

Wage differentials between permanent and temporal workers: Further evidence*

Sara de la Rica[†] and Florentino Felgueroso[‡]

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[†]Universidad del País Vasco. Avenida Lehendakari Aguirre, 83. 48015 Bilbao. e-mail: jeprigos@bs.ehu.es

[‡]Universidad de Oviedo. Avenida del Cristo, s/n. 33071 Oviedo. e-mail: ffelgue@econo.uniovi.es

Abstract

The main objective of this paper is to estimate wage differentials between permanent and temporal workers for different qualification levels and decompose such differentials to see which factors contribute more to explain them. The data we use is the "Encuesta de Estructura Salarial", a survey carried out in 1995 in all countries of the European Union, which contains very detailed information on wages and other characteristics for about 180.000 workers. The empirical results indicate that (a) the wage gap between permanent and temporal workers increases with qualification and it is smaller for females than for males, (b) when decomposing average wage differentials for each qualification level, we observe that the vast majority of such differential is explained by differences in characteristics, and in particular by differences in tenure and occupation. With respect to differences in returns, our results indicate that the returns to tenure are higher for temporal workers relative to permanent workers for both males and females and for every qualification level. Returns to occupation are higher for permanent than for temporal workers, and the difference is particularly high for females.

1 Introduction

The low rate of job creation in most European countries since the mid-1970s spread the opinion among policy-makers that labour markets in Europe were very rigid and that new flexibility measures needed to be implemented. Spain had at that time one of the tightest labour markets in all Europe, and its rate of unemployment were the highest. This situation led the spanish policy makers to implement flexibility measures - the most important one being to allow to contract new workers in a temporal basis with very small or no firing costs for types of jobs that were not temporal in nature. The introduction of this measure in 1984 changed completely the distribution of contracts in our country. Whereas temporal contracts in Spain had meant around 15 % of total contracts in 1983, by 1991 this share had increased to 33 percent and has remained stable since then. This kind of contracts were not questioned until the late eighties, where experts started to advise against the risk of segmentation that Spain was facing, with "good" (permanent) jobs and "bad" (temporal) jobs¹.

Whereas the employment effects of the implementation of these temporal contracts have captured much attention among academic researchers², their wage effects have not been studied that much. Jimeno and Toharia (1993) and Bentolila and Dolado (1993) are the only examples where wage effects of fixed-term employment are analysed. Both studies develop a theoretical model where wages are determined under collective bargaining, and in both studies it is found that the resulting wage for permanent workers is increasing in the proportion of fixed-term workers. Jimeno and Toharia (1993) also estimate that the wage gap of permanent workers with respect to temporal ones is around 10 percent. Bentolila and Dolado (1994) show in the same line that wages of permanent workers have increased with the introduction

¹ See Segura et al (1991), Bentolila and Dolado (1994), and Jimeno and Toharia (1993).

² See Bentolila and Saint Paul (1992) and García -Serrano and Jimeno (1998) among others.

of temporal workers.

In this paper, we extend the empirical study of wage differentials between temporal and permanent workers. In particular, we consider that workers differ by qualification and estimate wage differentials between temporal and permanent workers by qualification level. We also decompose average wage differentials to see which factors contribute more to explain them.

The paper is organized as follows: In the next section we describe the spanish institutional background, in particular, we describe the regulation of labour contracts and the wage determination process. Section 3 is devoted to describe the predictions that different theoretical frameworks make about wage differentials between permanent and temporal workers by qualification. In particular, from an insider-outsider prospective, wage differentials between permanent and temporal workers are likely to increase with qualification; from an efficiency wages context, the same prediction is achieved under the assumption that monitoring is more costly the higher the qualification level. In section 4, we describe the data. Section 5 is devoted to the estimation of wage differentials by qualification. We show in the first place the wage gap of temporal to permanent workers by qualification and then, decompose wage differentials to see up to which extent the observed differences are due to differences in human capital, occupational segregation, the type of job that they hold, or to differences in returns to the explanatory variables. We also decompose differences in returns in different components to see which sets of variables exhibit different returns. This analysis is done separately for each qualification level and distinguishing between males and females. Finally, section 6 concludes.

2 Institutional background

2.1 Regulation of labour contracts

The basic legal reference point regarding labour contracts is the Workers' Statute of 1980 (Estatuto de los Trabajadores, Ley 8/80, March, 10). This law considers indefinite contracts as the general contracting framework, whereas temporal contracts are assumed to be used only for jobs whose nature is temporary (seasonal jobs, temporal substitution of permanent workers, temporary increase in activity,...). The effects of this law must be taken into account together with the fact that unions had been legalized in 1977 and since then, one of their main objectives was to achieve higher job protection for workers. These two facts led the Spanish labour market to face the beginning of the eighties, a period of recession, with a workforce whose vast majority held permanent contracts with high severance payments in case of dismissal for economic reasons³. Some type of flexibility was considered necessary and it is in this context that the reform of 1984 took place. This reform establishes that temporal contracts may be used to promote employment, and it is no longer necessary that the activity associated to the job is of temporary nature. These contracts may be signed for a minimum of six months and a maximum of three years. The contract can not be renewed after three years and the worker must be either laid off or offered a permanent contract. If the worker is laid off, the firm can not employ any worker for such job for at least one year. The indemnities at termination for these type of contracts were almost negligible⁴, whereas indemnities for workers with permanent contracts were basically unaffected. This reduction of firing costs made that firms almost exclusively contracted temporal workers from

³If the dismissal is considered "fair", the worker had the right to receive the wage of 20 days per year of seniority. If considered "unfair" by the labour court, which happened to be a very frequent situation, the worker had to receive the wage of 45 days per year of seniority. For more details, see Toharia and Malo (1999).

⁴For more details on severance payments associated to temporal and permanent contracts, see Guell and Petrongolo (1998) and Segura et al (1991).

then onwards. In fact, as Guell and Petrolongo (1998) show, from 1986 to 1992, 98 % of new contracts registered at the employment office were fixed-term. This reform carried out an impressive change in the distribution of contracts. Whereas in 1987 only 15 % of all contracts were temporary, by 1991 this percentage had increased to 33 %, and the percentage has remained stable since then ⁵. However, given that the situation of workers that already held permanent contracts was unaffected by this reform, by the beginning of the nineties academic experts started to advice against pervasive effects of these temporary contracts (see Segura et al (1991), Bentolila and Dolado (1994), and Jimeno and Toharia (1993)). In particular, they advised against the creation of a segmented labour market in two types of jobs, the good (permanent) ones and the bad (temporal) ones, given that workers with temporal contracts might be advocated to hold unstable, low protected and poorly paid jobs, whereas permanent workers enjoyed high protection and presumably also higher wages .

