from employment for full-time, full-year, non-agricultural, non-self employed workers between the ages of 18 and 65. This data set is further explained and analyzed in section III and in the data appendix.

compression around 1982-83. In the next section, we will see what the institutional set-up of wage determination can tell us about the trends we observe here.

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

II.1 The Actors[3]

Three major unions (CGIL, CISL, UIL) have represented workers in Italy during the post-war period. 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 post war period the three unions have acted together, following a unified strategy, particularly in pursuing egalitarian compensation policies. It is only recently, as we shall see below, that they have disagreed on some major substantive issues, and 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 will focus our analysis in this section. Contracts 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.

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3 See Neufeld 1960, Giugni 1984, and Locke 1992 for more extensive English language analysis of Italian industrial relations history and structure.

4 Metal-manufacturing workers accounted for approximately 1/3 of all non-self employed industrial workers and 1/10 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% of total industrial production. Source: Confindustria.

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 of 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 which 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 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 will 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 (see section I) was caused by the unions' successful pursuit of egalitarian pay policies.

The march against unions by 40,000 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

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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 regional based contractual pay differences.

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, due in no small measure to their inability to protect less-skilled workers from layoffs and the opposition of the high-skilled workers to egalitarianism.

Table 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 the "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, 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 of this adds up to a labor movement with a diminished ability (and perhaps willingness) to push through their egalitarian pay policies.

II.2 The bargaining structure and the Inquadramento[8]

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). Therefore, in Italy union membership may differ dramatically from union coverage: the latter is always virtually 100% within each unit for which a collective contract is signed. Furthermore, collective contracts have on a few occasions been translated into law. Hence, the

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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 Democrat 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.

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

influence of unions has reached those parts of the economy that the unions have not directly organized.

TABLE 2 LABOR CONFLICTS AND UNION MEMBERSHIP, 1974-1990

Year	Average number of hours lost to strikes per month, (entire industrial sector)[1]	Total number of hours lost to strikes per year (metal-manufacturing, Lombardy)[2]	CGIL, CISL & UIL members (metal-manufacturing, Milan Area)[3]
1974	6516		196022
1975	8424	19930	200288
1976	10653	29553	193738
1977	4138	17598	191108
1978	2604	7773	184721
1979	9685	28947	183486
1980	11859	18549	179434
1981	4067	10872	115340
1982	4369	25267	102524
1983	6216	19035	91568
1984	800	5676	78574
1985	1276	4531	72717
1986	1182	2894	67854
1987	642	2705	42819
1988	1161	1190	40366
1989	622	2271	
1990	1953		

NOTES

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

2) Total number of hours lost in each year in thousands, from Annuario di Statistiche del Lavoro, ISTAT (Official Italian statistical office).

3) 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.

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

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, unions at that time did not have enough strength, in many firms, 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 border line 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 40,000 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 non-managerial 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 workers 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 while only white collar workers were 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 15 different skill ranks of workers in metal-manufacturing: 5 blue collar levels, 2 intermediate levels, 7 white collars levels and 1 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 provides more limited information on components of the compensation package.[10]

First, we believe it is important to get a sense of the extent of homogeneity of these 15 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 15 categories for the years 1983-1990. The inquadramento level of the workers explains approximately 80% - 90% 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% (i.e. the standard deviation is never larger than 10% of the mean).

Looking separately at blue collar workers 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 coefficient of variation is significantly larger. There is, then, apparently less pay homogeneity across firms at high inquadramento levels .

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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.

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 which is comparable across years. Between 1976 and 1991 the proportion of blue collar workers in the non-managerial metal-manufacturing labor force decreased from 75.8% to 63.5%. 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 to measure 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, we cannot disentangle with our data 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, though, 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.

II.3 The compensation structure and compensation differentials[11]

The structure of the typical compensation package for an Italian industrial worker is detailed in Table 3. 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, though 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 of any direct influence by unions - as we will see, because of this feature, it has played a significant role in the determination of wage differentials.

Adding some minor extraordinary payments[12] and overtime payments,[13] 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 of these components are equally important, particularly as far as wage differentials are concerned. As shown in Table 4, the contractual minimum, the cumulated scala mobile payments[14] and the individual superminimum accounted for between 80% and 90% of the total monthly wage in 1991 in each inquadramento level, though their relative weights varied, as will be discussed below. Furthermore, because overtime payments, severance payments and 13th month (and above) installments depend on the base monthly compensation, the behavior of these three components essentially shape 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.

