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Immigrant Women and Entrepreneurship: A Study of the Health Care Sector in Sweden, 2002-2006

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Abstract

Using unique Swedish longitudinal full-population data and logistic regression, this paper explores whether start-ups of foreign born female health care workers are structurally (i.e. comparatively higher unemployment and lower wages) or culturally (defined as country of birth) motivated. While structural factors are significantly related to female entrepreneurship regardless of origin, no additional effect is found whether for foreign born more broadly defined, or when adding specific country of birth. Thus, we conclude that structural disadvantage motives, based on gender rather than ethnicity, dominate over possible cultural motives for entrepreneurship.

1. INTRODUCTION

In the literature, ethnic entrepreneurs are often portrayed as either “pushed” or “pulled” into entrepreneurship and their entrepreneurial behavior as explained by either structural (push) or cultural (pull) factors (Bun & Hui, 1995; Dana & Morris, 2007; Min & Bozorgmehr, 2000). Accordingly, the structural approach emphasizes how immigrants, owing to *external* constraints to some extent, are forced to become self-employed, how in order to make a living they start up their own businesses, usually in low-paid sectors of the economy (Bates, 1997; Bonacich, 1973; Boyd, 2000). The cultural approach, instead, focuses on *internal* aspects within the ethnic community, which in different ways enable immigrant entrepreneurship: for example, by providing start-up capital, institutional support and relatively cheap co-ethnic labor (Light, 1972; Light & Karageorgis, 1994; Zhou, 2004). Within such an ethnic economy, the ethnic entrepreneur creates a labor market for their own ethnic community by employing co-ethnics, a factor which is also portrayed as crucial to the employment of these groups.

Several attempts have been made to question this basic division of ethnic entrepreneurship as either structural or cultural (Bun & Hui, 1995; Light & Gold, 2000). It has been emphasized that there is a mixed embeddedness of structural constraints and cultural aspects, where the ethnic resources are mobilized within the external forces that are created by society (Kloosterman & Rath, 2003). Other researchers stress the intersection of various aspects of the entrepreneurial process, such as gender, ethnicity and class (Brettell, 2007; Min & Bozorgmehr, 2000; Robinson, Blockson, & Robinson, 2007). Accordingly, a wide range of factors and group-belongings are interrelated with ethnicity in the entrepreneurial process.

In this paper, we are particularly interested in the intersection of gender and ethnicity in the entrepreneurial process. This refers back to the structural division in the labor market, related to both gender and ethnicity, making immigrant women work in separate, usually lower-paid sectors than men (De los Reyes, 2000; Schrover, van der Leun, & Quispel, 2007; Wright & Ellis, 2000). In the literature on entrepreneurship, however, there are few studies combining these two threads, i.e. dealing with both ethnic and gender aspects of entrepreneurship and combining perspectives from the often separate literatures on ethnic and women's entrepreneurship (Essers & Benschop, 2007; Pütz, Schreiber, & Welppe, 2007; Strüder, 2003). Moreover, the existing literature that combines the research interests of gender, ethnicity and entrepreneurship tends to focus on women entrepreneurs of particular ethnic groups while using qualitative methodologies, and there is a general lack of both quantitative studies and studies that seek to identify common factors explaining entrepreneurship among women from many different ethnic groups.

In this paper, we attempt to close up this gap in the research and to combine structural and cultural approaches in explaining start-ups of immigrant women's entrepreneurship. This is done by investigating as far as possible the empirical reality behind assumed differences in the motives of immigrant women's start-ups. We focus on the Swedish healthcare sector, for which we have access to unique longitudinal full population data for all the years from 2002 to 2006. Instead of focusing on a particular ethnic group, we focus on women of different ethnic and economic backgrounds in a particular sector of the economy, which allows us to abstract from between-sector differences in entrepreneurial behavior and to focus better on the questions at hand. We also argue that the Swedish healthcare sector is well-suited for our purposes. It currently employs around a third of all female labor, including foreign-born women, underlining its importance for both immigrant and native-born women and their position in the labor market

(Hedberg, 2009). Further, the healthcare sector is growing fast in terms of entrepreneurship in Sweden as political decisions have recently made possible private enterprise within a sector previously almost exclusively dominated by public-sector employment (Einevik-Backstrand, 2001; NUTEK, 2008).

The following problems are addressed: (1) how can start-ups of immigrant women's entrepreneurship in the healthcare sector be explained, as analyzed by individual background characteristics such as previous employment and level of income, prior to the start-up, and are they separate from those of men and Swedish-born women employed within the same sector? (2) is the start-up of ethnic entrepreneurship mainly motivated by external structures and disadvantages, or are cultural, group or individual-specific explanations more applicable? (3) do these explanations and motives differ between immigrants and their Swedish-born counterparts?

In what follows, the theoretical framework of the study is outlined in section two below, and previous research and data are discussed in sections three and four. Our statistical model and results are provided in sections five and six, respectively: section seven concludes.

2. THEORETICAL FRAMEWORK

As mentioned by way of introduction, a main dividing line within the literature on ethnic entrepreneurship is that between theories explaining business start-ups by either structural or cultural approaches (Bun & Hui, 1995; Min & Bozorgmehr, 2000; Volery, 2007). Further, these different motivations can be categorized as push or pull factors (Dana & Morris, 2007).