These perceptions gave rise to the reforms of 1994 and 1997. The spirit of both reforms was to enhance permanent contracts to the detriment of temporal ones, but reducing firing costs of the former. In 1994 the general applicability of fixed-term contracts was virtually eliminated, persisting only for specific groups of workers (older than 45, disabled and long-term unemployed). In addition, firing procedures were restructured in an attempt to reduce them⁶. Finally, the 1997 reform created a new type of permanent contract, with lower severance payment in case of unfair dismissal (33 days´ wage per year worked in the firm) and gave fiscal incentives to firms that contracted workers under this form over the first two years of the contract (reductions of employers´ social security contribution in 40 percent that reaches 60 percent for contracting workers over 45 or disabled⁷).

⁵ See Toharia (1996) for a picture of the evolution of temporary contracts from 1987 to 1995.

⁶ For more details, see Toharia and Malo (1999).

⁷ The current contribution of employers to social security is 24 % of wages.

In summary, we can see that whereas in the early 1980s the workforce adjustment was in general terms considered rigid, during the eighties and nineties the spanish pattern has been to search for more flexibility. However, we must not forget that this flexibility is only achieved at the margin, it is, for workers signing new contracts, given that the conditions of workers that were already in the labour market holding permanent contracts before the reforms are introduced are untouched, and therefore they are still highly protected against job loss.

2.2 Wage determination in Spain

As with respect to labour contracts, the Workers 'Statutory of 1980 contains the basic elements of collective bargaining in Spain. It is an open-shop system, it is, agreements are extended to all workers, independently of their affiliation to a union or not. This is basically the reason why affiliation is rather low in Spain (around 15 %), but this must not be confounded with low union power. The law establishes who are the bargaining parties⁸, and these are the ones to decide the coverage and boundaries of the agreements to be achieved. These agreements are of different levels: firm-level and above firm-level (sectoral and national). Normally, national and sectoral agreements establish minimum conditions to be improved at firm level⁹. Around 80 % of workers are covered by sectoral agreements (most of them at provincial level), where agreements at firm level cover around 15 % of workers. Jimeno (1992) studies the efficiency effects of this neither centralized nor decentralized way of collective bargaining and concludes that wage dispersion increases when collective bargaining is done at this mixed level. Indeed, up to 1986, wages in Spain were rather compressed, but they have tended to increase from 1987 onwards.

⁸See Jimeno (1992) for a full description of the collective bargaining process in Spain.

⁹There were five national agreements from 1977 to 1986, but from then onwards, no national agreements have been signed. For more details on collective bargaining in Spain, see Jimeno (1992).

3 Theoretical background

Here we present the basic ideas and predictions of two types of models of wage and employment determination that provide theoretical justification for the fact that identically productive permanent and temporal workers enjoy different wages. Furthermore, they predict differences in wage differentials by qualification level, which is the precise issue that we want to measure in the empirical part of the paper. The first of the models we describe, the insider-outsider theory, is embedded in the context of collective bargaining between employers and unions, whereas the second type of models we describe, the efficiency wages model in the context of a dual economy, assumes that firms unilaterally determine wage and employment.

3.1 Insider-outsider models

We will describe the predictions of wage differentials between permanent and temporal workers for different qualification levels in a collective bargaining setting where union and firms negotiate about labour market conditions.

The existence of two types of workers, permanent and temporal, where the former enjoy high employment protection due to their high firing costs, and the latter are not protected against employment loss due to their almost non-existing firing costs, has led to consider our country as a prototype where the insider-outsider model is applicable.

The insider-outsider model applied to Spain would consider permanent workers as the insiders whereas outsiders are workers with temporal contracts. Wages are the outcome of a bargaining process whereby firms and their employees share the economic rents that firms capture on goods markets. Wage setting follows the right-to-manage model, which seems to fit the spanish case rather well¹⁰. Insiders try to maximize their expected income, which, following Bentolila and Dolado (1994), can be written as:

¹⁰For more details in the spanish wage setting process, see Bentolila and Dolado (1994).

Expected income = (Survival prob.) * (Insiders' wages) + (1 -Survival prob.) * (Alternative income)

Clearly, the survival probability depends on firing costs. Taking the wage of temporary workers as given, the higher the firing costs, the higher the survival probability and hence the higher the expected income. Therefore, wages of permanent workers will be higher relatively to those of temporal workers the higher the firing costs. Considering that firing costs of permanent workers in Spain are increasing with wages¹¹, and that wages increase with worker qualifications, the theory of insider-outsiders would predict that permanent workers will be able to extract more rents the more qualified they are.

From the empirical point of view, this prediction would imply that the wage gap of permanent workers relatively to temporal workers will be higher the higher the qualification level of workers, given that their survival probability is higher and hence their expected income is also higher.

3.2 Efficiency wages models in a dual labour market

The existence of two types of workers, permanent and temporal, that exhibit large differences in labour market conditions due primarily to differences in job protection enables to make a paralelism between this situation with that of a dual labour market. Bulow and Summers (1986) extend the model of efficiency wages developed by Shapiro and Stiglitz (1984) to explain wage differentials between workers in the primary sector and in the secondary sector that do not arise because of differences in productivity. These authors assume that all workers are homogeneous in productivity, and hence there is no specific prediction about how wage differentials evolve as qualification

¹¹With regard to severance payment, the law distinguish between collective and individual dismissals and for the latter fair and unfair dismissals. Individual dismissals entail severance payments that range from 20 days of pay per year of work for the fair dismissals to 33 days of pay per year of work for the unfair ones. See Malo and Toharia (1997) for more details.

of workers increases. Under some reasonable assumption, however, we are able to make a specific prediction of this model about differences in wage differentials between these two types of workers as qualification of workers change. We first describe the basic ideas and predictions of Bulow and Summers (1986) model, that is an extended model of the efficiency wages model developed by Shapiro and Stiglitz (1984).

Basic assumptions:

- The firm unilaterally determines wages and employment.
- The firm faces imperfect information with respect to the effort exerted by the employees.
 - Workers dislike working, and hence they will shirk unless there is some punishment associated to shirking. There are only two possible levels of worker effort, shirk or not. Shirking workers are assumed to produce no output.
 - Competition will ensure that secondary-sector workers receive a wage equal to their marginal product. The authors assume that workers in the secondary sector are monitored perfectly and thus have no possibility of shirking.
 - The key assumption of the model is that detection of shirkers in the primary sector is difficult, due to the responsible character of primary-sector jobs. Both false negatives and false positives may result as firms try to detect shirkers.

Under these assumptions, primary workers must decide whether to shirk or not, and the decision will depend upon the expected lifetime income derived from the two alternatives, taking into account that no shirking imposes a cost and shirking implies the risk of being fired. On the other hand, the optimal strategy for the firm is to find a mechanism that discourages workers in the primary sector from shirking; this can be achieved by offering these workers a wage high enough to discourage him/her from shirking. The authors derive the equilibrium wage (the no-shirking condition) and find the

following results¹²:

1) As the utility from shirking increases, firms must pay more to induce their primary workers not to shirk.