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11 The data sets on which this section is based have been used by several previous researchers. This section owes a lot to that literature, particularly ASAP 1986-1991, Carniti Commission 1988, Biagioli 1985, Biagioli 1988, Frey 1988, Bordogna 1988, and Lucifora and Presutto 1990.

12 Payments for missions or compensating payments for specific job characteristics, for example.

13 Overtime payments are not included in the monthly compensation data we use in the rest of this section.

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

TABLE 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

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

TABLE 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	0.51	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

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 upon. As shown in Table 4 this component amounted to approximately 30% of 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 3.[15] In 1976 the contracted minimum for white collar workers in the seventh level was 80% more than for blue collar workers in the second level. This percentage fell to 60% in 1979 and then grew more or less steadily up to 1991: in this year the highest contracted minimum was almost twice the lowest.

FIG. 3: MAX/MIN RATIOS ACROSS INQUADRAMENTO LEVELS
(Metalmeccanico, Milan area. Source: Assolombarda)

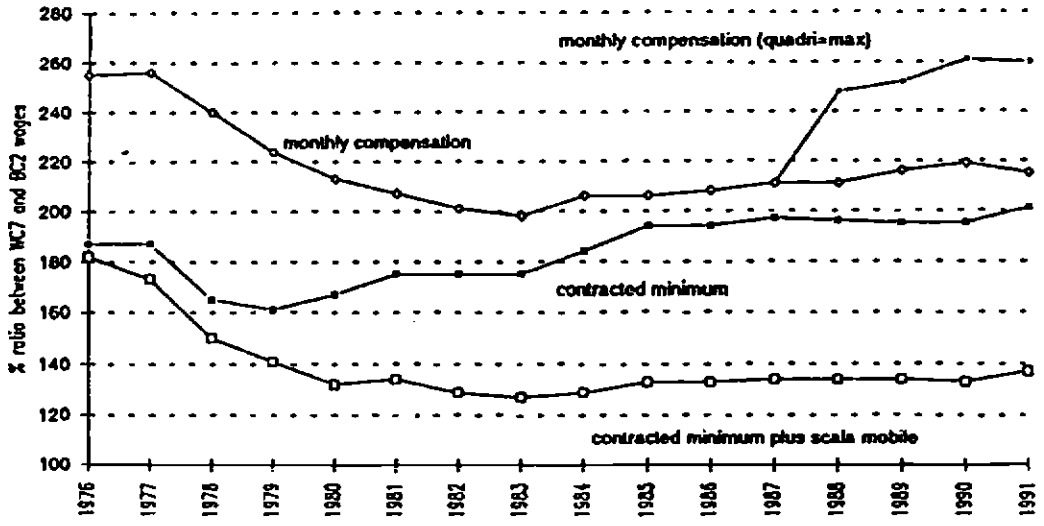

Figure 3 also shows the same dispersion measure for total monthly compensation.[16] This differential is larger than the contracted one in every year and has a U-shape, with a minimum in

15 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 post-1987 (see next footnote).

16 After 1987 the figure reports two max/min ratios 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

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 scala mobile component is considered (the third series displayed in Figure 3), the max/min ratio for this series also keeps decreasing until 1983. This evidence suggests that inflation, in conjunction with the indexation system, bore major responsibility for the compression of monthly wage differentials between 1979 and 1983.

The scala mobile[17]

Indexation has a long and conflictual history in Italy, full of consequences for the evolution of wage differentials. 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 south), gender (lower for women), and age (lower for young workers). A reference basket of goods was established, which 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% 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, for example), 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 post war 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% coverage for each inquadramento level and to maintain inter-inquadramento differentials on a 100-239 scale from the lowest blue collar

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this split. The figure indicates, though, that the differential treatment of the quadri, hidden in the seventh level before 1987, was indeed significant.

17 For additional information on the debate concerning the scala mobile and on its history, see D'Apice 1975, Quarchioni 1979, C.N.E.L. 1981, Alleva 1986, Faustini 1987, and Mariani 1991.

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, for example) it was extended through contracts to the rest of the economy, although its nontrivial drawbacks in term of coverage and 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.

