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Gender Differences in Self-Employment

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ABSTRACT *This paper examines the factors that influence transitions into self-employment, paying particular attention to gender differences. We find that: (i) men are more responsive to the wage differential between wage/salaried employment and self-employment; (ii) liquidity constraints are more important for men; and (iii) the link between father's self-employment status and the probability of self-employment is stronger for men. Taken together, these results suggest that, for women, self-employment is a closer substitute for part-time work and labour-market inactivity than it is for men. We attribute such differences to the different labour market opportunities and occupational strategies of women.*

1. Introduction

Entrepreneurship is commonly held to be important for economy-wide innovation and job creation, as well as for providing an avenue out of poverty and welfare-dependency for individuals.[1] The perceived importance of these roles is reflected in government programs designed to spur self-employment, such as the US Small Business Administration's loan programs, the Unemployed Entrepreneurs Program in France, the Enterprise Allowance Scheme in Britain, and the *Überbrückungsgeld* (bridging allowance) and AGF (Labour Promotion Act) programs in Germany. These programs aim primarily at offering support for the unemployed to become entrepreneurs by alleviating credit constraints, although some sort of training or monitoring element is also common (Adams & Wilson, 1994). Thus, at least among

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policymakers, there appears to be a belief that the level of entrepreneurship is below the social optimum, and, therefore, warrants some government attention.

An obvious starting point for constructing a policy response is an understanding of the reasons that people choose to become self-employed. Consistent with the diversity of individuals' motives for and aspirations from entrepreneurship, previous studies have identified a variety of factors. Most recently, these studies have paid attention to the importance of liquidity constraints, earnings and satisfaction differentials between salaried employment and self-employment, taxation, intergenerational transfers of entrepreneurial ability, and regional factors (Blanchflower & Meyer, 1994; Taylor, 1996; Dunn & Holtz-Eakin, 2000; Blanchflower & Oswald, 1998; Bruce, 2000; Hamilton, 2000; and Georgellis & Wall, 2000a).

For the most part, empirical studies have focused exclusively on men's self-employment decisions and there is a distinct lack of comparable work that examines the self-employment decisions of women. This is a glaring gap in our understanding of self-employment, especially given the well-documented differences in labour market opportunities for men and women due to things such as discrimination, work experience differentials, and labour market segmentation (OECD, 1998). These factors present to women constraints on the salaried employment/self-employment decision that men do not face. In addition, primarily due to child-care concerns, men and women may also have different occupational strategies and desires for non-standard work schedules (Darian, 1975; Presser, 1995; Casper & O'Connell, 1998; and Bianchi, 2000). For instance, because of time-flexibility and the greater opportunity to work at home, self-employment can be a more viable option than salaried employment as it can also reduce the cost of child care (Connelly, 1992). Similarly, compared to men, women may view self-employment as a closer substitute for part-time employment or being out of the labour force.

In this paper, we examine the factors affecting self-employment decisions of men and women in Germany. The German labour market is characterised by a unique system of industrial and labour relations that can potentially accentuate gender differences in labour market opportunities as well as differences in the constraints that women face in their decision to become self-employed. For example, wages and access to a large number of occupations are closely linked to qualifications obtained through participation and successful completion of apprenticeship and/or other vocational training schemes. To the extent that women are underrepresented in such schemes, gender differences in labour market opportunities can be, *ceteris paribus*, more salient in Germany than in less regulated labour markets. Moreover, specific regulations regarding self-employment, such as the Crafts Regulation Act (*Handwerksordnung*), impose entry barriers to certain occupations by preventing those without a degree as a master of trade or those without prior experience in the same industry to become self-employed. Such a regulatory framework offers an additional explanation as to why women may respond differently than men to earnings differentials, liquidity constraints and to some of the other main determinants of self-employment discussed in the recent literature.

Based on data from the German Socio-Economic Panel (hereafter GSOEP), we estimate self-employment transition probabilities using separate samples of males and females. In addition to standard concerns, we exploit the panel nature of the data and pay particular attention to prior labour market status. This should be an especially important factor given the difference in labour market opportunities and occupational strategies mentioned above. Our results show that, indeed, women respond differently than men to earnings differentials between salaried employment and self-employment. Specifically, earnings differentials are important for men but not for women. Similarly, our results suggest that capital constraints impose a major obstacle for men to become self-employed but not for women. Also, consistent with the view that women

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may be particularly attracted to the flexibility and child care advantages that self-employment may offer, we find that women are most likely to enter self-employment from part-time work or non-participation, rather than from full-time work. Finally, our results show that, although men whose fathers are self-employed are more likely to become self-employed, this is not true for women.

Our study offers a different perspective on self-employment than do other studies that include women in that it focuses on transitions into self-employment, rather than self-employment status, and it allows for a direct comparison of gender differences. Nonetheless, existing studies of female self-employment provide perspective to our analysis. Macpherson (1988) uses a sample of married women in the US to show the potential effects of selectivity bias when earnings equations are not estimated separately for those in salaried employment and those in self-employment. Connelly (1992) finds that the presence of young children is important in choosing whether to be self-employed. Devine (1994) looks at recent trends in US female self-employment and finds evidence that the self-employment opportunities for women at the low end of the skill distribution have worsened. Most recently, Lombard (2001) finds that, although job flexibility and demand for non-standard work schedules are important, most of the rise in female self-employment is due to women's increased earnings potential in self-employment.

A number of studies have pooled data on men and women, using a dummy variable to capture gender differences (De Wit & Van Winden, 1990; Blanchflower & Meyer, 1994; and Blanchflower, 2000). While this allows the female self-employment transition equation to have a different intercept, it still restricts the effects of all other factors to be the same for men and women. In contrast, our point is that the effects of the standard factors on the self-employment decisions of women differ from those of men. Thus, an appropriate comparison of men and women would allow for different slopes, not just different intercepts.[2]

Recently, Clain (2000) used separate samples of males and females to examine gender differences in the determinants of self-employment, and her reasons for doing so are similar to ours. She found evidence to suggest that women place more value on non-wage aspects of self-employment than do men. However, her estimation focused on demographic differences rather than the economic variables usually included in self-employment studies, such as individual wealth, relative self-employment earnings, and intergenerational transfers of human capital. Also, her focus is on self-employment status, rather than the transition into self-employment, so her model does not examine the role of prior labour market status.

