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Article

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ifo DICE Report

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Suggested Citation: Bastani, Spencer; Blumkin, Tomer; Micheletto, Luca (2017) : Gender Wage Gap and the Welfare-Enhancing Role of Parental Leave Rules, ifo DICE Report, ISSN 2511-7823, ifo Institut - Leibniz-Institut für Wirtschaftsforschung an der Universität München, München, Vol. 15, Iss. 2, pp. 3-7

This Version is available at:

<https://hdl.handle.net/10419/175003>

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The Gender Pay Gap

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Gender Wage Gap and the Welfare-Enhancing Role of Parental Leave Rules⁴

ABSTRACT

A large body of empirical evidence documents the gender variation in labour market outcomes. A major factor that contributes to persistent gender gaps in labour market performance is women's traditional role in the household. Child-related absences from work imply that women accumulate less job experience, are more prone to career discontinuities and, hence, suffer a motherhood penalty. We highlight how the fundamental gender-driven career/family conflict faced by workers in the labour market may create a normative justification for parental leave rules as a means to enhance efficiency and alleviate the gender pay gap.

1. INTRODUCTION

There is a voluminous body of evidence documenting gender variation in labour market outcomes, including differences in employment rates, working hours, earnings and job composition (in terms of sector, occupation type and scope). A recent survey by Olivetti and Petrongolo (2016) reviews the existing literature and points out that, despite a post-war convergence process, reflecting a host of supply side factors, including, medical advances (availability of birth control), human capital investment (access to higher education) and family-friendly policies (provision of affordable child care services and generous parental leave arrange-

ments), substantial gender differences in pay and employment levels still remain. In a cross-country analysis of gender differences in wages and employment, Olivetti and Petrongolo (2008) report of wage gaps ranging from 10 log-points in southern Europe to 30 log-points in the US and the UK, and employment gaps ranging from 10 percentage-points in the US and the UK to as high as 30-40 percentage points in southern Europe.

On March 8, 2017, the International Women's Day, designated by the UN to advocate for women's rights, The Economist released its fifth annual 'Glass Ceiling Index', which is a composite index measuring the chances of equal treatment faced by women in the labour market [the scale runs between 0=worst and 100=best]. The index accounts for a wide variety of factors including, inter-alia: educational attainment, workforce participation, pay, child-care provision, parental leave arrangements, business school applications and representation in senior positions. The OECD average score of 60 reflects substantial gender gaps. On average, merely 63 percent of women are in the workforce (the corresponding rate for men is 80 percent). The gender wage gap is around 15 percent on average, namely, women earn 85 percent of what men do. There is, notably, much variation across countries. Nordic countries, in which women are more likely than men to earn a college degree or to participate in the workforce, lead the developed world in gender equality (with an average score around 80). Japan and South Korea, in which women are consistently under-represented in management positions, on company boards and in the parliament, are lagging behind, at the other end of the spectrum (with a score around 25).

A major factor that contributes to persistent gender gaps in labour market performance is parenthood. Women, who traditionally take the lion's share of responsibility for the caring of children, tend to have less job experience, greater career discontinuity and shorter work hours, resulting in worse labour market outcomes. Indeed, there is now a growing empirical literature documenting the wage penalty associated with motherhood.

For women in the US, the average wage penalty associated with an additional child is around 5%, and persists even when workplace factors and education are controlled for [Waldfogel (1997), Budig and England (2001)]. Career interruptions and shorter work hours, typically associated with working mothers, are acknowledged as a key factor explaining gender differences in earnings [see, e.g., Bertrand et al. (2010), focusing on the workers in the financial and corporate



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⁴ The current paper is based on our earlier work in Bastani et al. (2016). Financial Support from Riksbankens Jubileumfond and the Jan Wallander and Tom Hedelius Foundation is gratefully acknowledged. The authors wish to thank participants in numerous workshops and seminars for their insightful comments. The usual disclaimer applies.

sector]. High-skilled mothers tend to compromise on part-time low-level jobs, rather than pursuing a professional challenging career, thereby trading-off compensation for workplace flexibility [see Blau and Kahn (2013) and Goldin (2014)].