Upon 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).[18] 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 inflation in double digits 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% (Figure 4), the potential for wage compression became a reality, as shown by the evidence presented in the

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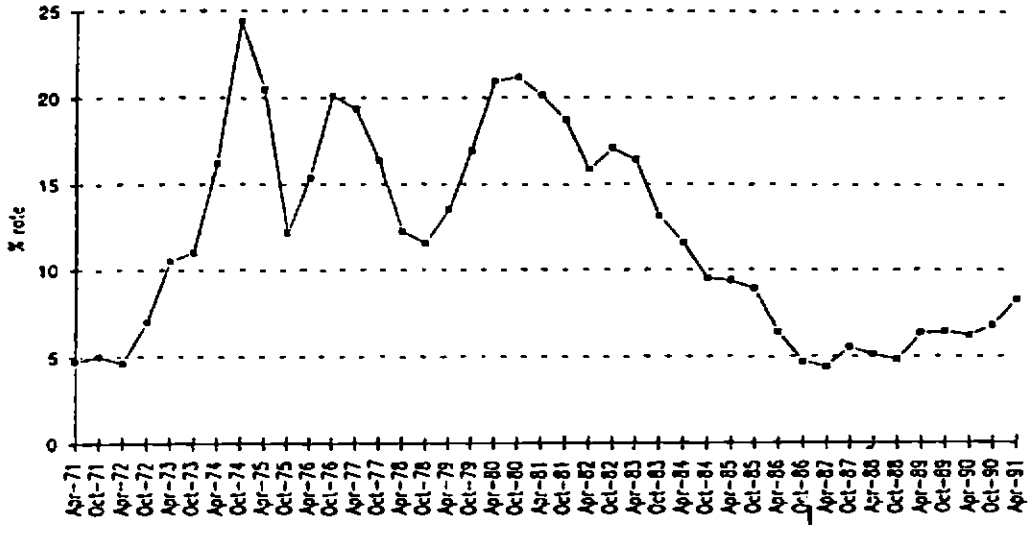
18 Note the similarity of this system to the escalator clauses in many U.S. union contracts: in the automobile and aerospace industries, for example, COLA clauses often specify across-the-board cents-per-hour wage increases for given increases in the consumer price index.

first section and in Figure 3: the dispersion of all the measures we consider (except the contracted minimum alone) and in particular the contracted plus scala mobile component of the compensation package display a continuing compression until 1982-83. Despite the increasing high-skilled workers' opposition 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.

FIG. 4: ANNUAL INFLATION IN ITALY
(CPI growth with respect to same month, previous year. Source: Bank of Italy)



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) which implemented a 15% 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 signalled the end of the old indexation system.

On the wave of the referendum results, Confindustria was strong enough to fully reject as a whole the old indexation system. However, the bargaining process over a new system between Confindustria and the unions came to a dead end. The Government was therefore compelled to directly intervene 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% 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 3) indexed at 25%. All other compensation components were uncovered. The average overall degree of indexation was approximately 50% for blue collar workers and 40% 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% 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.[19]

This agreement clearly has the flavor of a large concession from workers to employers, and in fact 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 3 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 4 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 high-skilled workers. Table 4 seems, however, to suggest that the third main component of the compensation package, the individual superminimum, has at least partially compensated the high-skilled workers for the low coverage provided by the scala mobile system.

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

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 3). The ratio between the highest 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 3670 in 1976 to 12708 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 4, this component is practically insignificant at low inquadramento levels but grows to almost 40% 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 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.[20] Table 5 presents, for each inquadramento level, the averages of these three terms for the 1976-1982 and the 1983-1990 periods. This data set does not offer separate information on the individual superminimum and therefore we can only examine the overall drift. We know, however, from the above evidence that as far as differentials are concerned the individual superminimum is the most important component of the drift.

20 See, for example, Hibbs and Locking 1991.

TABLE 5 DECOMPOSITION OF THE TOTAL MONTHLY WAGE INCREASE IN THE NATION-WIDE METAL-MANUFACTURING SECTOR

Inquadramento level	1976-1982 averages			1983-1990 averages		
	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

Looking at total wage growth in the different inquadramento levels, the compression of wage differentials in the first sub-period and the expansion in the second appear evident.[21] 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 sub-period the size of the scissor clearly widens, particularly in the higher white collar levels. Combining the evidence provided by this table and by Figure 3, it seems that the disequalizing effect of the drift rate became greater in the second sub-period, when inflation was lower, but that this component has acted primarily to offset the equalizing effect of the escalator.

21 Keep in mind that while white collar (WC) inquadramento levels are listed after blue collar (BC) levels in the table, BC and WC workers in the same level are comparable in terms of the contracted portion of the compensation package.

II.4 Inflation and wage dispersion

Given the above evidence, 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 1976-1990 period on Federmeccanica data:

$$\log\left(\frac{VWT_t}{VWT_{t-1}}\right) = \underset{(0.06)}{0.19} - \underset{(0.41)}{1.57}\,inflation + \underset{(0.04)}{0.01}\,contract - \underset{(0.05)}{0.06}\,quadri$$

where VWT is the variance of the log of monthly wages across inquadramento levels (excluding the quadri), *contract* is a dummy variable that takes value one in the years in which a contract is signed and *quadri* is a dummy variable that takes the value 1 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 completely offset the compression of differentials caused by the indexation system.

