INDUSTRY WAGE DIFFERENTIAL, RENT SHARING AND GENDER IN BELGIUM

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Abstract
The main objective of this paper is to present new empirical elements to the debate on sources of wage differentials. We investigate issues specifically related to the role of employer’s characteristics in the wage setting process. Findings show that combined industry effects explain almost no share of the gender wage gap in Belgium. Our results also suggest that a substantial part of the gender wage gap is due to women’s segregation in less profitable firms. Finally, our results show that rent-sharing account for a large fraction of industry wage differentials. To gain an accurate perspective, theories on wages are described extensively.

JEL Codes: J16, J31, J71.

Keywords: industry wage differentials, rent sharing, gender wage gap.

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1. Introduction

Wages are at the core of all economic mechanisms. Workers' revenue and purchasing power derive principally from their wages. Wages are equally central for firms, which pass wages onto the product price. The setting of wages plays an essential role between the product and the labor markets, directly interacting with a country's macroeconomic performance. Analysing the wage-setting process, its structure as well as wage differentials seems therefore fundamental.

In this perspective, the main objective of this paper is to present new empirical elements to the debate on sources of wage differentials in Belgium. Indeed, we sought to identify the mechanisms that determine wages so that questions as important as those relative to the gender wage gap or to wage inequality may be given the most appropriate policy answers.

In particular, we decided to investigate issues specifically related to the role of sectoral affiliation in the wage setting process. First, questions related to the sectoral effect on wages allow to better understand the mechanisms behind the wage setting process. Their presence indeed implies that the standard competitive model does not fully explain wage variation amongst workers. Secondly, a focus on inter-industry wage differentials allows for an analysis of the role played by firm characteristics in the gender wage gap. More specifically, we can isolate the segregation effect at the sectoral level and amongst firms with different profit levels. Finally, accurate results regarding the presence of sectoral effects allow discriminating amongst the different non-competitive mechanisms suggested by the literature (e.g. rent-sharing or the efficiency wage model).

Hence, this paper focuses on industry wage differentials, rent-sharing and the gender wage gap. There is the empirical investigation of: i) the interaction between inter-industry wage differentials and the gender wage gap in six European countries, ii) how rent sharing interacts with the gender wage gap in the Belgian private sector and iii) the existence of inter-industry wage differentials in Belgium, through the unobserved ability hypothesis. ¹

To gain an accurate perspective of the current research, different theories on wage setting are described below. When presenting this research's empirical findings, the review of these

¹ These different questions have been studied within the framework of Tojerow (2008).
different theories allow one to consider their relevance and to place them within the debate over pay determination.

2. Wage Setting Models

2.1 The Benchmark Model:

The Walrasian (competitive) model is often considered as the benchmark model within this debate. It rests on the hypotheses of perfect information and of free entry for all agents. Hence, no player has market power and the determined wage will match all labour demand with all labour supply. The wage that emerges from this process is equal for each worker to the job marginal productivity.

In this frame, wage differentials reflect either differences in working conditions (Hedonic theory of wages; Rosen, 1974) or variations in individual characteristics of the workers (theory of human capital; Becker, 1964). Hence, each employee contributes differently to the firm’s production.

In the Hedonic theory of wage, perfect competition will bring compensating wage differentials between individual placed in different conditions. The disutility undergone by one individual following the performance of a task in an unfavourable situation may lead to wage compensation.

The Human Capital theory views higher wages as a reflection of higher productivity levels and a superior accumulation of human capital. Therefore, differences in individual productivity are directly influenced by investment in education or training. Considering human capital as a normal good, the model implies an efficient allocation of investment through the market. The wage distribution reflects at the end different levels of profitable investments. Still, several factors seem to challenge the efficiency characteristic of the theory. One can highlight credit market imperfections, access to education without state intervention, the unjustified impact of social origins via local externalities (Goux and Maurin, 1997) and discriminations within the labour market (Arrow, 1973; Phelps, 1968). The latter effect starts from the premise that some employers have are biased against some demographic groups regarding their education return, therefore, giving employers a truncated picture of the candidate's accurate potential. This leads employers to require an inefficient and disproportioned level of competences from members of these groups. As a reaction, in some cases, the members of a discriminated group anticipate
their weaker probability to get a qualified position and invest less in human capital. According to this discrimination theory, not only does the interaction between employer and potentials worker behavior generate earnings inequalities but also a deviation from an efficient allocation; individuals with the same qualities being considered differently (Coat and Loury, 1993).

