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"Regulatory reform and labour earnings in Portuguese banking"

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Regulatory reform and labour earnings in Portuguese banking

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Abstract

This study examines changes in union contracts and wage structure during and after the introduction of regulatory reforms (deregulation and privatisation) in the Portuguese banking sector. The main finding is that, despite a relative wage erosion detected in the contract data, banking workers were able to enjoy an increasing wage premium in the period 1985-2000, probably reflecting the increasing profitability of the industry and the rise in labour productivity. The evidence also shows that some specific groups benefited relatively more than others: the least skilled and educated workforce and male workers gained more from the regulatory reforms. However, this unequal sharing of the wage premium did not raise wage inequality across ownership groups in the industry.

Keywords: Deregulation, privatisation, wage structure, Portuguese banking industry

Jel classification: J31, J45, L33.

1 Introduction

Regulatory reform of product markets is perhaps one of the most prominent policies being undertaken in the European Union. Boosted by the establishment of the single European market, numerous regulatory changes, which aim to liberalise the provision of goods and services and enhance product market competition, have been implemented over the last two decades. Yet the empirical assessment of the impact of product market reform, relating to either imposition or relaxation of constraints, on European labour market outcomes has so far received little scrutiny.[1]

In contrast, the assessment of similar policies in the US has a long tradition. Seminal work on regulation effects date from the mid 1970s, whereas the advent of deregulation policies taking place primarily in the 1980s brought a new flurry of studies covering most of the targeted industries and addressing different labour market issues.[2] All these studies evaluate how (de)regulation policies affected distortions in the respective labour markets. More specifically, most of the attention has been devoted to appraisals of labour earning responses to regulatory reforms. If there is rent-sharing between firms and unionised workers, labour earnings are likely to be higher in regulated industries (regulated periods), where the degree of competition is lower. Thus, if rents allow high wages in regulated industries (periods), then deregulation might be expected to narrow wage differentials. Nevertheless, different regulatory experiences can lead to different labour earning effects (Hendricks, 1994). For instance, Black and Strahan (2001) find that in the US banking industry, male wages fell by 12.5 per cent after the removal of restrictions on branching and interstate banking, while Hirsch and Macpherson (2000) find that in the US air transportation industry, trade unions were able to sustain a sizable wage premium, even twenty years after the introduction of the Airline Deregulation Act in 1978.

[1] One notable exception is Bertrand and Kramarz (2002) who examine the effects of enacting entry barriers in the French retail industry. Guadalupe (2005) looks at the effects of increased competition in the UK on wage inequality and return to skills.

[2] Hendricks (1977), Ehrenberg (1979) and Pergamit (1985) provide initial evidence on the regulation effects in several regulated sectors (transportation, communications public utilities) while Ansar *et al.* (1997) and Hisch and Schumacher (1998) focus on the electricity and health care sectors, respectively. The effects of deregulation on labour outcomes have been extensively examined in different industries, encompassing airlines [Card (1986), Crémieux (1996), Hirsch and Macpherson (2000)], trucking [Rose (1987), Peoples (1996, 1998), Belman and Monaco (2001), Beltzer (1995), Monaco (2001), Monaco and Brooks (2001), Talley (2001)], railroad [MacDonald and Cavalluzzo (1996), Davis and Wilson (1999)], electricity, [Nwaeze (2000), McDermott (1999)], cable television [Crofton *et al.* (2000)] and banking [Black and Straham (2001)]. For analyses of multiple sectors, see Hendricks (1994) or Peoples (1998, 2003).

This paper contributes to the hitherto scarce literature on European regulatory reform by analysing the effects of the deregulatory reforms in the Portuguese banking sector. In line with the US literature, it also seeks to determine the effects of such reforms on the wage structure. More precisely, this study, close to Hirsch and Macpherson's (2000) work, examines how banking compensation evolved over the transition between regulated and unregulated periods and whether reforms affected certain kind of workers differently.

The experience in the Portuguese banking industry, also labelled "valuable for other countries" since "the main reform objectives were met" without "the concomitant financial instability experienced by many OECD countries" (OECD, 1999, page 64), provides an important opportunity to analyse the effects of deregulatory reforms.