Workplace flexibility reflects institutional arrangements in the labour market and prevailing norms, but is, to a large extent, shaped by government policy. A notable example is parental leave rules. Taking a broad perspective, they refer to the legal framework regulating the extent to which firms must grant their employees child-related absences from work. The most basic form of parental leave refers to the time parents are permitted to take off work in order to take care of a new-born child, but in many countries parental leave extends beyond the care of infants to encompass additional aspects of workplace flexibility, such as allowing parents to take time off work to care for an older child, or to take care of a sick child.

There are large differences across countries in terms of the generosity of parental leave, such as the duration of leave, the level of benefits, job protection features and eligibility [for a comprehensive recent survey see Rossin-Slater (2017)]. The United States has one of the least generous systems where the flexibility of labour contracts with respect to child-related absences is largely a decision made by employers. The federal Family and Medical Leave Act, which ensures that parents can leave their jobs for 12 weeks and then come back, does not apply to small firms with less than 50 employees. Parental leave in Europe, and especially in the Nordic countries, is significantly more generous. According to the Parental Leave Directive of the European Union (2010/18/EU), parental leave allowances in EU countries must be at least four months for each parent. A country with one of the world's most generous systems is Sweden where each parent has the legal right to be absent from work until the child is 18 months old. In total, Swedish parents are entitled to 480 days of government subsidised parental leave. Unclaimed days can be saved and used for parental leave spells up until the child is 8 years old. This is supplemented by generous sick-leave arrangements allowing parents to take up to 120 days off work per year for each sick child under the age of 12. In addition, parents in Sweden have the right to work 75% out of the normal (full-time) weekly working hours until the child is 8 years old.

The government can make use of parental leave rules as a means to regulate the extent of workplace flexibility. This may serve a dual purpose. First, when the labour market tends to underprovide flexibility, the government may restore efficiency by setting binding parental leave arrangements. Second, by extending the duration of parental leave and subsidising child-related absences from work, the government can promote redistributive goals via reducing the extent of gender pay gaps.

In this paper, we describe, in a non-technical manner, the normative justification for parental leave rules

in the presence of the fundamental gender-driven career/family conflicts faced by workers in the labour market presented in Bastani et al. (2016).

2. A SIMPLE SETUP

We consider a simple labour market setting with just the key ingredients necessary to make our point.⁵ There is an identical number of equally skilled female and male workers. Each worker is endowed with a fixed amount of time that can be allocated between work time and leisure. Workers derive utility from consumption and from the time spent with their children out of work (parental leave). Workers differ in their career/family orientation, which is reflected in the probability of taking parental leave. We simplify by assuming that workers can be either career-oriented (with a low-probability to take a leave) or family-oriented (with a high-probability to take a leave). We further assume that female workers exhibit, on average, a stronger family orientation than their male counterparts. This implies that there is a higher proportion of family-oriented workers among women. To facilitate our exposition, we will focus on the simple case in which gender and career/family orientation are perfectly correlated, namely, all female workers are family-oriented whereas all male workers are career-oriented.

We assume that the labour market is perfectly competitive. A typical labour contract offers the worker a given amount of (monetary) compensation and a given duration of parental leave. The latter captures in a simplistic form the extent of workplace flexibility. Free entry implies that firms break even in expectation. The compensation offered to a worker is equal to his/her expected output (which depends on the probability of taking a leave). The longer the duration of parental leave offered to a worker, the lower would be the compensation that he/she receives. Our setup thus captures in a simplistic form the fundamental tension between compensation and flexibility.

The variation in career/family orientation across workers affects both the demand and the supply side of the labour market. From the firms' perspective, a female worker, being more likely to be absent from work, is (in expected terms) less productive than an equally skilled male counterpart. From the workers' perspective, a stronger family orientation is reflected in a higher willingness to pay for additional flexibility (extended parental leave).