On the other hand, when we distinguish between the two sub-periods analyzed in Table 5, we obtain the following result:

$$\log\left(\frac{VWT_t}{VWT_{t-1}}\right) = \underset{(0.08)}{0.07} - \underset{(0.52)}{0.96}\,inflation1 + \underset{(1.13)}{0.23}\,inflation2 + \underset{(0.04)}{0.03}\,contract - \underset{(0.04)}{0.05}\,quadri$$

where *inflation1* (*inflation2*) is equal to inflation for the years 1976-1982 (1983-1990) 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 sub-period 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 20 years of inflation and egalitarian institutions seems to still 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.

III 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, 1978-1987, finding roughly similar age structures and a higher average level of educational attainment in the U.S., but a trend toward more educated work forces 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 U.S. than in Italy, and that while inequality has clearly increased in the U.S., the pattern is less clear in Italy - indicating, if anything, a trend toward a less unequal distribution.

III.1 Data

The Italian data source is a representative household survey collected by a private company for the Banca D'Italia over the period 1978-1987, excluding 1981 and 1985; we shall refer to this data set as BDI.[22] For the U.S., we use the March Current Population Survey (CPS). Several data limitations for BDI require discussion. First, the dependent variable is the log of 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.[23] Schooling and age are not continuous in BDI, but are segmented into five and six categories, respectively (schooling categories: no schooling, completed elementary, completed junior high, completed high school, and

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22 This data was 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 taken in 1981, but the data in that year deviates from the adjacent years along enough dimensions to be highly suspect; we exclude it. No survey was taken in 1985.

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

college or higher degree; age categories: under 21, 21-30, 31-40, 41-50, 51-65, and over 65); 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 BDI does not contain information on the worker's inquadramento level.

Finally, we restrict our samples to full-time full-year non-agricultural workers between the ages of 18 and 65 who are not self-employed. Earnings are not top-coded in BDI; we impute topcoded CPS annual earnings at 1.45 times the annual topcode amount (following Katz and Murphy 1992). We do all of our analysis separately for men and women. [24]

III.2 Age and Education Compositions of the Labor Forces

First, we examine the levels and changes of the age and occupational structures in the two countries. Table 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 U.S. 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 in this sample who had not completed high school fell 11% (from 66.7% to 59.3%), while the proportion of their American male counterparts who had not completed high school fell 32% (from 21.9% to 14.8%); the proportion of Italian men with college degrees rose 31% and the proportion of American men with college degrees rose 24%. For Italian women, the proportion who had not completed high school fell 23% and the proportion with college degrees rose 51%; the corresponding numbers for American women in the CPS sample are -43% and 36%. In both countries, then, there was a trend toward greater educational attainment among full- time workers over this period.[25] We will return to these findings and their possible roles in explaining the trends in overall inequality.

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24 The male/female earnings differential is greater in the U.S. than in Italy, and is dropping faster in the U.S. We refer the reader to Blau and Kahn 1993 for analysis of the gender earnings gap in Italy and elsewhere.

25 We can use these five age and five schooling levels to create 25 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 21-30 and 31-40. The largest age-education categories in 1978 for Italian men were junior high aged 21-30 and elementary aged 51-65; in 1987, junior high and high school aged 31-40. In 1978, the largest categories for Italian women were high school and junior high aged 21-30; in 1987, high school aged 21-30 and 31-40 (as in the U.S.). Apart from the generally higher level of schooling in the U.S., the two countries look reasonably similar in terms of the distribution of age cohorts within schooling categories, and all of the distributions seem to be moving toward older and more educated populations (although the share in the oldest category, 51-65, drops for everyone but Italian women).

