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The impact of parental education on the earnings of second generation immigrant women in Sweden

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Abstract: Second generation immigrant women face an earnings disadvantage in the labor market in Sweden. The socioeconomic position of the parents has been shown to matter more than ethnicity. This study examines the effect of the immigrant parents' education, as a measure for socioeconomic status, on their daughter's earnings. In addition, the effect of parental education when both parents have the same educational level is also explored. The findings reveal stronger positive effects of mother's education on their daughter's earnings when the mother is born outside Europe. Parents with the same level of education also have stronger positive effects than parents with different educational levels. The study uses register data on the entire Swedish population, obtained from Statistics Sweden, for the year 2013.

Key words: Second generation immigrant women, earnings, parental education, educational homogamy

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1. INTRODUCTION

Increasing migration to the West in the last decades has undoubtedly raised questions about the integration and assimilation of immigrants. Politicians and policy makers are having to not only tackle issues of the initial settlements of immigrants but continuously review and evaluate their efforts in successfully integrating migrants into their society and country. The integration of immigrants can be defined as providing them with and including them in fundamental components of what makes a society; employment, education, social inclusion, civic engagement and social cohesion (OECD, 2015). The importance of integration relates not only to the immigrants but also to a greater extent their children. For many migrants, moving to a new country is to create opportunities for their children. These children will one day constitute a large share of the country's inhabitants, encouraging research today on the assimilation and outcomes of the adult children of immigrants.

In many European countries and in North America, immigrants face numerous disadvantages on the labor market. Employment rates are usually lower among immigrants than natives, despite similar educational levels and work experience. There are multiple explanations for these differences including inadequate language skills, lack of knowledge about the native labor market and the absence of local networks, not to mention discrimination and hostility among employers (Bonoli and Turtschi, 2015). The more similar newcomers are in terms of physical appearance, class, language and religion the more favorable they are for integration, making it more difficult for individuals that stand further from the majority in these aspects to enter the labor market, despite their qualifications (Portes and Rumbaut, 2001). For first generation immigrant women there is even a double disadvantage on the labor market in the host country, being both female and immigrant (Field-Gendry and Balkan, 1991). In Sweden, the employment rates among female migrants are lower than that of native women and also of immigrant men. In 2013, the employment rate among immigrant women was a mere 59 percent in comparison to native women who had an employment rate of 77 percent (Länsstyrelsen Stockholm, 2014).

Once the problems of integration and primarily labor market success for the first generation have been recognized, it is of interest to examine as to what extent their native born children face similar barriers. Previous research on the subject of labor market outcomes and earnings of second generation immigrants in Sweden has shown that the disadvantages in both employment and earnings persist in the next generation, although not to the same extent. The studies have primarily focused on the outcomes of males in relation to their fathers. It is

therefore of interest to explore the labor market outcomes for second generation immigrant women in Sweden, with emphasis on the influence of the parents and especially the mothers.

The definition of the second generation has also varied in previous studies, including individuals who immigrated at pre-school ages, those born in Sweden with foreign-born parents as well as those with one native born parent. Differing results have emerged due to the various identification strategies, indicating a need for a cautious definition of the term second generation immigrant. Furthermore, studies addressing second generation immigrant women and their labor market outcomes, include a very limited number of individuals with a non-European background (Österberg, 2000; Rooth and Ekberg, 2003). The reason is simply that many of the women with both parents born outside Europe, were too young to be observed on the labor market at the time of these studies. Therefore, in this paper the focus is on the outcomes and earnings of women born in Sweden between 1974 and 1988 with two foreign-born parents, constituting the second generation in this study. This selection will be discussed further in section 4.2.

1.1 Aim and research question

The aim of this study is twofold. Firstly, the potential differences in earnings between second generation immigrant women and women with two native born parents, will be examined empirically using standard OLS regression with the support of previous research and a theoretical framework. In addition, previous research has shown that differences in earnings between second generation immigrants in Sweden is primarily due to the socioeconomic background of the parents. Socioeconomic status is a joint measure of the education, occupation and earnings which determine a person's position in society (Vilhelmsson, 2002). As will be discussed in greater detail in section 3.2.1, parental education can be used to measure the impact of the parents' socioeconomic status on their children. The importance of parental education on their children's later life educational and occupational outcomes has in previous research been studied to a great extent and thus it is of interest to explore it further in this thesis (for review see Pronzato, 2012).