The theory of human capital highlights the link between wages and productivity levels in the competitive model. The theory also provides some possible answers to wage differentials. Moreover, in the long run, it may convincingly explain, through the labour productivity growth, world-level inequalities and the evolution of worker incomes overtime (Pikkety, 2004). Yet, the 1970s rise in unemployment and wage inequalities puts into question the human capital paradigm. On one hand, despite the hypothesis of a skill-biased technological change, a significant part of the wage inequality increase occurred among workers with identical observable characteristics (Juhn et al., 1993). On other hand, wages didn't fall as expected when the gap between the labour supply and demand increased sharply in Europe (Forslund, 1994). These outcomes from the "field" suggested that the mechanisms described in theory are not necessarily fulfilled in reality.

Several explanations have been put forward to clarify these "unexpected" outcomes. Some explanations were given within the standard model (e.g. search frictions, short run deviations) while others were based on totally different mechanisms (e.g. bargaining model, efficiency wage models). These theoretical differentiations may have important policy implications. In the first case, once market imperfections are corrected, wages are completely a result of supply and demand forces. In the second case, other factors still play a role once market imperfections are resolved.

The main stumbling block of the competitive model of labour market concerns its full capacity to achieve a market-clearing wage through the interaction of supply and demand forces. The debate revolves around the ability of the standard Walrasian (competitive) model of the labour market to explain forces that hamper clearing adjustments in the real world. Alternatively, explanations based on non-market forces may be introduced describing the non-adjustment of employment and wages to supply or demand shocks. The issues in both the Walrasian and the non-competitive theoretical framework may be caused by the supply or demand side of the market. One should also consider that actual wage often results from a whole subjected to mixed effects. Over the years, numerous non-competitive models have been formalized to incorporate and explain labour market outcomes.
2.2 Issues Concerning the Supply Side

Concerning the supply side, the issues over competitive wage are often linked to the collective bargaining power of trade unions and wage settings. Several models conceptualize this principle. Called the "monopoly union" model, its most simplistic versions describes a bargaining system in which the union will set unilaterally wages subjected to the firm's labour demand curve (Dunlop, 1944). More sophisticated, the "right-to-manage" model takes into account the clear existence of wage set in union-firm bargaining (Nickell and Andrews, 1983). In this case, firms set employment but wages are bargained for and the allocation of the process of surplus depends on the bargaining power of the concerned party. The "efficient bargaining" model goes a step further by integrating into collective negotiations other variables (e.g. employment level) than just wages (MacDonald and Solow, 1981). Finally, the "general bargaining" model differentiates parties bargaining power at each stage of the negotiation, with a first round, dedicated to wages bargaining and the second to employment levels (Manning, 1987).

These trade union models provide insight into differences that arise between market wages and set wages. These models presume that unions represent and therefore bargain for all workers in a firm's given labour pool. Some models question the latter hypothesis and assume instead that union representatives only bargain for employed workers, "the insiders" (Blanchard and Summers, 1986). In this inside-outside theory framework, specific human capital, hiring and firing costs allow the "insiders" to obtain a wage higher than the market clearing wage and higher than the one offered by the "outsiders" (Lindbeck and Snower, 2001). Furthermore, the existence of mobility costs may allow employees to capture part of the surplus generated by the firm. Hence, workers with identical observable characteristics may be paid differently if the collective bargaining power of their representatives differs (Möller and Aldashev, 2005).

The rent-sharing hypothesis is often used to explain the wage surplus obtained in bargaining models (Nickell and Andrews, 1983). Although the collective bargaining models presented above have different characteristics, all of them rely on the same statistical specification where profits and wages are correlated. Therefore, one views the main protagonist bargaining over the profit generated by their firms. In this case, profitable firms pay higher wages to their employees in relation to the parties’ relative bargaining powers (Nickell and Andrews, 1983).
Hence, the rent-sharing phenomenon implies that increases in a firm’s ability to pay lead to improvements in wages not only in the short run but also in the long term (Pistoresi and Strozzi, 2003). A general result is that the correlation between workers’ wages and firm or industry profitability is stronger in countries with a decentralised wage bargaining system (Blanchflower et al., 1996; Holmlund and Zetterberg, 1991). This result might be explained by the fact that the co-ordination of the wage bargaining in the corporatist countries restricts the insider power of the workers i.e. their ability to capture part of the sectoral rents. In sum, studies on rent-sharing offer some evidence for the existence of sectoral effects on wages (Holmlund and Zetterberg, 1991) and for their apparently higher dispersion in non-corporatist countries (Vainiomäki and Laaksonen, 1995). Nevertheless, other explanations, besides rent-sharing, could explain a positive relation between profits and wages (Blanchflower et al., 1996). For example, in a competitive model with temporary frictions, a positive link between wages and profits may also be possible. A labour contract model where firm and workers share the risk may represent another possibility. Finally, similar correlation may arise in an efficiency wage models, in which firms use higher wage as incentive to enhance employees’ efforts.2

Parallel to the theories of collective bargaining, there is also a strand of literature that focuses on the labor market's institutional structure as a whole as an explanation for wage dispersions (Kenworthy, 2003; Traxler et al., 2001). Collective bargaining is revealed through a string of interactions between workers, employers and governments. Expressed by different indicators, these interactions are often aggregated in the literature to set the corporatist level of a country. The main indicators include the level of centralisation of collective bargaining and the degree of coordination of the wage setting system (Kenworthy, 2003). According to Blau and Kahn (2002), a high index generally implies a low level of wage dispersion. Union density and/or coverage are also evoked to measure the impact of a collective agreement. Again, economic theory indicates a negative impact of union density and bargaining coverage on wage dispersion (OECD, 2004; Wallerstein, 1999). This negative impact reflects the presence in the unions' utility function of other parameters than the wage level - i.e. wage dispersion, social justice, etc (Freeman, 2005).