The rest of the paper is organised as follows: Section 2 provides a brief survey of research on the determinants of self-employment. Section 3 presents a brief overview of recent trends and institutional arrangements regarding self-employment in the German labour market. Section 4 describes the data and empirical methodology. Section 5 discusses the results, and, finally, section 6 concludes.

2. The Determinants of Self-Employment: Previous Literature

Most previous research on self-employment and entrepreneurship follows a line of inquiry that revolves around six main themes. All of these themes are derived from a model of a rational agent choosing self-employment if the expected utility of doing so exceeds the expected utility of salaried employment. The first theme simplifies the problem by using expected earnings as a proxy for expected utility, and finds support in empirical studies based on male samples. That is, the higher the earnings differential between self-employment and salaried employment, the more likely men are to become entrepreneurs (e.g., Rees & Shah, 1986; Fujii & Hawley, 1991; and Taylor, 1996). In addition, Gill (1988) highlights the importance of separate earnings equations for self-employment and salaried employment to avoid selectivity bias.

The second theme addresses the issue of liquidity constraints in starting-up a new business. Theoretical work emphasises the lack of sufficient start-up capital and/or sufficient access to credit markets as a binding constraint on individuals' choice between salaried employment and self-employment — a hypothesis supported by numerous empirical studies. For example, examining US data, Evans & Jovanovic (1989) and Evans & Leighton (1989) find that the probability of self-employment increases with the individual's net worth.[3] Bates (1991) examines commercial bank financing of small businesses, focusing on whether the smaller loans received by black-owned firms, compared to white-owned firms, could be attributed to credit discrimination. Similarly, Holtz-Eakin et al. (1994) and Blanchflower & Oswald (1998), using US and British data respectively, find that windfalls in the form of inheritances and family gifts increase the probability of self-employment. Also, using Swedish data, Lindh & Ohlsson (1996) find that the probability of self-employment is higher for those who receive lottery windfall gains. Lindh & Ohlsson (1998) take the issue of credit constraints a step further and look at how the degree of wealth inequality in an economy can affect aggregate self-employment.

The third theme, which has attracted attention in the literature only recently, examines the link between parental labour status and the probability of becoming self-employed (see Dunn & Holtz-Eakin, 2000; Taylor, 1996; and Hout & Rosen, 2000). Such a link is based on the argument that potential intergenerational transfers of parental wealth relax individuals' capital constraints, but more importantly, that parental labour market status may act as a proxy for potential intergenerational transfers of human capital and entrepreneurial ability. Dunn & Holtz-Eakin (2000) find that having either parent self-employed has a strong positive effect on the probability of men's self-employment. Interestingly, they find that this is strongest along gender lines, meaning that the probability of a son becoming self-employed is higher if his father rather than his mother was self-employed.[4] Similarly, Hout & Rosen (2000) confirm earlier findings

that the father's self-employment is an important determinant of offspring's self-employment, and add that the impact of parental status on self-employment differs by race.

The fourth theme concerns whether individuals' opportunities in the labour market affect their decision to become entrepreneurs. For example, Evans & Leighton (1989) find that those who switch from salaried work to self-employment 'tend to be people who were receiving relatively low wages, who have changed jobs frequently, and who experienced relatively frequent or long spells of unemployment' (p.532). In Taylor (1996), using British data, a man is more likely to be self-employed if the unemployment to vacancy ratio of the region in which he resides is low.

Within this fourth theme, the issue of whether discrimination can explain self-employment has been examined mainly with reference to ethnic minorities. Fairlie & Meyer (1996) find that, while ethnicity and race are important determinants of self-employment, the processes for determining self-employment are very similar across racial and ethnic groups. Borjas & Bronars (1989) explain observed racial differences in US self-employment on the basis of consumer discrimination.

A fifth theme looking at the possible effects of government policy in determining self-employment has been a recent consideration in the literature. Specifically, Bruce (2000) looks at differential tax treatment of salaried employment and self-employment. He argues that self-employment is relatively more attractive to salaried employment because taxation of self-employment income depends on voluntary compliance, and many self-employment expenses are tax deductible. Also, Fan & White (2003) find that individuals who live in US states with higher personal bankruptcy exemptions are much more likely to be self-employed. Their reasoning is that, in the event that a business fails, that the exemption acts as a form of partial wealth insurance.

Finally, very recent work relaxes the assumption that earnings act as a proxy for utility, and has looked at the importance of job satisfaction in the choice between salaried employment and self-employment. In Hamilton (2000), for instance, much of the earnings differential between salaried and self-employment is due the relatively large non-pecuniary benefits derived from the latter. Taylor (1996) finds that the independence offered by self-employment is a positive factor, whereas its lower income security is a negative one.[5] Blanchflower & Oswald (1998) report that the self-employed report higher levels of job and life satisfaction. Blanchflower (2000) finds similar results in his study of 23 OECD countries.

3. Self-Employment in Germany

In contrast with trends in most OECD countries over the last two decades, the rate of non-agricultural self-employment in Germany was relatively stable between 1984 and 1998, and averaged just under 10% of the labour force.[6] As Table 1 also reports, according to the GSOEP, in 1997 there were about 1.4 million male and 1 million female self-employed workers. However, because labour force participation tends to be higher for males, the male and female rates of self-employment tended to be very similar. This is in contrast with such countries as the US and the UK, where men are much more likely to be self-employed than are women. Specifically, for the UK in 1991, male and female self-employment rates were 17.4% and 7.4%, respectively (see Campbell & Daly, 1992), while for the US in 1997, male and female self-employment rates were 11% and 6%, respectively (Georgellis & Wall, 2000b).

Although male and female self-employment rates do not differ much in Germany, the characteristics of men and women who choose self-employment differ a great deal. These differences, which are summarised by Table 2, are similar to those in the US and the UK. The most notable differences for our purposes are in the prior labour status of those who make the

transition into self-employment. Most males who move into self-employment do so from either full-time salaried employment (77%) or unemployment (17.7%). In contrast, women tend to move into self-employment from part-time salaried employment (43.1%), out of the labour force (27.1%), or full-time salaried employment (24.5%). More interestingly, although the transition probability from salaried employment to self-employment is similar for men and women, the transition probability from non-employment is much larger for men. Further, women moving into self-employment tend to have more children than do men moving into self-employment, and are more likely to be married. These numbers are consistent with the hypothesis that many women choose self-employment because it provides greater time flexibility for child care concerns.

