Working Poors?
An Analysis of Low Wage Employment in Italy*

C. Lucifora
Università Cattolica di Milano
Largo Gemelli, 1 - 20123 Milano (IT)
e-mail: lucifora@mi.unicatt.it

REVISED VERSION: October, 1997

Abstract

In this paper we look at the evolution of low wage employment in Italy using different data sets, at the individual level, for the 1975-1993 period. The structure of the paper is as follows: first, the nature and the extent of low pay in Italy is analysed in terms of the existing pay setting institutions. Second, both a descriptive analysis of the main features of low pay employment, as well as the working experience of individuals over the life-cycle are offered. The main determinants of low wages are estimated and the - *ceteris paribus* - probability of being low paid is given for different stylised "individuals". Third, we explore whether low pay is a transitory or a permanent feature of the individual wage profile. Mobility patterns over deciles of the wage distribution are analysed and a number of summary indicators are offered.

Keywords: Wages, Mobility, Low pay employment
JEL codes: J3, J6, I3

* I am grateful to R. Asplund, T. Atkinson, A. Bigard, F. Bourguignon, C. Dell'Aringa, Y. Guillotin, M. Keese, M. Manacorda, P. Sestito, P. Swaim, M. Stewart and participants to the TSER Conference on "Low Wage Employment in Europe" (January 1997, Bordeaux-FR) and AFSE Conference on "New Income Inequalities" (May 1997, Le Mans-FR) for comments and suggestions. The data used in the present study have been kindly supplied by INPS (Istituto Nazionale della Previdenza Sociale) and by the Bank of Italy. This research is also part of the activities of the LoWER Network under the CEE-TSER Programme. Financial support from CNR is also gratefully acknowledged. Usual disclaimers applies.

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1. Introduction

The last two decades have been a period of significant change in the functioning of the Italian labour market. A number of distinct features, concerned with both the structure of the labour force as well as the institutional setting governing pay determination, have characterised at different stages the economic scene. On the one hand, there has been an increasing participation of females to the labour market and a shift in sectoral composition with the service industry and public employment progressively gaining importance over manufacturing. On the other hand, the strong union pressure and the rigid labour market regulation of the 1970s and early 1980s reverted, in recent years, to a more flexible set of rules coupled by a less conflictual industrial relations climate (Dell'Aringa, 1993; Salvati *et al.*, 1990). This portrait is also complemented by an increasing trend in the overall rate of unemployment, which has proved particularly severe among prime age workers and in the southern regions of the country (Bodo and Sestito, 1991).

Such patterns are expected to exert major influences over the distribution of wages both over time and among different groups of individuals in the labour market[1]. Indeed, this has been the case in a number of industrialised countries which, under the pressure of different economic and institutional changes, experienced over the last decade a significant increase in earnings inequality (OECD, 1993; 1996)[2]. This evidence has increased concern about the pay conditions of those individuals located at the bottom end of the wage distribution. In other words, it is questioned whether an increase in earnings inequality should result in a higher proportion of workers (predominantly employed in low-skilled jobs) receiving a "low wage": the so-called working poors. An increase in the share of individuals earning a wage rate which is substantially lower than the national average might be undesirable for a number of reasons: first, from an "equity" point of view a too dispersed wage structure - if wage differences are perceived as unfair - may undermine cohesion and co-operation among workers; second, low pay may affect the ability of individuals and households to maintain a decent living standard and thus further exacerbate the problem of poverty; finally, from the perspective of firms, a

[1] Evidence for Italy on the effects of technical progress on wage dispersion can be found in, Casavola, *et al.* (1996). Conversely, Erickson and Ichino (1995) and Dell'Aringa and Lucifora (1994), respectively, provide evidence on the effects of institutional changes and unionisation on wage dispersion.

[2] Several complementary explanations for the changing structure of wages have been offered: ranging from widespread (skilled-biased) technological change, to growing trade with low-wage developing countries, as well as to major labour market reforms aimed at increasing labour market flexibility (Katz and Murphy, 1992; Wood, 1994; Freeman, 1993).

significant undercutting based on wage rates might well hinder fair competition. The incidence of low pay has also implications for public policy, as governments are likely to face rising costs in terms of welfare programmes targeted to the well-being of individuals.

Against the views discussed above, it is often argued that the "low wage" issue is a false problem as wages simply reflects differences in marginal productivity and it is through the operation of the market mechanism that resources are efficiently allocated. According to standard economic theory any attempt to alter wage relativities - for example introducing a statutory minimum wage - will result in a loss of jobs as less-skilled workers will be out-priced from the market. Also, there is a well established view suggesting that low wages and poverty are only loosely related and that any attempt to reduce the incidence of low pay will have almost no effect in alleviating poverty[3].

Despite the lack of consensus among economists and policy makers over the issues discussed above, assessing the relevance of low wage employment in the Italian labour market appears of particular relevance in the light of the major changes which have occurred in recent years.

There have been a number of studies concerning the evolution of income distribution in Italy, but only some have focused explicitly on the distribution of earnings using micro-data (among others: Sestito, 1992; Contini and Revelli, 1992; Erickson and Ichino, 1995; Lucifora and Rappelli, 1995; Manacorda, 1997)[4]. Although these studies differ, according to the main focus of interest, either in the methodology or with respect to the data source used (or both), nevertheless a general finding, common to most of them, can be identified. In particular, it is shown that Italy - over the 1970s and most of the 1980s - did not experience an increase in earnings dispersion such as the US, the UK and, to a minor extent, other OECD countries[5]. Conversely, earnings inequality in Italy has been declining over most of the 1980s, with some indications of a more disperse distribution emerging only in the late 1980s. Despite the relative stability of the structure of wages might appear rather surprising when compared with both the experience of other countries, as well as the significant changes occurred in Italy over the same period; all authors support the view that various institutional factors (such as, national collective bargaining, strong unions and labour market legislation) had a considerable influence

[3] For an extensive survey of the different views on low wage employment and the economic effects of minimum wages see the "Policy Forum" section on the *Economic Journal* (1996).

[4] Also the following studies provide evidence on income distribution patterns in Italy: Brandolini and Sestito, 1994, 1997; Rossi, 1993.

on the observed trends. In recent years, however, the role of these factors in shaping the wage distribution has become progressively less important such that a growing dispersion in earnings and an increasing number of low wage worker might be reasonably expected.

As far as the present study is concerned, the focus will be placed on two main features of low wage employment. First, we shall investigate which groups in the labour force are more likely to suffer from low wage episodes and, *ceteris paribus*, which are the characteristics of either individuals or employers that are associated to low wage rates. In particular, we want to explore how these evolved over time and whether the incidence of low pay has shifted from some groups to others. Second, and more important, we wish to analyse the dynamics of low wages, that is how individuals move within the earnings distribution and whether low wage is a transitory or a permanent feature of the individual wage profile. In other words, it is important to ascertain if "life-time" earnings inequality - as compared to "static" inequality - is significantly reduced by individuals' upward mobility in the earnings distribution.