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2 See the next section for more details on the efficiency wage model.
2.3 Issues Concerning Demand

Alongside models which focus on the imperfections of the labour market supply side, several other models focus on employer behaviour (i.e. demand side) to formalize worker pay policies. A monopsonist firm may for example take advantage of its dominant position to set wages arbitrarily. This situation implies limited mobility and little exportable qualification for the labour supply. The lack of competition generated by these entry costs may also explain how the employer's market power enables the discriminate between workers from different origins.

Other theoretical trends that focus on the demand side introduce the notion of efficiency wages to explain wage dispersion (Akerlof, 1982; Shapiro and Stiglitz, 1984). According to these models, firms may have some incentives to spontaneously offer higher wages. These incentives may find their sources in the limited monitoring abilities of the firms or in their willingness to reduce turnover and to attract a better workforce. Again, wage differentials are justified other than through the heterogeneity in human capital or compensating differences.

Besides these different models, in the last few decades, a growing train of thought has focused on frictions to explain wage dispersion (Butters, 1977; Mortensen, 2003; Pissarides, 2000). Focusing on the search for jobs, these models imply that differences in wage policy at the firm or industry level may derive from the existence of search frictions, i.e. the incomplete information faced by both employers and workers in the labour market (Eckstein and van den Berg, 2007). Lastly, there has been an attempt to integrate both supply and demand side strategies in general equilibrium models. While the worker faces a given wage distribution, the employer internalizes the behaviour of both workers and other employers (Zanchi, 2000). Again, wage-setting strategies are decorticated and modeled to explain the part of the wage dispersion independent of the observed ability differences.

3. Wage Variance and Gender

One should naturally consider gender when examining the issue of differences in earnings. On the one hand, the wage structure mirrors a gender effect and on the other hand, the sources of the gender wage gap partially rely on the wage setting process and structure. This significant interaction allows for a whole chapter of economic literature to focus on the mechanisms that continuously affect wage differentials between male and female workers. This overall issue
remains a concern due to the fact that many western countries has seen the employment rate and the educational level of women increase over the years yet there is still a significant difference in earnings.

Common explanations rely on differences in human capital, discriminatory behaviours in the labour market, and occupational or sectoral segregation. Several approaches exist to frame gender relations in the labour market. Some of them fall within a competitive neoclassical framework, other appeal to non-competitive forces to explain gender wage differential.

3.1 Neoclassical/human Capital Framework

The first models which tried to consider gender difference were based on human capital theories. These models suggested that stakes concerned with wage differential were linked to explained and unexplained sources. Within this neoclassical framework the observed wage gap reflects different investment choices in human capital. The neoclassical approach determines that years of schooling, experience, job tenure, hours of work and other factors would account for some of the difference in earnings (Mincer and Polachek, 1974). However, measurable factors fail to fully explain the gender wage gap. The remaining unexplained differences could stem from hardly identifiable characteristics or discriminatory behaviour towards female workers (Becker, 1971).

Within this frame, discriminatory behaviours express gender-biased treatment of individual with identical productive characteristics (Blau and Ferber, 1992). In other words, labour market discriminations reflect the behaviour of the economic actors towards women within the market rather than pre-market endowment differences. This behaviour de facto mirrors wage discrimination through different prices for identical productive characteristics for male and female workers.

Several mechanisms are suggested to explain either the explained or the unexplained parts of the gender wage gap. They strongly rely on mechanism explaining general wage variances, such as the one developed in the above sections.

Although studies based on human capital theories are numerous, their results should be analysed cautiously to capture the different reservations voiced in the literature. One set of critics concentrates on the model’s exclusive use of labour market activity to explain the gender wage gap. Human capital theories, as a result, would ignore mechanisms and choices
made prior to entering the labour market. For instance, when considering the gender wage gap, they may construe human capital investment decisions as pure individual free choice while disregarding society’s expectation of women’s role. Human capital theories may also be the results of a “feedback effect.” Section 3.2 and Section 3.3 present alternative models that address the limitations of Human capital theory stated above.