2) As the probability of successfully detecting a shirker declines, firms must also pay higher wages.

3) The greater the number of primary-sector jobs, the higher wages must be to maintain the opportunity cost of losing a job because the time a worker must spend waiting to return to the primary sector if fired is reduced.

This model therefore predicts that in a dual labour market primary workers are paid efficiency wages whereas secondary workers will be paid competitive wages, even though all workers are identical in productivity. Workers in the secondary sector will envy those in the primary one, but can not bid for primary sector jobs by accepting lower wages, given that if firms lower wages, workers would have an incentive to shirk. Firms, hence, will not offer lower wages.

If we identify permanent workers with workers in the primary sector and temporal workers with workers in the secondary sector this model provides an explanation for the existence of a wage differential between permanent and temporal workers that is not due to differences in productivity. A theoretical explanation for a wage gap between these two workers is therefore provided. However, with respect to how the wage gap varies as qualification of workers increases the model has in principle no implication. However, we have seen above that one of the main findings of this model is that (prediction 2) as the probability of successfully detecting a shirker declines, firms must also pay higher wages. We also saw before that one of the key assumptions of the model is that detection of shirkers in the primary sector is difficult, due to the responsible character of primary-sector jobs. We may think that the higher the qualification level, the more difficult it is to detect shirkers, given that the complexity of the job increases with qualification. Under this assumption,

¹²For more details, see Bulow and Summers (1986), pp. 383-384.

this model would predict that the higher the qualification of workers, the higher the wages that the firm would have to pay to primary workers, and hence, the higher the wage differential between identically productive permanent and temporal workers.

4 The data

The data is taken from the Spanish sample of the Survey of Wage Structure that all countries members of the European Union carried out in October of 1995. This survey was carried out at establishment level, and its main objective is to obtain detailed information about wage levels and its components. The survey contains very detailed information about each worker's wages, and also about personal and job characteristics of each worker. Another advantage of this database is that the sample size is very large (around 180.000 individuals).

We have restricted our sample to full-time individuals whose tenure in the firm is no more than three years. The reason for this restriction is that, as was already mentioned in section 2, the spanish legislation forbids firms to employ workers with a temporal contract for more than three years. If we want to measure wage differentials by type of contract, it is important that the two types of workers are comparable in their observable characteristics¹³. Given that both tenure and the returns to tenure are important determinants of wage differentials among these type of workers, we have restricted such variable to be at most three years, so that both types of workers can be comparable in terms of tenure in the firm¹⁴. These restrictions lead us to a sample of 35311 males and 11936 females. Table 1 contains the mean of some variables for males and females with temporal and permanent contracts,

¹³More discussion about this point is done below.

¹⁴Similar restrictions have been done by Alba (1997), Toharia (1996) and Guell and Petrongolo (1998) when studying transitions from temporary to permanent contracts for Spain.

respectively.

Given our restriction to workers with at most three years of tenure on the firm, differences in variables that reflect human capital of individuals (such as age, tenure) have been reduced very much with respect to an unrestricted sample of permanent and temporal workers. It can be observed that permanent males and females are on average two years and a half older than temporal workers. With respect to tenure, on average, permanent males and females have almost one year of tenure more than temporal workers. Finally, permanent workers, males and females, are on average almost a year more educated than temporal workers.

With respect to observed wage, which is the variable whose differences we want to analyse in detail, it can be seen that hourly wage for permanent male workers is on average almost double than hourly wage for temporal workers, whereas for females although permanent workers' wages are higher than their temporal counterparts, the difference is smaller.

Besides differences on wages and on personal characteristics, it is interesting to see if permanent and temporal workers also differ in job characteristics, such as the type of firm (local, national or multinational, private or public), firm size and occupation. With respect to the type of firm, table 1 shows that temporal workers (both males and females) seem to be more concentrated on firms that operate at local level instead of at a national or multinational level, although differences are rather small. Firm size does not seem to differ among these two types of workers. With respect to occupation, we can also observe that temporal male workers are almost exclusively concentrated on blue-collar jobs (88 % of temporal workers work on blue-collar jobs versus 56 % of permanent workers). This difference is mostly due to the different distribution of workers in non-qualified manual jobs, given that 33 percent of temporal workers work in non-qualified manual jobs, whereas only 20 percent of permanent workers do so. For females, this occupational segregation is not that important. With respect to white-

collar jobs, permanent female workers seem to be more concentrated on technical and clerical jobs, whereas temporal workers are more concentrated on personal services. Relating to manual jobs, 20 percent of temporal female workers work in non-qualified manual jobs, relative to 16 percent of permanent workers.

[Insert table 1]

Before going into the empirical part of the paper, it may be worthwhile to think about the possible effects that the restriction we have imposed in our sample, i.e., that tenure of workers is at most three years may exert on our analysis. This restriction is obviously particularly important for permanent workers, if we take into account that average tenure for an unrestricted sample of full time permanent workers is around 14 years for males and 12 years for females. By imposing this restriction, it is obvious that we are not measuring average wage differentials between permanent and temporal workers for the Spanish economy, given that only a specific subsample of permanent workers is considered. However, what we are interested in is in analysing empirically if the type of contract may cause that otherwise observationally identical workers receive different wages. In order to do this, we must have a comparable sample of both types of workers, and to this aim tenure must be restricted. However, some issues may be worthwhile to mention: (i) Given that we only have a cross-section of individuals, we do not know if some of those that hold a permanent contract at the time of the survey, held a temporal contract before, or on the contrary, signed a permanent contract from the very first moment with the firm. Although from this database we can not extract such information, it is very likely that the vast majority of permanent workers held a temporal contract before, given that as we showed before, 98 % of new contracts signed at the employment office during the period 1986-1992 were of temporary nature. It is possible

that in 1995, after the reform of 1994, some more permanent contracts were signed from the very beginning but surely the difference will not be very large. From this information we must infer, therefore, that almost all permanent workers in our sample held a temporal contract before. (ii) Connected with (i), we may think that it is likely that we are facing unobserved heterogeneity between permanent and temporal workers, given that it is likely that the firm decides to convert into permanent workers those that exhibit higher ability and not renew the contract, or at least not convert into permanent workers, to those whose ability is lower. There is no way for us to correct for this, which might be partially controlled for by using longitudinal data, so when interpreting the results we must have this issue in mind.

5 Empirical wage differentials

As we argued in the introduction, the aim of this empirical section is (a) to estimate empirical wage differentials between permanent and temporal workers for different levels of qualification and (b) decompose observed wage differentials in differences in characteristics and differences in returns. The decomposition will be done so as to be able to see up to what extent differences in variables such as experience, tenure, type of job, occupation, industry and region are the responsible of the observed differences both in characteristics and in returns.