In the *laissez-faire* equilibrium, firms rely on gender-based tagging (statistical discrimination), namely, male and female workers are offered distinct labour contracts (specifying the amount of compensation and duration of parental leave). Each contract maximises the expected utility of the worker subject to his/her expected zero profit condition, i.e. subject to the constraint requiring firms to derive zero profits in expecta-

⁵ Our exposition will be non-technical. For those interested in the formal details, see Bastani et al. (2016).

tion by hiring that specific type of worker. Assuming that the individual utility function is quasi-linear in consumption, both female and male workers are offered an identical level of flexibility. However, male workers, who are less likely to be absent from work (and, hence, are perceived, ex-ante, to be more productive on expected terms), are offered a more generous compensation than their female counterparts.

Interpreting gender as a circumstance for which an individual worker should not be held personally responsible (see e.g. Fleurbaey 2008) implies that male and female workers who are identical in all other respects should be treated equally in the labour market. Evaluated through the lenses of this fairness requirement, the *laissez-faire* allocation appears to be discriminatory. Female workers strictly prefer the bundle associated with their equally skilled male counterparts (offering the same extent of flexibility but a higher level of remuneration).⁶

To create a more realistic benchmark framework for our analysis of the role of parental leave policies, we assume, in line with the current situation in most OECD economies, that the labour market is regulated by anti-discrimination legislation that prevents firms from gender-based tagging. With anti-discrimination legislation in place, firms cannot discriminate directly through gender-based tagging, such that they do it indirectly by offering workers a choice between two career paths: i) family-oriented jobs that offer greater flexibility with respect to child-related absences from work but a lower compensation, and, (ii) career-oriented jobs that demand longer work hours but offer a higher compensation. In equilibrium, workers self-select into the two career paths, according to their gender-driven family orientations.

The contract associated in equilibrium with female workers is identical to that offered to them under *laissez faire* (i.e. when firms are allowed to engage in gender-based tagging). In contrast, male workers are offered a contract that maximises their utility subject to the firm's expected zero profit condition, but also subject to a binding incentive-compatibility constraint, the latter requiring female workers to be indifferent between choosing their own bundle and mimicking (that is, choosing the contract intended for male workers).

The effect of the binding incentive-compatibility constraint is to distort the bundle intended for male workers, thereby creating an efficiency loss. In particular, in order to render mimicking less attractive for female workers, their male counterparts are offered a higher level of remuneration in exchange for a lower level of flexibility (namely, the duration of parental leave is lower than under *laissez faire*).

Before turning to discuss the equilibrium with a binding parental leave rule, one final remark is in order. The equilibrium in the presence of anti-discrimination legislation is similar to the separating equilibrium analysed by Rothschild and Stiglitz (1976) in their seminal paper on asymmetric information and adverse selection. Firms, prevented by anti-discrimination legislation from the possibility of engaging in gender-based tagging, behave as if they were unable to observe the gender of their employees. As is well known from Rothschild and Stiglitz's (1976) contribution, a pooling equilibrium in which both types of workers are offered an identical bundle cannot exist due to 'cream skinning'. Firms can always break a pooling contract and derive positive profits by offering a bundle (with lower flexibility and higher compensation) which would attract male workers only. Thus, by implication, anti-discrimination legislation cannot fully eliminate the gender pay gap by implementing a pooling allocation. Somewhat ironically, the imposition of anti-discrimination legislation does in fact increase the gender pay gap by raising the compensation offered to male workers (at the expense of reduced flexibility).

3. EQUILIBRIUM WITH A PARENTAL LEAVE MANDATE

In our framework, a parental leave mandate implies setting a lower bound on the duration of parental leave offered by firms in the labour market. Below we will focus on the consequences of setting the lower bound on the duration of parental leave at a level that is slightly above the amount prescribed, at the benchmark equilibrium, by the contract intended for male workers. As it turns out, the government can use parental leave arrangements, and in particular a parental leave mandate, to inject the 'missing' flexibility into the labour market, thereby correcting the market failure present in the benchmark equilibrium with anti-discrimination legislation.

