

Why Do Women Choose To Become Entrepreneurs Less Often Than Men? A Jack-of-all Trades Perspective of Human Capital

by

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INTRODUCTION & PRINCIPAL TOPIC

Women's self-employment ratio, i.e. the share of self-employed women among all working women, remains roughly half of the men's self-employment ratio (Strohmeier 2007, Wagner 2007, Minniti et al. 2007). According to the recent investigations of the Global Entrepreneurship Monitor, men are, on average, more than twice as active in establishing new businesses as women (Allen et al. 2007, Minniti et al. 2005). This pattern also holds true for Germany. According to Sternberg et al. (2006:15), women set up significantly less often businesses in Germany than men, and they establish their own enterprises even less often than their female counterparts in other western industrialized states. More specifically, while the early-stage entrepreneurial activity is 4.21% for all adults aged between 18 and 64 years old in Germany, it is only 2.58% for women and thus twice as low as for men. The corresponding figures are substantially higher for most other western industrialized states (cf. 7.36%, 3.61% and 5.7% of women's entrepreneurship rates in the US, UK and Spain, respectively).

Given these substantial gender-specific variations in entrepreneurship as well as widespread political interest in measures aimed at fostering female entrepreneurship, it is surprising that empirical investigations on the gender gap in entrepreneurship are scarce (for exceptions see e.g. Strohmeier & Tonoyan 2007, Wagner 2007, Strohmeier 2003). As put sufficiently by Parker (2004:129), *“despite its intrinsic interest and importance, the subject of female entrepreneurship has arguably not commanded the degree of research effort that it deserves.”*

The existing (scarce) work (see e.g. Strohmeier 2007, Wagner 2007) focused either on the vertical aspect of human capital (years of schooling and work/career experience) or the horizontal aspect of human capital (fields of study) to explain the gender gap in entrepreneurship. The findings can be summed up as follows: first, women fare better than men with regard to their educational attainment not only in Germany but also most other western industrialized states: subsequently, educational attainment cannot be considered as a determinant of the gender gap in entrepreneurship. Second, women choose different fields of study than men and the differences in the fields of study account *partially* for the differences in the entry into entrepreneurship (Strohmeier & Tonoyan 2008, Strohmeier 2003).

However, previous work did not examine the question whether women might have a *different set of skills* than men and be therefore less likely to become entrepreneurs. That is, differences in women's and men's willingness to become an entrepreneur might depend on the gender-specific differences in the *portfolio of human capital* or, put differently, a set of *different, balanced skills*. Against this background, we set up to investigate this question, drawing on a novel theory, namely the jack-of-all trades theory of entrepreneurship introduced by Lazear (2002, 2004 and 2005), with an alternative view of how human capital might affect women's decision to become self-employed.

THEORETICAL BACKGROUND & RESEARCH QUESTION(S)

The "Jack-of-all trades theory" of entrepreneurship by Edward Lazear (2002, 2004 and 2005) posits that the selection into entrepreneurship is fostered by the *mix of skills* or, put differently, *balance of skills* rather than the specialized expertise. More specifically, it predicts that entrepreneurs should be generalists or multi-skilled, i.e. they must be sufficiently good at the wide variety for skills, while those who are planning to work for others (employees)

should be specialists. Consider the example of the founder of a new IT enterprise. In addition to being a good computer programmer, she must have knowledge of operations management, strategic and human resource management, she must be a good accountant, someone who can obtain funds from banks and venture capitalists, choose firm location, advertise the firm and sell the products and services. Even when entrepreneurs can hire others, they “must be sufficiently well versed in a variety of fields to judge the quality of applicants” (Lazear 2005, p. 650).

In a nutshell, those individuals are more likely to become entrepreneurs who are either innately well versed in a variety of skills or invest purposefully in different types of human capital (Lazear 2002, 2004). The “jack-of-all trades” theory is thus an extension to the human capital theory since it argues that investments in human capital (education and work experience) will be much more diverse for those who are planning to become one’s own boss as opposed to those who plan to work for others.

Empirical examinations of the jack-of-all trades theory are scarce (but see e.g. Lazear (2004 and 2005) for the US, Wagner (2003) and (2006) and Backes-Gellinder & Moog (2008) for Germany, Astebro & Thompson (2008) for Canada, and Silvia (2007) for Italy). While Wagner (2003) and Backes-Gellinder & Moog (2007) replicated Lazear’s results for Germany, Silva (2007) rejected Lazear in an Italian sample, showing that differences in the spread of knowledge across different fields do not increase the probability of becoming an entrepreneur.

However, to our knowledge, no empirical studies exist which have investigated the question whether women’s lower probability to become self-employed can be attributed to the fact that they are less jack-of-all trades than men. Put another way, are *women less generalists than men*, when it comes to their investment in human capital, and therefore less likely to become entrepreneurs than men? Can the gender gap in entrepreneurship be traced back to

different investments in human capital by women and men? If so, what might the *reasons* for the differences in women's and men's human capital investments and endowments be?

