The effect of job flexibility on female labor market outcomes: Estimates from a search and bargaining model[☆]

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ABSTRACT

In this article, we develop a search model of the labor market in which jobs are characterized by work hours' flexibility. Workers value flexibility, which is costly for employers to provide. We estimate the model on a sample of women extracted from the CPS. The model parameters are empirically identified because the accepted wage distributions of flexible and non-flexible jobs are directly related to the preference for flexibility parameters. Results show that more than one-third of women place a small, positive value on flexibility. Women with a college degree value flexibility more than women with only a high school degree. Counterfactual experiments show that flexibility has a substantial impact on the wage distribution but a negligible impact on the unemployment rate. These results suggest that wage and schooling differences between males and females may be importantly related to flexibility.

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1. Introduction

Anecdotal and descriptive evidence suggests that work hours' flexibility, such as the possibility of working part-time or choosing when to work during the day, is a job amenity women particularly favored when interviewed about job conditions.[1] On average, women spend more time than men in home production and child-rearing and less in the labor market.[2] In this paper, we measure women's preference for job flexibility and its effects on labor market outcomes by estimating the parameters of a search and matching model of the labor market with wage bargaining. We show how preferences for flexibility affect labor market outcomes and the shape of the accepted wage distribution. Finally, we assess the welfare and labor-market implications of policies favoring job flexibility.

We describe the model in Section 3. Jobs can be flexible or not, and flexible jobs are more expensive to provide.[3] Workers have preferences for wages and flexibility and meet with firms to bargain over these dimensions. Wage heterogeneity arises from the bargaining process as a result of idiosyncratic match-specific productivity and heterogeneity in preferences for flexibility. We show that because of search frictions, the wage differential between flexible and non-flexible jobs is not a pure compensating differential.[4]

In Section 4 we discuss the identification of the model parameters with data on wages and job flexibility. The model predicts wage distributions for flexible and non-flexible jobs. To provide intuition for the parameter identification, we show that if all the workers have the same preferences for flexibility then the accepted wage distributions of flexible and non-flexible jobs have

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[1] See, for example, Scandura and Lankau (1997).

[2] For example, using the 2008 March Current Population Survey (CPS), a representative sample of US workers, we find that more than 20% of women with a college degree work less than 30 h per week, while only 1.6% of men in the same demographic group do so. Data from the 2008 American Time Use Survey show that women spend approximately 60% more time than men do in family-related activities during the work day. Women also generally choose jobs with a more flexible working schedule (Golden, 2001).

[3] This cost can be justified on the grounds that flexibility may require hiring a higher number of workers, which implies greater search and training costs. In addition, flexible schedules make it more difficult to coordinate workers engaged in a common task.

[4] It is a compensating differential only for the marginal worker that who is indifferent toward the dissimilarity between a flexible and a non-flexible job.

non-overlapping supports. The size of the gap is measured by the monetary value of the preference for flexibility, which is equivalent to the compensating wage differential paid to the worker that marginally rejects a flexible job over a non-flexible job. Preferences for flexibility also imply a wider support of the wage distribution of flexible jobs. The firms' cost of providing flexibility is also identified because a higher cost implies fewer flexible jobs in equilibrium.

We describe the data in Section 5. Working hours' flexibility includes both the possibility of working fewer hours and the option of organizing the working hours in a flexible way. Some papers focus on the first type of flexibility by studying part-time work and hours–wage trade-offs.[5] Data limitations make it difficult to study the second type of flexibility. Although our model and estimation method apply to a general definition of flexibility, our data force us to approximate flexible jobs as part-time jobs. In the empirical implementation, we define a job as flexible when the worker provides less than 35 h of work per week.

Section 6 describes our estimation strategy. Our estimation approach uses a simulated method of moments to minimize a loss function that includes several moments of the wage distributions of flexible and non-flexible jobs and moments of the distribution of unemployment durations. The parameter estimates show that approximately 37% of college-educated women have a positive preference for flexible jobs, valued between 1 and 10 cents per hour, but only about 20% of them choose such jobs in equilibrium. The value of flexibility for women with at most a high school degree is estimated to be equal to or less than 2.5 cents per hour.