First, apart from its remarkable success, the Portuguese banking experience may be considered somewhat more complex and challenging than any experience formerly examined. In fact, in contrast with US cases, deregulatory reforms targeted a completely public (and not private) regulated sector. Therefore, there is an additional source of rent appropriation and the reforms' diversity is more extensive, comprising not only the common abolishment of both price and entry barriers but also a privatisation program.

The present study also benefits from using richer data. The prototypical American research on regulatory reforms examines individual level data from the Current Population Survey. The Portuguese individual database, *Quadros de Pessoal,* simultaneously accounts for both sides of the labour market, thereby enabling us to control for firm-level characteristics. This helps overcoming some drawbacks of earlier empirical research. Finally, the variety of variables available in the dataset also allows us to shed further light on rent-sharing. In particular, information about firms' ownership helps to understand the dynamics of rent appropriation in an industry with a changing ownership structure .

This study is structured as follows. In Section 2, an overview of the regulatory reform and the wage bargaining developments since the 1980s are presented. Data and empirical specifications are addressed in Section 3. Section 4 presents and discusses the results obtained. Section 5 offers some concluding remarks.

2 Regulatory reforms and trade unions

The Portuguese banking industry has successively undergone tremendous transformations during the last two decades. Prior to 1984, the industry was almost exclusively composed of a small number of public firms which were overstaffed and inefficient, reflecting an activity severely limited by state control (OECD, 1999). Like in many OECD countries, credit and interest rate ceilings and other capital controls governed daily banking operations. Furthermore, borrowing on public debt was compulsory, which created an additional source for credit misallocation. Entry barriers, either to new or already installed banks through branch expansion, also contributed to the lack of competition and development of the sector.

In 1984, the reversal of the regulated financial system started. The first three legal actions (law 11/83 of 16$^{\text{th}}$ August, decree-law 406/83 of 19$^{\text{th}}$ November and decree-law 51/84 of 11$^{\text{th}}$ February) opened the financial intermediation to the private sector. At the same time, some of the deposit and borrowing interest rates were liberalised. This process involved a cautious sequencing of step-by-step measures which dismantled most of the regulatory instruments that directly affected the behaviour of firms. In 1992, the complete liberalisation process was accomplished with the lifting of the remaining capital controls and barriers to branch expansion.[3]

In the second phase, covering most of the 1990s, the full ownership of ten out of twelve public banks was transferred to the private sector.[4] This privatisation program (law 84/88 from 20$^{\text{th}}$ July and decree-law 11/90 from 5$^{\text{th}}$ April), following two Constitutional Amendments, shared the common goals of the worldwide privatisation processes: independence and improvement of public banks' performance and further enhancement of banking competition.

During the same period, conglomeration and technological innovations also reshaped the industry. The conglomeration process – involving the formation of groups (bancassurance) – took place mainly in the mid 90s, while the consolidation process – starting in 1998 with the merger of three recently privatised banks – is still ongoing. The widespread use of new technologies, such as the automated teller machines (ATM) and the electronic fund transfer at the point of sale (EFTPS), also contributed to a reduction in time and costs associated

[3] OECD (1999) offers a detailed and chronological description of all reform measures.

[4] More precisely one bank was privatised in 1989. We adopt this time partition because in our empirical analysis, data in 1989 refers to public ownership status of the bank being privatised, as it was collected before privatisation took place.

with financial transactions.

Table 1: Banking industry size and performance, 1980-2000

	1980-1984	1985-1989	1990-1997	1998-2000
Size and structure				
Number of firms	17	27	36	43
Number of branches	1,425[a)]	1,577	3,075	4,646
Total employment (10^3)	58[a)]	59	61	56
Labour				
Real productivity[b)]	1.231[a)]	1.360	2.367	4.164
Staff costs/assets	.014	.014	.012	.008
Profits (10^3 euros)				
Profit per firm	3.31	7.37	23.04	39.82
Real profit per firm[b)]	16.33	14.64	27.22	38.73
Technology				
ATM		519[c)]	3,184	29,147
EFTPOS		809[c)]	8,544	75,783

Source: Own computations based on OECD, Bank Profitability - Portugal, 1980-2000.
Notes: *a)* data relative to the period 1982-1984; *b)* 1998 prices; *c)* refers to 1989.

