Gender Gap in Nascent Entrepreneurship in Germany: Does Human Capital Matter?

by

Vartuhí Tonoyan*, Tina Grohs & Robert Strohmeyer***

* Research Fellow & Lecturer
Department of SME & Entrepreneurship,
Institute for Small Business Research
University of Mannheim, Germany
L 9,1-2, Mannheim 68161
0049-621-181-2895 (phone)
0049-621-181-2892 (fax)
tonoyan@ifm.uni-mannheim.de
http://woywode.bwl.uni-mannheim.de

** Student Assistant
Institute for Small Business Research
University of Mannheim, Germany
L 9,1-2, Mannheim 68161
0049-621-181-2893 (phone)
0049-621-181-2892 (fax)
tgrohs@rumms.uni-mannheim.de
www.ifm.uni-mannheim.de

* Research Fellow & Lecturer
Department of SME & Entrepreneurship,
Institute for Small Business Research
University of Mannheim, Germany
L 9,1-2, Mannheim 68161
0049-621-181-2895 (phone)
0049-621-181-2892 (fax)
strohmeyer@ifm.uni-mannheim.de
http://woywode.bwl.uni-mannheim.de

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INTRODUCTION AND PRINCIPAL TOPIC

Although the absolute number of women in self-employment has increased recently, however, significant gender-specific differences in the level of the new firm creation still exist. Across OECD countries, the number of women involved in starting a business is significantly and systematically lower than that of men (Minniti et al. 2007:223). Moreover, some recent work shows that the gender gap is already salient in the *pre-emergence entrepreneurial activity*, that is, both nascent entrepreneurship and potential entrepreneurship.[1] Despite striking gender-specific differences in both nascent entrepreneurship and potential entrepreneurship, research on this topic is surprisingly scarce (Greene 2003:24). That is, little is known about *why* exactly are women significantly less likely to be nascent or potential entrepreneurs than men.

The existing (scarce) work on the gender-specific variations in nascent entrepreneurship mostly focuses on the *perceptual* and *psychological characteristics* such as the confidence in one's own skills, the likelihood of failure and subjective perception of opportunities (see e.g. Minniti & Nardone 2007, Wagner 2007, Arenius & Minniti 2005, Mueller & Thomas 2000). However, less is known about the importance of human capital for women's nascent entrepreneurship, and, above all, the explanation of the gender gap in nascent entrepreneurship. In this context, educational attainment (years of schooling) is most often studied form of human

[1] While *nascent entrepreneurs* are defined as individuals who are actively engaged in creating a new venture and who expect to be the owner of a start-up, *potential entrepreneurs* are defined as those individuals who have the wish and required skills for becoming entrepreneurs (Krueger & Brazeal 1994), without being actively engaged in starting one's own business. In contrast to nascent entrepreneurship, potential entrepreneurship thus describes a "latent" or "lurking" pool of actors who are highly likely to become entrepreneurs.

capital in previous work on the entry into self-employment. Research argues that educational attainment cannot be considered as a determinant of the gender gap in entrepreneurship: after all, women fare meanwhile better than men with regard to their educational attainment not only in Germany but also most other western industrialized states.

Against this background, we aim at investigating the gender-specific gap in nascent entrepreneurship, focusing not only on the level of educational attainment but also on *various types of human capital*. We suggest that earlier and current events in the individual's working career impact their stock and specificity of the knowledge and skills, thus influencing their likelihood of becoming a nascent entrepreneur. In this regard, we focus on *public sector employment* (versus private sector employment) and *industrial sex segregation* (integrated sectors, female-dominated sectors and male-dominated sectors), advancing hypotheses and trying to explain the mechanisms which underlie the association between these variables and the probability of becoming nascent entrepreneur.