3.1.1 Endowment Differences

Mincer and Polachek (1974) link endowment differences to the anticipation of breaks in a woman's career and possible shorter professional careers. Thus, gender wage gaps would result in this view from "rational" investment preferences. One should however consider that endowment differences may themselves be the result of gender wage discrimination.

3.1.2 “Taste” Discrimination

By comparison to endowment differences, wage gaps due to discrimination are notably sourced in personal prejudices of employers, fellow employees or customers (Becker, 1971).

Employer Discrimination

By definition, the discrimination by the employer arises from the demand side of the market. The lower wages of women is a reflection of an employer's disregard for women's real productivity or possibly a compensation for psychological costs associated with having to work with women. In this model, the employer doesn't try to maximize profit but rather its utility, which also depends on his gender prejudices. However, this form of discrimination can only be temporary in the competitive model implied by human capital theories. Market forces promptly punish firms that offer below-productivity wages and below-market rates of return for a given set of assets. Only firms that avoid market forces such as monopolies may know persistent gender discrimination (Black and Strahan, 2001).

Employee Discrimination

The second form of discrimination takes place among the market supply side and concerns the personal prejudice developed by fellow employees. They are sensitive to the gender of their co-workers. This type of discrimination brings employers to compensate male workers for co-working with female employees. The gender wage gap therefore depends upon the wage premium demanded by men to balance their interactions with women at work (Becker, 1971).
According to Ragan and Translay (1988), this phenomenon most present when male workers are monitored by women. Several models analyze the impact of this type of discrimination. Some assume a homogenous labour force and only variable labour costs. Hence, they put forward that employee discrimination leads to a segregated environment (Becker, 1971). Others introduce employment fixed costs or complementarities among labour and show that employee discrimination may also result in integration with wage dispersion (Arrow, 1973; Welch, 1967). The persistency of a wage premium for discriminating employees can be explained by costs associated with laying-off workers and by the high employment rate of men (Arrow, 1973).

Customer Discrimination

Becker (1971) put forward customers' prejudices as a third possible source of discrimination. It should be noted that consumer preferences may influence employers' hiring decision and wage policy. If customer preferences are harmful to female workers, this channel may end in discriminatory wage differentials. Women must agree to lower wages or accept to be overqualified in order to compensate for the pressure put on the firm by these discriminating consumers. This situation often appears in occupations with high consumer contact and can lead to women segregation in low-paying position. According to Kahn (1991), this situation will depend on customers' prejudice intensity and the relative share of intolerant consumers in the sector. Contrary to employer or co-worker prejudice, Kahn (1991) also asserts that this type of prejudice may persist over time even within perfect competition.

3.1.3 Statistical Discrimination

Models of statistical discrimination offer a fourth alternative to explain a different return for identical productive characteristics between male and female workers. Discrimination does not follow personal prejudice, but is rather an issue based on information (Arrow, 1972; Phelps, 1972).

Statistical discrimination differs from “taste” discrimination models presented above by the possibility of persistency over time in a competitive market (Lundberg and Startz, 1983). The statistical approach does not rely on majority preferences. On the contrary, statistical models result from a rational behaviour of firms confronted with uncertain productivity of an individual. The screening problem derives from the potential predictor imperfections linked to observable individual characteristics. To compensate this lack of information, employers are
induced to base the hiring decision on average characteristics of visible groups. From here on, workers with similar productivity levels can be discriminated as the wage differential is solely rooted in workers’ group affiliation. However, the employers lacking similar prejudice, or those willing to revisit their original assumptions, will overtime discover the correct productivity levels of their employees and consequently correct any bias linked to the group affiliations (Altonij and Pierret, 2001).

Different variances of this model exist. For example, Phelps model (1972) bases itself on differential reliability in productivity indicators, while Spence’s model (1973) focuses on the differences in signalling workers’ costs.

3.2 Non-competitive Forces and the Gender Wage Gap

Several models attempt to explain gender wage gap by taking into account non-competitive forces, such as the effect of others’ decisions on individuals’ actions. In these cases, the framework generally includes elements of market segregation, as well as institutional and labour market segmentation theories. This goes against the hypothesis as the firm as the wage taker. Instead these models consider that individual market actors have some influence in the establishment of their wages. In addition, it is assumed that several segmented labour markets can simultaneously cohabit and that institutions such as unions intervene in the labour market. Finally, these models try to consider that some of neoclassical hypothesis are frozen such as perfect information, lack of adjustment costs or the non-bargaining of wages. Yet, some of them still fall within the scope of a neo-classical reasoning.

3.2.1 Monopsonistic Discrimination

Within this framework, the monopsonistic discrimination offers an alternative explanation to the one based on differences in individual productivity return. Robinson (1933) is the first to appeal to the monopsonistic model when considering the gender wage gap. He supposes that part of the wage gap results from the overexposure of women to monopsonistic conditions due to their higher family constrains.