Table 1 displays some annual average figures that summarise the main changes occurring in banking, in terms of size and performance, over the period 1980-2000. As described previously, the period 1980-1984 corresponds to the regulated era, the 1985-1989 corresponds to the phase of deregulation, the period 1990-1997 to the privatisation phase, and 1998-2000 to the recent consolidation phase.

As a result of the abandonment of regulatory restrictions, competition and efficiency of banking increased significantly (OECD, 1999). The reforms led to a proliferation of firms and branches which fueled the demand for labour, especially for skilled employees. Consequently, employment grew, but at a much slower pace, being sharply squeezed during the merger wave. Nevertheless, the average size of firms was reduced dramatically over the period under scrutiny. Labour productivity, measured by assets divided by employment, rose continuously, reflecting the use of a more educated workforce combined with the widespread use of new technology. This rise allowed a reduction in staff costs, in particular throughout the 1990s, from on average 1.4 per cent of total assets to 0.8 per cent. Profitability, measured by average real profits, declined during the

initial period of increased competition (1985-1989). In the remaining periods, real profits increased markedly, reflecting the boom in the credit activity.

How did regulatory reforms affect the wage bargaining in the industry? The developments described previously conditioned the type of industrial labour relations prevailing in banking, but did not affect the bargaining process itself. Covering three different geographical areas, the oldest trade unions in the mainland represent all employees, regardless the ownership of the bank. These trade unions and a group of banks, public and now private (domestic or foreign), meet each year to negotiate the collective bargaining agreement. This collective agreement, the most detailed and extensive in Portugal, regulates the employability conditions, the remuneration and the duration of work. It also delimits the starting wage level and the compulsory wage progressions for each of its 18 levels of the 4 groups defined to cover all the banking workforce.

Beyond this broad scope of the collective agreement, banking trade unions also enjoy the strongest attachment in the economy. Between the periods 1974-78 and 1991-95, average union density increased from 71% to 106% (Cerdeira, 1997).[5] Despite this increased union density, banking unions did not contest the new market environment to any significant extent. The resistance was limited, not coordinated, mostly being made through internal speeches and pamphlets which were rarely reported in the national press. The total number of strikes was limited as well: five strikes occurred in 1986, 1988 and 1989, each involving less than half of the total workforce (MSST, 1987-2001). More importantly, the annual negotiated wage growth rate in banking has deteriorated after the opening of the sector. Although it has declined for the whole economy as well, accompanying the disinflation policy, the wage growth in the banking sector was relatively lower from the 1990s onwards (Table 2).

Table 2: Collective bargaining contract data, 1980-2000

	1980-1984	1985-1989	1990-1997	1998-2000
Total economy	n.a.	12.1[a)]	8.0	3.4
Banking sector	19.1	13.0	7.2	3.2

Source: Own computations based on MSST, Relatórios e Análises. Regulamentação do trabalho and on bargaining contract data supplied by Sindicato Bancário do Norte.
Notes: n.a. not available. *a)* refers to the 1986-1989 period

[5] The union density rate also includes retired employees, making a density rate in excess of 1 possible.

3 Data and modelling

This study uses individual-level data from a particularly appropriate dataset collected annually by the Portuguese Ministry for Social Security and Labour – *Quadros de Pessoal*. This source covers all firms employing paid labour in Portugal (including Azores and Madeira) and provides detailed information about each unit, employee or firm, observed. For instance, the survey records information on salaries, duration of work and on other characteristics of workers such as gender, occupation, education, age and tenure. For firms, the survey records information on ownership status, location, economic activity and firm size.

For our purpose, the major drawback of this data set is its unavailability for years before 1985. It would be interesting to examine wages in the periods before, during and after the regulatory reforms took place. Unfortunately, this data limitation makes the present analysis confined to the period 1985-2000, which nevertheless covers the period during and after the regulatory reforms were implemented.