Therefore, the second aim is to examine the effect of parental education on the earnings of second generation immigrant women in Sweden. In the context of this thesis, the education of the mothers is of particular interest, since they are not only a role model for their daughters but also the primary transmitters of culture through generations (Bourdieu, 1996; Jamal Al-deen and Windle, 2015). For second generation immigrant women, this can mean inheriting aspects of their parents' culture relating to their labor market participation and

consequent income. A set of hypotheses will be tested, but the overarching research question is the following: *What is the impact of parental education on the earnings of second generation immigrant women?*

The thesis is structured as follows: Section 2 summarizes Sweden's migration history providing an overview and identity of first generation immigrants; Section 3 reviews previous research on second generation immigrants and their labor market outcomes in Sweden as well as the theoretical framework and basis for the empirical study; Section 4 presents the Data and Methodology; Section 5 provides a Descriptive analysis; Section 6 presents the Results, Section 7 summarizes and discusses the findings and lastly Section 8 concludes the study.

2. IMMIGRATION TO SWEDEN

In order to further explore the position of second generation immigrant women in the labor market in Sweden, it is important to first create a comprehensive understanding of their parents' generation that immigrated to Sweden. Hence, the subsequent chapter will be dedicated to describing the history of migration to Sweden as is relevant to this study.

Until World War II, Sweden's immigration history in the twentieth century mostly consisted of emigration to North America as restrictive immigration policies kept migration at bay in Sweden (Hammarstedt and Palme, 2012). After the 1940's, immigrants with no specific ties to Sweden started arriving creating a large yearly average immigrant surplus. Between the 1950s and 1970s a growing demand for labor in the manufacturing industry actively increased migration of predominantly labor migrants from the other Nordic countries (primarily Finland) and southern Europe (Schröder, 2007; Hammarstedt and Palme, 2012; Frank, 2005). Nearly 60 percent of the newcomers in the early 1960s were from other Nordic countries, but the number decreased during the decade. However, migration from Finland persisted along with immigration from Greece, Yugoslavia and Turkey. Almost 90 percent of these migrants were employed in the industries in comparison to approximately 55 percent of the native population. Migrant women from Greece, Finland and Turkey were also to a greater extent than native women employed in specific industries within manufacturing, but also within the service industry. The influx of workers gave way to opportunities for native Swedes to engage in more qualified occupations, creating a more segmented labor market which had consequences for the upward mobility of immigrants (Frank, 2005).

In the late 1960s, the government tightened immigration laws making it more difficult for non-Nordic residents to migrate to Sweden without arranging work and visas prior

to their arrival. This slowed down immigration from other European countries, but saw an increase in labor migrants from the Nordic countries (Schröder, 2007). Before to the 1970s, non-European immigration to Sweden consisted mostly of refugees and only made up around ten percent of the total immigration. With the downturn of the industries in the mid-1970s, Sweden restricted immigration to refugees and their families from primarily Latin America, the Middle East and Africa. A large portion of these immigrants possessed higher (tertiary) education, setting them apart from earlier migrants. Many Iranian students living in Sweden at the time of the revolution, were not able to return and were later joined by their family members (Niknami, 2010). Among Turkish immigrants, many of the women had not completed primary education, which at that time in Turkey was five years (ibid.). Many of the refugees from Latin America, in particular Chile, who arrived during the 1970s and 1980s returned back to their home countries after the political situation changed in the 1990s (Schröder, 2007). For many of the Chilean immigrants, the hope of returning to their home country kept them from establishing themselves in the Swedish labor market, as they did not want to get attached to their work (Niknami, 2010). Many highly educated Chilean migrants therefore took low-income blue collar jobs and stayed in socially disadvantaged areas, which resulted in their low socioeconomic status, despite being highly educated (ibid.).

It is evident that immigrants in Sweden constitute a very heterogeneous group, not only in terms of ethnicity but largely in terms of socioeconomic background in particular occupational and educational attainment. These aspects undoubtedly have significant impacts on not only their own labor market outcomes and integration process, but also that of their children. The consequences for the children of immigrants in Sweden have been observed and researched to a certain extent in the past decades. A summary of the findings will be reviewed in the following section in order to provide a greater understanding for this study.