The other notable differences between men and women when they choose self-employment are that, compared to the average man, the average woman: earned significantly less in the first year of self-employment, was slightly older, was less educated, and had lower payments from wealth holdings. Finally, only 11% of the women who made the transition into self-employment had fathers who were self-employed, whereas the corresponding number for men was 23%.[7]

As in other OECD countries, programs that provide support for the unemployed to start their own business are also in place in Germany.[8] The *Überbrückungsgeld* (bridging allowance) program, introduced in 1986 and revised in 1988, offers financial support to the unemployed who become self-employed in the form of a monthly allowance equivalent to their previous benefit entitlement. This allowance is available to those who have been unemployed for at least 4 weeks and up to 6 months, during which the allowance is reduced progressively. Applicants must guarantee a likely minimum income of approximately DM 3,400 per month from their proposed business. As Meager (1994) argues, the minimum income criterion may discriminate

against women, who are more likely than men to start businesses in low income activities. During the 1980s, only about 22% of participants were women, although women accounted for 30% of the unemployed who made the transition into self-employment, partially explaining why the self-employment transition probability from non-employment is much smaller for women than that for men (see Table 2)

Recently introduced AGF-Plus legislation places emphasis on ensuring the success of the start-up of new business by the unemployed, by offering training in the form of seminars on starting-up a new business and seminars/support following the start-up of a new business. Unemployed persons participating in such seminars are paid a maintenance allowance, financed by the European Social Fund. As an indication of the success of these programs, about 45,000 unemployed workers became self-employed with government support in the period 1986-1989, while approximately 90,000 applications for temporary bridging finance were approved in 1996.

Other institutional arrangements are not only likely to explain some of the differences between self-employment in Germany and self-employment elsewhere, but also the different self-employment prospects that men and women face in the German labour market. For example, as Lechner & Pfeiffer (1993) point out, the Crafts Regulation Act, or *Handwerksordnung*, which covers about 126 occupations, allows only those with a degree as master of a trade to become self-employed. Further, even for those with the proper qualifications, only those currently employed in an industry are allowed to switch into self-employment in the same industry. Finally, parental leave and benefit policies provide an additional reason why women may choose to stay in salaried employment rather than becoming self-employed. A key aspect of the German *Mutterschutzgesetz* (mother protection law) is that entitles mothers in salaried work, but not self-employed mothers, to an additional period of maternity leave beyond the compulsory eight week period after childbirth (*Mutterschutz*). Up to

1986, the period of maternity leave beyond the *Mutterschutz* period was four months, but gradually increased through various reforms to reach sixteen months by 1990. During the maternity leave period, mothers are entitled to a maternity benefit, a large portion of which is paid by the employer. The amount of the benefit depends on pre-childbirth earnings.[9]

4. Methodology and Data

To motivate our empirical analysis, we use a standard random utility model in which a rational individual i will move into self-employment (SE) from salaried employment (PE) or not-working (NW) if self-employment yields the highest utility of the three options.[10] Denoting the utility attained in self-employment as U_{it}^{SE}, the probability that individual i makes the transition into self-employment can be written as

$$\Pr(S_{it}^{j} = 1) = \Pr(U_{it}^{SE} - U_{it}^{j} > 0) = \Pr[\boldsymbol{\beta_2^j}' \mathbf{X_{i,t-1}^j} + \varepsilon_{it}^j > 0], \quad j = PE, NW. \tag{1}$$

In (1), S_{it}^{j} is an observed indicator variable taking the value 1 if an individual i moves into self-employment at time t from status j, and 0 otherwise. The vector $\mathbf{X_{i,t-1}^j}$ represents individual and labour market characteristics at time *t-1*. It includes variables that capture individuals' characteristics in the year prior to making the transition into self-employment, such as expected self-employment earnings, wealth, and other demographic, regional, and industry characteristics.[11] ε_{it}^{j} is a random error term.

Earnings in both salaried employment and self-employment are observed only for those in salaried employment and self-employment respectively, and they are censored at zero.[12] Because of this, we estimate standard Mincer-type earnings functions corrected for selectivity bias. Specifically, we use maximum likelihood tobit estimates of earnings equations separately

for salaried employment and self-employment. Formally, the tobit model with selectivity can be summarised as follows:

$$y_\kappa^* = \beta' \chi + \varepsilon,$$ (2)

$$y_k = 0 \quad if\ y_k^* \le 0, \quad y_k = y_k^* \quad otherwise,$$

$$z_k^* = \alpha' v + u,$$

$$z_k = 1 \quad if\ z_k^* > 0$$

$$z_k = 0 \quad if\ z_k^* \le 0$$

where $\kappa = SE, PE$ for self-employment and salaried work respectively. The model implies that self-employment earnings (y_{SE}) are censored at 0 and are observed only when equals 1. Similarly for salaried employment earnings (y_{PE}).

We use these estimates to calculate the expected earnings differential between salaried employment and self-employment for each individual in our sample, irrespective of current status. These expected earnings differentials are used when estimating equation (1), the self-employment transition equations. To estimate equation (1), we assume a Weibull distribution for the error term and use a multinomial logit model conditioned on prior labour market status.[13]

Our empirical analysis is based on data from the West-German sub-sample of the GSOEP panel for the period 1984-1997.[14] This data set offers the advantage that it allows us to control for prior labour market status as a proxy for an individual's opportunities in the labour market. Moreover, as individual characteristics are observed prior to the decision to become self-employed, the problem of the explanatory variables being the consequences rather than the causes of self-employment is avoided (see Meyer, 1990; Blanchflower & Meyer, 1994; and Dunn & Holtz-Eakin, 2000).

We restrict the sample to those who were between 19 and 59 years of age; were not currently in education, vocational training or military service; and were not working in the agricultural or fishing industries.[15] Finally, by excluding those observations with missing values for the key variables used in the analysis, our base sample includes 76,586 person-year observations (37,485 and 39,101 observations for males and females respectively). The definition of self-employment is based on individuals' responses to questions regarding their employment status and the type of self-employment. Based on these responses, we classify individuals as self-employed only when they report: (i) non-farm self-employment as their primary activity, and (ii) positive earnings from self-employment.[16] Applying this definition, our sample has 1,899 and 558 person-year observations of self-employed men and women, respectively.[17] Also, we observe 248 and 203 transitions into self-employment for men and women, respectively. Of these, we have 198 transitions from salaried employment for men and 123 such transitions for women. The remainder made the transition from not-working into self-employment.