TABLE 6 SAMPLE PERCENTAGES OF AGE AND EDUCATION CATEGORIES, ITALY AND U.S., 1978 AND 1987

		MEN		WOMEN	
		1978	1987	1978	1987
EDUCATION : HIGHEST LEVEL COMPLETED					
NONE	Italy	4.0	1.2	3.0	1.2
	U. S.	2.2	1.3	1.2	0.7
ELEMENTARY	Italy	31.0	21.3	24.0	14.0
	U. S.	7.7	4.5	5.5	2.7
JUNIOR HIGH	Italy	31.7	36.8	28.5	27.7
	U. S.	12.0	9.0	10.8	6.6
HIGH SCHOOL	Italy	25.2	30.0	33.8	40.8
	U. S.	56.0	57.8	64.9	66.0
COLLEGE+	Italy	8.1	10.6	10.7	16.2
	U. S.	22.1	27.4	17.7	24.0
AGE CATEGORY					
18-20	Italy	3.6	1.6	7.1	2.6
	U. S.	2.9	1.9	4.2	2.2
21-30	Italy	23.5	21.0	34.9	27.7
	U. S.	27.3	27.3	31.7	30.4
31-40	Italy	26.7	29.3	27.5	33.4
	U. S.	26.7	32.1	22.1	30.4
41-50	Italy	23.5	27.5	21.0	25.1
	U. S.	21.2	21.0	20.4	20.7
51-65	Italy	22.8	20.6	9.5	11.2
	U. S.	21.9	17.8	21.7	16.2
EXPERIENCE	Italy	25.7	25.3	19.9	20.9
	U. S.	22.0	20.7	21.2	19.8

Notes:

1) For education and age categories, the number given is the percentage of the particular gender's total sample of full-time full-year non-agricultural workers who are not self-employed age 18-65 accounted for by particular category.
2) Highest level completed in U.S.: None = completed grade 0-5, Elementary = 6-8, Junior High = 9-11, High School = 12-15, College + = 16+.
3) Experience = mean of age category minus years-to-completion of schooling category minus six.

Sources of data: Banca D'Italia, U.S. Current Population Survey.

III.3 Education 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 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 6, to create the 18-30 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/hs gap rises in all groups but one in Italy (men 41-50). Yet, the hs/(less than hs) gap was smaller in 1987 than in 1978 in 6 of the 8 age-gender groups in Italy (except age 31-40 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/hs gap is greater than the hs/(less than hs) gap in the U.S., 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 U.S. and concave in Italy.

We investigate these education-earnings relationships further by comparing the coefficients from logarithmic earnings functions estimated separately for men and women in the two countries. Tables 8 and 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 +; completed high school is the excluded category) for the years 1978 through 1987 for men and women, respectively.

There are several interesting results from these regressions. First, judging by the adjusted R-squares, 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 U.S., 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.[26]

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26 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 7 EDUCATION EARNINGS RATIOS BY AGE GROUPS, ITALY AND U.S., 1978-1987 (Excluding 1981 & 1985)

		78	79	80	82	83	84	86	87
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
	U. S. [A]	1.27	1.27	1.24	1.22	1.31	1.32	1.31	1.35
	U. S. [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
	U. S. [A]	1.31	1.34	1.35	1.41	1.37	1.35	1.41	1.40
	U. S. [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
	U. S. [A]	1.32	1.30	1.30	1.35	1.43	1.38	1.40	1.40
	U. S. [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
	U. S. [A]	1.33	1.32	1.32	1.32	1.38	1.32	1.36	1.36
	U. S. [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
	U. S. [A]	1.24	1.24	1.22	1.33	1.31	1.33	1.38	1.30
	U. S. [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
	U. S. [A]	1.35	1.23	1.29	1.35	1.43	1.39	1.40	1.46
	U. S. [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	0.98	1.06	1.10	1.09	1.08	1.11
	U. S. [A]	1.33	1.27	1.29	1.34	1.36	1.33	1.41	1.46
	U. S. [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]	0.91	1.01	1.20	1.06	1.21	1.08	1.06	1.06
	U. S. [A]	1.34	1.36	1.34	1.39	1.42	1.32	1.34	1.41
	U. S. [B]	1.42	1.43	1.50	1.37	1.40	1.52	1.50	1.46

Italy[A] and U.S.[A] = Completed High School / Did Not Complete High School average earnings ratio.
Italy[B] and U.S.[B] = College Degree or more / Completed High School average earnings ratio.

Note: Earnings = annual wage and salary earnings, full-time full-year non-agricultural workers who are not self-employed age 18-65. Pre-tax in U.S., post-tax in Italy.

Sources of Data: Banca D'Italia, U.S. Current Population Survey.

