



Gender wage gaps and risky vs. secure employment: An experimental analysis[☆]

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ARTICLE INFO

JEL classification:

J16
J24
J31
C91
D81

Keywords:

Occupational choice
Gender wage differentials
Risk aversion
Lab experiment

ABSTRACT

In addition to discrimination, market power, and human capital, gender differences in risk preferences might also contribute to observed gender wage gaps. We conduct laboratory experiments in which subjects choose between a risky (in terms of exposure to unemployment) and a secure job after being assigned in early rounds to both types of jobs. Both jobs involve the same typing task. The risky job adds the element of a known probability that the typing opportunity will not be available in any given period. Subjects were informed of the exogenous risk premium being offered for the risky job. Women were more likely than men to select the secure job, and these job choices accounted for between 40% and 77% of the gender wage gap in the experiments. A method for classifying subjects according to risk preferences is derived from the theoretical framework and further demonstrates the higher incidence of risk aversion among women.

1. Introduction

Gender wage gaps have been the subject of an extensive number of empirical studies primarily focused on field data generated by naturally occurring labor markets. The fundamental conceptual bifurcation of the gender wage gap is between discrimination and human capital. Discrimination can arise from three distinct sources: Becker tastes and preferences, market power, and statistical discrimination. Consistent with all three theories of discrimination is a human capital explanation of gender differences in productivity endowments. Gender differences in occupational outcomes can clearly contribute to the gender wage gap. Some of this component of the wage gap can arise as a result of job segregation induced by tastes for discrimination by economic agents (Baldwin et al., 2001; Shatnawi et al., 2014). The remainder of the occupational outcome gap can arise from gender differences in preferences over various job attributes that are associated with compensating differentials.

One potentially salient job attribute is the risk of involuntary unemployment. Earlier research has revealed that rates of involuntary job loss are significantly higher among male employees than among female

counterparts (Blau and Kahn, 1981). Wilkins and Wooden (2013) argue that this phenomenon arises from the systematic differences in the types of occupations into which men and women choose. Depending on the distribution of risk attitudes pertaining to spells of unemployment, there will be some compensating differential that arises in the labor market. The degree to which men and women differentially sort themselves into risky vs. secure jobs has implications for the gender wage gap. A recent study examined this issue in the context of public vs. private sector employment and the gender wage gap (Jung, 2017). Unfortunately, in the naturally occurring labor market there are a host of factors that can be confounded with risk aversion given the multidimensional nature of the job package, e.g. family friendly policies, commuting distance, etc.

Numerous earlier studies using field data with the decomposition method suggest that there are unexplained wage gaps, i.e. Bayard et al. (2003); Hotchkiss and Pitts (2007); Oaxaca (1973), etc. On the other hand, a large body of experimental research provides evidence that women are more risk averse than men in a variety of contexts such as valuation of gambles and /or choices among gambles (Hartog et al. (2002); Levin et al. (1988))) and risky decisions within contextual environments such as investment and insurance

[☆] We gratefully acknowledge helpful comments from Alberto Dávila, Martin Dufwenberg, Jungmin Lee, Alston Mackenzie, Gary Solon, and from conference and seminar participants at the University of Arizona, Georgia State University, Kent State University, and the University of Paris I/Paris School of Economics. The authors would like to thank the Paris School of Economics for having funded this research. (Grant number: Fond de Recherche PSE 2014/2015-Dossier N4)

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(Gysler et al. (2002); Schubert (1999)). However, there is not an abundance of evidence that shows the direct link between gender differentials in risk attitudes and wage gaps.

To the best of our knowledge, this study is the first to use the laboratory to identify the potential role of risk aversion in explaining gender wage gaps in a setting in which we can abstract from a myriad of factors normally present in field labor markets, including labor market discrimination and competition aversion. Experiments are conducted in which subjects are given the opportunity to choose between two typings tasks differentiated only by the prospect of exogenous spells of unemployment. The risky task is accompanied by a wage premium. Gender gaps that arise in our experimental design can only come from gender differences in typing performance and job choices. Women were more likely than men to select the secure job, and wage decomposition analysis reveals that these job choices accounted for between 40% and 77% of the gender wage gap in the experiments.

Of course the laboratory experiments described in this paper are not intended to reflect population parameters in the naturally occurring labor market. Rather, the idea behind the typing task and the decomposition is to better motivate the relevance of the experiment to the naturally occurring labor market. Toward that end, we implement a design that allows for possible gender differences in the wage determining characteristics as well as gender differences in job choices where there is an element of earnings risk and a wage premium for assuming that risk.

2. Literature

Economists' recognition of the association between wages and job characteristics has a long history. Adam Smith argued in *Wealth of Nations* that wages could be determined by different characteristics of jobs such as risk (Smith, 1776). Since the time of Adam Smith, the theory of compensating wage differentials has been widely studied. Murphy et al. (1987) and Moore (1995) show that job sectors with higher unemployment and greater risk tend to have higher wages. Hence, job-sorting decisions may well vary with individuals' attitudes toward risk. More recent work such as Hartog et al. (2003) also shows that jobs with greater risk command higher wages, contributing to the theory of compensating wage differentials. Workers who are more willing to accept a certain number of dollars for a given increase in risk are more likely to choose to work in riskier jobs than those who are less inclined to make a trade-off between wages and risk. While job-sector choice is sensitive to differences in risk attitudes, it is *a priori* also strongly correlated with education decisions.