In order to do this, we shall make use of different data sets with information at the micro level and follow individuals over a significant portion of their working life (longitudinal data). The structure of the paper is as follows. In section 2 we discuss a number of problems concerned with the definition and the measurement of low wages and we describe the data sets used in the empirical analysis. Section 3 looks at some of the institutional features of the Italian labour market and presents some of the aspects governing pay determination. A descriptive analysis of the main features of low pay employment in Italy are also offered. The probability of experiencing low wages, conditioned on a set of job and personal characteristics is estimated and results reported in section 4. Finally, in section 5, the mobility patterns of individuals "in" and "out" of low pay and over deciles of the wage distribution are investigated. The final section contains some concluding remarks.

2. Low Wage Employment: Definition and Measurement

Economic theory provides different explanations for the existence of low wages. Among these some emphasise the role played by market forces in wage determination, while

[5] OECD (1996) reports that only Canada, Finland and Germany have seen a decrease in the dispersion of earnings over the period.

others stress the existence of non-competitive factors which might push wage levels below the perfect competition equilibrium. In the recent debate over the causes for the increased earnings inequality observed in most OECD countries both approaches have been suggested. On the one side, shifts in the supply and demand for labour market skills may influence the structure of wages - at both ends of the earnings distribution - by altering the distribution as well as the returns to individual characteristics (Bound and Johnson, 1992; Katz and Murphy, 1992; Murphy and Welch, 1992). Alternatively, other factors arising in non-competitive settings - where employers may have some power in setting wages - may be relevant to explain the occurrence of a significantly low level of pay. For example the simple recognition that employers may not be able to hire all the workers they wish at the going rate, is sufficient to allow firms some discretion in setting wage levels (Card and Krueger, 1995; Rebitzer and Taylor, 1991; Dickens *et al*., 1996). Clearly, policy implications aimed at alleviating the low pay problem are radically different in each of the above cases and the ongoing controversy, on both sides of the Atlantic, on the economic effects of a statutory minimum wage is an example of the divergent views that exists on the desirability of such measures.

As far as the present study is concerned, however, no attempt will be made to discriminate among competing theories of wage determination. On the contrary, the focus will be placed on those factors affecting the probability of a low wage employer-employee match. Hence, we shall first investigate the relevance and the composition of low wage employment for different groups of workers and firms, and next try to assess the likelihood of low wage episodes for given (observed) characteristics.

2.1. Definitions of low wage employment

The identification of the low wage population among those individuals who contribute to the formation of the National product it is not an easy task. A number of clarifying remarks may help. First, despite the relevance of individuals living on a low income might be higher for those working in the informal sector of the economy (excluding illegal activities), policy measures have traditionally been targeted towards the formal sector and, within the latter, towards employees - i.e. as opposed to the self employed. Second, we shall be concerned with individual wages and not incomes, as the latter are also influenced by the existence of transfer payments. Furthermore different definition of earnings - which may differ substantially across

individuals - can be used, such as hourly, weekly, monthly or yearly measures, as well as gross as opposed to post-tax earnings. In principle, hourly earnings should be preferred (as significant differences might exist among individuals in the number of hours worked), though in practice the number of hours worked is very seldom available and is often measured with error. When net (post-tax) earnings are considered instead, the existence of a progressive income tax regime might alter the shape of the earnings distribution. In the present study equalised annual earnings (that is, corrected for the number of weeks/days effectively worked) will be used, both in gross and net terms.

The final crucial point concerns the choice of the earnings cut-off to determine low pay. Several different definitions have been suggested in the literature depending on whether an absolute or a relative measure is preferable. Whilst "absolute" measures are usually defined with reference to a given level of income (in real terms) - i.e. the official poverty line -, "relative" measures are taken either as a fraction of mean or median wages, or with respect to some specific quantiles of the earnings distribution. Although a number of problems arise with any of the above definitions, for the purposes of the present paper a relative measure - closer to the idea of social distance and exclusion - seems preferable[6]. In practice, low paid workers have been defined as the proportion of those falling below two-thirds of the overall earnings distribution. Despite its apparent arbitrariness, the measure chosen is in line with the Council of Europe's suggested "decency threshold" (i.e. defined as 68% of full-time average weekly earnings), as well as with most of the legal minimum wage levels enforced in several European countries[7]. In figure 1, according to the definition of low pay given above, we report for a number of industrialised countries the proportion of workers falling below the threshold, in a given year (1994)[8].

[Figure 1 about here]

Quite interestingly, significant differences in the relevance of low wage employment across countries emerge. Italy, in particular, is located among those countries characterised by

[6]See OECD (1996) for a discussion of the properties and limitation of the different measures for the low-pay cut-offs.

[7] Other organisations have proposed different pay thresholds. The Trade Union Congress (TUC) suggests a measure for defining low-pay, which ranges from half to two-thirds of the median male earnings. Similar cut-offs are adopted by the British Low Pay Unit (BLPU).

[8] The year chosen is not exactly the same for all countries. For some countries it refers to 1993 (Austria, Belgium, Italy, Sweden) while 1995 is available for others (Australia, France, Swizerland and the UK).

a relatively modest incidence of low wages. Some care, however, should be used in drawing conclusions from direct comparisons across countries, since - as one might expect - the observed pattern is strictly related to the country's overall earnings inequality (OECD, 1996). As previously discussed, the volume of low-wage workers, measured at a given point in time, indicates only one (rather partial) dimension of the phenomenon, and a great deal of heterogeneity is likely to exist both across different workers-employer matches, as well as over time. For some groups of individuals or employers the risk of falling into low pay - as compared to the average - might be significantly higher. Also, low pay might be disproportionately concentrated among certain groups of workers or firms. In the following sections - using different micro data sets - various indicators of low pay incidence and concentration will be compared across individual characteristics and employer attributes.

2.2. The Data

The empirical analysis will be based on the two main sources of micro-data which are currently available in Italy for the study of earnings. Both of them provide detailed information, at the individual level, on earnings and on a number of characteristics related to the worker and the firm. The first data set is drawn from the Bank of Italy "Survey on Income and Wealth of Italian Households" (SHIW), which is a cross-section of approximately 8,000 households (with some specific questions referred to individuals within the household) distributed in all sectors of the economy. The survey covers individuals who are resident in Italy and is available on yearly basis from 1978 and biannually from 1987 onwards (with the only exception of 1985)[9]. In the following analysis, only income recipients within the household will be considered. A full set of standard human capital variables is available (i.e. schooling, experience, gender, etc.) as well as a number of additional controls for broad occupational groups and sectors of activity. Earnings figures are recorded net of direct taxation and corrected for the number of months effectively worked in the year.