Research argues that women's growing labor force participation has been marked by an increasing trend of female-participation in the public sector (Korpi, 2000 & Gornick et al. 1997). Across welfare states in Western Europe, public sector is a typical female domain. But, we assume that the acquisition of entrepreneurial relevant human capital is less likely to occur in large, bureaucratic and hierarchical organization such as the *public sector* as opposed to *small (private) firms*. Employees in small firms take in a variety of activities relevant to entrepreneurship and are able to gather valuable information (about suppliers, customers, human resource management) because small firms are transparent in their structure, and employees have smaller distance to the firm owner. This sharply contrasts to large hierarchical organizations (such as public sector) which are characterized by a high degree of bureaucracy and formalization, where the probability of learning entrepreneurial skills and imitating entrepre-

neurial behavior is very low. Second, the public sector does not impart knowledge and skills that are applicable and directly transferable to self-employment. This is because firm-specific skills learned in large organizations (such as public sector) are not universal but rather very specific (Strohmeyer & Leicht, 2001). Subsequently, the transition from the public to the private sector might be accompanied by higher mobility (or switching costs) and thus higher loss of human capital, since employees changing public sector have to "re-orientate" themselves, i.e. begin self-employment career from the scratch. As a consequence, assuming that women are over-represented in the public sector, they will have lower amount of entrepreneurial know-how and thus be less likely to be nascent entrepreneurs.

Industrial sex segregation describes that industries exist where the percentage of workers of either sex is so high that they could be called either "male-dominated" or "female-dominated" industries. Research argues that there is indeed an inter-industry variability in gender composition. Across all industrialized countries, women are better represented in *service sectors* that produce goods or services which are either functionally or symbolically similar to women's traditional domestic roles (e.g. child-care) or traditionally purchased by women (e.g. apparel, food). We assume that industrial sex segregation does not impart women with the know-how and skills relevant for entrepreneurship. As a consequence, the gender gap in nascent entrepreneurship can be attributed to the fact that women tend to work in industries which are unfavorable for the potential transition into entrepreneurship.

DATA, VARIABLES AND METHODS

We draw on the Micro-Census Scientific Use File. We have matched and harmonized the data for 10 years, namely for 1996-2006, thus having constructed a "quasi panel". Our sample consists of the respondents between 19 and 65 years old. The ***dependent variable*** measures whether the respondent is a nascent entrepreneur or not. For this, the survey question has been

utilized which asks whether the respondent is looking for a job as a self-employed or employee. The corresponding variable is a dummy variable: it takes the value "1", if the respondent is looking for a job as a self-employed and the value "0", if she or he is looking for a job as an employee. Our sample consists of dependent employees, self-employed, unemployed and economically inactive persons.

Independent variables which measure human capital are (i) education, (ii) public sector employment and (iii) industrial sex segregation. Education is operationalized via two variables, namely (first) **general school system** (German: allgemeiner Schulabschluss) and (second) **college/university training**. **General school system** is a variable with three categories. Category 1 describes whether or not the respondent has an intermediate school certificate/upper secondary certificate (German: Mittlere Reife/Polytechnische Oberschule), category 2 describes whether or not the respondent has a specialized short-course higher education (German: Fachhochschulreife), while category 3 measures whether or not the respondent has upper secondary school certificate (German:Abitur). Individuals who do not have general school system certificate are the reference category. **College/university training** has four categories, namely (i) apprenticeship training occupations (German:Lehre/Anlernausbildung), (ii) master craftsmen college degree, (iii) post-secondary technical college (German: Fachhochschulabschluss) and (iv) university or college education/PhD (German: Hochschulabschluss/Promotion). Those who do not have college/university training are taken as the reference category.

Furthermore, we measure *public sector employment* and *industrial sex segregation* to capture further aspects of human capital. *Public sector employment* is utilized using two questions in the survey which measure whether or not the respondent has worked in the public sector in the past (in case she or he is currently unemployed or economically inactive) or whether or

not she or he is currently working in the public sector. *Industrial sex segregation* describes gender-specific distribution over industries. It is utilized using Catherine Hakim's classification (Hakim 1988). Totally, three types of industries are utilized, namely (first) *female-dominated industries*, i.e. industries with more than 60.7% of women, (second) *male-dominated industries*, i.e. industries with less than 30.7% of women, and (third) *integrated industries*, those where the percentage of women lies in between these values. Similar to public sector employment, this variable is utilized in the way to measure whether the respondent is currently in either type of industries or has worked in either type of industry before (if she or he is currently unemployed or economically inactive).

Regional dummy (West Germany/East Germany), age, the respondent's current occupational status (unemployed/economically inactive & self-employed), the partner's occupational status and presence of children in the household are adjusted for as *control variables*.