5. Empirical Results

5.1. *Earnings equations*

As the results in Table 3 show, education has a positive effect on earnings in both salaried employment and self-employment, with no evidence that the returns to education for screened workers (wage and salary employees) differ from the returns to education for unscreened workers (the self-employed).[18] The returns to experience exhibit the usual inverse U-shape for men in salaried employment and in self-employment, and are higher for the self-employed at low levels of experience. For women, experience has a positive effect on earnings in salaried employment, with the returns to experience increasing at a decreasing rate.

Experience does not have any statistically significant effect in female self-employment earnings.[19]

The estimated coefficient Rho suggests that sorting between salaried work and self-employment is consistent with negative selection for men and positive (although statistically insignificant at conventional levels of significance) for women.[20] The results for the selection probit model are shown in Appendix B.

Using the estimated coefficients in Table 3, we calculate predicted earnings for all men and women should they be in salaried employment or self-employment. The mean predicted log-hourly wage for men in salaried employment is 2.06 while the mean predicted hourly wage in self-employment is 0.85. The corresponding mean values for females are 1.31 and 0.42.

5.2. *The Transition from Salaried Employment into Self-Employment*

The first two columns of Table 4 show the results of the probability of an individual i becoming self-employed at time t, conditional on being in salaried employment at t-1. The last two columns show the results of the self-employment transition probability at time t when we restrict the sample to those who were not working at t-1.

The results in columns (1) and (2) show that the predicted earnings differential between salaried employment and self-employment has a negative and statistically significant effect on the male self-employment transition probability, although this is not true for females. The fact that earnings differentials between self-employment and salaried employment do not offer as strong an incentive for women to become self-employed is consistent with the view that women may place a higher weight at the non-pecuniary aspects of self-employment.

According to the liquidity constraint hypothesis, because higher wealth relaxes capital constraints, it is expected to increase the probability of self-employment. Consistent with the

findings of previous studies (e.g. Evans & Leighton, 1989; Evans & Jovanovic, 1989; Blanchflower & Oswald, 1998; and Lindh & Ohlsson, 1996), we find that wealth has a positive effect on the probability of employed men moving into self-employment.[21] Although the point estimate of the wealth effect for women is positive, it is not statistically significant at conventional levels, and is much smaller than that for men. One possible explanation for this is that women tend to be self-employed in industries and occupations that require relatively less capital — as outlined by Georgellis & Wall (2000b) for the U.S. and Campbell & Daly (1992) for the U.K. In the case of the German labour market in particular, Blossfeld (1987) argues that despite the convergence in educational levels of men and women, a visible separation into "men's occupations" and "women's occupations" is particularly evident. Compared to men, women are concentrated in relatively few occupations and occupational fields; they are proportionally over-represented in the lower ranks of the occupational pyramid; they are characterised at all levels of qualification by considerably higher unemployment rates; and they are usually paid less. According to Blossfeld (1987), sex-specific differences in vocational training continue to be a major factor for the propagation of sex segregation in the German labour market.[22] Another possible reason for the weak effect of wealth on women's self-employment decisions is that, relative to married men, married women might have greater access to capital through their spouses' wealth and income (Macpherson, 1988 and Bruce, 1999).[23]

For both men and women, age exhibits the familiar inverted U-shape, peaking at 39 years of age.[24] Blanchflower & Meyer (1994) and Rees & Shah (1986) find a significant non-linear effect of age on self-employment for the Australian and British labour markets, respectively. Hout & Rosen (2000) and Evans & Leighton (1989) provide similar evidence using US data. More specifically, Evans & Leighton (1989) find that the fraction of the labour force that is self-employed increases with age until the early 40s and then remaining constant until retirement. As

Blanchflower & Meyer (1994) argue, labour market options are greater for the young as they make career choices and they are involved in job shopping and therefore, one should expect more transitions into self-employment to occur in early working life. Younger workers are also more likely to take risks than older workers, but this effect could be mitigated by the increasing trend, especially in the US, for older workers to view self-employment as an alternative to retirement.[25]

The number of children can affect an individual's willingness to pursue risky ventures, but on the other hand, it is possible that teenage children can contribute to the running of a family business. For men, the negative, although statistically insignificant, effect for the number of children suggests that risk considerations may be more important. For women, who are most often responsible for childcare, additional considerations might be more important. Because childcare costs associated with salaried employment are usually higher when parents are in salaried employment than when they are self-employed — especially for pre-school children — we expect that the an increase in the number of children will increase the probability that a woman will be self-employed. Perhaps because of the contradictory effects, for men and women the coefficient on the number of children is not statistically different from zero.[26]

We find that additional years of education increase the probability of self-employment transitions for both males and females. The previous literature has rather mixed results regarding the link between education and self-employment. For example, Blanchflower & Meyer (1994) find that more years of education has a positive impact on the probability of self-employment in the US but not in Australia. Rees & Shah (1986), using British data, and Fujii & Hawley (1991), using US data, find a positive effect. Education is likely to be positively associated with self-employment either because the more educated tend to be more informed in assessing self-employment opportunities, or because the more educated are characterised by higher ability (see

Rees & Shah, 1986). Strohmeyer (2003) finds a strong link between educational attainment and women's self-employment entry in Germany, arguing that the boom in female self-employment between 1991 and 1999 was mainly due to the increase in the number of women with university degrees. Strohmeyer's results demonstrate that highly educated women have much better chances to enter higher-grade professions and leading management positions in self-employment than in salaried employment.

Our results also indicate that having a father that is self-employed has a significant positive influence on the probability of self-employment for men but not for women. Unfortunately, because there is no information in the GSOEP regarding the self-employment status of an individual's mother, we are unable to include it. This is similar to Dunn & Holtz-Eakin (2000), who also find that a man is more likely to be self-employed if his father was. It is also consistent with their finding that the intergenerational transfer of entrepreneurial human capital is stronger along gender lines. While we find that no such transfer from father to daughter, they did find such a transfer from mother to son.

Relative to having never been married, being married has a significant effect on the probability for men to move into self-employment from salaried employment. For married men, the availability of family support (in terms of financial support and/or family members support in running a small business) may facilitate the transition into self-employment, although this effect might be mitigated by the effect of the possible unwillingness of married men to undertake the high risks associated with entrepreneurship. The statistically insignificant effects on being separated or divorced seem to indicate the former effect dominates. Previous empirical studies provide rather mixed results on the link between marital status and self-employment. For example, Blanchflower & Meyer (1994) found a positive effect of being married on the probability of self-employment for the US but not for Australia. However, women might find

the potential time flexibility and other non-pecuniary characteristics of self-employment more attractive when there is another earner in the household, making marital status a more important factor for female rather than male self-employment decisions.[27] Nonetheless, we find no evidence that the probability that a female will make the transition into self-employment into salaried employment is influenced by her marital status.