The second data set is drawn from the INPS Social Security Archives (Istituto Nazionale di Previdenza Sociale) and is based on the earnings declarations of employers to the National Social Security. Since the data is collected mainly for administrative purposes, and

[9] The original name of the survey is, *Indagine sui Bilanci delle Famiglie.* See, Banca d'Italia (1993) for a more detailed description of the sample frame and for variables definitions.

not originally intended for statistical use, the set of information on individuals' characteristics is not very rich (i.e. the major drawback is due to the lack of information on educational attainments); conversely, a clear advantage is that earnings figures are very accurate. In particular, earnings are defined as gross yearly wages - adjusted for the number weeks effectively worked - inclusive of premia and other periodical payments, but excluding overtime payments and social charges. Moreover, the INPS data set has a longitudinal design, thus allowing individuals to be followed over their working-life. Our sample covers approximately 10,000 individuals employed in the private non-agricultural sector of the economy, for the period 1975-1988.

A number of *caveats* need some discussion. First, since the two data sets differ in several respects particular care should be adopted when making comparisons. The presence of net earnings, in one data set (SHIW), and gross earnings in the other (INPS) - given the progressive taxation regime - could produce a different portrait of low wage employment. Also, while the SHIW sample is restricted to full-time workers employed continuously throughout the year, INPS data, though referring to full-time equivalent positions, includes both part-time workers as well as those employed only part of the year[10]. Second, if we are interested in the work histories of individuals, the presence of attrition in the panel - as individuals can leave the data set for several reasons - can be a problem[11]. In particular, if the source of 'attrition' is non random (i.e. individuals with selected characteristics have a higher probability of dropping out the sample) there might be selectivity effects. For the purposes of the present study, particular care should be adopted for women leaving temporarily employment and re-entering afterwards, and individuals experiencing frequent spells of unemployed could be over-represented in the low pay population[12]. These *caveats* should be borne in mind when interpreting the results.

[10] It should be noted that the number of part-time workers is very low in the Italian economy.

[11] Among the main reasons for dropping out of the panel we can list: retirement, self-employment, long term unemployment, and if moving into the Public Administration. However, individuals who drop out of the panel and re-enter some years later can (in general) be tracked. Since attrition is likely to be more serious the longer the time period considered, there is clear trade-off between long periods and sample representativeness.

[12] In the Italian sample, if the individual becomes unemployed for less than a year he will appear in the data with a shorter number of weeks worked. Conversely, when the length of the unemployment spell is over 12 months there will be no individual record, for that given year, in the data. In a recent paper, using a different methodology, Bingley *et al.* (1995) try to correct for different sources of selectivity. Their main finding is that unemployment represent the most important source of selectivity.

3. Institutional Features and Stylised Facts

The set of rules governing pay determination is of paramount importance when studying the structure and the evolution of low pay. The existence of any kind of "safety net" designed to prevent (real) wages, in the lower portion of the earnings distribution, from falling too much is likely to influence significantly the relevance of low pay employment. Moreover, it has been argued, that the existence of mechanisms which introduce some form of downward rigidity to the relative wages of the least-skilled workers might adversely affect their employment rates. In particular, a trade-off between equity considerations (such as lower inequality) and economic efficiency (such as lower unemployment) might exists. This argument is often used to contrast the recent experience of both US (where a statutory minimum wage exists, but is set at a very low level) and UK (where wage councils, responsible for setting minimum wages in selected industry, were abolished in 1993) with that of continental Europe, in which unemployment has been rising over most of the last decade. If this is the case, the analysis of low wage employment cannot ignore the links that might exists with unemployment (Brown *et al.*, 1982; OECD, 1993). This view has, obviously, not gone unchallenged as new research found little support for the hypothesis that the existence of minimum wages bears any systematic and significant relation with the level of (un)employment (Card *et al.*, 1995; Dickens, *et al.*, 1996; OECD, 1996). To the analysis of the legislative and institutional setting in which pay determination occurs is devoted the following section.

3.1. The Institutional Setting

In most European countries different forms of "minimum wage", either set by the law or determined through collective bargaining (with provisions for the extension to non-covered workers), act so as to provide a threshold for the downward pressure on wages. Besides "minimum wage" arrangements a number of other labour market institutions, such as: union strength, collective bargaining coverage, unemployment benefits, etc. can significantly influence the incidence of low pay (Dolado *et al.*, 1996). Italy, in this respect, even without a statutory minimum wage legislation has often been referred to as an example of a particularly rigid labour market with strict rules governing firms' hiring and firing behaviour, as well as a pervasive system of collective bargaining. It is, however, difficult to regard the effects of such

rigidities as a constant factor either over time or across different segments of the labour market. On the one side, a significant change in the overall flexibility emerged in the second half of the eighties, as the levelling of differentials that had marked the wage structure in the previous decade was reversed and the extent of both external and internal flexibility in employment adjustment increased with a generalised restructuring of the economy (Dell'Aringa and Lucifora, 1990, 1994). On the other side, a number of segments of the labour market have always escaped the effects of the above mentioned rigidities, namely: small firms, several non-manufacturing industries and workers on temporary/fixed term employment contracts (i.e. leaving aside the quite large informal economy). Thus, even if the coverage of collective bargaining is very high and - in general - there is a *de facto* extension of the national wage minima, still there might be a conspicuous proportion of workers earnings a wage rate which is substantially below the average (or median).

Yet evidence on low pay employment in Italy, mainly due to the lack of adequate data, is rather scarce. Only recently, a number of studies contributed to shed light on the different dimension of the phenomenon. Lucifora (1993), using SHIW data for 1987, suggests an overall figure of 14.5 percent for full-time workers (on a regular contract) who fall below two-third of the median wage. Also, substantial heterogeneity is found across personal characteristics (such as gender, age, schooling, etc.) and occupation/industry attributes, both in terms of incidence as well as concentration of low pay. Not surprisingly, women, younger workers and the least educated - *ceteris paribus* - are more likely to be found amongst the low-paid. An international comparison study produced by OECD (1996) indicates for Italy - using the same source of data - a figure of 12.5 percent of full-time workers in a low-earnings job in 1993. The composition of low-pay employment in Italy is also found to be quite similar to that observed in other industrialised countries. Contini *et al.* (1997), using INPS data for 1986 and 1991, find that 23.1 percent of men and 50.3 percent of women - within a five years span - fall below the third decile of the earnings distribution. Finally, Brandolini and Sestito (1996) investigate the evolution of earnings inequality and low pay, using various years of SHIW data (from 1977-1993). The incidence of low pay among full-time workers varies, over the period, from over 16% (in 1981) to a lower figure of 8 percent (in 1989)[13].

[13] An interesting result, which confirms previous findings in the literature (Sloane and Theodossiou, 1996), indicates that also in Italy only a small portion of the low-paid are found in low-income household.

From a purely descriptive perspective, what is missing from most of the above mentioned studies is a direct comparison - bearing in mind the caveats previously discussed - of the statistical sources available. This is what we do next.