The *structural* approach stresses external factors in society that, more or less, force immigrants into entrepreneurship. The so-called disadvantage theory emphasizes that push factors, such as discrimination in the labor market, leave immigrants no choice but to become self-employed, an

event sometimes also conceptualized as “survivalist entrepreneurship” (Boyd, 2000; Light, 1979; Mora & Davila, 2005; Smith-Hunter & Boyd, 2003). To this basic approach we can also include the theory on “middlemen minorities” which focuses on the structural gap between majority and minority groups in the labor market, and in turn creates a possibility for self-employment of ethnic groups in a middle position who can bridge that gap (Bonacich, 1973; Bonacich & Modell, 1980; Min & Bozorgmer, 2000). Other strands of this literature have emphasized immigrants’ lack of financial and human capital, such as language skills, education and experiences, which together push immigrants into entrepreneurship (Bates, 1994; Bates, 1997; Borjas & Bronars, 1989).

The *cultural* approach, on the other hand, focuses on the internal characteristics of the ethnic group as a driver behind entrepreneurship. Much attention has been given to the role of ethnic economies, where entrepreneurship is seen as being facilitated by the ethnic community (Light & Karageorgis, 1994). The ethnic community provides cheap co-ethnic labor, start-up capital and an institutional framework for the entrepreneurial process. Other theories have focused on the role of the ethnic enclave in the start-ups of entrepreneurship, where co-residence facilitates an ethnic labor market and the employment of co-ethnics (Borjas, 1986; Wilson & Portes, 1980; Zhou, 2004). Here, ethnic entrepreneurship is typically said to start when an entrepreneur begins to serve co-ethnics by satisfying their ethnic-specific tastes and needs, something which is facilitated when ethnic groups are clustered residentially. Other cultural explanations have focused on certain personal characteristics assumed to be typical of members of specific ethnic groups, such as a need for achievement, a general orientation towards entrepreneurship, dedication to hard work and membership of strong ethnic groups (Clark & Drinkwater, 2000; Hammarstedt, 2001; Light, 1972).

Much research on ethnic entrepreneurship today tries to abandon this traditional division of theories into structural or cultural explanations. The *mixed-embeddedness* approach underlines ethnic communities' ability to provide resources within an ethnically stratified labor market (Kloosterman & Rath, 2003). Other approaches stress the importance of the family or social class in mobilizing human capital resources for ethnic entrepreneurship (Min & Bozorgmehr, 2000; Sanders & Nee, 1996).

In this paper we focus on the intersection of gender and ethnicity on explaining entrepreneurship. Bearing in mind the role of ethnic resources for entrepreneurship, we acknowledge and investigate possible structural effects on entrepreneurship that may be prevalent in a labor market that is stratified along the axes of ethnicity and gender (Robinson, Blockson, & Robinson, 2007; Wright & Ellis, 2000).

3. EMPIRICAL STUDIES ON FEMALE AND ETHNIC ENTREPRENEURSHIP

Despite a strong interest in studies on entrepreneurship based on ethnicity on the one hand and women on the other, the amount of research focusing on entrepreneurship among immigrant women is still relatively modest (Pütz, Schreiber, & Welpe, 2007; Smith-Hunter & Boyd, 2003; Strüder, 2003). Most studies on ethnic and women's entrepreneurship up to now address single ethnic groups and the majority of them are based on qualitative methodologies, which use a relatively small sample of in-depth interviews.¹ Also, only a handful of these studies combine

¹Iranians in Los Angeles, US (Dallalfar, 1994), black and white women in the US (Inman, 2000), African-American women in the US (Inman & Grant, 2005), Maori women and Pacific Island immigrant women in New Zealand (Pringle & Wolfgramm, 2005), "Asian" women in the UK (Dawe & Fielden, 2005), Hispanic women in the US (Sarason & Morrison, 2005), Turkish-speaking women in London, UK (Strüder, 2003), Turkish women in the Netherlands (Baycan Levent, Masurell, & Nijkamp, 2003), Turkish and Moroccan women in the Netherlands

this with a focus on a particular sector of the economy; African-American women in the northern US working within the personal service sector (Boyd, 2000), and, African-American women working within hairdressing in the US (Harvey, 2005).

Some of these *qualitative studies* tend to emphasize structural factors such as the “double challenge” that derives from being both an immigrant and a woman (Dallalfar, 1994) and socio-economic and ethnic stratification which influences the opportunities that are recognized by immigrant women (Robinson, Blockson, & Robinson, 2007). Another study finds support for a combination of structural and cultural theories to explain business entry of Indian women in New Zealand (Pio, 2007), and another also looks at immigrant women in Sweden who become entrepreneurs in the healthcare sector (ANONYMOUS, 2011). Entrepreneurship is here taken as both an answer to structural discrimination in the labor market and also enabled by the resources provided by ethnic networks. Another study indicates that immigrant women’s entrepreneurship is empowering in terms of improving their economic subsistence (Brettell, 2007). As such, the article integrates the previous structural position with personal motivations for entrepreneurship that allows for empowerment.

Both the structural and the cultural approaches are questioned in a comparative interview study on black and white women in New York (Smith-Hunter & Boyd, 2003). According to the authors, structural disadvantages in the labor market do not motivate women to become entrepreneurs. Instead, entrepreneurship tends to be explained by personal motivations. Cultural theory should accordingly be readdressed, since both black and white entrepreneurs are very dependent on their co-ethnic networks. Another qualitative study comparing immigrant men and

(Essers and Benschop, 2007), Turkish women in Germany (Pütz, Schreiber, & Welppe, 2007), and Indian women in New Zealand (Pio, 2007).

women in the Netherlands concluded that whereas men tended to be pushed into entrepreneurship, women instead tended to have lower unemployment rates, a relatively high educational level and a strong orientation towards their own ethnic group and the service sector (Baycan Levent, Masurell, & Nijkamp, 2003). Accordingly, there were differences in the entrepreneurial process, something which we investigate in this paper as well.