TABLE 8 EARNINGS FUNCTION COEFFICIENTS FOR MEN IN ITALY AND U.S., 1978-1987 (Excluding 1981 & 1985)

		78	79	80	82	83	84	86	87
EXPERIENCE (divided by 10)	Italy	.39	.41	.34	.36	.36	.35	.34	.27
		(.03)	(.04)	(.03)	(.02)	(.03)	(.02)	(.02)	(.02)
	U.S.	.45	.43	.42	.43	.45	.44	.48	.46
		(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
EXPERIENCE SQUARED (divided by 1000)	Italy	-.55	-.56	-.50	-.50	-.49	-.48	-.46	-.36
		(.05)	(.05)	(.05)	(.04)	(.04)	(.04)	(.03)	(.03)
	U.S.	-.70	-.65	-.63	-.63	-.66	-.64	-.69	-.67
		(.02)	(.02)	(.02)	(.02)	(.02)	(.03)	(.02)	(.03)
<= ELEMENTARY	Italy	-.35	-.39	-.36	-.37	-.34	-.34	-.34	-.32
		(.02)	(.03)	(.02)	(.02)	(.02)	(.02)	(.01)	(.02)
	U.S.	-.39	-.41	-.41	-.41	-.46	-.42	-.47	-.47
		(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)
JUNIOR HIGH	Italy	-.21	-.24	-.23	-.26	-.23	-.23	-.23	-.19
		(.02)	(.03)	(.02)	(.02)	(.02)	(.02)	(.01)	(.01)
	U.S.	-.23	-.24	-.25	-.25	-.28	-.26	-.29	-.31
		(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
COLLEGE +	Italy	.22	.14	.18	.15	.27	.21	.16	.26
		(.03)	(.04)	(.03)	(.03)	(.03)	(.03)	(.02)	(.02)
	U.S.	.35	.32	.32	.33	.37	.39	.43	.43
		(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
R-square	Italy	.23	.24	.25	.26	.29	.23	.27	.23
	U.S.	.23	.22	.19	.21	.22	.19	.22	.23
# OBSERVATIONS	Italy	1767	1637	1610	2201	2250	2019	3766	3192
	U.S	22391	22827	27324	23566	22244	22640	23955	23962
AV. EARNINGS (SUS)	Italy	6436	7442	8975	7978	7913	7888	10861	13819
	U.S.	15991	17186	18595	22145	23578	24419	27070	28237

Notes:

1) Dependent Variable = log of annual wage and salary earnings, full-time full-year non-agricultural workers who are not self-employed age 18-65. Pre-tax in U.S., post-tax in Italy.
2) Excluded education category = completed high school; All regressions also contain a constant.
3) Standard errors in parentheses.

Sources of Data: Banca D'Italia, U.S. Current Population Survey.

TABLE 9 EARNINGS FUNCTION COEFFICIENTS FOR WOMEN IN ITALY AND U.S., 1978-1987 (Excluding 1981 & 1985)

		78	79	80	82	83	84	86	87
EXPERIENCE (divided by 10)	Italy	.30 (.04)	.27 (.04)	.23 (.04)	.24 (.04)	.19 (.04)	.20 (.03)	.28 (.03)	.18 (.02)
	U.S.	.21 (.01)	.22 (.01)	.23 (.01)	.22 (.01)	.25 (.01)	.25 (.01)	.27 (.01)	.30 (.01)
EXPERIENCE SQUARED (divided by 1000)	Italy	-.50 (.09)	-.45 (.08)	-.39 (.08)	-.33 (.08)	-.25 (.08)	-.29 (.06)	-.43 (.05)	-.24 (.05)
	U.S.	-.34 (.03)	-.36 (.02)	-.36 (.02)	-.36 (.03)	-.42 (.03)	-.42 (.03)	-.44 (.03)	-.50 (.03)
<=ELEMENTARY	Italy	-.44 (.04)	-.50 (.04)	-.43 (.05)	-.49 (.04)	-.43 (.04)	-.44 (.04)	-.42 (.03)	-.39 (.03)
	U.S.	-.37 (.02)	-.35 (.02)	-.40 (.02)	-.40 (.02)	-.40 (.02)	-.38 (.02)	-.42 (.02)	-.45 (.02)
JUNIOR HIGH	Italy	-.22 (.04)	-.21 (.04)	-.13 (.03)	-.17 (.03)	-.20 (.03)	-.21 (.03)	-.21 (.02)	-.20 (.02)
	U.S.	-.25 (.01)	-.22 (.01)	-.23 (.01)	-.27 (.01)	-.28 (.02)	-.25 (.02)	-.29 (.02)	-.31 (.02)
COLLEGE +	Italy	.08 (.05)	.08 (.05)	.13 (.05)	.15 (.04)	.18 (.04)	.13 (.03)	.12 (.03)	.14 (.02)
	U.S.	.36 (.01)	.36 (.01)	.38 (.01)	.36 (.01)	.38 (.01)	.39 (.01)	.43 (.01)	.45 (.01)
R-square	Italy	.16	.21	.15	.17	.17	.20	.19	.21
	U.S.	.16	.16	.15	.15	.15	.14	.16	.18
#OBSERVATIONS	Italy	838	820	829	1104	1101	1073	1991	1797
	U.S.	12204	12999	16055	14886	14981	15547	16493	16807
AV. EARNINGS ($US)	Italy	4787	5683	7072	6216	6321	6129	8395	10684
	U.S.	9242	10051	10936	13198	14397	15265	17226	18128

Notes:

1) Dependent Variable = log of annual wage and salary earnings, full-time full-year non-agricultural workers who are not self-employed age 18-65. Pre-tax in U.S., post-tax in Italy.
2) Excluded education category = completed high school; All regressions also contain a constant.
3) Standard errors in parentheses.