3.2. Some Stylised Facts

For the purposes of analysing the distribution of low pay among different groups of individuals and in order to calculate the (unconditional) probability of experiencing a low wage episode, in this section we investigate the incidence of low pay by looking at the proportion of workers who earn less than two-thirds of the median wage[14]. Since the likelihood of being low paid can vary substantially across personal characteristics and firm attributes, different break-down of the data are presented. We start by looking at the overall incidence of low pay over the years 1975-1993. In figure 2, the evolution of low-wage employment is assessed comparing the incidence rate between the two sources of data[15]. Both data sources indicate a relative fall in the proportion of low-paid workers in the seventies and most of the eighties. As a matter of fact, the two sources track one another pretty closely over most of the time period; a notable exception is 1988 in which INPS data show a sharp increase in low-paid employment, while in SHIW data this is observed only later. In general, the incidence of low-pay ranges from a peak of 17.5 percent in 1975 (INPS) to a minimum of 7.9 per cent in 1989 (SHIW), reverting to an increasing trend thereafter (12.5% in 1993, SHIW). Quite interestingly this pattern closely mirrors the evolution of earnings inequality observed in Italy over the last two decades (OECD, 1996; Brandolini and Sestito, 1996)

[insert figure 2 about here]

Given that significant differences exist in the participation patterns of males and females as well as in the distributions of low-paid jobs, in figure 3 a disaggregation of the incidence rate

[14] It should be stressed, that the evolution of incidence rates (i.e. proportion of low wage employment) for broad groups can be affected by variation in unemployment rates or by changes in (female) partecipation. If transitions to unemployment or to non-labour forces are more likely to originate from low-pay, then a large increase in the stock of the unemployed could induce in an underestimation of the incidence of low pay. Experimentation using fixed employment proportions, however, showed little difference with the pattern reported in the figures suggesting that the bias (if any) is very small.

by gender is proposed. A finding common to most studies, which suggests that females are on average two times more likely to be affected by low-pay conditions than males, is supported by the evidence emerging from both data sets. Over the whole period, approximately one female out of four is at risk of experiencing a low paid spell, conversely, among males, less than one in ten is at risk of low-pay. Also, as earnings generally increase over the life-cycle of individuals, a common findings is that younger cohorts are more likely to suffer from low-pay than older ones. This is confirmed here as well. When comparing the evolution of low pay for two broad age groups - young (below 30) and mature workers (between 30 and 59) - younger workers exhibit higher incidence rates over the period (results are not reported).

[insert figure 3 about here]

A further important determinant of (low) pay is education. In figure 4, using SHIW data (i.e. INPS data do not record educational attainments), we plot the incidence of low pay by educational qualifications. Years of schooling have a strong effect in reducing the likelihood of a low-pay spell; in particular, the recent trend toward higher earnings inequality appears to be match by a proportionally increasing share of low educated workers being low paid. Similar findings are obtained when the breakdown is done by either occupation or by skill groupings[16].

[insert figure 4 about here]

The evolution of incidence rates for low-paid employment which has been presented in the above figures describes a world in which for a given set of characteristics (i.e. young, female, low educated, etc.) the risk of being employed in a low-paid job can be significantly higher. However, a complementary information that one would like to explore for a better understanding of the phenomenon of low-pay is the distribution of the pool of low-paid workers across various personal and firms attributes. In other words, it might be instructive to look at the groups of individuals, firms and industries where low-pay jobs tend to be more

[15] Since SHIW data is not available for 1985 and from 1987 onwards it is only available every two years, in the following figures - for graphical convenience - missing points have been interpolated.

[16] Manual workers experience in general higher low-pay incidence rates as compared with non-manual. However, when differences across gender are considered, non-manual females appear to be worse off in terms of the risk of falling into low-pay than manual males (results not reported).

concentrated. In order to do this, in table 1, we report for selected years different indicators of incidence and concentration[17].

In general, although women have a much higher probability of being in low-paid jobs, they appear to equally share the burden of low pay employment with men. Low-paid employment - on average - tends to be highly concentrated among manual workers (over 60%), those employed in small firms (65% and more), and particularly in industries such as manufacturing-construction (20-25%) and retail-trade (50-70%). Finally, a large share of low-paid individuals appear to work regularly over the year (more than 60%) and to stay with the same employer for most of their working life (90%). Interestingly, the share of low paid also appears (almost) equally distributed between young (below 30) and mature (between 30 and 55) workers[18].

[insert table 1 about here]

As far as the evolution of low pay employment is concerned, incidence is found to be declining between the first (1975) and the last year (1987) considered here. However, as shown in the previous figures (between 1987 and 1989 incidence was at its minimum), this pattern reverted its trend in more recent years. Conversely, the index measuring concentration in low-pay appears rather stable over the years, suggesting a strong correlation between given characteristics and the bulk of low-paid jobs.

The simple descriptive evidence presented thus far suffers from a number of drawbacks. First incidence and concentration rates, indicating the probability of experiencing low pay and the distribution of the latter among a given set of characteristics, are not resulting from a *ceteris paribus* analysis. That is, some of the differences in observed probabilities might simply reflect compositional effects or differences in other (observed or unobserved) characteristics. Second, observing that a given percentage of workers is low paid (or at risk of being low paid)

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[17] In practice, in the empirical analysis, the following indicators have been computed:

Total Incidence	***Incidence (Risk)***	***Concentration***
TINC $= (LW/E)$	***RINC*** $= (Lw_i / E_i)$	***CON*** $= (Lw_i / LW)$

where LW shows the total number of low paid workers and E represents the total number of employees in employment, Lw_i indicates the number of individuals of the *i-th* group (i.e. age, industry, occupation, etc.) who fall below the low-pay threshold, while E_i report the total number of employees belonging to the *i-th* group.

[18] It should be noted that the very young are not included in our sample ("young" workers are aged 24 in 1975). This is partly intended to exclude from the sample full-time students doing small jobs and alternating education and work within the year. Furthermore, there is significant evidence suggesting that in Italy the age at which individuals start working is - on average - much higher than in other countries (Casavola, *et al.*, 1995).

neglects the fact that it is not always the same individuals who are in low paid jobs. Conversely, if there is considerable mobility across the earnings distribution, low pay might be a transitory condition as individuals will move up the earnings hierarchy. Finally, together with movements within the earnings distribution, also movements in and out of employment or the labour force can be relevant. In the following sections these issues will be addressed.

4. The Determinants of Low Pay

In this section, we investigate the determinants of low pay using a binary probit model[19].

Setting the low pay threshold, as we did before, at two-third of the median wage, the probability of being low paid can be specified as,

$$P[w_i < m] = F(\boldsymbol{X}'_i \beta) \qquad i=1, ..., N$$

where w_i is the wage of the *i-th* individual, m is the low pay threshold, F is the standard normal cumulative distribution function, $\boldsymbol{X}'_i$ is a vector of explanatory variables (for the individual and the firm) and β is a vector of parameter to be estimated. Since the interpretation of the coefficient estimates in a probit equations is difficult, the marginal effects of being low paid have being computed and reported in table 2[20].