When estimating the transitions from salaried employment into self-employment, we also include job tenure, firm size, and industry dummies. Longer tenure is expected to be negatively correlated with the probability of self-employment transition as workers that have stayed longer with their employer are less likely to quit. The accumulation of firm-specific human capital and various exit costs impose higher costs to quitting the longer the job tenure. The "job lock" hypothesis suggests that longer tenure should be negatively associated with self-employment, an explanation advanced mainly in the context of the US health insurance. For example, Holtz-Eakin et al. (2000) find that non-portable health insurance impedes people from leaving their jobs to become entrepreneurs. Our results show that although job tenure is negatively related to the probability of self-employment transition, the coefficients are not statistically significant.

The results show that both men and women are more likely to become self-employed when they work in very small firms (reference category). A possible explanation is that firms with less than 20 employees are usually in the crafts sector, which by its nature offers more opportunities for self-employment. The negative relationship between firm size and the self-employment transitions can also be attributed to the fact that large or medium size firms offer more job security and more non-wage benefits. The effect of firm size on the probability of self-employment has been examined in previous empirical studies. For example, Blanchflower & Meyer (1994) also find that firm size is an important determinant of self-employment in both the US and the Australian labour market. Finally, it is worth noting that the gender difference in the

intergenerational effect also holds in the case of salaried employment to self-employment transitions. Men, but not women, are more likely to become self-employed if their father is.

5.3. *The Transition from Not-Working into Self-Employment*

The results in the last two columns of Table 4, focusing on transitions from not-working into self-employment, are broadly consistent with the results discussed in the previous sub-section. One notable difference is the estimates of the effects of age, which yields an inverted U with much steeper sides. In addition, the peak transition probability from not-working into self-employment for females is 38 years of age, which is almost identical to the peak for the transition from salaried employment. For men, however, the peak transition probability from not-working is only 32 years of age. The second notable difference is in the effect of marital status: Only divorced men are more likely to make the transition from not-working into self-employment than never-married men. As with the transition from salaried employment, we find no statistically significant effect for female marital status on the transition from not-working into self-employment.

5.4. *Self-Selection into Self-Employment*

In our discussion so far, we have attributed gender differences in self-employment transitions to the different occupational strategies and prospects that men and women may face in the context of the German institutional framework. However, an interesting issue that deserves further investigation is whether individuals are self-selected into self-employment based on ability. As Hamilton (2000) argues, most entrepreneurs enter and survive in self-employment despite the lower initial earnings and lower earnings growth compared to salaried employment, suggesting that non-pecuniary aspects of self-employment are substantial. It is possible,

however, that the lower self-employment earnings can be explained by the selection of low ability workers into self-employment. This implies that individuals may choose self-employment simply because they are unable to get a decent salaried employment job, without necessarily having a stronger preference for the non-pecuniary aspects of self-employment. Hamilton (2000) uses two different approaches to examine the extent to which the salaried employment and self-employment earnings differential can be explained by the entry of low ability workers into self-employment. First, he estimates standard selectivity-corrected salaried employment earnings functions focusing on the inverse Mills ratio to see whether selectivity effects are present. Second, he estimates salaried employment earnings at time t including a dummy variable indicating whether the individual enters self-employment at $t+1$. The coefficient for this dummy indicates whether self-employment entrants tend to be above or below average employees. Interestingly, Hamilton (2000) concludes that the earnings differential in the US can not be explained by the self-selection of low ability workers into self-employment.

In our empirical analysis, when estimating earnings equations, we have accounted for possible selectivity bias in predicted salaried employment and self-employment earnings. In this section, following Hamilton, we re-estimate salaried employment earnings including a dummy variable for whether an individual entered self-employment in the next period. This will allow us to examine whether self-employment entrants are above or below average individuals and whether this differs by gender. The results are shown in Table 5.

Column 1 shows that salaried employment earnings at time t of those who became self-employed at $t+1$ were lower than the earnings of those who stayed in salaried employment. This is also the case when restricting the sample to those with salaried employment earnings at the lower 25% of the earnings distribution (column 2). However, when restricting the sample to those with earnings at the higher quantile (column 4) or those in the upper 50% of the earnings

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distribution, the story is somewhat different. Men who move to self-employment tend to have higher earnings than those who stay in salaried employment, while this not the case for women (insignificant). These results offer an additional piece of evidence of gender differences. That is, although men in the upper end of the earnings distribution who become self-employed tend to be above average (in terms of wages), among women in the upper end of the earnings distribution those who enter self-employment are not significantly different than those who stay in salaried employment.

5.5. *Oaxaca-Blinder Decompositions*

It would be useful to know the relative importance of individual characteristics and our estimated coefficients in explaining the differences in female and male self-employment transition rates. Do the transition rates differ because women have different characteristics than men? Or, is it because, when making the self-employment decision, the characteristics have different degrees of importance for men and women? To address this, we use Oaxaca-Blinder decomposition as adapted to the logit model by Nielsen (1998).

Define $\overline{P}_f$ and $\overline{P}_m$ as the self-employment transition rates for females and males, respectively. Also, define $\overline{P}_f^0$ as what the female self-employment transition rate that would be if the coefficients on their transition equation (equation (1)) were the same as they are for males. Following Nielsen, we decompose the difference in the female and male self-employment transition rates into two parts:

$$\overline{P}_f - \overline{P}_m = \underbrace{\overline{P}_f - \overline{P}_f^0}_{D} + \underbrace{\overline{P}_f^0 - \overline{P}_m}_{Q}.$$

The first term, D, is the part that is due to the difference in the coefficients on the individual characteristics in determining self-employment transitions. The second term, Q, is the part that is due to the difference between males and females in the individual characteristics themselves.

Using the numbers in the first two columns of Table 4, the transition rates from salaried employment into self-employment for females and males are $\overline{P}_f = 0.0072$ and $\overline{P}_m = 0.0074$, respectively. Applying the estimated coefficients for males from column (1) to the entire sample of females, we get $\overline{P}_f^0 = 0.0277$. Therefore, $D = -0.0205$, which is extremely large, much larger than the difference between the female and male self-employment transition rates. Also, $Q = 0.0203$, which is also much larger than the difference in transition rates. Even though the difference in the male and female self-employment transition rates is a rather small 0.2 percent, the large values of D and Q highlight that there are significant differences between male and female self-employment decisions.