More precisely, the model assumes that the supply of women’s labour is less elastic than men’s at the firm level. This hypothesis holds true if one accepts a more restricted female mobility and gender-biased preferences over non-pecuniary jobs attributes such as the intensity of working hours or the workplace’s location. Hence, profit-maximizing firms react to these differences in supply elasticity by offering lower wages to female workers. The discriminatory
wage that follows deeply diverges nonetheless from Becker’s “taste” notion. Within this context, firms have discriminatory wages without any reference to prejudices as they remain profit-maximizing (Hirsh et al., 2006).

Until recently this approach was not widely accepted and it was challenged empirically. It was argued that the classical monopsony situation with a single employer is unlikely (Humphries, 1995). The new monopsony literature has led to a reappraisal of Robinson theory.

In particular Manning (1994, 2003) established that monopsony phenomenon may exist among several firms, each of them facing a specific labour supply curve. The firm-level curves are upward-sloping because of mobility costs, search frictions and different worker preferences. Monopsonistic discrimination arises in this updated model if male and female workers have different firm-level labour supply curves (Barth and Dale-Olsen, 1999). Hirsch et al. (2006) and Ransom and Oaxaca (2005) have convincingly demonstrated that the elasticity of the female labour supply curve is indeed less elastic than the male one. This difference may explain how gender wage gaps arise among profit-maximizing monopsonistic firms.

3.2.2 Gender Segregation and the “Crowding” Hypothesis

Occupational segregation may consist as another source of gender wage differentials (Bergman, 1974). The effect of gender segregation on male-female earnings differentials has been theorized through different economic approaches. Within the neoclassical school, the theoretical explanation notably refers to the “Crowding” hypothesis (Bergmann, 1974).

According to this hypothesis, gender earnings differentials results from the intentional crowding of women into a restricted number of occupations (Sorensen, 1990). Their exclusion from a large number of “male” occupations induces women to crowd massively in “female” occupations. Accordingly, supply of women is relatively high in these occupations which in turn lower their wages. As a consequence, equally productive workers are discriminated against because of their segregation in different occupations.

However, according to Sorensen (1990), though the model does highlight the effects of crowding, it does not clearly explain how the phenomenon appears. This theory provides a relevant mechanism for the existence of lower pay in female-dominated occupations, but it fails to justify the continuity of the phenomenon in a competitive environment. This persistence over time may reveal the existence of barriers to employee mobility. Moreover, the model also fails to clarify why certain occupations are established as “male” or “female”
To explain the crowding itself, one must refer to alternative explanations (monopsonistic discrimination, social norms, and human capital investment).

### 3.2.3 Segmented Labour Market theory

Segmented labour market theory offers another prism to explain gender wage differentials based on the phenomena of segregation. This theory sees the compartmentalization of the workers into segmented and noncompeting labour markets, which may function differently. The “dual labour market” version divides, for example, the market into a “primary” and a “secondary” sector (Doeringer and Piore, 1971). Workers in the primary sector compete for jobs that offer relatively high wages, good working conditions and with adequate returns to schooling, while their peers in the secondary sectors are confronted to unstable employment and limited opportunities for advancements. Based on this, part of the wage differentials is not effected by individual skills but rather results from the concentration of women in the “unfavourable” secondary sector and from the persistency of barriers to enter the primary sector (Dickens and Lang, 1985). In other words, gender pay gap follows the employment segregation into different segments with peculiar wage-setting mechanism. However, if segmentation may offer an alternative approach to human capital theory in the debate on gender wage gap, it does not enlighten the mechanism behind the emergence of a divided labour market or the concentration of women in specific sectors. Gender theories attempt to fill this gap by focusing on the characteristics of the wage-setting process, or by considering the segmentation issue as the reflection of a male desire to maintain patriarchy. These different explanations are presented in the next section.

### 3.2.4 The Wage Structure, Institutions and the Gender Wage Gap

Beside gender-specific factors, recent constructs also integrate the wage-setting process and institutions into the explanatory schema of the gender wage gap (Blau and Kahn, 2000; Rubery et al., 1997). Accordingly, the overall wage structure influences the size of the gender pay differential as gender differences in treatment and qualification do. This influence goes notably through the magnitude of the wage dispersion among industries or occupations.

The grading system and the type of payment mechanism form two other potential factors behind the impact of the wage structure concerning gender pay inequalities. For example, a centralised wage bargaining system and minimum wage standards rather tighten wage
dispersion. Hence, they may be considered as favourable to gender pay equity (Rubery et al., 1997).