Following the usual practice in the deregulation literature, this study employs two strategies used in the work of Hirsch and Macpherson (2000). An "adjusted hourly wage index" is constructed for the (total) banking industry by estimating a log hourly wage regression, pooled over the period 1985-2000. That is,

$$\log HWAGE_{it} = \sum \beta_k X_{itk} + \sum \phi_y YEAR_{ity} + \epsilon_{it}, \tag{1}$$

where $\log HWAGE_{it}$ is the logarithm of the gross hourly wage for individual i in banking in year t. This variable is computed as the logarithm of the gross monthly wage (obtained as the sum of the monthly base wage, plus regular and irregular paid subsidies, payment indexed to tenure and overtime work) divided by normal and extra hours worked, after being converted to real terms (1998 prices), using the Consumer Price Index (IPC). X_{itk} includes variables (indexed by k) measuring worker and firm attributes and β_k are the corresponding coefficients (X_0 equals unity and β_0 is the intercept). Our control variables include years of completed schooling, potential experience (age $\div$ number of years of schooling $\div$ 6) and its square, tenure and its square, gender, gender-experience interacted, gender-tenure interacted, six occupational categories, six regional indicator variables, four regional indicator variables, firm size, three ownership categories and three bargaining system indicators.[6] $YEAR$ is a set

[6] We also tried to control for the effect of market concentration on banking wages. However, since the HHI is relatively stable in the period 1985-2000, varying between 0.073 and 0.123,

of fourteen time dummy variables (indexed by y) for the period 1985-2000 and ϵ_{it} is an error assumed to have zero mean and constant variance.[7] The "adjusted hourly wage index" is constructed from the $YEAR$ dummy coefficients ϕ_y. These measure the logarithmic hourly wage differentials relative to the base year 1985. To obtain the percentage index, the coefficients are converted by $100\times\left[\exp\left(\phi_y\right)-1\right]+100$, with $1985=100$. The "adjusted hourly wage index" is based on all banking workers in the period 1985-2000. After dropping observations with incomplete demographic information we ended up with 692 133 banking workers.

The banking wage structure is also allowed to vary by year and to be economy-wide determined. Annual measures of the "adjusted hourly wage differential or premium" are computed for the banking relative to the entire labour force, after controlling for worker and firms attributes. The analysis is based on two random samples of 10 per cent of workers from the banking and nonbanking sectors extracted for each year in the period 1985-2000 (drawn after dropping observations with incomplete demographic information).[8] These samples correspond, on average, to 4 600 (117 360) employees per year in the banking (nonbanking) sector over the period under scrutiny. The following specification is then estimated for each year t :

$$\log HWAGE_{it}=\sum\beta_k X_{itk}+\delta_t BANK_{it}+\epsilon_{it}, \tag{2}$$

where i stands for employee i, t is year, k indexes the same worker and firm control variables in X_{itk}, β_k represents the corresponding coefficients and $BANK$ is a single binary variable for banking employment. The relative wage premium for banking is given in each year t by $[exp(\delta_t)-1]\times 100$.

The pay-wage scale defined in the banking wage agreement is extremely compressed. For example, a top grade occupation earns at most six times as much as the lowest-grade occupation worker (level 18 versus level 1of the agreement contract). This same ratio reaches 5 in central planned economies and 20 in the US (Brainerd, 2000). Therefore, we also explore if the banking wage premium varies over the wage distribution. We estimate equation (2) using quantile regression techniques due to Koenker and Basset (1978). The quantile regression gives the θth quantile, with $\theta\in(0,1)$ of the distribution of $\log HWAGE_{it}$

identification is not possible.

[7] Data are missing in 1990.

[8] These random samples were stratified proportionaly according to economic activity, ownership status and firm size.

given X_{itk} and $BANK$. Estimation is here restricted to five values of θ: 0.10, 0.25, 0.50, 0.75 and 0.90. The following estimation uses the 'sqreg' command in STATA 8 and bootstrapped standard errors repeated 20 times.

In all equations, the analysis includes exclusively full time employees aged between 18 and 65 years according to the definition of the collective agreement in the industry.

Table 3 provides descriptive evidence on earnings and on selected individual attributes in the banking and nonbanking sectors, averaged over the previous periods based on calculations from the two random samples.

Table 3: Descriptive statistics on banking and nonbanking workers, 1985-2000

	1985-1989	1990-1997	1998-2000
Banking sector			
log of hourly wage	7.11	7.44	7.58
Male (%)	76.3	71.9	65.5
Schooling*	9.1	10.3	11.6
Age*	39.8	41.0	40.2
Tenure*	13.3	14.2	13.4
Nonbanking sector			
log of hourly wage	6.16	6.43	6.57
Male (%)	68.1	63.3	60.9
Schooling*	5.2	6.3	7.2
Age*	35.6	35.6	36.2
Tenure*	9.3	8.2	7.7

Source: Own computations based on QP, MSST (1985-2000)
* Reported in years.