Using the results in columns 3 and 4 of Table 4, we also apply the same methodology to the transition rates from not-working into self-employment. We find that $\overline{P}_f = 0.0051$, $\overline{P}_m = 0.0152$, and $\overline{P}_f^0 = 0.0214$. From this, we obtain a very large value for D, while Q is not nearly as large. Specifically, $D = -0.0163$ and $Q = 0.0061$. Compared to the transition from salaried employment, the differences in male and female individual characteristics play a much smaller role relative to the differences in the coefficients on the individual characteristics.

6. Summary and Conclusions

In this paper, we highlight important gender differences in the decision to become self-employed in the German labour market. Specifically, we find that: (i) men are more responsive to the wage differential between salaried- and self-employment; (ii) liquidity constraints, as

proxied by wealth, are important for men considering self-employment, but not women; and (iii) the link between father's self-employment status and the probability of self-employment is stronger for men. Such differences might be due to the different labour market opportunities and occupational strategies of women compared to men. Understanding gender differences in self-employment decisions could offer valuable insight in designing and evaluating programs aiming at encouraging the start-up of small businesses, giving preferential treatment for women (and ethnic minorities). Such programs seem to have become increasingly popular in recent years among politicians in many US states and municipalities (see Blanchflower, 2000).

A more-detailed decomposition of the extent at which such gender differences are the result of lack of labour market opportunities, possibly due to discrimination, or the result of differences in occupational strategies is beyond the scope of this paper. Nonetheless, our results are broadly consistent with the findings of previous studies that provide evidence of sex differences in labour market opportunities and evidence of occupational segregation between men and women in Germany. Our empirical analysis offers some of the first empirical evidence that allow a direct comparison between men's and women's self-employment decisions. Our results suggest that women find self-employment more desirable than do men because of its greater time-flexibility and other non-pecuniary aspects that can not directly be captured by earnings differentials and standard economic variables. Recent work that looks at job satisfaction, job security, and attitudes towards controlling one's life (e.g., Schiller & Crewson, 1997; Blanchflower & Oswald, 1998; and Blanchflower, 2000), can offer a useful framework for the analysis of women's self-employment decisions.

Notes

1. Holtz-Eakin, Rosen, and Weathers (2000) find evidence of this for the US. Nevertheless, the issue of whether entrepreneurs create jobs has been debated in the literature that typically focuses on the extent at which new jobs are created in small or large firms, with some mixed results. See Brown, Hamilton, and Medoff (1990) for an overview.
2. Schiller and Crewson (1997) run separate estimations for men and women, but are interested in the determinants or entrepreneurial success rather than the decision to become self-employed. Also, Hundley (2000) addresses the difference in self-employment earnings of men and women, but not self-employment itself.
3. Start-up financial capital is also an important factor in determining the success and longevity of the entrepreneurial venture. See for example, Bates (1990) who finds that firms with larger financial capital at start-up are considerably more likely to succeed.
4. As which much of the literature, Dunn and Holtz-Eakin do not consider female self-employment, and, therefore, does not examine intergenerational transfers to daughters. Because our study includes men and women, it offers a partial remedy. Unfortunately, though, our dataset does not indicate the employment status of a person's mother.
5. New entrants into self-employment face a high risk of "failure" in the early years of their self-employment venture (Bates, 1990 and Taylor, 1999). Taylor, for example, finds that of those who became self-employed in Britain during the 1990s, 41 percent exited self-employment in the first year, while only one-third survived the first four years.
6. See OECD (2000) and ECOTEC (1998) for discussions of self-employment around the world.
7. There is no information on mothers' self-employment status in the GSOEP data.
8. See Meager (1994) for more details and a comparison with similar programs in Europe.
9. See Ondrich, *et al* (1996) for a more detailed discussion of the German *Mutterschutzgesetz* provisions.
10. Because of a paucity in our data set of males not in the labor force, we combine the "unemployed" and "out of the labor force" categories into "not working".
11. The definitions of all variables used are in Appendix A.
12. Self-employment earnings in the GSOEP are self-reported and do not include negative values (capital losses). Some studies have used accounting information on profits/losses, but, even then, reported profits may not accurately reflect true profits due to underreporting. In general, measuring and interpreting self-employment earnings is a difficult task that may explain why the self-employed are excluded from many labor market studies. Aware of such difficulties, Hamilton (2000) uses a number of different earnings measures to ensure the robustness of his results when comparing earnings differentials between paid employment and self-employment. Unfortunately, there is no information in the GSOEP that will allow us to use similar earnings measures as in Hamilton (2000).
13. This is identical to the method used by Bruce et al.(2000), in which Independence of Irrelevant Alternative restriction is imposed on the error term. As Alvarez and Nagler (forthcoming) show, this restriction poses few problems in practice.
14. For a description of the GSOEP see Wagner et al. (1993).
15. The self-employed in our sample are a very diverse group in terms of occupations and the nature of self-employment. However, very few of the self-employed are highly educated professionals, such as doctors and lawyers, which is in contrast with the US (Georgellis and Wall, 2000b).
16. For a good discussion regarding issues of measurement and definition of self-employment see section 3 in Blanchflower (2000). The conditions to report positive earnings and self-employment as the main activity before some is classified as self-employed is consistent with the quite often accepted convention not to classify unpaid family workers as self-employed on the grounds that they are not entrepreneurs, but the assistants of entrepreneurs (Marshall, 1999).
17. The relatively small number of observations on women is due to the fact that many self-employed women work in a family business and/or do not report self-employment earnings.
18. For a discussion and a test of the screening hypothesis see Riley (1979).
19. Lazear and Moore (1984) argue that earnings-experience profiles should be steeper for salaried-employees than for the self-employed. The explanation they offer is that employers "underpay" workers during their initial years in the job and "overpay" them at later years in order to reduce principal-agent problems, is not relevant for the self-employed. However, the results do not lend support for the Lazear-Moore hypothesis.
20. Negative selection into self-employment could imply that individuals maybe forced into this sector by disadvantages in wage/salary employment and/or that they are motivated by factors other than earnings.
21. We proxy wealth by the sum of income from rent, interest and dividends. Gill (1988) also uses the same measure for wealth as we do, although Taylor (1996) uses housing equity instead.