According to our literature review, there is a considerable lack of studies based on *quantitative* methods analyzing the interlinked gender and ethnic aspects of start-ups of entrepreneurship. Of the few studies at hand (Boyd, 2000; Constant, 2009; Lofstrom & Bates, 2009; Wang, 2009; Wang, 2010), all but one investigate ethnic minorities in the US, and only a few of them focus on motives for entrepreneurship. One of these studies, dealing with the decennial census from 1940, found that black women's entrepreneurship in the US was explained by racial oppression and gender-based labor-market disadvantages (Boyd, 2000). The study uses a bivariate regression while comparing the entrepreneurial rate of unemployed women, who according to the study were excluded from the labor market during the Great Depression and became self-employed in relatively marginal enterprises with low barriers to entry. This kind of "survivalist entrepreneurship" literally meant that black women could keep a roof over their heads, rather than making much money. Likewise, according to a study based on 5 percent public micro data samples (from the year 2000), and using hierarchical regression modeling, ethnic minority women started their businesses in low-profit branches and with low barriers to entry (Wang, 2009). Entrepreneurship was positively influenced by having a spouse as an entrepreneur, whereas residing in an ethnic enclave with a high proportion of co-ethnic entrepreneurs had a negative effect. In another study using the same data and applying multiple regression

techniques, entrepreneurial rate was shown to be lower among women than among men in all ethnic groups (Wang, 2010).²

Accordingly, there are few studies that take the factors of ethnicity and gender into account when studying the start-up process of business ventures. In this study, the following specific research questions are addressed:

1. What is the general pattern of previous income, unemployment and entrepreneurship within this sector? Do all entrepreneurs regardless of gender experience comparatively lower income and higher unemployment prior to starting up private enterprise?
2. Are women in general, both immigrant and native-born, “pushed” into entrepreneurship to a greater extent than men, i.e. are previous wage level and employment status more important in explaining the greater likelihood of women becoming entrepreneurs than men?
3. Does being both a woman and an immigrant stand out in terms of previous wage level and employment status? i.e., compared with women in general, are these factors more important in explaining the likelihood of entrepreneurship for this specific group? That is,

²There are also a few studies focusing on the outcomes of entrepreneurship for different groups. A study based on contemporary panel data found that Hispanic women in the US earned less than both the native-born population and Hispanic men (Lofstrom & Bates, 2009). Nonetheless, the minority women's entrepreneurship is still viewed as favorable, since their low wages were explained by personal characteristics such as lower educational level. Once these were taken into account Hispanic women actually earned more than white women. A study in Germany shows that women earn more when self-employed than in their previous wage employments (Constant, 2009). There was, however, no difference between foreign-born and native-born women.

can we argue that some immigrant women suffer a kind of “double disadvantage” on the labor market, and is this important in explaining their entrepreneurship?

4. Do these structural explanations for entrepreneurship, defined as previous income and employment status, hold while controlling for cultural factors, i.e. individual characteristics related to ethnicity and being part of a separate ethnic group. In other words, do these structural explanations hold while controlling for country of birth?

On the assumption that unemployment and comparatively low wage can indeed be categorized as push factors – as in the structural approaches discussed above – we argue that this research design lets us say something useful regarding the relationship between structural and cultural motives concerning immigrant women’s entrepreneurship. That is, this approach allows us to estimate possible structural “push” factors such as income and employment status while controlling for cultural or internal group factors related to country of birth.

4. DATA AND DESCRIPTIVE STATISTICS

The study uses unique register data for all individuals aged 20 to 64 working within the healthcare sector in Sweden during the years 2002 to 2006, including information on level and source of income, place of residence, education level, place of birth of immigrants and employment status. The data constitute part of the full population database PLACE, which was

compiled by Statistics Sweden, the Department of Cultural and Economic Geography and the Institute for Urban and Housing Research, Uppsala University.³

To define our population we use those individuals who registered as either employed or seeking work within the healthcare sector in the relevant years (2002 to 2006).⁴ A transition from ordinary employment to entrepreneurship, or unemployment to entrepreneurship, is denoted for individuals receiving their main income from self-employment during this time period.

We use country of birth to describe immigrant status, where we distinguish between the foreign-born and the native-born population, and between the categories of countries of birth, i.e. OECD and non-OECD countries. Previous research has shown that the labor market status in Sweden varies considerably between Western and non-Western immigrant groups, and the effect can largely be explained by discrimination of immigrants from non-Western countries (le Grand and Szulkin, 2002). A distinction between OECD and non-OECD countries is also used, for example, by the World Bank in their measures of international migration and remittances.

In what follows, we provide descriptive data to give some background and a basic picture of the developments within the Swedish healthcare sector. First, Table 1 plots the proportion of women working within the Swedish healthcare sector. As expected, women workers constitute a larger proportion of our population (around 80 percent), but are also in slight decline as a proportion of

³ The database is unique owing to its coverage (all individuals) as well as its richness of information. The quality of the data measuring entrepreneurship has, however, been debated (see Hjerm, 2004). Since the data are based on tax-generating figures, there is a likely underreporting of self-employment in the database, perhaps particularly in low-income service sectors. This should be a minor problem in the healthcare sector, however, since private firms within this sector in many cases interact with the public sector in order to obtain customers or render customers eligible for publicly financed healthcare benefits.