Labour earning figures indicate that both banking and nonbanking employees experienced a strong (real 1998 PTE) hourly wage rise over the period considered, mainly reflecting the fast economic growth in the economy after the membership of Portugal in the EU.[9] Indeed, labour earnings rose on average 47% and 41% from 1985-1989 to 1998-2000 for banking and nonbanking workers, respectively. Nevertheless, banking pays a substantially higher hourly wage than the rest of the economy, reflecting the use of a much more educated, older and more experienced workforce. For instance, the average number of schooling years in banking is in 1985-1989 (1998-2000) 9.1 (11.6) years, while in the rest of the economy it is only 5.2 (7.2) years. Age and tenure numbers show that banking employees typically experience longer careers in the same firm compared to

[9] Unit of currency = escudos (PTE). 1 Euro = 200.482 PTE

nonbanking employees.[10] As Lazear (1995) suggests, the use of seniority-based wage scales creates self-enforcing contracts that promote incentives for workers to supply high efforts throughout their careers and remain in the job. Striking differences also emerge in terms of the composition of the workforce in the two labour markets. The banking sector is still a male dominated sector, although the proportion of women employed has increased relatively more (10 percentage points) than in the rest of the economy between the periods 1985-1989 and 1998-2000.

4 Empirical results

The "adjusted hourly wage index" and the "relative hourly wage differential" are shown in Figure 1 and Table 4.

Table 4: Adjusted hourly wage index and relative hourly wage differentials, 1985-2000

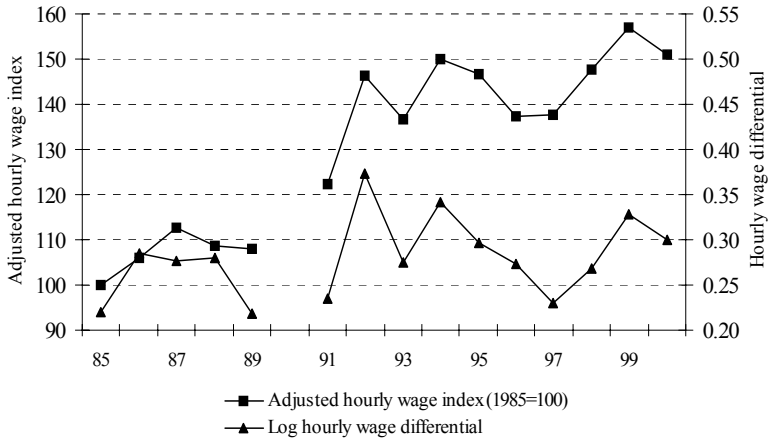
Year	Hourly wage index	Hourly wage differential					
		OLS	.10	.25	.50	.75	.90
1985	100	.22	.39	.32	.24	.15	.13
1986	106	.29	.44	.39	.32	.22	.10
1987	113	.28	.40	.36	.30	.23	.16
1988	109	.28	.40	.37	.31	.23	.18
1989	108	.22	.36	.32	.27	.18	.10
1991	122	.23	.36	.34	.28	.18	.09
1992	146	.37	.45	.42	.39	.38	.35
1993	137	.27	.41	.36	.29	.24	.18
1994	150	.34	.46	.41	.37	.31	.28
1995	147	.30	.50	.42	.32	.24	.17
1996	137	.27	.46	.39	.31	.23	.12
1997	138	.23	.46	.37	.26	.17	.04
1998	148	.27	.48	.40	.31	.22	.10
1999	157	.33	.55	.46	.38	.27	.17
2000	151	.30	.53	.44	.34	.24	.15

Source: Own computations based on QP, MSST (1985-2000)
All coefficients are statistically significant at the 1 per cent level.

Both measures display a similar trend during and after the reforms were introduced. The adjusted hourly wage index in 2000 implies an average increase of 2.8% per year, while the relative hourly wage premium rose from 0.22 log

[10] Seltzer and Merrett (2000) and Seltzer and Simons (2001) provide similar evidence on the long-lasting careers of Australian banking employees.