Qualification has been divided into five educational levels. The lowest qualified group corresponds to workers whose educational level is at most primary (at most five years), the second level corresponds to workers that have completed lower secondary education (8 years, called henceforth secon1), the third one to workers with vocational studies, the fourth one to workers that have completed upper secondary education (11 or 12 years), and finally the highest qualified level corresponds to workers with university studies¹⁵.

¹⁵In a first place, we disaggregated both vocational and university studies into two groups each, but differences among them were rather small, so we finally decided to group them.

Tables 2a and 2b show some characteristics of individuals with permanent and temporal contracts by qualification. With respect to wages, an interesting thing to note is that observed wage differences are on average increasing with qualification. The same feature can be observed for females. In the next two sections, we will see empirically which are the main determinants of these increasing wage differentials.

[Insert table 2a]

[Insert table 2b]

5.1 Wage gap by qualification

Table 3 shows the estimated wage gap of temporal workers with respect to permanent workers for each qualification level. After controlling for observed personal and job characteristics, temporal male workers which are in the lowest qualification level earn 10 % less than permanent workers that have similar personal and job characteristics, and this difference is clearly increasing with the qualification level. In particular, at the highest qualification level, temporal workers earn 22 % less than observationally identical permanent workers. For females, the wage gap is clearly smaller. On average, temporal workers earn 7 percent less than their permanent counterparts, but for the lowest qualified groups, the wage gap is null or even positive for workers with 8 years of education. From this level on, the wage gap becomes negative for temporal workers and increasing with qualification reaching a 18 % for females with university studies.

This empirical result is consistent with the predictions that both the insider-outsider model and the efficiency model of Bulow and Summers (1986) would make about changes in the wage gap as qualification of workers increases.

[Insert table 4]

5.2 Oaxaca decomposition of observed wages

5.2.1 Description of Oaxaca decomposition method

The first step in Oaxaca (1974) wage decomposition method consists on estimating wage equations for the two groups, ie, permanent and temporal workers, separately by OLS. It is known that OLS first order conditions implies that:

$$\overline{LnW}_p = \overline{X}_p' \widehat{\beta}_p \quad [1]$$

and

$$\overline{LnW}_t = \overline{X}_t' \widehat{\beta}_t \quad [2]$$

where subscripts p and t are used to refer to permanent and temporal workers respectively. Subtracting [1] - [2] and adding and subtracting the term $\overline{X}_t' \widehat{\beta}_p$ on the right hand side, we can write the following:

$$\overline{LnW}_p - \overline{LnW}_t = (\overline{X}_p - \overline{X}_t)' \widehat{\beta}_p + \overline{X}_t' (\widehat{\beta}_p - \widehat{\beta}_t) \quad [3]$$

The left hand side of equation [3] reflects differences on average wages between permanent and temporal workers. The first term on the right hand side reflects the percentage of the difference that is due to differences in observed characteristics between the two groups of workers. Both of them are evaluated at the so-called "non-discriminatory" structure, which we have assumed to be that of permanent workers. The reason for considering permanent workers as the non-discriminatory structure stems from the fact that the extended use of temporary workers in Spain has been a relatively recent phenomenon. Before 1985, the most natural way to work was under a permanent contract, and that is hence considered the non-discriminatory structure. The second term on the right hand side reflects differences in returns to permanent and temporal workers. This is the term that in the discrimination literature is called the discriminatory term, although we must

be careful, as there might be some unobserved differences that may be included in it.

5.2.2 Empirical decomposition of observed wages by qualification

Oaxaca decomposition of observed wages consists on decomposing wage differences at the mean level in differences due to different characteristics, on the one hand, and differences in returns on the other. We have furthermore decomposed these differences in groups, so as to know which types of variables contribute more to explain the observed wage differentials. In this sense, we have divided both characteristics and returns in (a) experience, (b) tenure, (c) variables that reflect the type of job (private/public, local/national/multinational, firm size), (d) occupation (14 occupation categories), (e) industry (9 industry categories) and (f) region (three region dummies)¹⁶. Results of this decomposition are presented in tables 4a for males and 4b for females¹⁷.

Let us first explain how to read tables 4a and 4b with an example: The observed (log) mean wage differential for males in the lowest qualification level is 0.34 in favour of permanent workers. 70.58 percent of such difference is explained by differences in characteristics and 29.42 percent by differences in returns. Furthermore, differences in tenure explain 58.82 percent of the observed wage differential, whereas returns to tenure are higher for temporal workers, given that the coefficient is negative. Had temporal contract workers received the same returns to tenure than permanent ones, the observed wage differential would have been 15.29 percent lower. Any negative sign must be therefore interpreted as contributing to reduce the wage differential among temporal and permanent workers¹⁸.

¹⁶The data only allows us to divide regions in three categories: (a) Catalonian, Madrid or Basque Country, (b) Asturias and (c) Rest.

¹⁷Results of the first step of Oaxaca decomposition method, ie, separate OLS wage estimations for permanent and temporal workers for each qualification level can be found in tables A1-A4 of Appendix A.

¹⁸This interpretation is valid inasmuch as the estimated coefficients in the wage

The results indicate, in the first place, that for both males and females, a very high percentage of the observed wage differential between permanent and temporal workers is explained by differences in characteristics, rather than by differences in returns, although the relative importance of characteristics tends to decrease with qualification. Furthermore, it is differences in tenure between the two types of workers what contributes more to explain the observed wage differential. It is also true that the contribution of tenure decreases as qualification increases, and this result is valid for both males and females. The second characteristic that contributes more to explain wage differentials is differences in occupation. Were temporal and permanent workers working in the same occupations the wage differential would be reduced on average on 26.72 percent for males and on 23.90 percent for females. This indicates that occupational segregation is partly responsible for wage differentials between permanent and temporal workers, since on average temporal workers seem to be concentrated on occupations with lower wages than permanent workers. Other characteristics, like industry, region and experience do not seem to be very important to explain wage differential among these types of workers.

With respect to differences in returns, there are some issues that are worth to mention: In the first place, the returns to tenure are higher for temporal workers relatively to permanent workers for both males and females and for every qualification level. This indicates that for each additional year of tenure temporal workers are paid more than their permanent counterparts. There are some possible interpretations for this result. One possibility is to associate returns to tenure with returns to specific human capital investment, which is commonly done under the human capital framework. Under this interpretation, the fact that temporal workers exhibit higher returns to tenure than otherwise identical permanent workers would indicate that firms invest

equations are positive. Tables A1-A4 in appendix A show that this is the case in most situations, although in some cases, some industry and region dummies exhibit negative coefficients. For these cases, the interpretation is more difficult.

more in specific human capital in workers with temporal contracts than with permanent contracts. This would not support the somehow extended argument that employers do not invest in specific human capital on temporal workers and prefer instead to offer on-the-job training only to permanent workers. In our view, this interpretation has the weakness that associating tenure in the firm with on-the-job training may be misleading. We do not have information about which workers receive on-the-job training, and in the absence of it, we do not take this interpretation much further. However, another interpretation that we find quite appealing given the characteristics of the Spanish labour market is that we may think of temporal contracts as screening contracts. Employers face imperfect information about worker's ability and as time passes on, that information is revealed. If the worker's ability is high, the employer wants to retain the worker and to do so offers him/her higher wages. However, in order to enjoy low firing costs for precautionary reasons the firm leaves him/her with the status of temporary worker as long as the law allows, which is three years. Increasing wages play somehow the role of compensating differentials for the instability of the job. Under this interpretation, it is reasonable that temporary workers have higher returns to tenure than permanent workers, given that for the latter, who already hold a permanent contract, this kind of premium is no longer needed.