In order to compare the results and obviate to the restricted choice of explanatory variables, two cross-section for 1987 have been drawn from either data set (i.e. SHIW and INPS). Separate estimates for males and females are reported when using INPS data, while controls for education are also included when SHIW data are used. Two different specifications for each data set are given in the table. Both age and education have a negative, statistically significant, on the probability of being low paid. Each additional year of age, using

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[19] A previous study using a similar methodology to analyse low pay in Italy is, Lucifora (1993).

[20] Marginal effects can be computed, as follows:

$$\partial P[w_i < m]/\partial X_i = f[\boldsymbol{X}'_i \beta]\beta$$

where f is the density function of the standard normal and the other symbols are as previously defined. As it is common practice, continuous variables have been evaluated at their means; conversely, for dummy variables (D_i) the effect is computed - after partitioning the $\boldsymbol{X}$ vector - looking at the change from 0 to 1.

$$P[w_i < m \mid D_i=1] - P[w_i < m \mid D_i=0]$$

INPS data, reduces the likelihood of being low paid by 2.5 percent for females and slightly more than 1 percent for males. However, when also controls for years of schooling are added - using SHIW data - the impact is greatly reduced (i.e. 0.2 per cent). The effect of age is found to decrease over the life cycle of individuals in both data sets. The specifications in which male and females are grouped together (SHIW data), show that being a male, *ceteris paribus*, significantly reduces the probability of low pay (i.e. by 16 percent). Higher qualifications reduce the probability of low pay: holding a non-manual job lowers it between 6 percent (males) and 9 percent (females), while being in a managerial job has a negative impact of nearly 40 percent for women and 8 percent for men (i.e. SHIW results, for both genders, are in between the above figures). Workers employed in larger firms are - other things equal - less likely to be low-paid (though the effect of the largest sized firm category in the female equation is not statistically significant). The effect of industry dummies on the conditional probability of being low paid is jointly significant, though not always significant individually. The retail-trade and personal services industry shows a (statistically significant) positive impact. Also, having worked without any interruption in the year reduces the probability of being below the low pay threshold (10 percent for females, 8 percent for males). Finally, the geographical location of the firm is also relevant for low pay. Working in the north of the country, with respect to the south, has - *ceteris paribus* - a negative impact equal to 12 percent, while it is 7.5 percent for the central regions.

[insert table 2 about here]

Another useful way to interpret the results, instead of considering the marginal effect of each factor, is to select a number of stylised individuals who combine several characteristics and then look a their probability of being low paid. In table 3, different estimates of these conditional probabilities are presented for each data set[21].

[insert table 3 about here]

Statistical significance, however, refers to the original ML coefficients: absolute asymptotic t-ratios have been reported in table 2.

[21] For exposition purposes, stylised individuals have been chosen so as to represent rather extreme cases. Conditional probabilities have been computed from ML coefficient estimates (not reported).

Results concerning the so called “reference” individuals are shown in rows 1 of table 3 (respectively for each data source). Individuals with “base” attributes are defined as having average values for all continuous variables and all the dummy variables set to zero. To illustrate one specific case consider a male worker, aged 45, doing a manual job, in a firm with less than 20 employees, having worked only part of the year, in the other-services industry; according to the above characteristics he will have a probability of being low paid equal to 7.4 percent. Conversely a female worker, with identical attributes (but aged 42), has a probability of falling below the threshold of 49 percent (INPS data). Estimates for “reference” individuals in SHIW data - though not comparable with those reported above, for they include average years of education and exclude firm size - are slightly lower: 2 percent for male and 13 percent for females. A more detailed description of the stylised individuals is reported in the table. Probabilities of being low paid range from 95 percent (74%), with INPS (SHIW) data, for a “very young/low skilled” female worker, to 0 percent for an “old/highly qualified” worker (irrespective of the gender). Although, conditional probabilities are substantially different from the unconditional ones, particularly for females (see table 1); the picture that emerge from table 3, indicates once more that young/unskilled and female are the attributes that make a worker more likely to suffer from depressed pay condition.

5. Patterns of Earnings Mobility

Analyses based on cross-section data only offer a portrait of low paid employment at a given point in time. Since individuals can change their relative position within the earnings distribution over time, restricting attention onto the pool of low paid individuals - at a point in time - might tell us very little on how the bulk of low pay is shared among the different groups of workers.

In this section, we investigate the extent of earnings mobility which characterises the lower end of the earnings distribution (OECD, 1996; Bigard, *et al.* 1996; Contini, *et al.* 1997)[22]. Individuals will be ranked according to their position in the earnings hierarchy, at two

[22] Some of the evidence reported in this section is part of a joint research with, A. Bigard, Y. Guillotin and F. Rappelli. I am grateful to them for the numerous and useful discussion. Contini *et at.* (1997) also estimate a logit model for the probability of being low-paid at two different dates.

different points in time, and then arranged into deciles of the distribution[23]. For the purpose of this exercise, we selected approximately 3,000 workers present continuously from 1975 to 1988[24]. Mobility is analysed recording workers' transitions across deciles (transition matrix) and then comparing the relative position of each individual at the beginning and at the end of the period[25]. In figure 5, we plot the frequency distribution of transitions occurred between the extreme years of the time period considered. The decile noted by D01 represents the lower end of the earnings distribution in the initial year of observation (i.e. D for departure), while the decile A10 represents the upper end of the earnings distribution in the final year of observation (i.e. A for arrival). In the case of "perfect immobility" all transitions would lie along the main diagonal, as individuals would end up exactly at the same (relative) position they started. Conversely, in the case of "perfect mobility" transitions would be uniformly distributed across deciles. In the figure, a substantial concentration along the main diagonal indicates the existence of a certain degree of earnings immobility.

[insert figure 5 about here]

Focusing onto low paid workers, the spike observed at the lower extreme of the distribution (i.e. marked with the arrow, in figure 5) seems to suggest some persistence in the low pay status. In particular, 50 percent of the individuals who started, at the beginning of the period, from the lowest decile of the distribution (D01) can still be found in the same decile, at the end of the period. If we consider the first two deciles this percentage rises to 60 percent. On the whole, as shown in table 4, the percentage of individuals who remain in the same relative earnings position is 30.5 percent (to be compared with 10 percent as in perfect mobility) while 35.7 percent are found to be worse off in terms of their relative earnings position. Hence, it is not always the same individuals who are low paid - although a significant proportion of them is -, as workers move within the earnings distribution changing their relative position over time.

[23] Considering the shape of the earnings distribution (which in general is not uniform), it must be stressed that the distance in absolute terms between earnings ranks is not the same. In particular, a movement from position 3 to position 5 of the earnings hierarchy, in relative terms, is similar to a movement from position 8 to position 10; in absolute terms, however, the earnings difference is not the same. Also, due to the fact that there might be individuals earning an identical salary, the number of observations in each decile can be slightly different.