DATA, VARIABLES AND METHODS

Three sources of data, namely two secondary data and our own primary survey, will be used for our analysis. The secondary sources of data refer to the BIBB/IAB data (1998-1999) and the BIBB/BAuA data (2006). The **BIBB/IAB data (1998-1999)** is a survey conducted by the Federal Institute for Vocational Training¹ in collaboration with the Institute for Employment Research.² More recent and follow-up study conducted by the Federal Institute for Vocational Training is the **BIBB/BAuA (2006)**, a survey jointly conducted with the Federal Institute for Occupational Safety and Health.³ Additionally, we will utilize on **own data** collected within a long-term project (2007-2009) on “*How do women acquire their entrepreneurship-relevant know-how and how does this knowledge impact their entry into and performance in self-employment?*” funded by the Federal Ministry of Education and Research.

The *dependent variable* of this study measures women's and men's transition from wage-and-salaried work into self-employment in Germany. *Independent variables* used to capture the “*jack-of-all trades*” aspect of human capital are (i) the number of professional training a person has experience in, (ii) the number of occupational changes and (iii) job changes in the past, as well as (iv) the number of professional degrees completed after the school. Human capital is further operationalized by utilizing on variables which measure the level of educational attainment (years of schooling), training in small-and-medium sized enterprises versus large enterprises as well as the applicability of the educational achievement.

¹ German: Bundesinstitut für Berufsbildung, *BIBB*

² German: Institut für Arbeitsmarkt- und Berufsforschung, *IAB*

³ German: Bundesanstalt für Arbeitsschutz und Arbeitsmedizin, *BAuA*

Other independent variables measure work experience (age as a proxy), holding a second job and industry. Additionally, the respondent's family structure (age, children and partner) are controlled for.

Following Wagner (2006), we employ *rare events logistic regression*, or in short *relogit*, for the BIBB/IAB (1998-199) and BIBB/BAuA (2006), because starting a new business is a rare event in these data sources. In comparison to traditional logit regression, *relogit*'s estimator has a lower mean square error for coefficients and probabilities and is thus a more efficient estimator for rare events data.⁴

Furthermore, we employ *Blinder (1973) and Oaxaca (1973) decomposition* to explain the extent to which the gender gap in the entry into entrepreneurship can be decomposed into two parts, namely one part which is driven by the differences in the so-called "endowments", or put another way, differences in individual characteristics and resources, and the second part which cannot be explained. The standard Blinder-Oaxaca technique cannot be used for a dependent variable which has not a continuous scale measurement but is binary. Therefore, we employ a *Fairlie extension to the Blinder-Oaxaca decomposition* (Fairlie 2003).⁵

⁴ We use logit regression for our own primary data to predict women's and men's transition from wage-and-salaried work to self-employment.

⁵ Two statistical modifications will be implemented to address *non-invariance problems* of the Blinder-Oaxaca decomposition (see e.g. Newmark 1988, Cotton 1988, Oaxaca and Ransom 1994 or Oaxaca and Ransom 1999). First, the so-called "*pooled regression*" (Neumark 1998, Oaxaca & Ransom 1994) will be employed, because the results from the standard Blinder-Oaxaca (1973) decomposition are sensitive to the choice of the reference category of the dependent variable. Second, Blinder-Oaxaca (1973) decomposition produces arbitrary results for the estimation of the separate contributions of the categorical variables to the unexplained portion of the dependent variable. The problem is that the estimates are not invariant with respect to the choice of the reference category of the independent variable. To avoid this, the so-called "*effects coding*" (Cohen et al. 2003: 320-328) of independent categorical variables will be used.

RESULTS AND IMPLICATIONS FOR FUTURE RESEARCH AND PUBLIC POLICY

Confirming previous research (Wagner 2003 and 2006, Backes-Gellner & Moog 2007), we show that generalists, i.e. individuals with a higher number of professional training, higher number of occupational changes and job changes, as well as those with a higher number of professional degrees, are more likely to be entrepreneurs than specialists.

Moreover, it becomes evident that women are less jack-of-all trades than men in Germany. They changed their fields of professional training, occupations as well as their jobs, *significantly* less often than men, although the differences are not statistically salient in all cases. For instance, we observe rather a low gap in the average number of professional training for men (1.7) and women (1.3), although the difference is statistically significant. Moreover, it is worth emphasizing that the jack-of-all trades of human capital is a more important predictor of women's entry into entrepreneurship than men's entry into entrepreneurship, as indicated by the interaction effects in the regression models. Last but not least, women's and men's differences in the jack-of-all trades of human capital explain a substantial part (33%) of the gender-gap in entrepreneurship, as indicated by the Blinder-Oaxaca decomposition results.

Future research could investigate the question, whether and why might women have a lower rate of movement across firms and employers and thus less possibilities for acquiring balanced skills. One explanation would be women's reconciliation of family (child-care) and work and thus their lower tendency to commute. It could also be that women's lower rate of changes of their occupations can be traced back to their higher risk-aversion. After all, changing employers and occupations is a risky undertaking which might not pay off. Furthermore, it would be interesting to see whether the results for Germany can be replicated

for countries with different institutional environments and thus both different formal rules and regulations (e.g. those concerning the reconciliation of family and work duties, see e.g. Tonoyan et al. 2008) and informal institutions which might affect women employees' occupational mobility.

There are also important and far reaching implications for public policy which can be derived from our results. If entrepreneurship requires a balanced set of skills to start a business in a certain industry, and if women have less balanced skills than men, then promoting female entrepreneurship would require investments in the variety of different skills for potential female entrepreneurs. That is, fostering women's entrepreneurship would require institutional environments which provide women with incentives and opportunities to invest in many types of skills, but not just one type of skill required for becoming entrepreneur.