3. LITERATURE REVIEW and THEORETICAL FRAMEWORK

This section is divided into four parts. The first part provides insights into the specific case of immigrant women and the significance of culture in their labor market performance. Part two presents an overview of studies on second generation immigrants in Sweden and works as an introduction to areas within the field that have yet to be explored. Part three and four are introduced with theories which may provide insights into the interpretation of the data. The theories are accompanied by studies and research related to the topic of this study which help guide the expectations of the results.

3.1 Cultural transmissions

The intergenerational transmission of culture has a central role in the labor force participation and education of both first and second generation immigrant women. The transmissions of labor force participation and fertility behavior among female immigrants and their adult children has been studied by many authors (Blau, Kahn, Liu and Papps 2012; Antecol, 2000; Fernandez and Fogli, 2009; Eylem Gevrek et al, 2011; Neuman, 2015). The studies are constructed in a similar way using cultural proxies to determine the transmission to the second generation. The results have been comparable for immigrant groups in different countries despite different methodological approaches. The findings consistently reveal that the effect of culture is to a greater extent transmitted to women in families where both parents are foreign born than for those with one native parent (Blau et al, 2012; Eylem Gevrek, 2011).

McManus and Apgar (2015) replicated previous studies adding religion as a proxy for culture along with female labor force participation rates and fertility rates from the parent's country of origin. Their study revealed a significantly lower labor supply among married second generation immigrant women. The findings suggested that women with parents from certain countries with strong religious and cultural apprehensions to female labor force participation had worked fewer hours than women from other cultures. This trait was especially prominent in women who were married to a person with the same ethnic background. However, the study also showed that intermarriage (in this case marrying a person belonging to the majority group) increased the labor market participation of women with the same ethnic background, further acknowledging the role of intermarriage for assimilation among second generation immigrants (McManus and Apgar, 2015).

These findings provide a deeper understanding of the underlying causes of possible differences among and within immigrant groups, as decisions regarding labor force participation, fertility and marriage are deeply personal but also strongly influenced by culture and family (Eylem Gevrek, Gevrek and Gupta, 2011). It is clear that cultural expectations on women's position and presence in the labor market passes on to the next generation. Women from certain immigrant groups may not be represented on the labor market due to expectations and beliefs in the parent generation and among the parent community. If these women reside in immigrant dense areas, the effect of culture may also be enhanced (Fernandez and Fogli, 2009), although we are not able to examine this further in this thesis, due to data limitations. However, this aspect is important to keep in mind through the analysis as these effects are likely to exist among the women observed in this study as well.

3.2 The Swedish context

Previous research on the labor market outcomes for first generation immigrants have shown that the employment situation up to the mid-1970s was good for immigrants but has since then worsened. During the 1990s the situation was especially poor for immigrants born outside Europe. Many authors point out that the ethnic groups that do badly in the parent generation also do badly in the second generation, indicating a low level of intergenerational economic mobility among these groups (Vilhelmsson, 2002; Hammarstedt, 2009; Behtoui, 2004). The individuals that fare better than their ethnic group are most often those with one native parent, underlining the importance of networks and Sweden-specific skills (ibid.).

Most studies on unemployment and earnings of second generation immigrants in Sweden reveal an earnings disadvantage in relation to those with native-born parents (Rooth and Ekberg, 2003; Österberg, 2003; Vilhelmsson, 2002; Behrenz, Hammarstedt and Månsson, 2007; Hammarstedt and Palme, 2012). These differences are heterogeneous with regards to ethnicity with the poorest outcomes prevalent among those of non-European origin (ibid.). Hammarstedt and Palme (2012) found in their study on intergenerational earnings mobility of second generation immigrant men and native-born men a convergence in average earnings across generations. However, persisting differences between immigrants of different ethnic origin revealed that poorly assimilated groups from Africa and the Middle East, with weak labor market attachments, were not able to eradicate or lessen them but they were instead accentuated in the next generation. The authors suggest this reveals how problems with assimilation may pass on to the second generation.

Rooth and Ekberg's (2003) study which includes women between 25-40 years, found no differences in earnings between women with both parents born in Western or Eastern Europe and women with both parents born in Sweden. Women with both parents born outside Europe faced a ten percent disadvantage in annual earnings in comparison to women with parents born in Sweden. Even when one parent was born in Sweden (and the other was non-European), the women experienced a nine percent disadvantage. The study used Swedish register data from 1998 where the group of women with both parents born outside Sweden was relatively small. The authors mentioned how many women in this group were still in school and could not be observed and that the challenge for them lay in how well their parents integrated into society and their own success in the Swedish school system. In this study, we are able to observe many more of these women and hopefully gain some understanding of their labor market outcomes.