[24] For a more detailed description of the data set used and the methodology, refer to Bigard *et al.* (1996).

[insert table 4 about here]

Besides the proportion of individual moving up or down within the earnings hierarchy, it is interesting to investigate how many deciles - on average - individuals move: that is the amplitude of the jumps. The indicator we use is the average absolute jump (AAJ)[26]. The average magnitude of the jumps is 1.42 deciles (corresponding to a move of 15 per cent in the earnings distribution). The latter can be further decomposed into upward and downward movements. In the table, we also reported the average ascending/descending jumps (ASJ=0.71; ADJ=0.71), which show a fairly symmetric behaviour in the amplitude of the moves.

However what it might be more interesting, for the purposes of the present work, is the possibility that the likelihood of moving (up or down) might be dependent on the starting position of the individual in the earnings hierarchy. That is, do individuals who start from the lower ends of the earnings distribution (i.e. the low paid) stand the same chance of moving as those higher up in the hierarchy? In figure 6, we investigate this hypothesis both conditioning the average jump on the decile of departure, at the beginning of the period, and normalising with respect to perfect mobility (i.e. set equal to 1)[27].

[insert figure 6 about here]

Looking at the individuals who start from the lowest deciles of the distribution, it can be noted that - with respect to perfect mobility - average ascending jumps are relatively small, while descending jumps are big. Hence for those individuals characterised by a relatively weak starting position in the earnings hierarchy, the event of remaining there or falling behind is quite likely. In other words, some individuals might be stuck in a low pay "trap" for a significant portion of their working life[28].

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[25] Transition matrices indicate the proportion of individuals (n_{ij}), in the *i-th* decile of the earnings distribution at time *t* (D_i - denote departure), who are observed at time *t+k* in the *j-th* decile (A_j - denote arrival).

[26] The Average Absolute Jump (AAJ) is computed as follows: $AAJ = \sum_{ij} (n_{ij}/n)|j-i|$. Note that under "perfect mobility", the AAJ index is equal to 3.3; conversely, the average "signed" jump is equal to zero by construction.

[27] Note that, since average absolute jumps are different depending on the decile of departure, a normalisation is necessary for comparison purposes. To see how this could be consider the case of "perfect mobility": the average absolute jump for D01 and D10 is 4.5, however it is 2.5 for D05 and D06.

[28] One limit of the analysis which should be stressed is that we are treating the relative earnings position of the individual at departure as exogenous. Also, attention has been restricted to a sample of individuals with continuous employment, this is likely to underestimate the additional mobility which also occurs through

6. Concluding remarks

In this paper we have looked at the evolution of low wage employment in Italy using micro data, at the individual level, for 1975-1993. During this period, significant changes occurred in the structure of the labour force, as well as in the pay setting institutions which exerted major influences over the distribution of wages. However, mainly due to distinct features such as: national collective bargaining, strong unions and labour market legislation, only moderate effects on the distribution of wages can be detected for most of the years considered. The role of these factors in shaping the distribution of wages, nevertheless, has become progressively less important in more recent years and increasing concern about rising earnings inequality and low pay has arisen. Indeed, the proportion of low paid workers, after having been falling continuously over the 1970s and the beginning of the 1980s, has been rising over the late 1980s and early 1990s.

In the study, after describing the evolution of low wage employment, we also investigated which groups in the labour force are more likely to suffer from low wage episodes and, *ceteris paribus*, which characteristics of both individuals and employers are more frequently associated to low wage rates. In general, results show that male as opposed to females have a lower probability of earning a low wage, aand that age and higher qualifications - *ceteris paribus* - reduce workers' likelihood of being low paid. Larger firms located in the Northern regions are also less likely to pay low wage levels. More specifically comparing two stylised individuals with different characteristics: a "very young/low skilled" female worker and an "old/highly qualified" worker (irrespective of the gender), the likelihood of being low pay varies from 95 percent in the former case to zero in the latter.

As discussed in the study, one major limit of the analyses based on cross-section data is that they only offer a portrait of low paid employment at a given point in time. Since individuals can change their relative position within the earnings distribution over time, restricting attention onto the pool of low paid individuals might tell very little on how the bulk of low pay is shared among the different groups of workers and whether low wage is a

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movements in and out of employment. For an interesting discussion and an application see, Stewart and Swaffield (1997).

transitory or a permanent feature of the individual wage profile. The analysis of the dynamics of wages, using longitudinal micro-data, showed that individuals who start from the lower ends of the earnings distribution (i.e. the low paid) are less (more) likely to move higher up (lower down) in the hierarchy, as opposed to those who start from higher positions.

These results offer a composite picture of low wage employment in Italy with some implications for policy, as it appears that not only low pay spells tend to be more frequent and concentrated among a given set of individuals, but also that individual earnings over the life-cycle can be severely affected by long spells of low pay. Having said this the agenda of desirable policy measures is not an easy task as many of the options implemented elsewhere proved, at a time, either ineffective or showed undesirable side effects. Clearly, more research is needed to identify and design the appropriate policy mix which will, eventually, reduce if not eliminate the low pay “trap”.

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able 1 - Incidence and Concentration of Low Pay by selected characteristics and gende

(selected years: 1975, 1980, 1987)

Characteristics	**incidence**						**concentration**					
	1975		1980		1987		1975		1980		1987	
	F	M	F	M	F	M	F	M	F	M	F	M
Total	***17,5***		***13,3***		***10,5***		--		--		--	
age: <30	36,2	24,4	31,8	20,6	30,0	20,1	41,4	24,1	37,6	25,0	36,1	25,8
age: 30-55	25,8	15,1	19,8	12,1	21,3	7,5	53,0	72,8	48,7	68,9	45,2	55,4
manual	34,8	18,3	22,4	14,0	21,4	8,7	68,4	89,4	60,7	86,0	51,0	86,2
non-manual	18,7	5,3	16,6	5,4	11,1	2,8	30,1	10,2	37,8	13,9	21,7	10,7
manager	0,0	0,0	0,9	0,0	0,0	0,6	0,0	0,0	0,1	0,0	0,0	0,4
size=1-20	48,8	33,7	45,4	25,1	36,6	14,2	50,1	70,5	67,6	68,7	65,5	78,2
size=21-50	27,1	10,9	16,6	6,3	15,6	3,0	15,5	11,1	13,9	8,4	12,5	7,0
size=51-100	28,6	6,2	10,6	5,3	13,5	6,5	13,9	4,8	7,3	5,3	7,4	11,1
size=101-250	16,7	2,2	6,4	0,6	7,3	0,9	14,1	2,8	7,2	1,0	7,7	2,3
size=251-500	10,5	10,1	6,4	13,9	14,7	0,8	4,3	8,9	3,3	16,4	5,8	1,0
size=+500	5,6	0,6	1,9	0,2	11,9	0,7	1,3	0,0	0,7	0,2	1,1	0,4
industry	19,7	6,6	6,9	4,2	12,2	3,8	29,3	23,8	12,8	21,2	18,0	28,1
craft-work	86,7	49,5	69,1	35,1	57,7	19,9	6,2	21,4	7,7	21,1	7,9	26,9
bank-insurance	7,3	1,0	6,4	0,9	3,3	0,4	3,3	0,6	3,7	0,6	1,1	0,3
retail t.-p. serv.	38,1	28,2	31,1	23,3	26,9	10,3	61,2	53,8	75,0	56,4	72,5	44,4
weeks: <52	41,8	22,6	37,8	20,1	43,8	13,4	40,0	38,2	27,2	24,5	30,1	39,0
weeks: 52	22,0	61,7	16,8	9,7	17,6	5,4	60,0	61,7	72,8	75,4	69,2	61,0
stayers	27,6	14,4	19,5	11,2	19,9	7,1	96,7	93,6	95,2	94,2	89,0	96,0
movers	25,8	16,6	35,4	15,1	55,7	9,0	3,2	6,3	4,8	5,8	11,0	4,0