⁴ The codes (SNI codes) used for describing people as working within the healthcare sector are available from the authors.

the total number of people employed over our studied time-period. The foreign-born in turn make up around 13 percent of the workforce (Table 2), roughly equivalent to their share of the population as a whole, their share in the health care sector slightly increasing.⁵ This increase is the result of a rising number of non-OECD immigrants among healthcare workers.

Table 1. Share of women within the Swedish health care sector, 2002 to 2006

	2002	2003	2004	2005	2006
Women	0.810	0.797	0.796	0.796	0.793

Source: Statistics Sweden, authors' calculations

Table 2. Share of foreign born, OECD and Non-OECD within the Swedish health care sector, 2002-2006.

	2002	2003	2004	2005	2006
OECD	0.061	0.060	0.060	0.059	0.058
NON-OECD	0.067	0.073	0.076	0.078	0.083
Total foreign-born	0.128	0.133	0.135	0.137	0.141

Source: Statistics Sweden, authors' calculations

Turning to the self-employed, as seen in Table 3, their proportion in this sector overall is small – around 2 percent – but on the rise from 1.8 to 2.4 percent of the workforce from 2002 to 2006. Out of these self-employed, the foreign-born, both women and men, generally constitute around 11 percent, their proportion slightly increasing (by 0.6 percentage points). Out of these foreign-born, immigrants from OECD countries make up the largest group, whereas those from outside OECD countries are responsible for the slight rise in the proportion of foreign-born among the self-employed.

⁵In 2002 the percentage of the foreign-born in the total Swedish population was 11.8 percent and in 2006 it was 12.9 percent.

Table 3. Share of self-employed (entrepreneurs) within the Swedish health care sector, 2002-2006

	2002	2003	2004	2005	2006
Entrepreneurs	0.018	0.019	0.023	0.023	0.024

Source: Statistics Sweden, authors' calculations

Table 4. Share of women, foreign born (both women and men), OECD and Non-OECD immigrants among the self-employed, Swedish health care sector, 2002-2006

	2002	2003	2004	2005	2006
Women	0.620	0.602	0.586	0.595	0.587
Foreign-born	0.112	0.111	0.115	0.116	0.117
OECD	0.076	0.074	0.074	0.075	0.072
NON-OECD	0.036	0.037	0.041	0.041	0.046

Source: Statistics Sweden, authors' calculations

Women constitute around 60 percent of the self-employed in the healthcare sector (Table 4), which is considerably less than their number in the sector overall. Among these women entrepreneurs, the foreign-born make up around 11 percent, this number increasing slightly largely because of an increasing number of entrepreneurs from non-OECD countries (Table A1, Appendix).⁶

Finally, as we are interested in the role of relative income and unemployment as potential factors explaining start-ups, Tables 5 & 6 and 7 & 8 provide statistics on disposable income and unemployment rates in the healthcare sector among workers of Swedish origin as well as different groups of foreign-born. Starting with nominal disposable income (Tables 5 and 6), we find that women in general have lower incomes than men within all our different sub-groups. Further, among both women and men, immigrants from OECD countries actually receive higher

⁶This can be compared with the general proportion of self-employed in the total labor market, where 4.9 percent of the foreign-born women were self-employed (4.4 percent of the native-born women) (Hedberg, 2009).

incomes than natives, but with women from countries outside the OECD earning the lowest income of all. Unemployment among these groups also varies quite dramatically, with women from non-OECD countries experiencing about double the incidence of unemployment as native-born women (Tables 7 and 8).

Table 5. Average yearly income (adjusted for average working hours within parenthesis), female health care workers of different origin, Sweden 2002-2006 (SEK in hundreds)

	2002	2003	2004	2005	2006
SWEDEN	1805.37 (1589.29)	1845.43 (1642.60)	1841.33 (1625.66)	1847.84 (1665.19)	1901.09 (1757.87)
OECD	1903.91 (1676.02)	1944.96 (1731.20)	1950.45 (1722.01)	1957.74 (1764.24)	2006.54 (1855.36)
NONOECD	1738.14 (1530.15)	1740.12 (1548.86)	1739.02 (1535.34)	1737.18 (1565.50)	1784.85 (1650.38)

Source: Statistics Sweden, authors' calculations

Table 6. Average yearly income, male health care workers of different origin, Sweden 2002-2006

	2002	2003	2004	2005	2006
SWEDEN	1966.76	1974.01	2028.55	2068.19	2183.33
OECD	2075.04	2098.58	2168.36	2275.84	2330.32
NONOECD	1678.39	1705.47	1773.88	1821.47	1875.50

Source: Statistics Sweden, authors' calculations

Table 7. Unemployment, female health care workers of different origin, Sweden 2002-2006

	2002	2003	2004	2005	2006
SWEDEN	0.152	0.150	0.157	0.162	0.160
OECD	0.158	0.157	0.155	0.158	0.162
NON-OECD	0.317	0.305	0.303	0.306	0.301

Source: Statistics Sweden, authors' calculations

Table 8. Unemployment, male health care workers of different origin, Sweden 2002-2006

	2002	2003	2004	2005	2006
SWEDEN	0.172	0.177	0.185	0.187	0.179
OECD	0.159	0.168	0.169	0.156	0.159
NONOECD	0.309	0.306	0.294	0.292	0.296

Source: Statistics Sweden, authors' calculations

With these descriptive statistics in mind we now turn to possible explanations for start-ups, investigating whether lower levels of income and relatively high unemployment are possible determinants of private entrepreneurship within the Swedish healthcare sector.