Depending on the individual's degree of risk aversion, risk averse workers place more value on employment stability while others who are less risk averse may prefer trading off stability against the higher wage (risk premium) in the private sector. This argument has been widely studied for decades. For example, Bellante and Link (1981) used the index of innate risk aversion measure (proxies such as insurance investment, seat belt use, etc.) and showed that the probability of choosing to work in the public sector increases as the degree of risk aversion increases. A recent study using the large scale German Socio Economic Panel found that risk averse workers tend to sort into public sector employment while risk taking is rewarded with higher wages in the private sector (Pfeifer, 2011). With the use of revealed risk preferences data, Buurman et al. (2012) validate the argument that public workers are significantly less likely to choose the risky option (lotteries).

Ekelund et al. (2005) use a psychometric variable measuring harm avoidance as an indicator of risk attitudes. They find that agents with a higher harm-avoidance score (i.e. less risk averse) are less likely to become self-employed, which is considered riskier than being employed as a wage earner. In an experimental study, Dohmen et al. (2005) show that measures of subjective risk attitudes, such as self-reported risk aversion and lottery questions, provide a valid predictor of actual risk behavior. Dohmen and Falk (2011) build upon these results and use self-reported risk aversion in the German Socioeconomic Panel to examine

whether risk preferences explain how individuals are sorted into occupations with different earnings variation. Pissarides (1974) presents a theoretical model explaining that risk-averse workers have lower reservation wages. Cox and Oaxaca (1989) suggest a negative relationship between the degree of risk aversion and the level of reservation wages and Cox and Oaxaca (1992) and Cox and Oaxaca (1996) re-validate the argument by experimental evidence on individual search behavior. This relationship is demonstrated empirically by Pannenberg (2007). Similarly, Goerke and Pannenberg (2012) show that there is a negative relationship between risk aversion and union membership.

Given that job sorting matters in terms of the position actually held in the labor market, there is good reason to wonder whether the job-sorting decision interacts with the gender disparity observed in the labor market. Although the gender bias in education has been reduced and the education gap between men and women has narrowed in recent decades (Arnot et al., 1999), there is still concern over the considerable wage gap and other kinds of gender-based discrimination in the labor market. In a move to explain these findings, Bertrand (2011), Croson and Gneezy (2009), Eckel and Grossman (2008), and Filippin and Crosetto (2016) argue that women may be more risk averse and less competitive than men. More interestingly for our question, Gneezy et al. (2003), Niederle and Vesterlund (2007) and Croson and Gneezy (2009) all suggest that differences in risk attitudes might partly explain the gender gap in labor-market outcomes. Similarly, Barsky et al. (1997), Dohmen and Falk (2011) and Bonin et al. (2007) show that job-sector selection and wages are correlated with risk attitudes.

In their seminal paper Niederle and Vesterlund (2007) seek to determine the relative importance of several factors - pure preference, over confidence, risk aversion, and feedback aversion in accounting for gender differences in preferences for competition.¹ The authors employ the vehicle of tournament entry to explore gender differences in competitiveness. Subjects are asked to choose between piece-rate and a tournament to determine the form of compensation for their prior performance in a noncompetitive task. In their findings, the gap in selection into a competitive environment is driven by men being more overconfident and by gender differences in preferences for performing in competition, but risk only plays a negligible role. In contrast, Dohmen and Falk (2011) find that part of gender differences can be attributed to differences in productivity and risk preferences. In a field experiment on aged 9–12 in Columbia and Sweden, it is observed that boys are more likely to prefer competition in general and more risk taking (Cardenas et al., 2012).

In our setting, subjects experience payment schemes corresponding to both a risky (in terms of exposure to unemployment) and a secure job, and then in the final stage subjects choose between the risky and the secure job. Therefore, our setting shares some similarities with the setting in Niederle and Vesterlund (2007) in that subjects experience both payment schemes and are asked to choose which payment scheme they prefer in the following round. However, because our research objective is different, our experimental design differs significantly in a couple of important respects from that found in Niederle and Vesterlund (2007). There is no element of competition in our design so that the focus can be entirely on gender differences in financially risky versus secure job environments and the implications of these choices for generating gender wage gaps apart from any productivity based factors.

¹ There is an extensive number of studies focusing on gender differences in competitiveness and confidence, as important sources of the gender wage gap (Buser et al., 2014; Croson and Gneezy, 2009; Kamas and Preston, 2012; Niederle and Vesterlund, 2007; 2011). However, unlike these studies, our paper focuses on gender differences in risk preference which will partly explain the wage gap by an experimental setting which does not contain any trace of competition.

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