Labour Economics 16 (2009) 589–597

Contents lists available at ScienceDirect

Labour Economics

journal homepage: www.elsevier.com/locate/econbase

Monopsonistic discrimination, worker turnover, and the gender wage gap ☆,☆☆

Erling Barth [1], Harald Dale-Olsen *

Institute for Social Research, P.O. Box 3233 Elisenberg, N-0208 Oslo, Norway

ARTICLE INFO

Article history:
Received 9 August 2007
Received in revised form 9 January 2009
Accepted 10 February 2009
Available online 28 February 2009

JEL classification:
J16
J31
J42
J63
J71

Keywords:
Gender wage gap
Monopsony

ABSTRACT

Motivated by models of worker flows, we argue in this paper that monopsonistic discrimination may be a substantial factor behind the overall gender wage gap. Using matched employer–employee data from Norway, we estimate establishment-specific wage premiums separately for men and women, conditioning on fixed individual effects. Regressions of worker turnover on the wage premium identify less wage elastic labour supply facing each establishment of women than that of men. Workforce gender composition is strongly related to employers' wage policies. The results suggest that 70–90% of the gender wage gap for low-educated workers may be attributed to differences in labour market frictions between men and women, while the similar figures for high-educated workers ranges from 20 to 70%.

1. Introduction

Modern labour economics does not give the theory of monopsonistic discrimination much credit as an explanation of gender differences in pay. In this paper, however, we identify gender differences in worker turnover patterns that provide employers with incentives to pay men and women differently. We show that the labour supply of men facing each establishment is more elastic than the labour supply of women.

Joan Robinson (1933) developed the idea of monopsonistic discrimination in the labour market. The idea is simple: a single buyer, a monopsonist, sets wages below marginal revenue product. The more inelastic the labour supply, the lower are wages relative to productivity. By differentiating wages between groups with different elasticities of labour supply, the monopsonist may obtain higher profits. Robinson suggests gender as one of the dimensions along which the employer may discriminate. If female labour supply is more inelastic than male labour supply, women will earn less than men relative to their productivity, and thus face a higher level of exploitation in the labour market.

While some works argue in favour of monopsonistic discrimination[2], the general consensus now seems to be that this model does not add much to the understanding of the overall gender wage gap. This is true on both sides of the Atlantic: Jane Humphries (1995) writes "But this classic case (pure monopsony) seems to have little empirical purchase"[3], in the theoretical chapter of *The Economics of Equal Opportunities,* edited by herself and Jill Rubury. Blau, Ferber and Winkler (1998) write in a footnote "It seems likely,..., that the monopsony explanation is more applicable to specific occupations and specific labour markets than to the aggregate gender pay differential." The model is refuted because single buyer situations are rare, but most

☆ An earlier version of this paper has been circulated as NBER working paper # 7197. The empirical part of the paper is, however, completely redone with panel data and more comprehensive methods. We thank Monica Galizzi, Claudia Goldin, the editor and the two anonymous referees for helpful and constructive comments and suggestions. We acknowledge financial support from the Norwegian Research Council, grants No. 124582/510 and No. 173951/S20. Erling Barth thanks Harvard University and NBER for their hospitality during parts of this work. This work has also benefited from the research environment at ESOP, Department of Economics, University of Oslo.

☆☆ The data used in this study are micro data received from Statistics Norway by consent of the Data Inspectorate, to be used for specified research projects at the Institute for Social Research. The Institute for Social Research is therefore not in a position to make these data available to other users, but Statistics Norway may allow access to the data, subject to approval of an application. Access from outside Norway will normally not be allowed. However, in such cases Statistics Norway may allow access via statistical agencies in the country in question, provided they operate with sufficient guarantees of confidentiality.

* Corresponding author. Tel.: +4723086134.
E-mail addresses: eba@socialresearch.no (E. Barth), hdo@socialresearch.no (H. Dale-Olsen).
[1] Tel.: +4723086163.

0927-5371/$ – see front matter © 2009 Elsevier B.V. All rights reserved.
doi:10.1016/j.labeco.2009.02.004

[2] See for example Madden (1973). Also, several studies report evidence consistent with such behaviour in particular labour markets (Ferber et al., 1978; Booton and Lane, 1985; Ransom, 1993; Bratsberg et al., 2003). Winter-Ebmer (1995) finds that wages and job opportunities of married women react negatively to spatial monopsony indicators.

[3] She does, however, add, "women are more constrained than men in choice of employer" and "may face an effective monopsonist, in contrast to men who can travel further and be available more flexibly".

importantly, since female labour supply is found to be at least as elastic as that of male labour supply.

More recent theoretical developments have revitalised the concept of monopsony in the labour market.[4] Among the theoretical works, the analyses of job-to-job flows within a search theoretic framework by Burdett and Mortensen (1998) and Manning (2003) have established the idea that each single firm or establishment faces its own individual labour supply curve. The point is that workers quit endogenously, and have to be replaced by new hires. The higher the wage, the fewer the quits and also the easier it is to attract replacement hires. We analyse Robinson's idea of monopsonistic discrimination within a modern model framework based on the dynamics of labour supply to each firm. In the dynamic monopsony model, differences in the exogenous quit rate or in the probability of receiving a job offer produce incentives for monopsonistic discrimination.[5]

Several conditions have to be met in order for the model of monopsonistic discrimination to work. One is that employers should be able to distinguish between men and women in the wage setting process. We argue that even in the absence of pure wage discrimination – unequal wages for equal work – employers may distinguish between jobs with uneven gender composition.[6] Lucifora and Reilly (1990) show that female-dominated occupations pay less than male-dominated occupations. Meyerson-Milgrom et al. (2001) conclude that there are very small wage differences between men and women within finely defined job-cells in the same establishment. Gender differences arise across jobs or occupations and establishments.