5. EMPIRICAL MODELING STRATEGY

To gauge our research questions we estimate the following logistic regression model;

$$\begin{aligned}
 \text{STARTUP}_{it+1} = & \beta_1 \text{INCOME}_{it} + B_5 \text{UNEMPLOYMENT}_{it} + \beta_2 \text{FEMALE}_{it} \\
 & + \beta_3 \text{FEMALEOECD}_{it} + \beta_3 \text{FEMALENONOECD}_{it} + \beta_2 \text{FEMALEINCOME}_{it} + \beta_4 \text{OECDINCOME}_{it} + \\
 & \beta_4 \text{NONOECDINCOME}_{it} + \beta_3 \text{FEMALEUNEMPLOYMENT}_{it} \\
 & + B_5 \text{OECDUNEMPLOYMENT}_{it} + B_8 \text{NONOECDUNEMPLOYMENT}_{it} + f(\text{Other controls}) + \varepsilon_{it}
 \end{aligned}
 \tag{1}$$

where

STARTUP_{it} = Receiving income from a privately-owned company, as largest source of income, year t+1

INCOME_{it} = Disposable income, i.e. all types of income net of taxes, men and women (all income variables logged values)

UNEMPLMNT_{it} = Number of days on unemployment benefits, divided by 365, men and women

FEMALE_{it} = Dummy variable, coded as one if female

FEMALEOECD_{it} = Dummy variable, coded as one if female and foreign-born, OECD origin

$\text{FEMALENONOECD}_{it}$ = Dummy variable, coded as one if female and foreign-born, non-OECD origin

FEMALEINCOME_{it} = Disposable income, all women

$\text{FEMALEOECDINC}_{it}$ = Disposable income, immigrant women, OECD origin

FEMALENONOECDINC_{it} = Disposable income, immigrant women non-OECD origin

FEMALEUNEMPLMNT_{it} = Unemployment, Swedish-born women

OECDUNEMPLMNT_{it} = Unemployment, immigrant women OECD origin

NONOECDUNEMPLMNT_{it} = Unemployment, immigrant women non-OECD origin

Controls:

EDUC_{it} = Categorical variable, level of education, having an education equivalent to basic, intermediate, university (BA) or doctorate level.

AGE1-3_{it} = AGE1, AGE2, AGE3 together control for age effects (experience), see further discussion below.

YEARSINSWEDEN_{it} = Years in Sweden since immigrant arrival

HIGHINCDUMMY_{it} = Dummy variable, designating individuals with income exceeding 10 million Swedish crowns

YEAR_{it} = Dummy variable for each separate year, 2002 as reference category

COUNTRYOFBIRTH = Dummy variable, coded as zero if born in Sweden and as one (unity) if born in any of the 73 different countries other as listed by Statistics Sweden.

ε_{it} = error term

In addition, we also include the variables INCOME2, FEMALEINCOME2, FEMALEOECD2, FEMALENONOECD2, which capture all negative disposable income and whose definitions correspond to the main income variables above.

In relation to our previous theoretical discussion, the motivation and expected outcome of these variables are as follows. First, disposable income (INCOME) and unemployment

(UNEMPLMNT) capture the general effect (i.e. for both men and women) of previous income and unemployment on the likelihood of becoming an entrepreneur, whereas the dummy variables FEMALE, FEMALEOECD, FEMALENONOECD aim to capture all main effects related to gender and origin, broadly defined. That is, all variation related to differences in entrepreneurship and the starting-up of companies that is *not* related to previous income, unemployment or our other controls is defined below. In the light of the previous descriptive section, if push factors dominate the picture, previous income and unemployment should be negatively and positively related to start-ups, respectively. In other words, the higher the previous income the less likely a person is to venture into entrepreneurship, whereas the higher the previous unemployment the higher the likelihood of entrepreneurship. The categorical dummy variables, in turn, are expected to be positively (FEMALE) and negatively (FEMALEOECD, FEMALENONOECD) related to healthcare entrepreneurship; this is because, as seen in Table 4 previously, women in general are statistically somewhat more - and foreign-born women somewhat less - likely to start up companies within the healthcare sector than are men.

Turning to our main variables of interest, the variables FEMALEINCOME, FEMALEOECD, FEMALENONOECD (the income of women in general, and women with OECD and non-OECD origin, respectively) aim to capture any interaction effects between prior income, gender and origin – broadly defined – for these separate sub-groups of the population. The expected outcome (sign) is negative. That is, as previously, if push factors dominate as a motive for entrepreneurship then relatively lower previous income should be associated with a greater tendency to entrepreneurship. In line with this reasoning we also expect a stronger negative effect the lower the average income of our separate subgroup (see Table 5 in the previous

section). That is, we expect a greater negative effect for both women in general and women of non-OECD origin, as these two groups experience the lowest average annual income of our separate sub-groups.

The equivalent interaction variables for unemployment (i.e. the interaction between being unemployed and a woman, or unemployed and a woman of OECD and non-OECD origin), FEMALEUNEMPLMNT, OECDUNEMPLMNT, NONOECDUNEMPLMNT, gauge whether previous employment status can also be seen as contributing to the start-up of private healthcare businesses. In line with the reasoning above, the expected sign is positive for all these groups, i.e. higher previous unemployment is expected to be positively related to start-ups. Again, as seen in Table 7 in the previous section, the greatest positive effect is therefore expected for women of non-OECD origin, who experience almost double the unemployment rates of workers of Swedish or OECD origin.