Sources of Data: Banca D'Italia, U.S. Current Population Survey.

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 is 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 educational category compared to American women, these relationships 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 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.

III.4 Overall Earnings Inequality

The trends in overall inequality are shown in Table 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 and 9), as well as the standard deviation of log earnings for men in industry in Italy and manufacturing in the U.S. In all cases but the 50-10 differential for women in the earlier 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 U.S. 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.[27]

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27 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

TABLE 10 MEASURES OF INEQUALITY OF LOG EARNINGS, ITALY AND U.S.

ITALIAN MEN

year	90-10 differential	90-50 differential	50-10 differential	Standard deviation	Stand. dev. of residuals	Stand. dev. in Industry
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

AMERICAN MEN

year	90-10 differential	90-50 differential	50-10 differential	Standard deviation	Stand. dev. of residuals	Stand. dev. in Industry
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

year	90-10 differential	90-50 differential	50-10 differential	Standard deviation	Stand. dev. of residuals
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

year	90-10 differential	90-50 differential	50-10 differential	Standard deviation	Stand. dev. of residuals
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 of Data: Banca D'Italia, U.S. Current Population Survey.

We do not have a conclusive explanation for the lack of a U-shape in Italian individual-level inequality which 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 which do not reflect the changes in metal-manufacturing inter-inquadramento inequality, or the other measures of inter-industry and inter-occupational inequality presented above. Less than 50% of the BDI sample (substantially less for women) are 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,[28] though it still drops from 1983 through 1986 (final column of Table 10). Another possibility is that "industry" contains sectors which had a different experience than metal-manufacturing; unfortunately, we cannot separate out these other sectors in this data set.

III.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 relationship of earnings and productivity within individual firms), to differences in the imbalances between the supply and 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 U.S. and stable-to-falling inequality in Italy, as displayed in Table 10. An explanation which is logically possible involves the distribution of skills in the two countries: the above results might be consistent with a sharper trend toward higher educational attainment among fully employed workers, and thus toward greater overall inequality in the U.S. Recall, however, from the discussion above (Table 6) that while the average levels of education are higher in the U.S., 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 U.S. for both men and women.[29]

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

29 On the other hand, a given increase in the proportion of college educated workers might be expected to produce more overall inequality in the U.S., given the generally higher returns to schooling.

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% in 1978 to 49% in 1986 while the share of white collar workers rose from 41% to 51%; among women, the share of blue collar workers fell from 49% in 1978 to 40% in 1986 and the share of white collar workers rose from 50% to 60%.[30] As for the industrial distribution, the category "industry" is the largest among men, but has dropped over this period from 48% of the workers in 1978 to 39% 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% of the workers in 1978 to 43% 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.[31]

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 industrial and occupational 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 de-industrialization similar to 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 1993, who find evidence of shifts toward more educated workers in the U.S. and elsewhere), based on 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 high school, and a much greater shift toward workers with a college degree or more for both men and women.[32] We conclude that the fall in returns to high school, the less-

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30 This is consistent with the findings for the metal-manufacturing sector presented in section II, above.

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

32 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 due 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, toward women with a college degree .253.

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.[33]

The influence of taxes, which are netted from the Italian data but not from the U.S. data is another candidate explanation for the observed trends in inequality in Italy and the U.S. The Italian tax system is effectively progressive both because of the structure of marginal tax rates and the lump-sum nature of deductions. While pre-tax earnings have been found to be more unequal than post-tax earnings, the progressivity of the tax system seems to have decreased between 1982 and 1987.[34] 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 post-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 U.S.- specifically, labor market institutions (union contracts and relatively centralized bargaining structures, for example) act to narrow earnings inequality to a greater extent in Italy and have not been deregulated or otherwise dismantled to the extent they have been in the U.S. 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 II on the metal-manufacturing sector.