Next, the labour supply curve of women has to be less elastic than the labour supply curve of men. This is the very point on which the model of monopsonistic discrimination has been scrapped. It seems that female labour supply is equally, or more, wage sensitive than men's labour supply. However, this observation is made at the margin of the labour force; i.e. on the participation decision of men and women. An important point for our study is that even if the aggregate labour supply of women is more wage sensitive than the aggregate labour supply of men, the labour supply of women *facing each establishment* may be less wage sensitive than the labour supply of men facing each establishment. The main reason is that the labour supply facing each establishment also depends crucially on job-to-job search by employees in own and other establishments. The burden of proof then shifts from participation decisions to turnover behaviour.

However, several studies reveal that women's turnover is actually similar to that of men's, once appropriate control is included (e.g. Blau and Kahn, 1981; Galizzi, 2001; Viscusi, 1979). Even in Manning's book on monopsony, he writes about gender discrimination in the labour market and gender differences in the elasticity of worker turnover with respect to wages that "the gender differences that we have identified in previous sections do not show up in these estimated elasticities. Whether this is because this approach to estimating elasticities is not very informative or because the total effect of the gender differences in constraints and motivation is small, is an issue that deserves further consideration" (Manning, 2003:208).

The main empirical contribution of our paper is to show that once we rinse the wage measure used in turnover regressions for worker differences in qualification and outside options, the estimated labour supply of women facing each employer is less wage elastic than the supply of men.[7] Thus we provide strong support for the idea that employers have an incentive to apply monopsonistic discrimination against women in their wage policies. We use establishment fixed effects as measures of the establishments' wage policies, and distinguish between demand and supply effects by using instruments for the establishments' wage policy. Next, we show that the establishments' gender composition is closely related to the establishments' wage policies. Finally, we estimate the amount of the observed gender wage gap that may be attributed to frictions and monopsonistic discrimination.

Our study is not, however, the only one providing evidence supporting the model of monopsonistic discrimination. Using data on high school and college graduates, Bowlus (1997) identifies higher labour market frictions for women than men. Her study was the first to apply an equilibrium search model on gender wage differentials. Bowlus finds that the differences in search parameters explain 20–30% of overall male–female wage differentials of high school and college graduates.

Related evidence has also been presented by Green, Machin and Manning (1996) and Manning (1996). Green et al. (1996) identify higher size-wage effects for women than for men, an observation which is consistent with a model of monopsonistic discrimination in the labour market. Manning (1996) analyses relative female employment following from the large rise in the relative earnings of women in the UK after the Equal Pay act of 1970 was passed. He attributes the observation that female relative employment did not fall, to monopsony in the female labour market. Differences in turnover behaviour between men and women are identified in several studies. Loprest (1993) finds that young women have on average less than 50% of the wage growth of young men when changing jobs. Sicherman (1996) finds that, at low levels of tenure, women have higher rates of departures than men do, but as tenure rises, women were less likely than men to leave the firm. The evidences of Pissarides and Wadsworth (1994) (UK) and Keith and McWilliams (1999) (US) suggest that there are gender differences in search behaviour and job-to-job search intensity.

The paper is structured as follows. Section 2 presents a theoretical model of monopsonistic discrimination. Section 3 presents the empirical specification, while Section 4 describes the data. Section 5 reports results from separation and excess turnover regressions. In Section 6 we analyse the relationship between gender workforce composition and wage differentials between men and women, as well as establishment-specific wage premiums for each gender. Section 7 studies the importance of search frictions and monopsonistic discrimination for the gender wage gap. Section 8 concludes the paper.

2. A theory of monopsonistic discrimination

In this section we develop a model of monopsonistic discrimination based on the standard models of job-to-job search and equilibrium wage distribution of the Burdett and Mortensen (1998) and Manning (2003) type. We consider an economy consisting of two labour inputs, $j = 1,2$, and where the employers may freely set wages for each type of labour. We assume that the two types of labour operate in completely segregated labour markets, which means that they draw wage offers from separate distributions. Under this assumption, we may think of the two groups as men and women, or

[4] See, e.g., Boal and Ransom (1997), Bhaskar and To (1999), Bhaskar, Manning and To (2002) and Manning (2003).

[5] Green, Machin and Manning (1996) show in a dynamic monopsony model that the elasticity of wages with respect to employer size is increasing in the ratio of exogenous quits to the arrival rate of jobs. Both Black (1995) and Bowlus and Eckstein (2002) develop equilibrium search models associating discrimination with the presence of a disutility taste factor on the part of employers. Particularly, Bowlus and Eckstein use a similar model framework as ours, where in their model, differences in job arrival rates follow from employers' disutility factor.

[6] Employers hardly employ a separate wage policy for each gender. It is not legal for a firm to pay men and women differently within a job. It is hardly the practice to do so either (see eg. Meyerson-Milgrom et al., 2001). As suggested by a referee, employers may also discriminate by creating different job titles when they hire women or men. We expect such behaviour to be constrained by other determinants of the job structure within establishments as well as considerations related to the gender of future replacement hires.

[7] We use the terms firm, employer and establishment interchangeably throughout. In the empirical analysis, an establishment is defined by an unique employer and location identification (see Section 3 for a discussion).