



# Gender discrimination and self-employment dynamics in Europe

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## ABSTRACT

This paper examines the effect that gender-based earnings discrimination has on self-employment dynamics among females, with a focus on four countries in Western Europe. Using data from the European Community Household Panel in the 1999–2001 time period, we test the hypothesis that the probability of moving into self-employment is positively related to prior earnings discrimination, as measured by unexplained deviations from expected (male) earnings. Our findings suggest that women who have lower than expected wage sector earnings are more likely to leave wage employment in the following year. The results with respect to discrimination, per se, however, are mixed.

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## 1. Introduction

Over the past several decades, identifying the determinants of self-employment and entrepreneurship behavior has been an important topic in the labor economics literature. Researchers have sought to explain changes in self-employment rates over time, as well as differences in rates across demographic groups. Part of the motivation for these studies has been the fact that governments have pursued the promotion of self-employment as a strategy for reducing unemployment or for increasing labor force activity among disadvantaged groups in particular, including youth, immigrants, ethnic minorities, and women. It is therefore important to identify the factors that affect the choice between employment sectors. It is especially important to determine whether self-employment is a desirable move “upward” for workers, or whether it is a second choice for those dissatisfied in the wage and salary sector. One source of dissatisfaction could be wage or salary earnings less than “expected,” as compared with other workers.

In the present paper we examine this question for the case of women. In particular, we focus on gender-based earnings discrimination as a source of the dissatisfaction that could lead women to choose self-employment. Our hypothesis is that women who have earnings less than predicted according to male returns in one period will be more likely to choose self-employment in the following period.

We examine the hypothesis using data for four European nations, from the European Community Household Panel survey

(ECHP) for the 1999–2001 time period. Our analysis yields mixed results, with a strong effect of deviations from expected female earnings, but less strong results for deviations from male earnings, depending on the model estimated.

The paper is organized as follows: Section 2 presents a brief summary of recent papers focusing on the role of earnings in explaining sectoral choice. Section 3 presents the rationale for the hypotheses studied, while Section 4 describes the methodology and data used in the study. Results are presented in Section 5. Conclusions and topics for further research are presented in Section 6.

## 2. Previous work

Previous empirical analyses have identified several factors related to the self-employment versus wage and salary employment decision, including the individual’s preferences for income and risk, entrepreneurial ability, wealth, marginal tax rate, skill level, and various other personal characteristics.<sup>1</sup> Studies focusing on female self-employment in particular also include variables related to marital status and the presence or ages of children, with child caring behavior studied as well. These factors are related to the perceived greater degrees of autonomy and job flexibility in self-employment.<sup>2</sup>

The most obvious factor related to the choice between self-employment and wage and salary work is the relative earnings expected in each of the respective sectors. Bernhardt (1994), using

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<sup>1</sup> See Parker (2004) for a survey of the literature.

<sup>2</sup> See, for example, Boden (1999), Carr (1996), Connelly (1992), Hundley (2000), and Hildebrand and Williams (2003).

a sample of Canadian white males, finds that relative potential earnings is the dominant factor in determining the probability of employment in the self-employment sector.<sup>3</sup> This finding has been confirmed by many others, including Rees and Shah (1986) and Taylor (1996) for the UK, Clark and Drinkwater (2000) for England and Wales, Johansson (2000) for Finland, and recently Hammarstedt (2006) for Sweden.

The relative earnings (actual or predicted) between wage sector employment and self-employment is determined both by the wage earned in the wage sector and the earnings in the self-employment sector. Gender based earnings discrimination in the wage sector can therefore impact the sectoral choice, depending on the existence and extent of customer discrimination in the self-employment sector (Borjas and Bronars, 1989). This relationship has been studied most explicitly by Leung (2006).<sup>4</sup> Using data from the Canadian Survey of Labor and Income Dynamics, he finds that the male/female log-earnings gap is larger in self-employment than in wage employment, but that the unexplained wage gap is larger in the wage sector. His estimates suggest that gender based discrimination in the wage sector leads to an increase in the self-employment rate of women. Hammarstedt (2006) arrives at a similar conclusion, but for immigrants, in Sweden.

Another paper related to the present analysis examines the effect that deviations from expected earnings in the wage sector have on the probability of self-employment among men (Anderson and Wadensjo, 2008). They hypothesize that workers who are “underpaid” (that is, have earnings less than expected compared with other men) in a given period will be more likely to make the transition to self-employment in the following period. Using Swedish register data for the 1998–2002 period, they estimate probit equations for the probability of self-employment, including dummy variables indicating whether the worker is underpaid or overpaid (“high achievers”) as independent variables, allowing for a non-linear effect. Their results suggest that both groups (underpaid and overpaid) are more likely to make the transition to self-employment than the reference group.