The second interesting result that we observe when we decompose further differences in returns is that differences in the returns to occupation are another important component to explain wage differentials for both males and especially for females, although its importance decreases with qualification. Were the returns to occupations the same for temporal and permanent workers, the wage differential might be reduced on average in 17.25 percent for males and by more than a hundred percent for females. Given the magnitude of this differences especially for females, we want to look at it in more detail. In particular, we wonder if the fact of having disaggregated

occupations in 14 categories instead of a more detailed disaggregation may result in intra-group differences in qualification and hence in productivity that we are not controlling for. Were this the case, we would be incorrectly assigning differences in returns to differences in (uncontrolled) characteristics. In order to see up to which extent not enough occupational disaggregation is responsible for this result, we have further disaggregated occupation in 24 categories instead of in 14. We have done the analysis of empirical wage differentials, it is, obtain the wage gap and decompose average wages for the sample of all females and the results are basically unaffected¹⁹. The fact that controlling for further differences in occupation does not diminish the differences in the returns to occupation that we obtained before suggests that returns to occupation are in fact smaller for temporal contract workers (and in particular much smaller for females) than for their permanent counterparts.

With respect to the interpretation of these differences in returns all we can say is that part of them may reflect differences in unobserved heterogeneity that are likely to produce wage differentials given unobserved productivity differences and part of them may reflect discrimination against temporal workers. As we said before, it is likely that we are facing unobserved heterogeneity between permanent and temporal workers, given that it is reasonable to think that the firm decides to give the status of permanent only to those workers that exhibit higher ability and not renew the contract, or at least not give the permanent status to those whose ability is lower. From our database, we cannot account for which fraction of differences in returns accounts for discrimination and which fraction accounts for unobserved

¹⁹The wage gap is exactly the same we got when we did the analysis with 14 occupational indicators, it is, -0.07. With respect to the wage decomposition, the exact results, which must be compared with those of column 1 of table 4b are the following: Total characteristics account for 78,56 % of the wage differential. Experience accounts for 1,43 %, tenure for 44,87 %, type of job for 0,07%, occupation for 24,11%, industry for 4,31% and region for 3,77%. With respect to differences in returns, which globally account for 21,44% of the wage differential, experience accounts for 6,56%, tenure for -34,12%, type of job for 1,17%, occupation for 119,02%, industry for 3,39%, region for -13,71% and the intercept for -60,87%.

heterogeneity. Had we longitudinal data, we might partially account for this issue, given that assuming that ability does not change with time, analysis of changes in wage differentials might be free of the unobserved heterogeneity bias.

What we can conclude from our analysis, however, is that differences in characteristics and not in returns are the main determinants to explain wage differentials between these types of workers, although differences in returns seem to gain weight the higher the qualification level of workers is.

6 Conclusion

The main objective of this paper has been to contribute empirically to measure wage differentials between permanent and temporal workers in Spain. Other studies, in particular, Bentolila and Dolado (1994) and Jimeno and Toharia (1993) have already done some empirical analysis on this issue, and in this respect, our contribution has to be understood as a complement to the work developed by these authors, given that we make use of a very large and recent database that allows us to extend the empirical analysis that they carried out.

In particular, we consider that workers differ in their qualification level and estimate wage differentials of temporal and permanent workers for different qualification levels. From the theoretical point of view of an insider-outsider model we would predict that wage differentials between permanent and temporal workers are likely to be higher the higher the qualification level. The same prediction may be obtained from an efficiency wages model developed in a dual labour market if we assume that monitoring costs are higher the higher the qualification level.

For the empirical part, we make use of the "Encuesta de Estructura Salarial" that all member of European Union carried out in 1995. It is done at establishment level and contains very detailed information on every wage

component of almost 180,000 workers. It also contains information about some personal characteristics, such as age, education and tenure on the firm, and other issues such as the type of job, type of firm and type of contract.

We estimate empirically wage differentials between permanent and temporal workers for different qualification levels and decompose such differentials to see which factors contribute more to explain them. The empirical results indicate that:

(a) The wage gap between permanent and temporal workers increases with qualification. For males it ranges from a 10 percent for individuals with primary education or less to a 22 percent for workers with university education. For females, the wage gap is much smaller. It is indeed zero or even positive for temporal workers with lower secondary education, but it turns negative to females with temporal contract reaching 18 percent for workers with university education. This result is in accordance with the predictions of an insider-outsider model, which argues that permanent workers of highly qualified jobs enjoy higher job protection due to their higher firing costs and hence can extract more rents than permanent workers of low qualification. The result is also consistent with the prediction of the efficiency wages model developed by Bulow and Summers (1986) in a dual labour market context if we assume that the higher the qualification of workers, the more difficult it is to detect shirkers, given that the complexity of the job increases.

(b) With respect to the empirical decomposition of the average wage differential, we decompose it (for each qualification level) in differences in characteristics on the one hand and differences in returns on the other hand. Both components are further decomposed in differences in (a) experience, (b) tenure, (c) type of job, (d) occupation, (e) industry and (f) region. The results suggest in the first place that differences in characteristics and not in returns are the main contributors to explain observed wage differentials although as the qualification level of workers increases the relative importance of differences in returns increases. Within characteristics, differences in tenure

and in occupation amount to explain an important fraction of the observed average wage differentials. The result concerning occupation indicates that were temporal and permanent workers working in the same occupations the wage differential would be reduced on average on 26.72 percent for males and on 23.90 percent for females. This finding suggests that occupational segregation is partly responsible for wage differentials between permanent and temporal workers, since on average temporal workers seem to be concentrated on occupations with lower wages than permanent workers.