3.2.1 The significance of education

Several authors have approached education as a possible explanation for the earnings disadvantage. Österberg's (2000) study investigates the existence of ethnic externalities in educational attainment and earnings for the children of immigrants. Few negative ethnic externalities are discovered in the educational attainment of the second generation although in the cases where low educational levels are observed, the low socioeconomic position of the parents are found to be the underlying reason. These findings are confirmed by Tasiran and Tezic (2007) in their study of early labor market outcomes for second generation immigrants. Their findings show that higher parental education increased the likelihood of continued education for the second generation, but the results were heterogeneous in terms of region of origin. Individuals with parents from Asian countries were more likely to continue their education whereas those of Middle Eastern, African and Eastern European descent were more likely to transition to unemployment, resulting in weaker labor market attachment, which was also confirmed by Hammarstedt and Palme (2012). Tasiran and Tezic (2007) concluded their study by emphasizing the importance of the parents' human capital in the form of education, income and occupation in determining their adult children's labor market outcomes.

Two main explanations for the differences in labor market performance and earnings between second generation immigrants and the native born have emerged in the studies using Swedish data (Tasiran and Tezic, 2007; Hammarstedt, 2009; Österberg, 2000; Vilhelmsson, 2002). The first relates to the significance of parental resources in the form of education, marital status, occupation and income. The differences in outcomes were found to be heterogeneous across immigrant groups primarily because of the socio-economic position of these groups and individuals, not because of their ethnicity (Tasiran and Tezic, 2007; Österberg, 2000).

The second explanation is related to low labor force participation rates among the second generation. Österberg (2000) and Vilhelmsson (2002) both found that despite some positive ethnic externalities in educational choices, the negative externalities in the earnings formation was due to the high unemployment rates. Unemployment was the highest among women whose parents were born in southern Europe and outside Europe. Both authors concluded that the problem for individuals with immigrant background in the labor market was on the demand side, rather than the supply, indicating a perception of ethnicity among employers (Österberg, 2000; Vilhelmsson, 2002). It is however worth mentioning that these studies had few observations of second generation immigrants with parents born outside Europe, which may have influenced the results.

Summarizing the previous research, parents' socioeconomic status and level of education emerges as a prominent feature in the literature covered. Drawing on the conclusions made by several authors, it can be assumed that parent's involvement in their children's educational attainment, their knowledge of job markets and networks, have among other things a profound influence on the labor market outcomes for their adult children. Socioeconomic status is generally predicted by observing the educational attainment, occupation and earnings of an individual. In establishing the socioeconomic status of immigrants, the educational level is often more indicative than occupation and earnings, since individuals who have immigrated may be highly educated but working in low status jobs (Vilhelmsson, 2002). It is therefore of interest to further explore the impact of parent's education on the subsequent earnings of their daughters. The following section will provide a theoretical framework for how the parents' education can be of importance in further analysis.

3.3 Human capital

In order to understand the economic integration and earnings of immigrants, it is important to understand the human capital framework and particularly educational attainment. Human capital can be defined as the investments made by an individual to increase their productivity in the labor market (Becker, 1975). These investments include educational attainment, work experience, specific training as well as investments in health. Human capital theory is often used to explain the differences in labor market outcomes between individuals. There is a distinction made between general and country specific human capital, with the former relating to knowledge and skills transferable between different countries and the latter being tied to a specific country (Hammarstedt, 2003). Immigrants' entry and success in the labor market depends on their level of human capital but also on their level of country specific human capital, such as local language proficiency. The first generation immigrants may lack the country specific human capital, but for their children born in Sweden, this is not necessarily the case. Their access to education through the Swedish school system and skills in the Swedish language give them the advantage their parents did not have when entering the labor market, yet they still face a disadvantage in comparison to the native born. The difficulties and in many ways unequal opportunities may create stronger incentives for immigrants to invest more in their children's human capital (Schröder, 2007). Studies have shown that immigrants and their children value education more than natives (Bethoui, 2006), which may reflect a compensatory behavior according to Schröder (2007).