note: INPS data

Table 2 - ML estimates of the probability of low pay (1987)						
	marginal effects (Probit estimates)					
	INPS data				**SHIW data**	
Characteristics	(1)	(2)	(3)	(4)	(1)	(2)
	female	*male*	*female*	*male*		
age	-0.025	-0.013	-0.023	-0.011	-0.0023	-0.0022
	(2.38)	(4.51)	(2.56)	(4.92)	(13.3)	(13.3)
age (squared)	0.0002	0.0001	0.0002	0.0001	0.0001	0.0001
	(2.22)	(4.78)	(2.35)	(5.38)	(10.1)	(10.2)
education	-	-	-	-	-0.0010	-0.0011
					(8.10)	(8.12)
gender	-	-	-	-	-0,167	-0,161
					(12.6)	(13.4)
non-manual	-0.093	-0.062	-0.091	-0.064	-0.081	-0.082
	(10.7)	(5.1)	(11.1)	(6.0)	(5.28)	(5.27)
manager	-0.36	-0.081	-0.398	-0.078	-0.197	-0.198
	(0.09)	(1.79)	(0.07)	(1.77)	(5.38)	(5.43)
size=21-50	-	-	-0.071	-0.099	-	-
			(7.82)	(9.76)		
size=51-100	-	-	-0.157	-0.042	-	-
			(8.29)	(3.19)		
size=101-250	-	-	-0.146	-0.122	-	-
			(10.9)	(11.7)		
size=251-500	-	-	-0.025	-0.128	-	-
			(1.69)	(5.58)		
industry	-	-	0.016	0.105	-	-0.084
			(1.75)	(1.79)		(1.68)
bank-insurance	-	-	-0.398	-0.053	-	-0.026
			(0.09)	(0.68)		(0.52)
retail trade &	-	-	0.046	0.165	-	0.029
pers. service			(3.10)	(2.82)		(1.11)
continuous empl.	-	-	-0.096	-0.078	-	-
(52 weeks work.)			(8.57)	(7.53)		
north	-	-	-	-	-0.121	-0.122
					(12.2)	(12.3)
center	-	-	-	-	-0.074	-0.074
					(4.67)	(4.68)
constant	*yes*	*yes*	*yes*	*yes*	*yes*	*yes*
Log-likelihood	-1681	-2641	-1494	-2343	-1398	-1108
Pseudo R2	0,432	0.426	0.513	0.499	0,242	0.399
numb. observat.	3.539	11.008	3.539	11.008	4.658	4.658

notes: absolute asymptotic 't-ratios' in parentheses
marginal effects computed from ML coefficient (see text)

Table 3 - Conditional Probability of being Low Paid
(INPS and SHIW data, 1987)

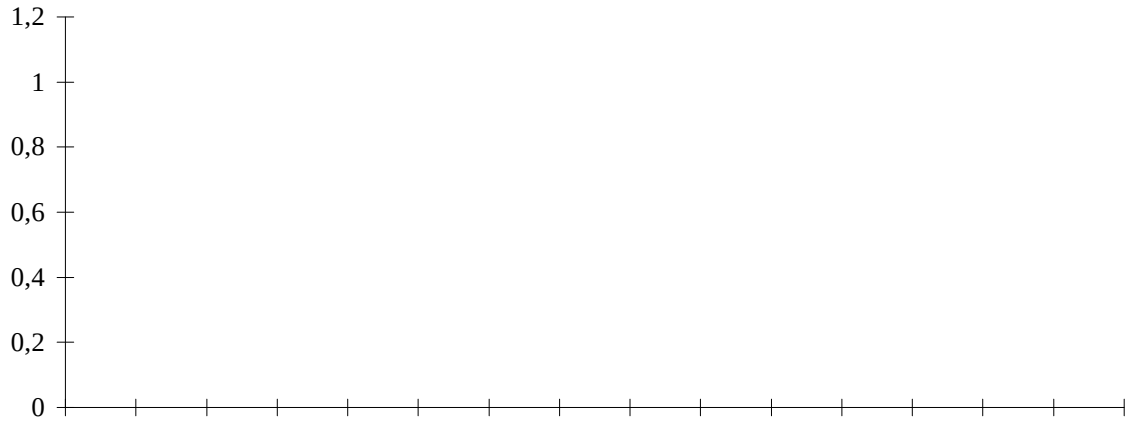
INPS data (1987)			
Individual	**description**	***female***	***male***
1. Base	avg.age (42f, 45m), manual, small firm (1-20), incompl. particip (less 52 weeks), 'other service' industry	0.4903	0.0741
2. Young	age=30, manual, small firm (1-20), incompl. particip (less 52 weeks), 'wholesale-retail trade' industry	0.7852	0.3351
3. Old	age=55, manager, big firm (+251), compl. particip (52 weeks), 'bank-insurance' industry	0.0000	0.0001
4.Very young, low-skilled	age=20, manual, small firm (1-20), incompl. particip (less 52 weeks), 'craft-work' industry	0.9511	0.6107
SHIW data (1987)			
Individual	**description**	***female***	***male***
1. Base	avg.age (40.3), avg. educat. (9.8 years), manual, 'other service' industry, south	0.1323	0.0220
2. Young	age=30, educat.=8 years, manual, 'wholesale-retail trade' industry, south	0.4614	0.1596
3. Old	age=55, educat.=18 years, manager, bank-insurance industry, north	0.0000	0.0000
4.Very young, low-skilled	age=20, educat.=8 years, manual, 'other service' industry, south	0.7492	0.4102

note: conditional probabilities computed from ML coefficient estimates

Table 4 - Indicators of Mobility

Description	**range**		**Index**
	perfect mobility	*no-mobility*	
Frequency of Movements			
IMR - Immobility Ratio (%)	*10.0*	*100.0*	30.53
ASR - Moving up (%)	*0.0*	*45.0*	33.74
DSR - Moving down (%)	*0.0*	*45.0*	35.72
Indicators of Mobility			
AAJ - Absolute Jump	*0.0*	*3.33*	1.42
ASJ - Ascending Jump (N)	*0.0*	*1.65*	0.71
ADJ - Descending Jump (N)	*0.0*	*1.65*	0.71