With respect to differences in returns, two findings deserve some attention: The first one is that returns to tenure are higher for temporal workers relatively to permanent workers for both males and females and every qualification level (although its importance decreases as qualification increases). The interpretation we find more appealing is that we may think of temporal contracts as screening contracts. Employers face imperfect information about worker's ability and as time passes on, that information is revealed. If the worker's ability is high, the employer wants to retain the worker and to do so offers him/her higher wages. However, in order to enjoy low firing costs for precautionary reasons leaves him/her with the status of temporary worker as long as the law permits, which is three years. Increasing wages for these workers play somehow the role of compensating differentials for the instability of the job. The second result we want to mention is that the returns to occupation are higher for permanent workers than for otherwise observationally identical temporal workers, and the differences are particularly striking for females. Differences in returns may partly reflect unobserved heterogeneity and partly reflect discrimination against temporal workers. It is likely that we are facing unobserved heterogeneity between permanent and temporal workers, given that it is reasonable to think that the firm decides to convert into permanent to those workers that exhibit higher ability and not renew the contract, or at least not give the permanent status to those whose ability is lower. However, it is also likely that temporal

workers suffer *de facto* some kind of discrimination given the excess of supply of workers in the labour market. From our database, we cannot account for which fraction of differences in returns accounts for discrimination and which fraction accounts for unobserved heterogeneity.

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Table 1. Mean of variables by type of contract				
	Males		Females	
Variables	Temporal	Permanent	Temporal	Permanent
Hourly wage	855.62	1504.13	672.28	1038.54
Age	31.99	34.35	29.00	31.46
Tenure	0.96	1.86	1,01	1.86
Education	8,25	9.78	9,31	10.16
<i>Type of firm (%)</i>				
Local	0,44	0,34	0,33	0,30
National	0,44	0,51	0,49	0,52
Multinational	0,12	0,14	0,18	0,18
Private	0,99	0,97	0,98	0,97
Public	0,01	0,03	0,02	0,03
<i>Firm Size (%)</i>				
10-19	0,25	0,27	0,19	0,24
20-49	0,32	0,29	0,26	0,24
50-99	0,17	0,16	0,17	0,17
100-199	0,13	0,12	0,15	0,12
200 or more	0,14	0,16	0,22	0,23
<i>Occupation (%)</i>				
Professional	0,04	0,14	0,04	0,07
Technical	0,05	0,13	0,05	0,11
Clerical	0,05	0,11	0,27	0,35
Pers. services	0,08	0,07	0,16	0,12
Qualified manual	0,45	0,36	0,29	0,19
Non-qualified manual	0,33	0,20	0,20	0,16
N. observations	25872	9439	8623	3313

Table 2a					
Personal characteristics by educational levels - Males					
Education	Primary	Secon1	Vocat.	Secon2	University
<i>All Workers</i>					
Average age	37.91	29.89	29.11	31.56	32.71
Average tenure	1.13	1.14	1.26	1.40	1.46
Mean Log wage	6.66	6.57	6.78	6.89	7.36
St. dev. of log wage	0.57	0.58	0.61	0.68	0.72
<i>Workers with permanent contract in each educational level</i>					
Average age	39.41	31.67	31.54	33.67	34.67
Average tenure	1.85	1.82	1.98	1.88	1.82
Mean Log wage	6.93	6.84	7.14	7.25	7.66
St. dev. of log wage	0.48	0.48	0.44	0.58	0.68
N. of observations	2318	2986	1240	1135	1760
<i>Workers with temporal contract in each educational level</i>					
Average age	37.49	29.40	28.18	30.18	30.75
Average tenure	0.92	0.95	0.99	1.08	1.10
Mean Log wage	6.59	6.49	6.64	6.66	7.06
St. dev. of log wage	0.57	0.48	0.60	0.63	0.62
N. of observations	8327	10863	3203	1723	1756
<i>Difference: Permanent - Temporal</i>					
Mean log wage	0.34	0.35	0.50	0.59	0.60
St. dev. of log wage	-0.09	-0.00	-0.16	-0.05	0.06

Table 2b					
Personal characteristics by educational levels - Females					
Education	Primary	Secon1	Vocat.	Secon2	Univ.
<i>All Workers</i>					
Average age	36.01	28.06	26.98	28.94	28.74
Average tenure	1.13	1.19	1.31	1.36	1.39
Mean log wage	6.27	6.32	6.54	6.64	6.95
St. dev. of log wage	0.61	0.60	0.56	0.61	0.67
<i>Workers with permanent contract in each educational level</i>					
Average age	38.42	30.01	28.74	30.68	30.34
Average tenure	1.85	1.84	1.95	1.82	1.88
Mean Log wage	6.47	6.51	6.86	6.95	7.28
St. dev. of log wage	0.64	0.65	0.44	0.51	0.57
N. of observations	576	1141	471	520	605
<i>Workers with temporal contract in each educational level</i>					
Average age	35.15	27.49	26.30	28.04	27.68
Average tenure	0.88	0.99	1.07	1.12	1.07
Mean Log wage	6.21	6.26	6.42	6.48	6.74
St. dev.log wage	0.58	0.58	0.55	0.59	0.64
N. of observations	1621	3863	1213	1012	914
<i>Difference: Permanent - Temporal</i>					
Mean log wage	0.26	0.25	0.44	0.47	0.54
St. dev. of log wage	0.06	0.07	-0.11	-0.08	-0.07

Table 3		
Permanent/ Temporal Wage Gap by Education*		
Education	Males	Females
	Wage gap	Wage gap
Primary or less	-0.10 (9.03)	0.02 (0.84)
Secondary 1	-0.09 (9.68)	0.03 (2.01)
Vocational	-0.16 (10.36)	-0.16 (7.49)
Secondary 2	-0.20 (10.95)	-0.19 (7.56)
University	-0.22 (13.05)	-0.18 (7.41)
All	-0.15 (25.91)	-0.07 (7.26)

*The wage gap is defined as the estimated effect of having a temporal contract on (log) wages. The wage equation includes standard human capital variables such as experience and its square and indicators for each year of tenure, variables reflecting the type of job (public/private job, establishment size, local, national or multinational firm) as well as 14 occupation dummies, 9 industry dummies, 2 region dummies and finally, the indicator of temporal contract.

Absolute t-statistics in brackets.

Table 4a: Decomposition of Wage Differentials - Males						
Educational Levels						
	All	Prim.	Sec1	Vocat.	Sec2	Univ.
Wage Diff.	0.51	0.34	0.35	0.50	0.59	0.60
Decomposition of Wage differential						
<i>Differences in characteristics (%): $(X_p - X_t)' \beta_p$</i>						
Total	75.09	70.58	85.41	59.80	56.10	65.84
Experience	1.62	2.65	7.71	11.00	11.01	20.00
Tenure	41.70	58.82	60.57	40.00	30.51	26.66
TOJ var.**	1.89	-0.47	1.43	0.40	-6.77	1.16
Occup. (13 cat.)	26.72	6.76	7.71	6.60	17.97	16.16
Industry (9 cat.)	0.17	-3.23	5.71	1.20	2.54	-0.80
Region (3 cat.)	2.99	-6.05	2.28	0.60	0.84	2.66
<i>Differences in returns (%): $X_t'(\beta_p - \beta_t)$</i>						
Total	24.91	29.42	14.59	40.20	43.90	34.16
Experience	4.94	-15.29	-2.86	-6.40	1.52	15.16
Tenure	-6.86	-15.29	-8.85	-22.00	-10.16	-4.00
TOJ var.**	12.54	8.82	14.28	3.80	20.33	16.16
Occup. (13 cat.)	17.25	32.35	9.42	5.40	12.88	6.16
Industry (9 cat.)	8.24	35.29	5.71	19.40	-5.59	4.50
Region (3 cat.)	5.49	-5.88	-11.42	12.80	-1.52	31.00
Intercept	-16.69	-10.58	8.31	27.20	26.44	-34.72

** Variables included here are: An indicator for public firm, four firm size dummies and two indicators for type of firm (local, national, multinational).