According to sociological theory, children are socialized into society primarily through their parents. Socioeconomic outcomes later in life are most often influenced by family income, parents' education and the mother's employment as family attributes far outweigh the influences of neighborhoods and schools (Bonke and Esping-Andersen, 2011). Building on the human capital framework the subsequent section will account for the intergenerational transmission of human capital, in this case education in order to develop an understanding for how parents' education matters for their children's future education and in the case of this study also their future earnings.

3.3.1 Transmission of education

Conflicting evidence has emerged in research regarding the issue on which parent's education has a larger influence on the children's educational outcomes. Results from studies in several countries point to larger effects of father's education to small effects of mother's educational level and vice versa (Pronzato, 2012; Card et al, 1998). Studies among second generation immigrants specifically, have differing results revealing either no effect of parents' education in Germany in the late 1990s (Gang and Zimmerman, 2000) to a recent study revealing that mother's education is of great importance on the educational attainments of her daughter in Germany (Yaman, 2014). Other studies on the entire population, show that both the mother and father's education have similar effects on their children's educational attainment (Netherlands see van Ours and Veenman, 2003; Switzerland see Bauer and Rihphan, 2007). According to Pronzato (2012) these results highly depend on the identification strategy used and different data sets. The author uses Norwegian register data and the results vary with regards to the level of education of the parents. Highly educated fathers have a positive impact on their children's education, more so than highly educated mothers. For parents with lower education levels, the mother's education seems to matter more (Pronzato, 2012).

In the Swedish context, Niknami's (2010) study on the intergenerational transmission of education among immigrant mothers and their daughters showed that lower educated mother's did not transmit their educational level to the same extent as women with higher credentials. The subsequent upward transition for the daughters of immigrants with lower educational levels, could be due to the compulsory education of nine years in Sweden, increasing the share of women with more education than their mothers. The estimates differed substantially between different ethnic groups suggesting a selection effect on education among the first generation immigrant mothers (Niknami, 2010).

Following the previous studies conducted in countries similar to Sweden (Pronzato, 2012) and in particular Niknami (2010), it can be expected in our study that the mother's education has a positive influence on her daughter's education and later life earnings, more so than the father's, although this depends on the education level of the mothers. Mothers with lower educational levels can be expected to have a positive effect on their children in comparison to fathers with lower education, although the largest effects will be observed among mothers with higher educational levels. It can be expected that the different effects and magnitudes are influenced by other factors, such as the mother's labor force participation.

The different effects of parental education have several plausible explanations. One reason could be that highly educated women allocate their time in favor of engagements in the labor market which may have a negative effect on their children's outcomes. The argument behind this is that women's time is important to the children's outcomes and the potentially positive effect of mother's education is offset by her spending more time at work than with her children (Behrman and Rosenzweig, 2002). In addition, if the mother's educational level is associated with a potential wage increase, it may coincide with an increased opportunity cost and hence the mother's education could have a lower impact than father's education (Gang and Zimmerman, 2000). The next section aims to disentangle some of the underlying reasons to these differences.

3.4 Educational homogamy

The allocation of time spent on different activities between parents can be found in the theories on gender division of household labor. According to Becker's theory, spouses engage in dividing household tasks between paid and unpaid work (Becker, 1991). Underlying reasons for the division are usually accredited specialization and bargaining within the family. Specialization assumes the household produces goods and services by the members engaging in paid and unpaid work. The division of the work will allow the spouse with the highest earning potential, to choose to not engage in household work and childrearing (unpaid work) and instead specialize in paid work, since they possess higher bargaining power (Becker, 1991). This assumption is made with the male bread-winner model in mind, where women do more of the housework and men engage in market work. According to this model, men with higher earning potential will marry women with lower bargaining power. However, if the household goods and services can be purchased on the market or subsidized by the government, thus alleviating the burden of household work on the woman, the greater the gains will be from positive assortative mating, resulting in that two spouses with the same market potential will marry each other. With

this comes an equality of bargaining power and thus both spouses can divide household work and market work equally (Becker, 1991; Dribe and Nystedt, 2013). It is thus assumed that couples with higher education will have a more egalitarian division of labor which also includes child rearing.