In general, union priority for wage equity should contribute to the narrowing of the gender wage gap (Duguet and Petit, 2006). Its impact would directly depend upon its bargaining power. Meng and Reurs (2001) show for example that the gender wage gap is 7 percent smaller in Australian firms where unions are involved in the wage bargaining. Card et al. (2003) show that the union effects on wages tend to be larger for women than for men in Canada and in the U.K. Finally, Doiron and Riddel (1994) evaluate the impact of unionisation on the gender wage gap in Canada. They find that the gender differences in the non-union sector contribute more to the overall gender wage gap than those in the union sector. These different results concern Anglo-Saxon labour markers where a clear distinction exists between union and non-union workers. Within the French labour market, Leclair and Petit (2004) present results were 95 percent of the workers are covered by collective agreements. Therefore, their findings show the effect of union presence in an establishment. They find no clear evidence of the union impact on the gender wage gap in France.

According to Sap (1993), the union effect on the gender wage gap also depends on the relative bargaining power of women and men inside unions. A bargaining model of rent-sharing can illustrate how negotiations between a profit-maximizing firm and a union can result in gender wage differences. Since the equilibrium wage is a function of workers’ outside options, firm profit level and relative bargaining powers; gender differences in bargaining outcomes may follow gender differences in these parameters (Nekby, 2003).  

According to the theoretical model developed by Sap (1993), gender differences in the relative bargaining power of the workers may appear if the bargaining position of the union is mainly reflective of the male workers’ interests. In other words, the biased composition of the union may generate a more favourable bargaining outcome for men. Sap (1993) also indicates that female bargaining power follows women’s share of union leadership. At the individual bargaining level, differences in rent sharing can also arise if men are more proficient than women at bargaining over wages (Nekby, 2003). Finally, gender differences in relative bargaining power of the workers can be explained by the fact that male workers are more present in capital-intensive firms. This explanation, based on Katz and Summers (1989)

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3 See section 2.2 on collective bargaining models in the wage-setting process and on rent-sharing models for more details.
argument, implies that workers in higher capital-intensive industries have more power to extort rents during wage bargaining.

3.3 Gender Theories

Whether through human capital factors, sex segregation or discrimination, the different theories presented above offer valuable constructs explaining the gender-based wage gap. However, within most of these frameworks, non-economic issues, pre-market choices and forms of behaviour are not always fully incorporated. Moreover, individual rational decisions and larger social institutions may not be precisely articulated in the above mentioned theories to adequately explain gender differences in productivity (Humphries, 1995). However, gender theories do consider exogenous non-labour market variables neglected by the other theories. For example, a gender analysis also includes social expectations about women’s roles as wives and mothers into the structures that govern women wage setting (Anker, 1997).

Although the division of theories does not exclude some overlapping, gender theories distinguish themselves by attaching greater value to social and legal constraints, which weighs on individual choices. In this perspective, the human capital endowment or employment choices are more likely to be considered as the result of discrimination and gender inequality (Becker, 1971) than women’s deliberate rational preferences (Polachek, 1981). Choices made before entering the market influence the gender wage gap. All the discussion turns around the ways these choices are made. If women are confronted to pre-market constraints regarding their occupation or their choice of studies, they are victims of discrimination without taking into account any price effects. Not to mention that labour market discrimination could also have “feedback effect” on these same choices (Bergmann, 1989; Humphries, 1995). Indeed, the unfavourable situation in the labour market can itself influence the investment choices made in human capital and give an incentive to favour the husband’s career in the household (Blau et al., 1998). As a consequence the gender wage gap results from an interwoven combination of women’s choices and constraints which are both subjected to discriminatory forces.

Another dimension of gender theories concerns its specific contribution to the segmentation theory. Hartmann (1976) and Rubery (1978) consider for example that the working class men as the employers benefit from discrimination. The segmentation of women in low paying sector may therefore be the result from circumstances specific to both male workers and employers.
Gender theories try after all to better understand the forces behind the segmentation of the labour market which result in a gender pay differentials. One path consists in focusing on the historical, geographical and organizational dimensions of the wage-setting process to define the labour market segments (Peterson and Lewis, 1999). Another path concentrates on the sociological aspect of the discrimination process, especially on the balance between the organizational and market forces behind pay and occupation assigning (Bridges and Nelson, 1989).

Overall, gender theory consider new explanations to the issue of gender and social forces. There is also an emphasise that economic institutions do not form themselves independently from gender (Peterson and Lewis, 1999). Hence, the place of women within the labour force does not only result from economic rationales and discriminatory attitudes but also from psychological forces and the societal perception of gender. Gender comes up in the gendered division of the labour through both the definition and value of occupations (Acker, 1990). All in all, the incorporation of multidimensional forces enables a more accurate perception of the labour market mechanisms, especially into the occupational classification and their pay scales. Finally, recent research also emphasise the importance of reproduction function and patriarchal relations in the dynamics behind discriminatory process and gender wage gap (Bruegel and Perrons, 1995).