Table 4b: Decomposition of Wage Differentials - Females						
	Educational Levels					
	All	Prim.	Sec1	Vocat.	Sec2	Univ.
Wage Diff.	0.41	0.26	0.25	0.44	0.47	0.54
Decomposition of Wage differential						
<i>Differences in characteristics (%): $(X_p - X_t)' \beta_p$</i>						
Total	77.48	63.83	104.40	54.45	62.68	65.90
Experience	1.46	1.92	12.00	11.36	10.63	9.44
Tenure	43.90	61.53	69.20	36.36	30.85	35.18
TOJ var.**	-0.07	2.30	4.40	-3.40	0.47	3.51
Occup. (13 cat.)	23.90	-1.15	11.2	5.23	9.89	11.85
Industry (9 cat.)	4.39	0.76	4.00	4.52	5.74	2.04
Region (3 cat.)	3.90	-1.53	3.60	0.38	5.10	3.88
<i>Differences in returns (%): $X_t'(\beta_p - \beta_t)$</i>						
Total	22.52	36.17	-4.40	45.55	37.32	34.10
Experience	7.32	13.46	76.00	5.22	17.66	-1.85
Tenure	-34.14	-81.53	-68.40	-27.27	-28.17	-9.26
TOJ var.**	0.97	34.61	-20.00	4.31	12.13	2.59
Occup. (13 cat.)	119.50	176.92	157.20	25.00	67.23	-8.33
Industry (9 cat.)	1.70	-30.76	0.12	46.31	-2.34	20.37
Region (3 cat.)	-14.63	38.46	-28.00	2.97	2.97	-37.03
Intercept	-58.20	-114.99	-121.32	-32.16	-32.16	67.61

** Variables included here are: An indicator for public firm, four firm size dummies and two indicators for type of firm (local, national, multinational).

Table A1 - Estimated Wage equations						
Males with temporal contracts						
<i>Dependent variable: Log hourly wages</i>						
Variables	<i>All</i>	<i>Primary</i>	<i>Secon1</i>	<i>Vocat.</i>	<i>Secon2</i>	<i>Univ.</i>
Expe	0.02	0.02	0.03	0.03	0.04	0.05
	(22.35)	(9.86)	(18.79)	(10.41)	(8.31)	(10.52)
Expe ²	-0.3e ⁻³	-0.2e ⁻³	-0.5e ⁻³	-0.5e ⁻³	-0.7e ⁻³	-0.7e ⁻³
	(16.33)	(7.69)	(13.87)	(5.69)	(5.98)	(5.85)
Ten1 (1 year)	0.70	0.66	0.69	0.72	0.75	0.74
	(113.02)	(62.04)	(74.80)	(41.14)	(30.15)	(30.95)
Ten2 (2 years)	0.81	0.77	0.77	0.83	0.87	0.90
	(110.13)	(58.89)	(70.59)	(40.71)	(32.94)	(32.54)
Ten3 (3 years)	0.81	0.77	0.79	0.83	0.91	0.92
	(75.37)	(39.44)	(49.35)	(26.76)	(23.76)	(23.19)
Public	0.03	0.04	-0.03	0.15	0.06	0.14
	(1.20)	(1.00)	(0.60)	(1.73)	(0.73)	(1.93)
20-49 work.	0.05	0.05	0.05	0.08	0.05	0.05
	(7.33)	(3.92)	(4.80)	(3.77)	(1.57)	(1.68)
50-99	0.11	0.09	0.13	0.14	0.08	0.09
	(13.61)	(6.61)	(10.12)	(5.48)	(2.51)	(2.66)
100-199	0.14	0.11	0.12	0.17	0.15	0.20
	(15.16)	(6.71)	(8.60)	(6.36)	(4.23)	(5.61)
200 or more	0.23	0.23	0.22	0.27	0.15	0.21
	(23.68)	(11.46)	(14.35)	(10.99)	(4.49)	(6.54)
National	0.02	0.02	0.02	0.01	0.03	0.03
	(3.74)	(1.69)	(2.16)	(0.80)	(1.36)	(1.25)
Multinat.	0.10	0.11	0.07	0.09	0.15	0.08
	(10.85)	(6.12)	(4.88)	(3.76)	(3.92)	(2.19)
Intercept	5.57	5.64	5.52	5.53	5.16	5.38
	(195.88)	(101.93)	(122.14)	(71.02)	(54.85)	(41.37)
N. obs	25872	8327	11863	3203	1723	1756
R ²	0.51	0.46	0.49	0.53	0.57	0.57

Besides these explanatory variables we have also included 13 dummies for occupation, 8 dummies for industry and two region dummies.
Absolute t-statistic in brackets.

Table A2 - Estimated Wage equations						
Males with permanent contracts						
<i>Dependent variable: Log hourly wages</i>						
Variables	<i>All</i>	<i>Primary</i>	<i>Secon1</i>	<i>Vocat.</i>	<i>Secon2</i>	<i>Univ.</i>
Expe	0.02	0.01	0.03	0.03	0.03	0.06
	(15.75)	(4.26)	(10.49)	(6.34)	(5.97)	(12.54)
Expe ²	-0.3e ⁻³	-0.1e ⁻³	-0.4e ⁻³	-0.3e ⁻³	-0.4e ⁻³	-1.1e ⁻³
	(12.16)	(3.05)	(7.42)	(3.23)	(3.18)	(8.19)
Ten1 (1 year)	0.66	0.60	0.66	0.56	0.67	0.72
	(42.06)	(20.53)	(27.87)	(13.37)	(14.69)	(18.48)
Ten2 (2 years)	0.74	0.65	0.71	0.64	0.78	0.86
	(45.32)	(21.69)	(28.66)	(14.88)	(16.17)	(21.21)
Ten3 (3 years)	0.74	0.68	0.72	0.64	0.74	0.85
	(48.30)	(23.59)	(30.82)	(15.64)	(16.52)	(22.03)
Public	0.10	0.14	-0.08	0.17	0.18	0.16
	(3.17)	(2.25)	(1.29)	(2.39)	(2.06)	(2.41)
20-49 work.	0.10	0.06	0.12	0.10	0.07	0.09
	(8.74)	(2.62)	(6.99)	(3.61)	(2.15)	(2.49)
50-99	0.16	0.15	0.14	0.13	0.14	0.20
	(11.79)	(5.77)	(6.60)	(3.92)	(3.37)	(5.12)
100-199	0.25	0.22	0.20	0.23	0.21	0.27
	(16.43)	(7.39)	(8.29)	(6.47)	(4.76)	(7.01)
200 or more	0.30	0.32	0.28	0.23	0.24	0.29
	(20.75)	(10.17)	(11.31)	(7.01)	(5.77)	(8.17)
National	0.06	0.01	0.04	0.04	0.14	0.09
	(6.07)	(0.81)	(2.51)	(1.66)	(4.65)	(3.05)
Multinat.	0.09	0.04	0.08	0.11	0.24	0.10
	(6.53)	(1.48)	(73.47)	(3.42)	(5.20)	(2.48)
Intercept	5.49	5.62	5.58	5.67	5.27	5.17
	(119.64)	(61.96)	(78.79)	(48.90)	(39.75)	(24.04)
N. obs	9439	2318	2986	1240	1135	1760
R ²	0.55	0.39	0.46	0.43	0.51	0.55