For immigrant parents, this division of labor and responsibilities have been shown to vary according to ethnic background, culture, religion and the level of human capital (Frank and Hou, 2015). In this study, we are only able to observe two of these characteristics, ethnic background as portrayed by region of origin and level of education which represents their human capital. Since region of origin is a broad and aggregate measure in this study it cannot be assumed to represent specific ethnic backgrounds and cultures. Instead the educational level of the immigrant parents may reflect their human capital which will have an impact on their children's education and subsequent earnings. In investigating the role of parent's education, it is as previously mentioned, of interest to examine possible differences in these effects between the parents depending on the level of education. It is also of interest to examine the effect of the mother's education on her daughter, as mothers are the primary transmitters of culture to their children (Bourdieu, 1996; Jamal Al-deen and Windle, 2015).

Following the theory on the division of labor and subsequent bargaining power of the parent based on education, a relevant study that may provide some examples and thoughts along this subject matter is by Dribe and Nystedt (2013) where they investigate returns to education in couples with different levels of education. The authors look at married and cohabitating couples (with children) in Sweden with different levels of education (heterogamous) and the same level of education (homogamous). The findings show that homogamous partnerships have a positive effect on the women's earnings which could be accredited a more egalitarian division of household labor (Dribe and Nystedt, 2013).

Partners in homogamous relationships are predicted to have greater similarity in their preferences for household versus market work, but also have fewer gains from specialization according to several studies (Oppenheimer, 1997; Bonke and Esping-Andersen, 2011). This would imply, according to Lundberg and Rose (2002), that for couples in homogamous relationships, child rearing and home production will be more equally divided and thus, fathers will most likely increase their time at home. Among first and second generation immigrants in Sweden, Çelikaksoy, Nekby and Rashid (2010) found that the probability of being in an educationally homogamous relationship was higher among first generation immigrant women, than among second. Several other studies have also shown a positive correlation between years of education and homogamy among immigrant groups in

different countries meaning that highly educated immigrants are more likely to be in homogamous partnerships (Kalmijn, 1993; Çelikaksoy et al, 2006).

In summary, the division of labor in a household is shown to be greatly affected by the educational level and earnings potential of the spouses. The best predicted outcomes in terms of parent's allocating equal time with the children are clearly among those with the same educational level. It can therefore be expected that parent's in educationally homogamous relationships will have the largest positive influence on their daughter's education and subsequent earnings.

3.5 Expectations and hypotheses

In this paper, I attempt to assess the impact of parental education on the earnings of second generation immigrant women in Sweden. In light of the theoretical framework and previous studies the following conclusions can be made and assumed to be observed in data for this study. Thus the following hypotheses are suggested:

H1: First and foremost, we can expect to find that second generation immigrant women in Sweden face an earnings disadvantage in relation to women with native-born parents.

H2: We can also expect differences in relation to region of origin, with groups originating from areas further away from Sweden, that are also culturally and linguistically more distinctive, to be worse off than those with parents from countries that are closer to Sweden in this regard. A disadvantage would confirm findings in previous research on the subject.

H3: In terms of parental education and its influence on the earnings of their daughters, the mother's educational level is expected to have a larger positive impact than the father's education for women with an immigrant background. A stronger positive effect can be anticipated among those with highly educated mothers and mothers with lower education will have a more positive influence than fathers with the same level. This would confirm findings by Niknami (2010) for Sweden that among women with an immigrant background, mother's education is more intensely transmitted to their daughters than father's education.

H4: In line with previous research on educational homogamy, we can expect to see a positive impact on earnings for those with parents in an educationally homogamous relationship. Since the parents are anticipated to have equal bargaining power, it can be expected that they will not

only allocate their time spent with the children equally, but also be in agreement on their investments in their children.

H5: Furthermore, we can expect to see a positive effect that increases with the educational level of parents in a homogamous relationship. This increasing positive effect can be due to highly educated parents valuing education more and thus investing more in the human capital of their children resulting in positive effect on their earnings.

4. DATA and ECONOMETRIC MODEL

4.1 Data

The empirical analysis is based on data obtained from Statistics Sweden (SCB) for 2013. A cross-sectional data set was made available and contains information from registers on income, occupational status and demographic variables for all individuals residing in Sweden in the end of 2013. The variables are mainly taken from the databases ‘Longitudinal integration database for health insurance and labor market studies’ (LISA) and ‘Labour statistics based on administrative sources’ (RAMS). The database gathers large amounts of information from labor market, educational and social sectors for all individuals who are registered as living in Sweden at the end of every year. It also includes demographic information such as place of residence, age, gender, civil status, country of birth and parent’s country of birth as well as the number of children (residing at home). These records made it possible to link individuals to their parents through their social security number. It is also possible to connect individuals to employer(s), creating a comprehensive image of the situation on the labor market for the group of study.