The structural-model estimates allow us to evaluate policy interventions, which we present in Section 8. We assess the welfare effects of the flexibility option by comparing our estimated model with an environment in which flexibility is not available. Next, we analyze a policy that reduces the cost of providing flexibility. Because of equilibrium effects, if flexibility is more costly or not available, some individuals observed in flexible jobs might decide to work in non-flexible jobs, whereas others might decide to remain unemployed. These workers preferences and productivities are relevant to assess each policy's overall labor market effect. Search frictions and preferences over job amenities also imply that policy intervention may improve welfare because the compensating differentials mechanism is only partially at work.[6]

These counterfactual experiments suggest that flexibility has a large impact on the accepted wage distribution. However, the impact on overall welfare and unemployment is very limited. This implies that if men had significantly lower preferences for flexibility – as some anecdotal evidence seems to indicate – then these policies would have the potential to reduce the gender wage gap without significantly affecting overall welfare.

2. The existing literature and our contribution

A vast amount of literature estimates the marginal willingness to pay for job attributes using hedonic wage regressions.[7] Various authors have recognized the limitation of the static labor market equilibrium that provides the foundation for this approach. One alternative approach, the use of dynamic hedonic price models (see, e.g., Topel, 1986), maintains the static framework assumption of a unique wage at each labor market for given observable variables.

However, if there are frictions that make the market noncompetitive, hedonic wage regressions produce biased estimates. The bias arises for two reasons. First, flexibility is a choice; therefore, a selection bias may arise if we do not observe the wage that workers choosing flexible jobs would receive had they chosen a different type of job. This bias can be identified by observing the wage pattern of workers that make different flexibility choices over their career, but few workers change their flexibility choice over their lifetime. Moreover, it is crucial in this approach to control appropriately for job market experience, but it is difficult to do so if experience is a choice that is affected in part by preferences for flexibility. Our approach is to model the selection so that parameters can be identified by the entire shape of the distributions of wages and unemployment durations.

The second type of bias arises because in hedonic wage models the compensating differential mechanism is working perfectly so that the conditional wage differential is a direct result of preferences. Hwang et al. (1998) construct a search model of the labor market showing how frictions interfering with the compensating differential mechanism may bias the estimates from an hedonic wage model. The bias may be so severe that the estimated willingness to pay for a job amenity may have the wrong sign. In a hedonic wage model, a job amenity is estimated to convey positive utility only if the conditional mean wage of jobs with the amenity is lower than the conditional mean wages of jobs without the amenity. However, in an environment with on-the-job searching and wage posting, firms may gain positive profit by offering both a higher wage and the job amenity because doing so will reduce worker turnover. The observed wage distribution may then exhibit a positive correlation between wages and the job amenity even if workers are willing to pay for it.[8]

In our model, we obtain a similar outcome without on-the-job searching and wage posting as a result of bargaining. When workers and employers meet, they observe a match-specific productivity draw and then engage in bargaining over wages and job amenities. The relationship between productivity and wages depends on preferences for the job amenity in two ways: directly, because of the compensating differential, and indirectly, because of the value of the outside option, which plays a crucial role in the bargaining process.

The impact of part-time or, more generally, of hours-wage trade-offs using hedonic wage models has been extensively studied. Moffitt (1984) is a classic example, providing estimates of a joint wage-hours labor supply model. Altonji and Paxson (1988) focus on a labor market with hours-wage contracts, concluding that workers need additional compensation to accept unattractive working hours. Blank (1990) estimates large wage penalties for working part-time, using CPS data, but suggests that selection into part-time is significant and that the estimates are not very robust.

There exist very few attempts at estimating models with frictions capable of recovering preferences. To our knowledge, none of these focus on estimating the value of job amenities. Blau (1991) estimates a search model in which utility depends both on earnings and on weekly hours worked. The main focus of this paper is on testing the reservation wage hypothesis. Bloemen (2008) estimates a search model with similar preferences to evaluate the difference between desired hours and actual hours worked. Blau's and Bloemen's approaches also differ from ours in that they assume

[5] See, for example, Altonji and Paxson (1988) and Blank (1990).

[6] Hwang et al. (1998) and Lang and Majumdar (2004) prove this argument formally.

[7] Rosen (1974) provides one of the first and most influential treatment of the issue. See Rosen (1986) for a more recent survey.

[8] Usui's (2006) application to hours worked confirms their results. Lang and Majumdar (2004) obtain a similar result in a nonsequential search environment. Gronberg and Reed (1988) study the marginal willingness to pay for job attributes, estimating a partial equilibrium job search model on job durations. Their approach differs from ours because they do not use flexibility or hours worked among the job attributes and they do not attempt to fit the wage distribution.