Besides these explanatory variables we have also included 14 dummies for occupation, 9 dummies for industry, two region dummies and a constant. Absolute t-statistic in brackets.

Table A3 - Estimated Wage equations						
Females with temporal contracts						
<i>Dependent variable: Log hourly wages</i>						
Variables	<i>All</i>	<i>Primary</i>	<i>Secon1</i>	<i>Vocat.</i>	<i>Secon2</i>	<i>Univ.</i>
Expe	0.02	0.02	0.03	0.04	0.03	0.03
	(10.38)	(4.38)	(10.10)	(6.63)	(4.60)	(3.44)
Expe ²	-0.3e ⁻³	-0.3e ⁻³	-0.7e ⁻³	-0.8e ⁻³	-0.5e ⁻³	-1.2e ⁻³
	(9.35)	(4.15)	(8.95)	(4.31)	(2.93)	(0.61)
Ten1 (1 year)	0.72	0.68	0.72	0.70	0.71	0.80
	(66.35)	(25.40)	(44.38)	(27.54)	(21.90)	(24.63)
Ten2 (2 years)	0.85	0.81	0.82	0.85	0.87	0.99
	(70.88)	(27.16)	(45.87)	(30.98)	(26.68)	(25.34)
Ten3 (3 years)	0.83	0.76	0.81	0.85	0.80	0.97
	(48.47)	(18.25)	(31.70)	(21.64)	(16.73)	(17.65)
Public	-0.05	-0.32	0.02	0.21	-0.27	0.07
	(0.19)	(2.09)	(0.32)	(1.98)	(2.54)	(0.67)
20-49 work.	0.02	0.04	-0.01	0.002	-0.004	0.01
	(0.19)	(1.36)	(0.37)	(0.08)	(0.11)	(0.28)
50-99	0.05	0.01	0.08	0.04	0.07	0.08
	(3.33)	(0.23)	(3.45)	(1.14)	(1.47)	(1.68)
100-199	0.12	0.04	0.14	0.09	0.19	0.17
	(7.38)	(0.99)	(5.84)	(2.42)	(4.07)	(3.48)
200 or more	0.11	0.04	0.12	0.14	0.13	0.17
	(7.20)	(1.07)	(4.93)	(4.18)	(3.03)	(3.80)
National	0.02	-0.02	0.01	0.01	0.001	0.04
	(2.04)	(0.54)	(0.33)	(0.53)	(0.04)	(1.20)
Multinat.	0.09	0.10	0.02	0.15	0.11	0.08
	(6.37)	(2.93)	(1.12)	(4.04)	(2.43)	(1.68)
Intercept	5.38	5.38	5.34	5.34	5.24	5.42
	(120.15)	(50.78)	(71.76)	(45.46)	(43.41)	(23.97)
N. obs	8623	1621	3863	1213	1012	914
R ²	0.53	0.45	0.49	0.58	0.56	0.61

Besides these explanatory variables we have also included 14 dummies for occupation, 9 dummies for industry, two region dummies and a constant. Absolute t-statistic in brackets.

Table A4 - Estimated Wage equations						
Females with permanent contracts						
<i>Dependent variable: Log hourly wages</i>						
Variables	<i>All</i>	<i>Primary</i>	<i>Secon1</i>	<i>Vocat.</i>	<i>Secon2</i>	<i>Univ.</i>
Expe	0.02	0.02	0.05	0.04	0.04	0.03
	(7.36)	(2.66)	(7.14)	(4.49)	(4.69)	(3.26)
Expe ²	-0.4e ⁻³	-0.4e ⁻³	-0.1e ⁻²	-0.7e ⁻³	-0.7e ⁻³	-0.3e ⁻³
	(7.22)	(2.71)	(6.51)	(2.76)	(2.99)	(1.26)
Ten1 (1 year)	0.50	0.33	0.41	0.55	0.53	0.76
	(16.48)	(4.30)	(6.89)	(9.30)	(8.31)	(13.37)
Ten2 (2 years)	0.60	0.30	0.55	0.66	0.64	0.89
	(19.02)	(3.76)	(9.15)	(10.74)	(9.58)	(14.42)
Ten3 (3 years)	0.64	0.46	0.59	0.63	0.63	0.90
	(21.59)	(6.13)	(10.10)	(11.14)	(9.85)	(15.82)
Public	-0.01	-0.05	-0.04	0.30	0.23	0.03
	(0.15)	(0.15)	(0.35)	(2.05)	(1.98)	(0.27)
20-49 work.	0.02	-0.01	0.06	0.03	0.02	-0.02
	(0.79)	(0.18)	(1.38)	(0.68)	(0.38)	(0.36)
50-99	0.01	-0.01	-0.04	0.17	0.05	0.08
	(0.43)	(0.14)	(0.84)	(3.46)	(0.87)	(1.41)
100-199	0.15	0.21	0.12	0.17	0.08	0.14
	(4.86)	(2.75)	(2.02)	(3.15)	(1.22)	(2.39)
200 or more	0.09	-0.03	-0.04	0.12	0.15	0.22
	(3.51)	(0.40)	(0.68)	(2.44)	(2.77)	(4.16)
National	0.05	0.15	-0.002	-0.01	0.11	0.06
	(2.38)	(2.59)	(0.05)	(0.20)	(2.46)	(1.42)
Multinat.	0.04	0.16	-0.02	0.12	0.11	0.07
	(1.64)	(2.35)	(0.42)	(2.02)	(1.93)	(1.23)
Intercept	5.14	5.09	5.06	5.54	5.09	5.78
	(57.68)	(20.25)	(29.08)	(27.06)	(23.69)	(13.72)
N. obs	3313	576	1141	471	520	605
R ²	0.50	0.46	0.35	0.52	0.45	0.58

Besides these explanatory variables we have also included 14 dummies for occupation, 9 dummies for industry, two region dummies and a constant. Absolute t-statistic in brackets.