Figure 1 - Proportion of low-wage workers in OECD countries



source: OECD (1996)

Figure 2 - Incidence of low pay

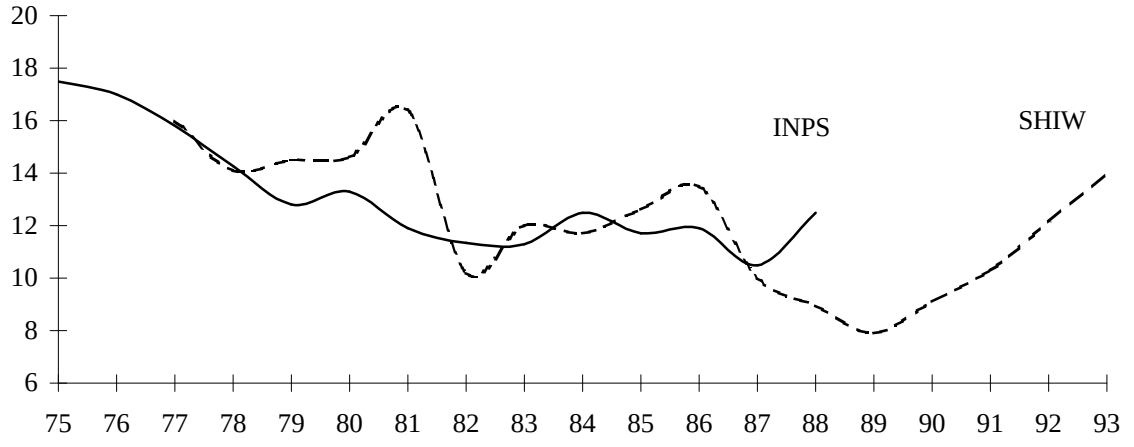


Figure 3 - Incidence of low pay by gender

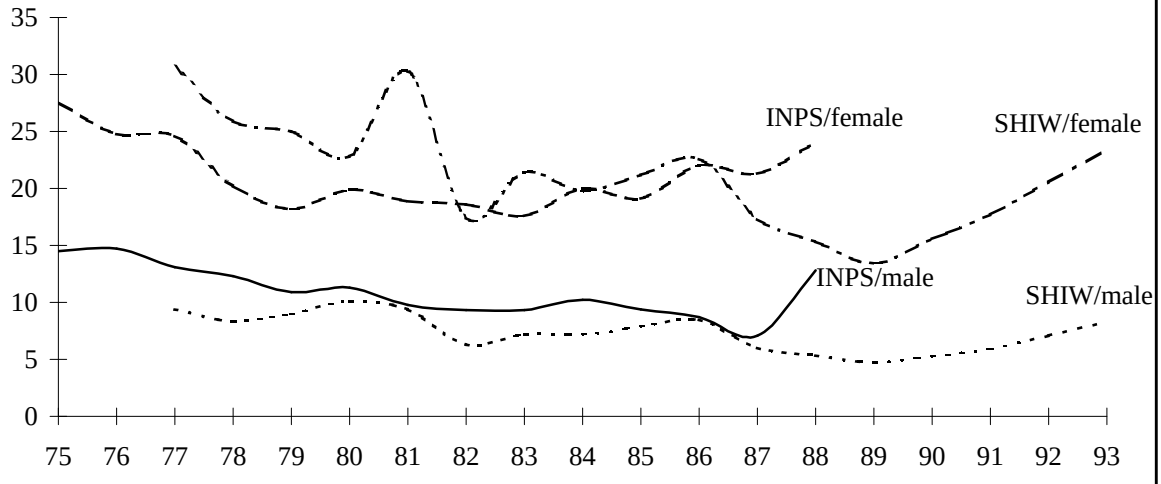


Figure 4 - Low pay by educational levels

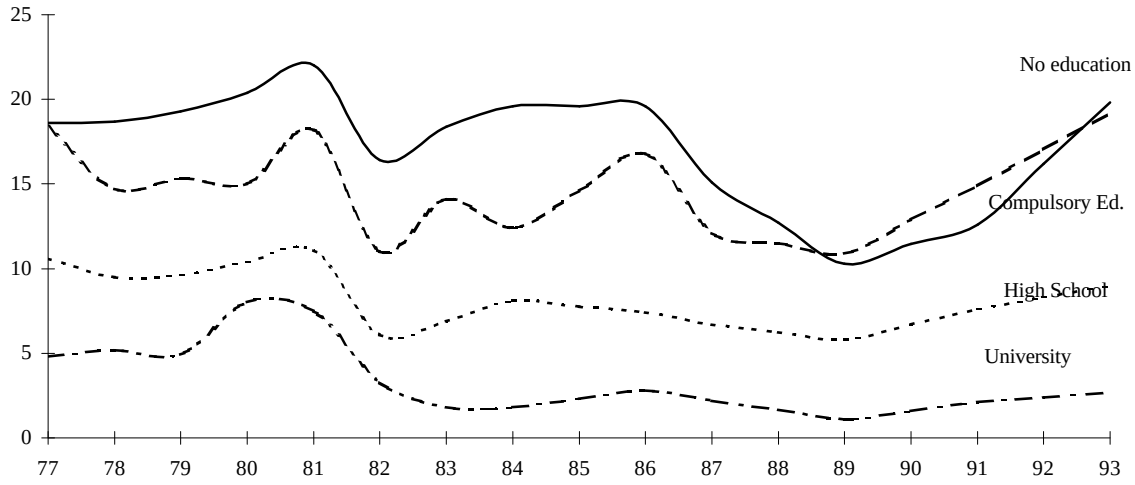


Figure 5 - Transition Matrix (1975-88)

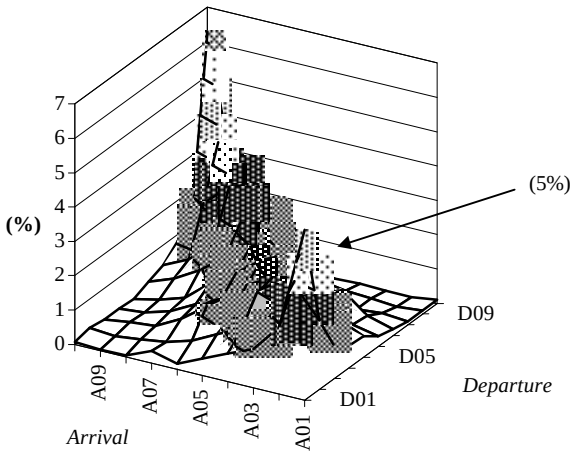


Figure 6 - Ascending and Descending Jumps by Deciles