These – our main variables of interest – are estimated and the following other controls added. First, education level (EDUC) controls for differences within the population in terms of level of education and its potential relationship with entrepreneurship, something which could otherwise affect estimates of possible income effects. Second, as people of middle age regardless of gender and ethnic background are often over-represented as entrepreneurs (Bonte *et al.*, 2009), we include age as a control. This also controls for experience as a factor in determining the outcome. Since the relationship is not linear, age is controlled for by means of a standard three-variable approach; age, age-squared and the cube value of age (AGE, AGE2, and AGE3). For immigrants, time spent in Sweden (YEARSINSWEDEN) is also controlled for since language skills and experience of the Swedish labor market are probably important preconditions for entrepreneurship, both in terms of being practically able and having the confidence to start up on

one's own. Further, as we are using the natural logarithm of absolute income and since disposable income in some instances can take on negative values for which the natural logarithm is not defined, controls for negative disposable income are also included (INCOME2, FEMALEINCOME2, IMMIGRNTINCOME2, FEMALENONOECD2). The variable HIGHINCDUMMY, signifying those with disposable income exceeding 10 million Swedish crowns (the equivalent of around 1.4 million US Dollars, or one million British pounds), is included to capture potential effects of outliers on our estimates. Finally, as entrepreneurship is probably related to the business cycle and the years included represent only the up-swing of a cycle, all regressions also include year fixed effects (YEAR) to control for secular trend and its effect on the outcome.

Apart from these controls, in a separate final model run, we also add dummy variables for country of birth, including all 74 categories used by Statistics Sweden with Sweden as reference category. In relation to our previous theoretical discussion, this aims to control for all secular effects on entrepreneurship related to possibly cultural specific motivational characteristics such as access to networks and tradition within certain ethnic communities.

In terms of modeling strategy, the reader may observe that we have multiple controls related to ethnicity; dummies for general background (OECD, non-OECD), interaction effects of income and unemployment for these two groups and separate controls for country of birth. Under normal circumstances this could cause problems with multi-collinearity and insufficient degrees of freedom. As we are working with a huge population, around four million observations, we do not consider this a problem. For clarity, however, in the Appendix we also present model estimates without main effects (categorical variables gender and group-specific dummies), including only

interaction effects with and without our country-specific dummy variables as controls for origin and cultural background.⁷

6. RESULTS

Table 9 shows estimates using our basic model (Model no.1). For parsimony, we show our estimates divided into four separate model runs, subsequently adding the category of variables roughly corresponding to our separate research questions. Column 1, Table 1, thus shows results of previous levels of income and unemployment as well as our main categorical variables regressed on entrepreneurial activity or status. Contrary to what we expected, the higher the previous income the greater the likelihood of start-ups generally. Thus, taking women and men together regardless of origin, previous relative lower income thus does not seem to be a motivational factor for entrepreneurship. As expected, however, previous unemployment is positively and significantly related to start-ups. Women of both Swedish and foreign-born origin, in this our basic model run, also show less inclination for private entrepreneurship compared with men, but when we add specific controls for female income and female unemployment (Column two) this previously negative relationship turns positive and general unemployment (UNEMPLMNT) turns negative. Thus, when we control for female income and unemployment, women are more inclined to entrepreneurship than men, and the positive relationship between previous unemployment and entrepreneurial activity seems to be dominated by women and female unemployment. Column two also shows women's income prior to entrepreneurship as

⁷ Also, as we are working with full population data, the reader should note that any inference on the population is made without sampling error. The standard errors and significance levels will instead be interpreted with respect to the underlying data-generating mechanism, as indicators of the uncertainty of the estimated parameters in a correctly specified model. Since we are working with a very large population, we also focus mainly on very high levels of confidence, i.e. 99 percent or higher.

bearing a negative sign, i.e. comparatively lower income for women is a significant factor in determining potential drivers of entrepreneurship.

Table 9. The effect of prior income and unemployment on private entrepreneurship within the Swedish health-care sector (Model no.1), 2002-2006.

	1	2	3	4
INCOME	0,363*** (0,025)	0,464*** (0,03)	0,462*** (0,03)	0,452*** (0,03)
UNEMPLMNT	0,47*** (0,09)	-0,459** (0,175)	-0,46** (0,175)	-0,409** (0,175)
FEMALE	-0,79*** (0,022)	0,911*** (0,253)	0,965*** (0,261)	0,877*** (0,265)
FEMALEOECD	-0,299** (0,097)	-0,32*** (0,098)	-0,372 (0,74)	-0,288 (0,736)
FEMALENONOECD	-0,38*** (0,075)	-0,42*** (0,075)	-1,515 (1,004)	-0,928 (0,975)
FEMALEINCOME		-0,23*** (0,033)	-0,24*** (0,034)	-0,23*** (0,034)
FEMALEUNMPLMNT		1,472*** (0,203)	1,627*** (0,206)	1,573*** (0,206)
FEMALEOECDINC			0,013 (0,097)	0 (0,096)
FEMALENONOECDINC			0,155 (0,133)	0,113 (0,128)
OECDUNEMPLMNT			-0,797 (0,444)	-0,861 (0,446)
NONOECDUNEMPLMNT			-1,12** (0,43)	-1,144** (0,432)
Constant	-30,915 (.)	-31,76 (.)	-31,825 (.)	-31,75 (.)
Country of birth	No	No	No	Yes
Controls	Yes	Yes	Yes	Yes
Pseudo R2	0,096	0,097	0,097	0,099
Obs.	4056417	4056417	4056417	4054559

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

Subsequently, when we add our remaining controls in Columns three and four, this result concerning women's income and unemployment also stands. Except for unemployment of female immigrants with non-OECD origin, which is negative but significant at a lower level of significance, neither the previous income nor the unemployment of our two broad immigrant sub-groups is significantly related to entrepreneurial activity. This result also stands when specific controls are added for country of birth in Column four, none of which are significant at normal levels of confidence (not shown).