We employ ***logistic regressions*** for explaining the probability of being a nascent entrepreneur for female and male populations, separately. We also apply logistic regressions for the whole sample to explore gender-specific differences in the determinants of human capital, using interaction terms between all individuals predictors of nascent entrepreneurship and gender.

Furthermore, we employ ***Blinder (1973)*** and ***Oaxaca (1973) decomposition*** to explain the extent to which the gender gap in nascent 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 "unexplained" part. 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).

RESULTS AND IMPLICATIONS FOR PUBLIC POLICY

Focusing on human capital specific results, the following can be summed up. The higher one's general school attainment, the higher the likelihood of being nascent entrepreneur. In comparison to women without general school attainment (reference category), the probability of being nascent entrepreneur is to 50% higher for women with an intermediate school certificate, and it is even to 130% higher for women with a specialized short-course higher education. The same is also true for men. Comparing to men without general school attainment, the likelihood of being nascent entrepreneur is to 50% higher for men with an intermediate school certificate, and it is even twice as high for men with a specialized short-course higher education. Recapitulating, *no* gender-specific differences can be observed with regard to the association between general school attainment and nascent entrepreneurship.

Similarly, the higher one's college/university degree, the higher the probability of being nascent entrepreneur. Although, no significant differences can be observed between women with apprenticeship training and their female counterparts without college/university training, the likelihood of being nascent entrepreneur is to 50% higher for women with master craftsmen college degree compared to their female counterparts without college/university degree. In the same vein, women with post-secondary education are twice as likely to be nascent entrepreneurs as their female counterparts without this type of degree. However, the picture is quite reversed for men. First, apprenticeship training decreases the probability of nascent entrepreneurship for men. Second, one does *not* observe a statistically significant association between master craftsmen college degree and nascent entrepreneurship as well as post-secondary technical college degree and nascent entrepreneurship for the male population. But, having a university/college degree and/or PhD degree increases the likelihood of being nascent entrepreneur for men to roughly 36%. Indeed, the observed gender-specific differences could be sub-

stantiated in regression models with interaction effects which support the finding that master craftsmen college and post-secondary college degrees predict women's nascent entrepreneurship but not men's nascent entrepreneurship. Also, it is worth emphasizing that higher education predicts women's probability of being nascent entrepreneur *more strongly* than that of men.

Moreover, current or previous employment in the public sector decreases strongly significantly the likelihood of being nascent entrepreneur, a finding which is remarkably true both for women and men. This supports the hypothesis that public sector is a pitfall for nascent entrepreneurship.

Furthermore, there is a clear relationship between industrial sex segregation in the dependent employment and the probability of being nascent entrepreneur. Apparently, integrated industries, i.e. industries with evenly distributed percentage of women and men, provide breeding grounds for nascent entrepreneurship. This result is similar both for women and men. But, one does not observe a statistically significant association between the likelihood of being a female nascent entrepreneur and working either in a female-dominated or male-dominated industry. Here, we observe a slight difference for men: men from a male-dominated industry have a significantly lower probability of being nascent entrepreneur than their male counterparts from a female-dominated industry.

Last but not least, Blinder-Oaxaca decomposition model shows that the gender gap in nascent entrepreneurship can be attributed to women's and men's differing endowments. More specifically, it is public sector which explains 30% of the gender-specific differences in nascent entrepreneurship. That is, although public sector is a pitfall for nascent entrepreneurship both for women and men (as already shown in the logistic regressions), but, its negative effect on

women's nascent entrepreneurship is higher because public sector is predominantly occupied by women.

The main contribution of our paper is twofold. First and foremost, we show that human capital determinants are different for women and men nascent entrepreneurs. More exactly, certain types of human capital predict women's probability of being nascent entrepreneur, but *not* men's. Second, it shows that public sector employment deters women's likelihood of being nascent entrepreneur more strongly than men's. A straightforward conclusion from the latter result would be that promoting female entrepreneurship implies helping and encouraging women employees not to position themselves in the public sector as an environment which does not support the accumulation of entrepreneurship relevant know-how and, as a consequence, implies higher mobility or switching costs to entrepreneurship.