4. Empirical Results

4.1 Inter-Industry Wage Differentials and the Gender Wage Gap: Evidence from European Countries

The aim of this first empirical section is to present how industry effects contribute towards the gender gap in European countries. We examine the interaction between inter-industry wage differentials and the gender wage gap in six European countries, i.e. Belgium, Denmark, Ireland, Italy, Spain, and the U.K. To do so, we rely on harmonised matched employer-employee data set, the 1995 European Structure of Earnings Survey.

We analyse with recent techniques, on a comparable basis, and from a European perspective: i) inter-industry wage differentials by gender, ii) the contribution of industry effects to the overall

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4 A version of this chapter has been published in 2007 in the *Economic and Social Review* (Vol. 38, No. 1). A version that focuses strictly on Belgium was published in 2002 in the *Brussels Economic Review* (Vol. 45, No. 2) and in 2006 in a collective book published by Palgrave Macmillan and edited by B. Mahy, R. Plasman and F. Rycx.
gender wage gap, and iii) for both sexes, the relationship between collective bargaining characteristics and the dispersion of industry wage differentials.

Empirical findings show that, in all countries and for both sexes, wage differentials exist between workers employed in different sectors, even when controlling for working conditions, individual and firm characteristics. We also find that the hierarchy of sectors in terms of wages is quite similar for male and female workers and across countries. Yet, the apparent similarity between male and female industry wage differentials is challenged by standard statistical tests. Indeed, simple t-tests show that between 43 and 71% of industry wage disparities are significantly different for women and men. Moreover, Chow tests indicate that sectoral wage differentials are significantly different as a group for both sexes in all countries. Regarding the dispersion of industry wage differentials, we find that results vary for men and women, although not systematically nor substantially. Yet, the dispersion of industry wage differentials fluctuates considerably across countries. It is quite large in Ireland, Italy and the U.K., and relatively moderate in Belgium, Denmark and Spain. For both sexes, results point to the existence of a negative and significant relationship between the degree of centralisation of collective bargaining and the dispersion of industry wage differentials.

Finally, results indicate that the overall gender wage gap, measured as the difference between the mean log wages of male and female workers, fluctuates between .18 in Denmark and .39 in the U.K. In all countries a significant (at the .01 level) part of this gap can be explained by the segregation of women in lower paying industries. Yet, the relative contribution of this factor to the gender wage gap varies substantially among European countries. It is close to zero in Belgium and Denmark, between 7 and 8% in Ireland, Spain and the U.K., and around 16% in Italy. Differences in industry wage premia for male and female workers significantly (at the .05 level) affect the gender wage gap in Denmark and Ireland only. In these countries, gender differences in industry wage differentials account for respectively 14 and 20% of the gender wage gap. To sum up, findings show that combined industry effects explain around 29% of the gender wage gap in Ireland, respectively 14 and 16% in Denmark and Italy, around 7% in the U.K. and almost no share in Belgium and Spain.

In conclusion, our results emphasize that the size of the gender wage gap as well as its causes vary substantially among European countries. This suggests that no single policy instrument is sufficient to tackle gender pay inequalities in Europe.
4.2 Rent sharing and the Gender Wage Gap in Belgium

In this second section we analysis, on the basis of a combination of two large-scale data sets, how rent sharing interacts with the gender wage gap in the Belgian private sector. Empirical findings show that individual gross hourly wages are significantly and positively related to firm profits-per-employee even when controlling for group effects in the residuals, individual and firm characteristics, industry wage differentials and endogeneity of profits. Our instrumented wage-profit elasticity amounts to approximately 6 percentage points and it is not significantly different for men and women. Of the overall gender wage gap (on average women earn 23.7% less than men), results show that around 14% can be explained by the fact that on average women are employed in firms where profits-per-employee are lower. Thus, results suggest that rent-sharing accounts for almost one-third of the overall gender wage gap. A straightforward policy implication is that closing the human capital gap between men and women (in particular, with respect to level of education, training and work experience) is likely to be insufficient to suppress the gender wage gap. Indeed, findings suggest that a substantial part of the gender wage gap is due to women’s segregation in less profitable firms.

In the first two chapters we have thus shown the existence of inter-industry wage differentials and rent-sharing. We have also separately shown their role in influencing the gender wage gap. These results may have some policy implications. First, our results suggest that an examination of the underlying reasons of dissimilar female and male workers’ concentration in different industry and establishment is central to narrowing the gender wage gap. Secondly, the relative importance of female segregation in explaining the gender wage gap probably suggests that equal pay legislation is not sufficient to close the gender pay gap. Equal opportunity policies should most likely come with equal pay legislation to de-segregate employment by gender. An element of equal opportunity policy would be “to encourage young girls to consider a wide range of occupational options, and to opt for science and technology, instead of caring, cleaning and catering” (Plantenga and Remery, 2006). Rubery and Smith (2006) have however noticed that raising the relative wage of female-dominated jobs might be more effective. They indeed fear that de-segregation will bring new types of segregation into the labour market (e.g. ethnic segregation). Finally, our results on the existence of a negative correlation between the degree of centralisation of collective bargaining and the dispersion of industry wage

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differentials suggests that wage policies may also be an appropriate tool to reduce the gender wage gap. For example, the effect of the sectoral segregation on the gender wage gap may be softened in a wage bargaining system that is more centralised.