As regards our other controls, level of education (EDUC) is positive and highly significant throughout Columns 1 to 4 (see Table A3, Appendix). Thus, not only income but also education is positively related to start-ups. Further, our combined controls for age are highly significant and seem to capture an effect similar to income in terms of coefficient size. Time spent in Sweden (YEARSINSWEDEN) is also positive and significant albeit with a very small coefficient, something which however is probably owed to collinearity with individual age; when we run our model without controls for age, the variable is positive with a much larger coefficient estimate (not shown). Finally, the only statistically significant additional controls are, first, negative income, (INCOME2), which is positively related to start-ups (i.e. being deeply in debt actually increases the likelihood of starting up one's own company). Estimates of the equivalent variables (negative income) for our other sub-groups are, however, far from normal levels of significance. Second, our year fixed-effect dummies are positive and significant as well.

Is our model over-specified, that is, are we including too many controls for essentially the same thing (in our case, broadly defined origin and specific country of birth), making these results unnecessarily unstable? One way to gauge this is to leave out some of the variables which could cause multi-collinearity, and thereby test the robustness of our previous estimates. In Table A4 in

the Appendix we therefore show results with the main categorical variables, FEMALE, FEMALEOECD, FEMALENONOECD, removed from our model. This measure, however, does not change the essential results from Table 1. In Column three, income of both OECD and non-OECD female immigrants shows an additional negative effect of relative income for belonging to these groups. The effect is, however, small and loses its statistical significance when controls are added for country of birth in Column 4. As before, none of these separate controls for origin emerges as statistically significant (not shown).

To summarize our main findings and return to our initial research questions: first, we find that the general pattern – for both men and women and regardless of origin – of income prior to start-ups is positive. Thus, as a general feature, we do not find support for the notion that relatively lower income is a driver of entrepreneurship. On the contrary, the higher the previous income the more likely a person is to start up as a private entrepreneur in this sector. As seen in Table A3 in the Appendix, this result is reinforced by the fact that education is also positive and significant, i.e. the higher a person's education the more likely they are to start up on their own. Also, contrary to what was hypothesized, general unemployment is also negative but significant at a lower level of confidence.

Second, a stable finding is that comparatively lower income for women is significantly related to the likelihood of entrepreneurship. That is, for women – when we control for level of education – lower than average income seems to be a factor in determining private entrepreneurship. This also goes for unemployment, which in the case of women has a large positive effect on start-ups.

Third, we do not find much of an additional effect for women of either OECD or non-OECD origin, in terms of either previous income or unemployment. Granted, this conclusion to some

extent hinges on the choice of model specification, and on whether we include our main categorical variables in Table 1, Column 1: first, however, we do not see any substantive argument as to why these dummy variables should be left out and, second, even doing so does not change the previous conclusion to any great extent. There is an additional negative effect of income on start-ups for non-OECD immigrants but the effect is marginal and loses its statistical significance when we add controls for specific country of birth in Column 4.

Fourth, neither do we find ethnic background by itself to be an important cultural factor in determining entrepreneurship. That is, beyond the general gender effect it does not seem to be important whether or not an individual belongs to certain broadly defined immigrant groups (such as OECD or non-OECD) or a specific cultural minority. After all, if cultural background dominated as a motive, either our broadly defined categories for origin or specific country of birth would be dominant over income and emerge as significantly related to start-ups, which is not the case.

7. CONCLUDING DISCUSSION

The healthcare sector is the dominant sector for the employment of both native-born and foreign-born women in the Swedish labor market. In this paper, while taking ethnicity and gender into account, we have investigated possible motives of individuals within this sector for becoming self-employed. Focusing on previous income levels and unemployment rates, we wanted to analyze *(i)*, as a starting-point, whether these two factors are generally important in determining start-ups, *(ii)* if there is a gender effect, *(iii)* if there is a combined gender and ethnic effect, and

(iv) if there are any additional immigration-related effects that can be connected either with broad type of country origin (OECD/non-OECD country) or specific ethnic background, thus gauging cultural explanations for start-ups. The main hypothesis was that if women are structurally disfavored on the labor market, and it thus can be argued that they some extent are pushed to become entrepreneurs, immigrant women would be doubly disadvantaged and pushed to an even greater extent, perhaps even more so in the case of immigrants from non-OECD countries.

Summarizing our results, the descriptive statistics that guided our analysis showed that despite the dominance of women (both native and foreign-born) working in healthcare, males were overrepresented as entrepreneurs in relation to their share of the workforce (some 20 percent). Moreover, men experienced higher incomes but also somewhat higher unemployment than women. Immigrants from non-OECD countries had both lower income and higher unemployment than native-born men and women, whereas immigrants from OECD countries actually enjoyed higher income and experienced somewhat lower unemployment rates than the native-born population.

As regarding the results of our OLS model runs, and returning to our initial research questions, firstly, the general pattern of previous income and start-ups is *not* negative as hypothesized, but positive: the higher the income the greater the likelihood of entrepreneurship in the healthcare sector. Thus, the general pattern is not one of being pushed by structural disadvantages – in terms of relatively lower income – into entrepreneurship. This also goes for unemployment as we find no statistically significant general effect of previous unemployment. Employment status therefore does not seem to be a very important general factor determining entrepreneurship within this sector of the economy.