This paper examines the effect of gender earnings discrimination using a method similar to that of Andersson and Wadensjo. Our approach allows us to differentiate, however, between the variations in earnings resulting from discrimination and that resulting from under or overpayment as in their paper, thereby extending their analysis. One advantage to this approach, over that of Leung for example, is that we are not required to use self-employment earnings information, which can suffer from measurement error (see Footnote 2).

### 3. Wage discrimination and sector choice

Standard economic models suggest that the choice between self-employment and working in the wage and salary sector depends on several factors.<sup>5</sup> First is the expected gross return in self-employment, which might depend on the choice of occupation

<sup>3</sup> One weakness of that analysis (and others like it) is its reliance on estimates of self-employment income, which can be suspect given the unallocated returns to capital as opposed to labor and the higher propensity of the self-employed to understate income. The present paper does not suffer from this criticism, as its methodology does not require estimates of self-employment income.

<sup>4</sup> Another paper which studies explicitly the relationship between gender discrimination and the level of female self-employment, but using a very different approach, is Rosti and Chelli (2005). Other work related to discrimination and self-employment tends to focus on the effect that discrimination has on the incomes of the self-employed (e.g., Borjas and Bronars, 1989; Coate and Tennyson, 1992).

<sup>5</sup> Again, see Parker (2004) for examples of models of the choice of sector. Sectoral choice is closely related to other labor market decisions, including whether to work part-time or full-time, whether to work at more than one job, whether to work at home. The joint nature of these decisions is ignored in this analysis.

or industry of self-employment, coupled with perceived managerial and entrepreneurial abilities of the worker. Second are costs of capital and other inputs necessary for self-employment. These factors are weighed against the expected wage that can be earned in wage and salary sector employment. Finally, adjustments must be made for the preferences of the worker, such as the desire for autonomy, and the degree of risk aversion. The worker is assumed to choose the sector that maximizes expected lifetime utility. Transitions between the sectors arise over time as a result of receipt of new information represented by changes in any of the values of the variables noted above. The realization that one’s wage and salary earnings are not as high as expected, for example, may increase (*ceteris paribus*) the probability that an individual will move into self-employment from the wage and salary sector. We hypothesize that gender based wage discrimination, which decreases the expected wage for women in the wage and salary sector, will lead to an increase in the rate of transition to self-employment among women.

It must be noted, however, that the above is true only to the extent that we can assume that gender based wage discrimination is not correlated with any gender discrimination in the self-employment sector. In general the literature considers these to be based on employer and customer preferences, considered quite separate for this purpose, so we are confident in making this assumption.

### 4. Methodology and data

Suppose the (log) wages of females and males in the wage and salary sector are determined by the following wage equations:

$$\mathbf{W}_{iF} = a_F + \mathbf{b}_F \mathbf{X}_{iF} + e_{iF} \quad (1)$$

and

$$\mathbf{W}_{iM} = a_M + \mathbf{b}_M \mathbf{X}_{iM} + e_{iM} \quad (2)$$

where  $\mathbf{X}_F$  and  $\mathbf{X}_M$  are vectors of worker, firm, and industry characteristics for females and males, respectively,  $a$  is a constant term,  $\mathbf{b}$  is a vector of regression coefficients, and “ $e$ ” represents an individual-specific random error. Then inserting the mean values of the  $\mathbf{X}$ s, the average log wages are given by

$$\mathbf{W}_F = a_F + \mathbf{b}_F \mathbf{X}_F \quad (3)$$

and

$$\mathbf{W}_M = a_M + \mathbf{b}_M \mathbf{X}_M \quad (4)$$

Let  $\mathbf{PW}_{iF}$  and  $\mathbf{PW}_{iM}$  represent the expected (predicted) wages for an individual female  $i$  with a given set of values of characteristics,  $\mathbf{X}_i$ , using the female and male wage equations, respectively:

$$\mathbf{PW}_{iF} = a_F + \mathbf{b}_F \mathbf{X}_i \quad (5)$$

$$\mathbf{PW}_{iM} = a_M + \mathbf{b}_M \mathbf{X}_i \quad (6)$$

That is,  $\mathbf{PW}_{iF}$  is the wage a female would expect to earn in the wage and salary market, given her characteristics  $\mathbf{X}_i$ , and  $\mathbf{W}_{iM}$  is the wage the same female would expect to earn in the wage and salary market if she were treated as a male. Let  $d_{iF}$  and  $d_{iM}$  be the deviations of a female’s observed earnings ( $W_i$ ) from the expected earnings ( $d_{iF} = W_i - \mathbf{PW}_{iF}$ ,  $d_{iM} = W_i - \mathbf{PW}_{iM}$ ). Note that  $d_{iF}$  is the same as the error term in the individual female wage equation ( $=e_{iF}$ ). This error is the focus of the analysis (for men) in Anderson and Wadensjo (2008).

The term  $d_{iM}$  is the difference between what the female worker earns and the predicted (average) earnings for a comparable male (as measured by the variables in  $\mathbf{X}$ ). This measure is similar to

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