The argument can be understood as follows. At the equilibrium with a parental leave mandate, female workers would still be offered their (efficient) *laissez-faire* contract. In contrast, male workers would be offered a new contract satisfying two properties: (i) the duration of parental leave is equal to the mandatory minimal duration set by the parental leave rule (the rule is binding); (ii) female workers are indifferent between choosing their own bundle and mimicking (the incentive-compatibility constraint associated with female workers is binding).

A notable implication of the binding parental leave rule is that free entry no longer eliminates profits in equilibrium. In particular, firms hiring male workers derive strictly positive profits in equilibrium. The reason is that the binding parental leave rule prevents a new firm from entering the market and offering a contract with a slightly lower duration of parental leave in exchange for a higher compensation, thereby luring male workers away from other employers while still

⁶ Notice that we extend the notion of equal treatment to encompass the two dimensions featured in the labor contract: compensation and flexibility. Equal treatment is, therefore, not confined to a narrow definition of an equal pay requirement but is measured in utility terms.

allowing the new firm to make positive profits on each male worker employed.

Assuming that firms' profits can be fully taxed away and rebated back as a universal lump-sum transfer to all workers, we can consider the equilibrium allocation in the presence of a binding parental leave rule supplemented by confiscatory profits taxation and a universal lump-sum transfer. This allocation entails cross-subsidisation from male to female workers.⁷ Female workers remain with their efficient amount of flexibility but receive a lump-sum transfer, so they are unambiguously made strictly better off. In contrast, male workers gain, on the one hand, from enhanced flexibility (which mitigates the distortion that characterises the contract offered to them in the presence of anti-discrimination allocation), but lose, on the other hand, from the profits of taxation that essentially work like an income tax levied on them (seeing the firm's output as the workers' income). The net effect for male workers is therefore generally ambiguous, and depends on the specific parametric assumptions. However, one can provide a necessary and sufficient condition for male workers to gain, all-in-all, from the suggested policy reform and, hence, for a Pareto improvement to arise.

Our numerical analysis [see Bastani et al. (2016) for details] demonstrates that a Pareto improvement is indeed possible for a wide range of parameter combinations. It further shows that as the family orientation of female workers becomes stronger relative to their male counterparts, reflected in an increased probability to take a leave, the case for an efficiency-enhancing government intervention weakens. *Prima facie*, this property seems surprising as one might expect that, as the gender differences in the 'demand for workplace flexibility' become larger, the distortion that arises due to anti-discrimination legislation would increase, and thus the scope for government intervention would become larger. However, an increase in the likelihood of female workers to take a leave also affects the 'information rent' needed to maintain the allocation incentive-compatible. Providing male workers with additional workplace flexibility in exchange for reduced remuneration, leaving them equally well-off, renders career paths more attractive for female workers (who assign a higher value to flexibility), thereby making it more costly for the government to intervene. Our numerical analysis suggests that the second effect prevails.

⁷ In most OECD countries (the US being the exception) the government subsidises the child-related absences from work that are mandated by law. In Bastani et al. (2016) we also examine the normative implications of replacing the lump-sum system with a duration-dependent benefit system. With such an alternative benefit scheme, female workers stand to gain relative to their male counterparts due to their higher likelihood of absence. A subsidised parental leave can hence promote re-distribution by enhancing the extent of cross-subsidisation between male and female workers, thereby reducing the gender pay gap. In contrast, such a scheme cannot serve to mitigate the binding incentive-compatibility constraint associated with female workers in the benchmark equilibrium and hence cannot be justified on efficiency grounds.

Parental leave rules are often justified on efficiency grounds as a means to internalise externalities associated with fertility and demographic composition or with extended parental time with children at home. We have described a novel normative justification for imposing a binding parental leave rule, as a means for correcting the inefficiency entailed by anti-discrimination legislation.

Albeit our preceding argument focused purely on efficiency, one can notice that by counteracting the distortion generated by anti-discrimination legislation, a parental leave mandate reduces the gender pay gap. Next, we discuss in more detail the potential redistributive role of parental leave rules.