Figure 1: Adjusted and relative banking labour earnings, 1985-2000



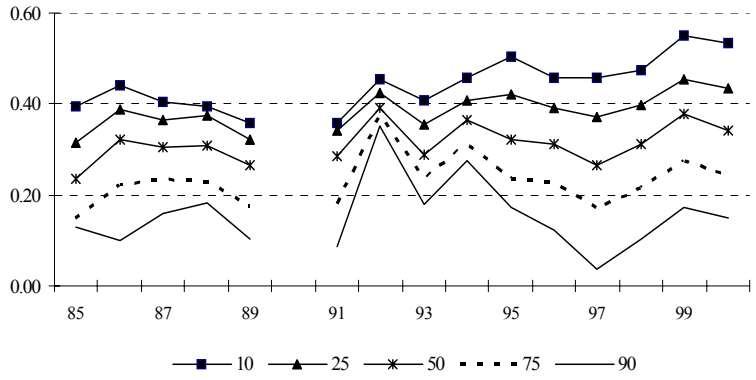
points in 1985 to 0.30 log points in 2000. Nevertheless, both wage trends exhibit considerable fluctuation, a pattern also detected in the US railroad industry (see Peoples, 1998 and MacDonald and Cavalluzo, 1996) [11] Despite this, there is a discernible positive trend: average wage differential grew from 0.26 log points in the period 1985-1989 to 0.29 and 0.30 log points in the periods 1990-1997 and 1998-2000.

Part of this fluctuation trend is explained by changes in the market ownership structure, brought about by the arrival of new high paying firms, either domestic or foreign, as we will show later. However, the growth in the banking wage premium is most likely to be mirroring the financial health of the sector. As seen previously, reforms are associated with substantial improvements in labour productivity and profits, and, later on, with reductions in employment. Thus, when seen in conjunction with Table 1, our results are compatible with a rent-sharing based explanation.

How can we conciliate the upward trend in the wage premium with the worsening of the bargained wage outcome over the nineties? In this sector, the bargained wage works as a wage floor and firms are free to set wages above the negotiated benchmark according to their specific conditions. In addition, the wage drift, the differential between the wage defined by the collective agreement

[11] This fluctuation also indicates the potential fallacies of analyses which consider only two points in time, one before and another after, the reforms.

Figure 2: Banking hourly wage differentials over five percentiles, 1985-2000.



and the actual wage paid, has increased since the early nineties (Aperta *et al.*, 1994) and is the second highest in 1999 among 16 industries in Portugal (Cardoso and Portugal, 2005).

Nevertheless, the magnitude of the hourly wage premium may be overestimated. First, as referred in the press, banking has been under scrutiny by *Inspecção Geral do Trabalho* for misreporting the overtime work.[12] Thus, if workers have been working more hours than those reported, then the hourly wage premium is actually overvalued. Another shortcoming may result from the effective control of the firms size. Although, we control directly for the size of each bank (through the logarithm of employment), the *actual* size might be undervalued, as banking firms started creating conglomerate groups, within and outside banking. Thus, the actual firm size effect, which is associated economy-wide with high wages, is not fully controlled.

Figure 2 shows, alternatively, the wage differential over five selected percentiles of the wage distribution. The wage premium at all percentiles of the wage distribution broadly replicates the pattern previously identified (mean wage differential) over the period under scrutiny. Furthermore, the wage premium, despite being pervasive, is an *inverse* and monotone function of the percentiles of the wage distribution. Indeed, less-skilled workers have been enjoying substantially higher gains while highly-skilled workers have been benefiting

[12] See *Público*, 12^{th} of November of 2003, and *Expresso*, the main daily and weekly Portuguese newspapers, respectively.

from much more modest gains. Moreover, this left skewed premium distribution, typical for public labour markets, appears unchanged/preserved over time, even after the tremendous ownership changes which occurred in the industry.

The shape of the wage premium distribution also reflects the generous wage-promotion policy implicit in the wage agreement contract. The wage agreement imposes automatic and compulsory merit promotions for a minimum contingent in each group of the lowest educational levels (between level 1 and 10), while these are optional for upward educational levels (clause 18 and 19, respectively, of the wage agreement).

A closer look to specific groups

Table 5 explores some sources of variation in the relative hourly wage of banking during the period 1985-2000. The first three columns of Table 5 show the coefficients obtained by estimation model (2), where binary banking employment is interacted with two ownership dummies. The last two columns show the coefficients of the same model where the dummy variable is interacted with gender.