In this last section we try to deepen the understanding of industry wage differentials, rent sharing phenomena and their potential connections.

To do so, it is our aim to shed light on the size, stability and causes of inter-industry wage differentials in Belgium by addressing four central questions: i) Are sectoral differences in pay a temporary phenomenon or do they persist over time ?, ii) Do they derive from sectoral differences in the unobserved quality of the labour force ?, iii) To what extent are they shaped by sectors’ ‘ability to pay’, i.e. profits ?, iii) What is the contribution of rent-sharing to observed industry wage differentials ? These questions have been investigated on the basis of a matched employer-employee data set covering the period 1995-2002. This data set derives from the combination of the Structure of Earnings Survey and the Structure of Business Survey. The former contains detailed information on firm characteristics (e.g. sector of activity, size of the firm, and level of wage bargaining) and on individual workers (e.g. gross hourly wages, bonuses, age, education, sex, and occupation). The latter provides firm- and sector-level information on financial variables (e.g. gross operating surplus).

Our findings show that substantial and persistent wage differentials exist among workers having the same observed characteristics and working conditions, but employed in different sectors. The best paying industry over the period 1995-2002 is the electricity, gas, steam and hot water supply sector. Depending on the period considered, the average worker in this sector earns \textit{ceteris paribus} between 27 and 31 per cent more than the average worker in the whole economy. At the top of the conditional wage distribution, we also find manufacture of coke, refined petroleum products and nuclear fuel (between +20 and 34 per cent), manufacture of chemicals and chemical products (between +11 and 12 per cent), and financial intermediaries (between +6 and 13 per cent). The hotel and restaurant sector is at the very bottom of the wage

\footnote{An extended version of this chapter has been submitted in September 2007 in Manchester School. It is currently available as a National Bank of Belgium Working Paper (No. 90, October 2006) and a DULBEA Working Paper (No. 06-14.RS, October 2006). A version that focuses strictly on the role of worker and employer characteristics in Belgium was published in 2007 in the Brussels Economic Review (Vol. 50, No. 1).}
scale: the average worker’s wage in this branch is *ceteris paribus* between 11 and 14 per cent lower than that of the average worker in the economy. At the bottom of the scale, we also find the manufacture of wearing apparel, dressing and dyeing of fur (between -11 and -13 per cent), retail trade (between -7 and -12 per cent), and manufacture of textiles (between -4 and -8 per cent).

Industry wage differentials may of course derive from the fact that the unobserved quality of the labour force is not randomly distributed across sectors. In other words, high-paying industries may simply be those in which the unobserved quality of the labour force is the highest. This potential explanation has been tested with Martins’ (2004) methodology. The latter consists in verifying, on the basis of quantile regressions, whether sectors with high average premia have even higher premia amongst high-paid workers. Empirical results show that the unoberved ability hypothesis may not be rejected. However, its contribution to observed industry wage differentials appears to be limited. The role of non-competitive forces can therefore not be neglected.

The most natural non-competitive explanation for the existence of industry wage premia is that they result from inter-sectoral variations in ‘ability to pay’, i.e. profits. This explanation has been tested using correlation coefficients and cross-sectional regressions. Results show that industry wage premia are significantly and positively correlated with industry profits, in all periods, both at the Nace two- and three digit level. They thus support the hypothesis that industry wage premia derive at least partly from heterogeneity in sectoral profits. Yet, they are consistent with several explanations going beyond the standard competitive model, including the efficiency wage theory and rent-sharing.

The importance of rent-sharing in the Belgian private sector and its contribution to observed industry wage differentials has been examined in the last section of this chapter. Empirical results show first that individual gross hourly wages are significantly and positively related to firm profits-per-employee, even after controlling for group effects in the residuals, individual and firm characteristics, industry wage differentials, and endogeneity of profits. The instrumented wage-profit elasticity estimated at the mean is equal to 0.063. However, workers at the top end of the wage distribution are found to receive a significantly larger share of profits than those at the bottom of the wage distribution. Further results show that substantial wage differentials are recorded between workers employed in different sectors even after controlling for rent-sharing. However, the proportion of significant industry wage premia decreases from
around 75 to 50 per cent. We also find that the dispersion in industry wage differentials drops by almost one-third when profits are taken into account. These findings suggest that rent-sharing accounts for a large fraction of industry wage differentials. Moreover, the presence of rent-sharing may have important policy implications. For example, its existence may affect the way new surpluses are divided between labour and capital. In parallel, it may also prevent an efficient allocation of employment by slowing down the hiring of new workers.

5. References


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