22. Although initial vocational training, just prior to workers' labor market entry or during the early stages of their career, can be critical in this regard, there is evidence that further training schemes also enhances gender inequality in the German labor market (Georgellis and Lange, 1997).
23. According to German family law, the Community Surplus (*Zugewinngemeinschaft*) principle ensures the legal separation of the property brought to and acquired by each partner during the course of the marriage. In the case of divorce, assets not separately listed at the start of the marriage are presumed to be assets realised in the course of the marriage and they divided equally among the partners. The Community of property (*Gutergemeinschaft*) principle applies only if agreed to in contract or covenant of marriage certified by a notary and ensures that all property, either owned or acquired, becomes by law joint marital property.
24. For both males and females, a Wald test for the joint significance of the coefficients indicates statistical significance at the 5% level.
25. Descriptive evidence from the GSOEP shows that about 60 per cent of men and women who become self-employed are between 25 and 45 years of age.
26. As a referee pointed out, the reduced time and devotion to the business when pre-school children are present could impose a substantial opportunity cost for women considering self-employment as an alternative to salaried work. As Hundley (2001) argues, women in self-employment appear to be burdened by housework and childrearing in ways that limit the scope of their business and the intensity of work effort in them. This view is also supported by evidence provided by Lin et al. (1998) who find that indeed the presence of pre-school children has a negative impact on self-employment survival in Canada. But generally, the evidence on the effect of children on self-employment success and survival is rather mixed. In contrast, there is a clearer picture emerging regarding the positive effect of children on women's probability of becoming entrepreneurs. See, for example, Macpherson (1988), Lombard (2001), and Connelly (1992).
27. Bruce (1999) finds evidence that intrahousehold transfers of entrepreneurial human capital might make it more likely that women who are married to self-employed men are themselves more likely to be self-employed.

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Table 1. Self-Employment Trends in West Germany

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Avg 84-97
Self-employment rates[a]															
Total	10.9	9.5	9.9	9.9	9.7	8.6	8.9	9.1	9.2	10.4	9.9	10.1	10.5	10.4	9.7
Male	10.0	9.4	9.3	9.4	9.2	8.3	9.1	9.4	9.8	10.8	10.9	10.2	11.3	10.2	9.8
Female	12.2	9.7	10.8	10.6	10.4	9.1	8.6	8.7	8.4	9.8	8.5	9.8	9.5	10.8	9.7
Number of self-employed (thousands)															
Total	2440	2189	2281	2308	2273	2052	2159	2247	2266	2588	2387	2249	2387	2370	
Male	1380	1296	1288	1320	1287	1170	1308	1339	1397	1548	1512	1291	1452	1317	
Female	1060	893	993	988	986	882	851	908	869	1040	875	958	935	1053	

(a) Self-employment as a percentage of the relevant labour force. Based on weighted data from GSOEP.

Table 2. Characteristics of those who became self-employed, 1984-97[a]

	Females	Males
Prior labour market status		
Full-time employee	24.5%	77.0%
Part-time employee	43.1%	2.8%
Unemployed	5.3%	17.7%
Out-of-labour force	27.1%	2.4%
Self-employment transition probability		
From full-time salaried employment	0.0072	0.0074
From non-employment	0.0051	0.0152
Financial characteristics		
Hourly wage in first year*	DM 14.10	DM 23.91
Annual payments from wealth	DM 3701	DM 6105
Demographic characteristics		
Average age	38.3	37.5
Average years of education	11.4	12.6
Average number of children	0.89	0.53
Married	80.2%	56.2%
Father self-employed	11%	23%

[a] In the year before becoming self-employed, except *. Source: GSEOP.

Table 3. Earnings Equations: Maximum Likelihood Tobit Estimates Corrected for Selectivity

Dependent Variable: Log of Real Hourly Wage

	Males		Females	
	Salaried Employment	Self-Employment	Salaried Employment	Self-Employment
Constant	1.468 (80.54)	0.980 (4.73)	1.177 (42.46)	1.621 (2.56)
Educyrs / 10	0.640 (75.62)	0.720 (10.43)	0.717 (51.77)	0.437 (2.48)
Exper / 10	0.361 (42.42)	0.507 (5.69)	0.359 (27.99)	-0.054 (0.25)
$(\text{Exper})^2$ /100	-0.057 (31.97)	-0.094 (5.34)	-0.059 (21.04)	0.007 (0.18)
Region dummies	Yes	Yes	Yes	Yes
σ	0.355 (603.90)	0.702 (76.61)	0.364 (376.56)	0.806 (29.96)
Rho(1,2)	-0.074 (4.18)	-0.094 (2.00)	-0.192 (11.24)	0.104 (0.97)
Log- likelihood	-22198.57	-7633.66	-17947.07	-2870.71
Selected Sample	30744	1899	13012	558

Notes: Selection based on a probit model for the probability of being salaried employee and self-employed respectively; Absolute asymptotic t-ratios in parentheses; All regressions include year dummies.

Table 4. **Table 4.** Transitions into Self-Employment (Multinomial Logit ML Estimates)

| | Prob(SE$_t$ \| E$_{t-1}$) | | Prob(SE$_t$ \| NW$_{t-1}$) | |
| | Males | Females | Males | Females |
	(1)	(2)	(3)	(4)
Constant	-6.337 (4.57)	-8.181 (4.71)	-13.024 (5.00)	-13.427 (6.21)
$\ln(Y^E/Y^{SE})$	-0.653 (4.63)	-0.124 (0.70)	-	-
Wealth$_{t-1}$	0.023 (4.67)	0.003 (0.38)	0.037 (1.77)	0.004 (0.30)
Age	0.078 (1.12)	0.157 (1.78)	0.320 (2.47)	0.302 (2.69)
Age^2	-0.001 (1.45)	-0.002 (1.56)	-0.005 (2.86)	-0.004 (2.92)
Nchild$_{t-1}$	-0.089 (1.03)	1.00 (0.82)	-0.067 (0.39)	-0.160 (1.31)
Educyrs	0.087 (2.52)	0.141 (3.32)	0.141 (2.54)	0.133 (2.93)
Fathse	1.301 (6.65)	0.070 (0.22)	1.418 (3.63)	0.456 (1.18)
Disabl$_{t-1}$	-0.363 (0.84)	-0.383 (0.64)	-0.823 (1.49)	-[a]
Job Tenure$_{t-1}$	-0.014 (1.07)	-0.024 (1.47)	-	-
Part-time	0.178 (0.40)	0.038 (0.17)	-	-
Marital status$_{t-1}$				
Married	0.390 (1.74)	0.065 (0.21)	0.021 (0.05)	0.538 (1.00)
Separated	0.123 (0.22)	0.565 (0.98)	0.160 (0.15)	1.125 (1.28)
Divorced	0.365 (0.92)	-0.455 (0.86)	1.081 (2.04)	0.239 (0.27)
Firm size$_{t-1}$				
Small	-1.128 (5.70)	-1.944 (6.25)	-	-
Medium	-1.613 (6.04)	-2.036 (5.51)	-	-
Large	-1.541 (6.17)	-1.754 (5.22)	-	-
Industry$_{t-1}$	Yes	Yes	No	No
Region$_{t-1}$	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Log-likelihood	-962.07	-631.14	-212.02	-465.49
Restricted log-likelihood	-1169.75	-729.55	-258.78	-501.85
Sample size	26897	17104	3279	15641
Transitions into self-employ.	198	123	50	80

Absolute asymptotic t-ratios are in parentheses. Reference categories: very small firm, West Berlin, never married.
[a] There were no observations of disabled females making the transition from not-working to self-employed.