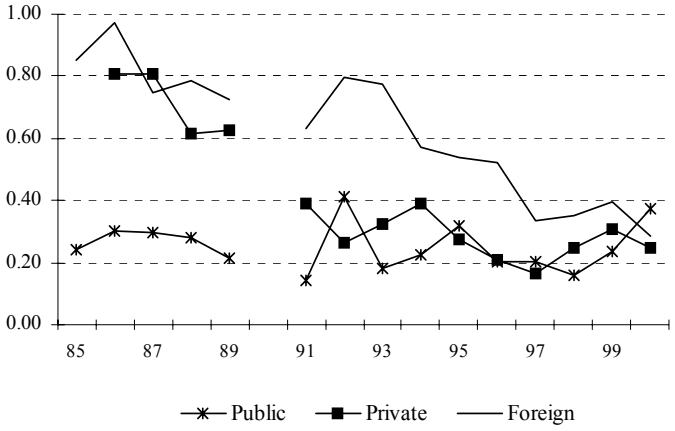
Table 5: Relative hourly wage differential in specic groups

Year	Ownership			Gender	
	Public	Private	Foreign	Female	Male
1985	.24		.85	.18	.21
1986	.30	.81	.14	.24	.29
1987	.30	.81	.75	.24	.28
1988	.28	.61	.79	.22	.28
1989	.22	.63	.73	.19	.24
1991	.14	.39	.63	.16	.26
1992	.41	.26	.80	.32	.39
1993	.18	.32	.78	.20	.31
1994	.23	.39	.57	.28	.38
1995	.32	.30	.54	.25	.33
1996	.20	.27	.52	.22	.31
1997	.20	.23	.34	.19	.25
1998	.16	.27	.35	.23	.30
1999	.23	.33	.40	.29	.36
2000	.38	.30	.29	.27	.32

Source: Own computations based on QP, MSST (1985-2000)
All coefficients are statistically significant at the 1 per cent level.

Immediately after the opening of the sector in 1984, the banking wage premium rose. As Figure 2 shows, this rise is induced by the start-up of new firms,

Figure 3: Banking hourly wage differential by firm ownership, 1985-2000



both domestic and foreign. To offset riskier jobs, these firms rewarded their workforce considerably better than the already installed public firms.[13] In the subsequent period, the movement in the wage premium in domestic firms reflects the privatisation program, which led to temporary reductions in wages during the first and second years after its introduction (Monteiro, 2004). Thus, the wage premium in private domestic firms declined substantially in 1991 and 1992, and after 1994, as the two largest firm privatisations' occurred in 1989 and 1994, and one bank was privatised in each of the years 1990, 1992, 1993 and 1996. In this same period, the increasingly competitive environment in the sector led to a substantial reduction of the wage premium in foreign firms. By the end of the period, the wage premium tends to converge across banking ownership groups in accordance with the bargaining system prevailing in the industry.

In terms of gender, regulatory reforms seem to have benefited men in particular. Average male wage premium went up from 0.26 in the period 1985-1989 to 0.32 log points in the period 1998-2000, while for women wages went up from 0.21 to 0.26 log points in the same time periods. Thus, in contrast with the deregulatory experience in the US banking industry (Black and Strahan, 2001) and in the motor bus industry (Schwarz-Miller and Tally, 2000), our estimation results do not support the theoretical expectations of the Becker hypothesis: as

[13] See also Barros and Pinho (2003).

discrimination becomes more costly to sustain in competitive markets, gender wage gap should be gradually eliminated.

Wage dispersion

We now focus on whether regulatory reforms lead to increased wage dispersion in banking. Table 6 below, presents averages of various measures of wage dispersion across banking ownership groups over the periods described before. We examine inequality measures for both the unconditional and conditional log of hourly wage. The conditional log of hourly wage is defined as the residuals of the equation (1) estimated separately per year and sector.[14]