Secondly, turning to the issue of gender, this is however not the case for women. Here, instead, we find that comparatively lower income of women is indeed significantly related to start-ups and that, when we control for women's income, being female actually increases the likelihood of becoming an entrepreneur. In terms of structural factors determining entrepreneurship, as we are controlling for competing explanations such as individual age and level of education, this result supports the notion that women can be regarded as disadvantaged and to some extent pushed into entrepreneurship. It is, however, a matter of debate whether this can also be said for unemployment. Clearly, as female unemployment is positively and strongly related to start-ups, previous employment status for women is a relevant factor, perhaps more so than for men. But as Swedish-born women actually experience somewhat lower unemployment rates than Swedish-born men, and men and women of OECD and non-OECD origin experience roughly equivalent rates (see Tables 7 and 8), it is not evident that women are any more disadvantaged than men in this regard.

Turning to our third and fourth questions, we do not find much evidence of a “double disadvantage,” i.e. that the interaction of being both foreign-born and female is an additional push factor in terms of entrepreneurship. This conclusion is to some extent dependent on our choice of model specification but, as argued previously, we do not find any convincing arguments why we should prefer our alternative specification to our model of choice. In neither case is the additional negative interaction effect of income, being from a non-OECD country and female substantially large. Thus, the available data do not strongly support the existence of any double disadvantage of the type discussed in the literature.

All in all, on the assumption that unemployment and comparatively low wage can indeed be categorized as push factors – as in the structural approaches discussed above – our results speak

more in favor of this set of explanatory factors than “pull factors,” such as cultural and personal motives, in generating entrepreneurship. Admittedly, this is a somewhat tentative conclusion (it is very hard to include exact variables for this set of motivating factors, e.g. self-realization) but the reasoning here is as follows: Pull factors related to ethnic background are hard to estimate, but given that our variable on specific country of birth captures these factors to a sufficient degree, they cannot be sufficiently important as to trump push factors such as previous income and unemployment. After all, if these types of internal and group-related cultural factors dominate in terms of explaining the patterns, the inclusion of our set of dummy variables would leave structural factors such as previous wage and unemployment as non-significant, which is clearly not the case.

To recap, however, these estimates do not completely rule out these individual and cultural motives as explanations but, given that our approach captures these factors sufficiently, they are clearly less important than structural factors such as previous income level and employment status.

Because of the lack of quantitatively-based research on the motives for entrepreneurship from a combined gender and ethnic perspective, the results of this article can to some extent be seen as a starting-point for comparative studies based on other sectors and countries. It would be of interest to investigate whether structural motives such as these are strong in the labor market generally, or if this is a particularity of the healthcare sector. Consequently, the present study both presents results which are potentially important for the understanding of the intersection of ethnicity and gender underlying the motives for entrepreneurship, and also sets the scene for further studies.

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9. APPENDIX

Table A1. Share of foreign born, OECD and Non-OECD immigrants of the self-employed women, Swedish health care sector, 2002-2006

	2002	2003	2004	2005	2006
Foreignborn	0.110	0.116	0.115	0.114	0.116
OECD	0.080	0.083	0.079	0.079	0.076
NON-OECD	0.030	0.033	0.036	0.035	0.039

Source: Statistics Sweden, authors' calculations

Table A2. Share of self-employed women as compared to their total within the workforce, men, women, OECD and Non-OECD immigrants, Swedish health care sector, 2002-2006

	2002	2003	2004	2005	2006
Men	0.036	0.038	0.047	0.046	0.048
Women	0.014	0.015	0.017	0.017	0.018
OECD	0.023	0.024	0.028	0.029	0.029
Non-OECD	0.010	0.010	0.012	0.012	0.013

Source: Statistics Sweden, authors' calculations

Table A3. Additional controls excluded from Table 9. (Model no.1), 2002-2006.

	1	2	3	4
EDUC	0,679*** (0,019)	0,674*** (0,019)	0,675*** (0,019)	0,667*** (0,02)
AGE	0,386*** (0,038)	0,393*** (0,038)	0,393*** (0,038)	0,4*** (0,038)
AGE2	-0,01*** (0,001)	-0,01*** (0,001)	-0,01*** (0,001)	-0,007*** (0,001)
AGE3	0*** (0)	0*** (0)	0*** (0)	0*** (0)
YEARSINSWEDEN	0,011*** (0,003)	0,012*** (0,003)	0,011*** (0,003)	0,014*** (0,003)
INCOME2	0,606*** (0,046)	0,713*** (0,049)	0,711*** (0,049)	0,701*** (0,049)
FEMALEINCOME2	0,134** (0,047)	-0,108 (0,058)	-0,117* (0,059)	-0,109 (0,059)
FEMALEOECD2	0,057 (0,081)	0,06 (0,082)	0,078 (0,129)	0,06 (0,13)
HIGHINCDUMMY	0,541 (0,783)	0,11 (0,806)	0,121 (0,807)	0,202 (0,811)
YEAR2003	13,836*** (0,53)	13,822*** (0,549)	13,895*** (0,549)	13,828*** (0,55)
YEAR2004	14,988*** (0,53)	14,974*** (0,549)	15,046*** (0,549)	14,979*** (0,55)
YEAR2005	14,405*** (0,53)	14,389*** (0,549)	14,461*** (0,549)	14,395*** (0,55)
YEAR2006	14,409*** (0,53)	14,394*** (0,549)	14,467*** (0,549)	14,401*** (0,551)
Constant	-30,915 (.)	-31,76 (.)	-31,825 (.)	-31,75 (.)
Country of birth	No	No	No	Yes
Controls	Yes	Yes	Yes	Yes
Constant	-30,915 (.)	-31,76 (.)	-31,825 (.)	-31,75 (.)
Pseudo R2	0,096	0,097	0,097	0,099
Obs.	4056417	4056417	4056417	4054559

Standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05



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