Table 5. Estimated Mobility Coefficients from Hourly Earnings Equations

Dependent Variable: Log of Real Hourly Wage in Salaried Employment at *t*.
(as in Hamilton Table 6; Panel A)

	OLS	Lower Ouantile	Upper 50%	Upper Ouantile
		Males		
Self-employed at t+1	-0.070	-0.206	0.073	0.111
	(2.69)	(7.16)	(1.97)	(2.07)
		Females		
Self-employed at t+1	-0.266	-0.198	0.020	0.179
	(5.50)	(3.18)	(0.30)	(1.46)

Absolute t-values in parentheses. Regressors: education, experience, experience squared, region dummies, year dummies.

Appendix A. Variable Definitions

Age	Age of respondent
Educyrs	Years of education
Exper	Experience = (Age – Educyrs - 5)
Y^E	Estimated gross hourly real wage calculated using monthly earnings from wage or salaried employment, and usual, weekly hours of work, *i.e.* y^E = (monthly earnings × 12)/(weekly hours × 52). Earnings are deflated using the German CPI.
Y^{SE}	Estimated gross hourly real wage calculated using monthly earnings from self-employment, and usual, weekly hours of work, *i.e.* y^{SE} = (monthly earnings × 12)/(weekly hours × 52). Earnings are deflated using the German CPI.
Wealth	Annual amount of income from rent, interest, and dividends.
Fathse	Dummy variable: 1 if father self-employed; 0 otherwise.
Disabl	Dummy variable: 1 if disabled; 0 otherwise.
Nchild	Number of children under 16 in the household
Job Tenure	Job tenure in months.
Employment Status	
Part-time	Dummy variable: 1 if part-time employee; 0 otherwise.
Out-of-Labour Force	Dummy variable: 1 if out-of-labour force; 0 otherwise.
Unemployed	Dummy variable: 1 if unemployed; 0 otherwise.
Blue-Collar	
Semi-skilled	Dummy variable: 1 if semi-skilled; 0 otherwise
Skilled	Dummy variable: 1 if skilled; 0 otherwise.
Foreman	Dummy variable: 1 if foreman; 0 otherwise.
Master Craftsman	Dummy variable: 1 if master craftsmen; 0 otherwise.
White-Collar	
Semi-skilled	Dummy variable: 1 if semi-skilled; 0 otherwise.
Professional	Dummy variable: 1 if professional; 0 otherwise.
Manager	Dummy variable: 1 if manager; 0 otherwise.
Firm Size	
Small	Dummy variable: 1 for firm size between 20 and 200 employees; 0 otherwise.
Medium	Dummy variable: 1 for firm size between 200 and 2000 employees; 0 otherwise.
Large	Dummy variable: 1 for firm size of more than 2000 employees; 0 otherwise.
Marital Status	
Married	Dummy variable: 1 if married; 0 otherwise
Separated	Dummy variable: 1 if separated; 0 otherwise
Divorced	Dummy variable: 1 if divorced; 0 otherwise

Appendix B. Employment and Self-Employment Selection Probit Equations

	Males		Females	
	Employment	Self-Employment	Employment	Self-Employment
Constant	-0.253 (2.82)	-4.275 (28.92)	0.601 (7.26)	-5.348 (21.80)
Educyrs / 10	-0.042 (9.39)	0.880 (13.25)	-0.371 (8.50)	1.301 (11.66)
Exper / 10	0.175 (3.42)	0.750 (10.11)	-0.306 (7.35)	0.567 (4.69)
$(\text{Exper})^2$ /100	-0.142 (20.37)	-0.135 (9.27)	0.014 (1.74)	-0.084 (3.49)
Nchild	-0.030 (2.72)	-0.030 (1.80)	-0.431 (43.04)	0.055 (1.70)
Disabl	-0.458 (12.34)	-0.202 (3.28)	-0.060 (1.52)	-0.335 (2.30)
Marital Status				
Married	0.260 (7.70)	0.052 (1.16)	-0.887 (28.22)	0.031 (0.36)
Separated	0.142 (2.13)	-0.004 (0.04)	-0.457 (7.12)	0.205 (1.41)
Divorced	-0.030 (0.58)	0.143 (2.03)	-0.234 (5.08)	0.176 (1.67)
Region				
Schleswigholstn	0.357 (4.50)	-0.373 (3.52)	-0.415 (6.44)	0.525 (3.03)
Hamburg	0.187 (2.22)	0.039 (0.39)	-0.039 (0.50)	0.597 (3.18)
Lower Saxony	0.156 (2.71)	0.115 (1.46)	-0.348 (6.44)	0.293 (1.79)
Bremen	-0.075 (0.60)	-0.072 (0.50)	-0.576 (4.52)	0.891 (3.67)
N.Rhine – W.Falia	0.236 (4.41)	0.050 (0.69)	-0.304 (6.27)	0.377 (2.47)
Hesse	0.240 (4.06)	-0.011 (0.14)	-0.249 (4.80)	0.315 (1.93)
Rhinlnopal/Saar	0.336 (5.20)	-0.086 (0.98)	-0.224 (3.98)	0.141 (0.78)
Badenwuerttembg	0.249 (4.49)	-0.047 (0.62)	-0.181 (3.71)	0.258 (1.63)
Bavaria	0.254 (4.59)	-0.021 (0.27)	-0.237 (4.76)	0.486 (3.16)
Sample	37485	37485	39101	39101

Absolute asymptotic t-ratios in parentheses. Reference categories: Never married, West Berlin. All regressions include year dummies.