4. THE OPTIMAL DURATION OF PARENTAL LEAVE

Assuming that social welfare is given by a weighted average of the utilities derived by both types of workers (female and male), we now address the following normative question: what would be the socially desirable duration of parental leave?

Without being excessively unrealistic and in order to set the focus on the role played by parental leave rules in alleviating gender pay gaps, we will assume that the weight assigned to female workers in the social welfare function is higher than their respective share in the population. To analyse the optimal duration of parental leave, one has to account for the possibility of implementing either separating or pooling labor-market equilibria.⁸

In a separating equilibrium with a binding parental leave rule in place, and due to the fact that firms hiring male workers derive positive profits, the possibility to tax these profits and rebate them as transfers (either in a lump-sum fashion or per unit of time spent on leave) induces cross-subsidisation from male to female workers. Thus, extending the duration of parental leave further enhances the extent of cross-subsidisation and serves to promote gender equality.

In a pooling equilibrium, both types of workers are offered the same duration of parental leave. However, as female workers are more likely to take the leave, there is an induced cross-subsidization from male to female workers. That is, both types of workers are remunerated according to the average probability of taking parental leave, although female workers are more likely to do so. As in the separating case, extending the duration of parental leave under a pooling allocation enhances the degree of cross-subsidisation from male to female workers. Notably, a pooling equilibrium fully eliminates the gender wage gap associated with the motherhood penalty.

Comparing the optimal policy regimes associated with the separating and pooling equilibria provides

⁸ A pooling equilibrium is supported by the binding parental leave rule. The reason is that a binding parental leave rule prevents 'cream-skimming' by firms. See Bastani et al. (2016) for details.

three key policy insights:⁹ (i) the social optimum is always given by a pooling equilibrium; (ii) the optimal duration of parental leave is increasing in the weight assigned to female workers in the social welfare function; (iii) the optimal duration of parental leave is longer than the (efficient) duration of leave offered to both types of workers under the *laissez faire* allocation (and to female workers under the benchmark regime).

The welfare dominance of the pooling equilibrium hinges on the assumption that the government has a bias in favour of female workers. Relaxing this assumption, one can show that the social optimum would be given by a separating allocation. Extending the duration of the leave enhances the extent of cross-subsidisation, which becomes more desirable as the weight assigned to female workers in the social welfare function increases. The reason why both types of workers take more parental leave than the efficient amount reflects a typical equity-efficiency tradeoff. As a relatively high weight is placed on the well-being of female workers, extending the duration above the efficient amount increases social welfare. The higher duration of parental leave, which is more valued by female workers exhibiting a stronger family orientation, induces an implicit cross-subsidisation from male workers to their female counterparts.

5. CONCLUDING REMARKS

Despite a remarkable post-war convergence process, substantial gender differences in pay and employment levels are prevalent in most OECD countries. A major factor that contributes to the persistent gender gaps in labour market performance is women's traditional role in the household. Child-related absences from work imply that women tend to accumulate less job experience, are more prone to career discontinuity and typically compromise on part-time flexible non-professional jobs, resulting in a substantial motherhood wage penalty. Women are essentially trading off flexibility for compensation in order to reconcile household and work obligations.

Workplace flexibility is to a large extent shaped by government policy, with a notable example being parental leave arrangements. In this article, we have described a simple model that captures the fundamental gender-driven career/family conflicts faced by workers in the labour market and how it can be used to examine the normative justification for parental leave rules. We have focused on a competitive labour market regulated by anti-discrimination legislation that prevents firms from engaging in gender-based tagging, resulting in an under-provision of workplace flexibility and differences in wages between equally skilled men and women. In this setting, we have highlighted how parental leave arrangements can be a key policy tool to regulate the extent of workplace flexibility and serve a

dual purpose of correcting for the market failure associated with the under-provision of workplace flexibility and promoting redistributive goals by reducing gender pay gaps.

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⁹ See Bastani et al. (2016) for details.