V Conclusions: Mechanisms Outside the Regular Economy Influencing Overall Italian Wage Inequality

The overall picture of Italy presented in this chapter is of a country with a compressed wage structure which is not yet undergoing the rapid decompression experienced elsewhere during the 1980s. The decline of inter-inquadramento, inter-industry and blue collar / white collar differentials during the 1970s came to a stop and was slightly reversed during the 1980s, but these

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33 The evidence on the growth of educational 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, so that their hiring practices may be driven by concerns other than the technological needs for skills (political patronage, for example).

34 See Nardecchia and Patriarca 1992, Ricciardelli 1992 and Di Bella and Parisi 1992.

differentials did not rise back to the pre-1980s levels despite the reforms of the mid-1980s. Over the 1978-1987 period, 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 U.S., 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, 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, the dynamic of inflation in conjunction with the different escalator regimes that Italy has experienced during this period. Third, 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 U.S. suggests that the continuing compression in the regular sector is likely not attributable 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 de-industrialization. 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 U.S. 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 large 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.[35] 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 40,000 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, if the system had been modified by giving more weight to contracted increases, as for example in Sweden,[36] 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.

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

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35 Franco Mattei, one of the Confindustria experts who bargained the 1975 agreement wrote afterwards: "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).

36 See Edin and Holmlund 1993.

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 U.S. 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 non-regular 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: non-agricultural self employment as a proportion of total civilian employment grew from 18.9% in 1979 to 22.3% in 1990 (OECD 1992).[37] 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 high 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. Though 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 joining self employment.

Italy is also well known for having a large underground economy and, almost by definition, the underground economy is something over which official 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; Dallago 1990).[38] In line with this view, the

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37 As a point of comparison, the share of self employed workers grew from 7.1% in 1979 to 7.6% in 1990 in the U.S. The U.K seems to be the country with the greatest growth of the proportion of self employed, from 6.6% in 1979 to 11.6% in 1990. The share of self-employed workers in the complete Bank of Italy survey rises from 17.5% in 1978 to 23% in 1987; we do not use these observations for the wage inequality calculations in section III because we have no way of distinguishing full-time self-employed from part-time.

38 Dallago 1988 reports that recent estimates of the Italian underground GDP as a proportion of total GDP range from 6% to 30.1%, with most estimates in double figures. For the U.S., the analogous

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 (an hypothesized effect of the scala mobile), it becomes difficult for employers to profitably maintain "overground" activities involving less skilled workers. Though hiring less skilled workers into underground activities not controlled by unions may be infeasible 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 non-explicitly measured portion of national product went from 15.3% in 1980 to 17.7% in 1985 and then slightly decreased to 16% in 1986 (Dallago 1988, 73-75).[39] 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 14 and 29 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 (24 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 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 slightly decline only recently, down to 469,050 in 1990.[40] The available data indicate that approximately 50% of these contracts (40% in the south) are eventually transformed into permanent contracts (Ministero del Lavoro 1988-1991).

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

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estimates range from 2.6% to 33%, with very few estimates in double figures. See also Deaglio 1984 and Rey 1985 for further discussion of the Italian underground economy.

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

40 This amounts to approximately 3% of the total non-agricultural paid workforce.

expense of unemployed older workers who would have to be hired under standard permanent contracts), particularly given the oft-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 14 and 24 fluctuated around 61-62% between 1978 and 1983, declining thereafter to 54% in 1987 and to 48% in 1990 (OECD 1978-1990). 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 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 we present in the first three sections of this chapter 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: high 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.

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 of the surveys, particularly at the beginning of the sample, are available. 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.

BANCA D'ITALIA

The Bank of Italy survey of Italian households was first collected in 1977. In 1985 the survey was not done and the data for 1981 are not considered to be sufficiently representative by the experts at the Banca D'Italia. Post-1987, the survey is being conducted bi-annually.

Data are collected on a representative cross- section of Italian households by a private company for the Banca D'Italia. 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: Banca D'Italia, "I bilanci delle famiglie Italiane", in Supplementi al Bollettino Statistico. Note metodologiche e informazione statistiche., various years; and Banca d'Italia, "Le indagini campionarie sui bilanci delle famiglie italiane', Numero speciale dei Contributi all'analisi economica, 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.

MINISTERO DEL LAVORO

This data set is based on a survey of 11,000 plants and is sponsored by the Minister of Labor. Until 1977, only firms with more than 5 employees were included. Post-1977, the survey is limited to firms with more than 50 employees.

The data used in figure 1 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 (1970-1989) of the National Accounts data published by ISTAT (Istituto Nazionale di Statistica), Collana di Informazione, edizione 1990, n.10.

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