Table 6: Wage dispersion in banking and nonbanking sectors

	Banking								Nonbanking	
	Unconditional				Conditional				Unc.	Cond.
	All	Pub.	Priv.	For.	All	Pub.	Priv.	For.	All	All
1985-1989										
90-10	.832	.800	1.270	1.360	.488	.476	.660	.947	1.307	.686
90-50	.513	.483	.775	.524	.303	.297	.265	.340	.904	.398
50-10	.319	.316	.495	.836	.185	.179	.395	.607	.403	.288
variance	.113	.104	.222	.274	.046	.043	.082	.154	.240	.093
1990-1997										
90-10	.950	.818	.938	1.344	.582	.525	.576	.816	1.348	.789
90-50	.604	.495	.600	.752	.316	.266	.331	.440	.931	.457
50-10	.346	.323	.338	.592	.266	.259	.245	.377	.417	.333
variance	.155	.125	.152	.285	.064	.052	.062	.148	.305	.127
1998-2000										
90-10	.930	.795	.977	.919	.511	.477	.516	.586	1.317	.813
90-50	.550	.490	.599	.511	.261	.236	.284	.227	.882	.472
50-10	.380	.305	.378	.408	.250	.241	.233	.359	.435	.341
variance	.151	.117	.164	.143	.055	.048	.057	.069	.295	.123

Source: Own computations based on QP, MSST (1985-2000).

Both (un)conditional measures indicate that the *pattern* of wage dispersion prevailing in banking is similar to that found in the economy over the entire period. Thus, wage inequality is pronounced at the top of the wage distribution while at the bottom it is relatively compressed. However, the *level* of wage

[14] The determination of (un)conditional inequality measures is popular in this literature. For example, Disney and Gosling (1998) and Hirsch and Macpherson (2000), among others, applied it.

dispersion is substantially lower (as expected from the wage scale defined in the collective agreement) in banking in each of the three periods considered. In particular, public firms, as opposed to privately owned firms (both national and foreign), present the most egalitarian pay policy.

In terms of trend, the wage dispersion of banking followed the rest of the economy. For instance, (unconditional) variances in banking wages grew from .11 in 1985-1989, to .16 in 1991-1997, to .15 in 1998-2000, while economy-wide variances grew at the same pace, from .24 to .31 to .30. Nevertheless, the wage dispersion declined remarkably in foreign banks. For instance, the average conditional gap 90-10 dropped from .95 in 1985-1989, to .82 in 1990-1997, to .59 in 1998-2000, while in private (public) firms, it went from .66 (.48) to .58 (.53) to .52 (.48) in the same periods. This indicates that the privatisation reform did not lead to increased wage inequality. Thus, contrary to our expectations and previous findings (Hirsch and Macpherson, 2000 and Guadalupe, 2005), the evidence shown here, either in level or in trend, does not confirm the hypothesis that regulatory reforms, in themselves, contribute to a rise in wage inequality.

5 Conclusion

Despite the worldwide implementation of regulatory reforms in product markets, the examination of the impacts on European labour outcomes has been relatively scarce. This study helps to narrow this particular gap in the regulation literature by addressing the effects of such reforms in the wage structure of the Portuguese banking sector. The Portuguese banking experience provides a notable case study as, unlike former US evidence, it targeted a public regulated sector. Therefore, the regulatory reforms are diversified, including not only the removal of price and entry controls, but also a privatisation program.

This study examines changes in union wage contracts and in the banking wage premium over the period of regulatory reforms, using data collected directly from banking unions and from Quadros de Pessoal in the period 1985-2000. The main finding is that, despite a relative drop in the contracted wages (serving as a wage 'floor'), regulatory reforms, either deregulation or privatisation, in general did not harm employees. Instead, despite the fluctuation, banking workers were able to enjoy an increasing wage premium. A notable exception are the workers from foreign firms who saw their above-average salaries declining during the period 1985-2000. The evidence also shows that some spe-

cific groups benefited relatively more than others. The least skilled and educated workforce, as well as male workers, gained more from the regulatory reforms. This finding contradicts the predictions from the standard discrimination theory of Becker (1957). However, surprisingly, this unequal sharing of the wage premium did not contribute to the rise in banking wage inequality. In particular, neither deregulation nor privatisation raised wage inequality across banking ownership groups.

The upward trend in the banking wage premium is probability associated with the increase in profitability and labour productivity observed in the industry between 1985 and 2000. A more direct rent-sharing test, relating wages to profits across different ownership groups, would help us to be more conclusive about the causes of our findings. This, however, is left for future research.

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