Register data includes information that has been compiled through administrative records and thus softer variables such as associations and opinions are not available. For the present study, only the hard facts are of interest and while it should be mentioned that register data may not always capture true nuances such as observing cohabitating unions that do not have common children. This applies to all other information that is not registered by the municipality or government agencies, however for this particular study, there is sufficient material to work with. Swedish registers can be believed to depict the current situation for the majority of the population. In comparison to census data, register data is not plagued by small sample sizes and self-reported information. However for this study, the first generation immigrants’ (the parents) education obtained outside Sweden is self-reported. Issues arising from self-reported education can either be misclassification or a higher share of non-

respondents. In this study, the share of non-respondents was higher among fathers than mothers for all groups, even those with native born parents. Misclassifications and measurement errors are discussed at length by Niknami (2010). For this study, I acknowledge the possibility of a bias, but do not anticipate it to alter the final results to any great extent.

It is difficult to measure whether or not the individuals in the sample who have a registered employer and have received a salary are employed full time, part time or have different “spells” of work/unemployment. They could be working a lot during a period (the summer months) but not at all the rest of the year, which will not be apparent in the data. However, I am able to match the individuals to the employer they had in November the same year the data is collected, which may be considered an assurance that they were with that employer during that year. It may also confirm, to some extent, the reliability of the individual’s occupation.

Furthermore, differences between groups in annual earnings estimation can be due to longer or shorter spells of unemployment. I will only estimate annual earnings in this analysis and not unemployment rates as I have no information on the length of unemployment for an individual. Lower earnings may instead be viewed as potentially being caused by periods of unemployment or perhaps a loose attachment to the labor force, i.e. annual earnings will be a measure for labor market success. It may also be caused by parental leave with low benefits or long-term sick leave.

4.2 Sample characteristics

From the entire population over the age of 15 years registered as living in Sweden in the last week of the year 2013, women between the ages of 25 and 39 years are chosen. Further selection on employment status, registered income, ethnicity and education provides the final sample of 387,702 women of which 371,574 have two native born parents (the reference group) and the remaining 16,146 with both parents born outside Sweden. Those with no report on education for both the individual and parents constituted 12.6 percent of the original sample (64,607 individuals) and are not included in the final sample.

The individuals chosen for the study are between 25 and 39 years old. The lower age threshold is set due to a large portion still completing their education between the ages 18-24 years. The upper threshold is set to exclude women born before the 1970s. This selection is based on a desire to investigate the outcomes for women whose parents migrated to Sweden in several different immigrant cohorts, so both labor migrants and refugees. Therefore women born in 1974-1988 are selected. In addition, the immigrant groups vary substantially in terms of when

the parent generation immigrated, thus by including all working women between ages 18-64 years, may provide differing results because of the differences in the average age between the groups. Women born in Sweden with both parents born in Africa or Asia, will most probably be much younger than women born in Sweden, whose parents migrated from Finland in the 1960s.

All the individuals in the sample are divided into the following categories: born in Sweden with; (1) two native-born parents (Native), (2) parents born in the Nordic countries except Sweden (Nordic), (3) parents born in the EU28 countries, North (and Central) America and Oceania (EU28, NA, OC), (4) parents born in the non-EU28 European countries and in the former Soviet Union (Europe non-EU28), (5) parents born in Latin America (Latin America), (6) parents born in Africa (Africa), (7) parents born in Asia (Asia). In order to keep the groups ethnically homogenous, individuals with parents from two different regions were excluded from the analysis. The regions cover vastly heterogeneous countries, cultures and ethnicities, but due to the groups becoming too small with further division and keeping confidentiality agreements with Statistics Sweden, these aggregated groups are available.

For the group containing countries in the EU28, North and Central Americas, Australia, New Zealand and the Pacific islands, the group is very heterogeneous spanning several continents. However, it can be assumed that for those individuals whose parents migrated from some of the smaller, non-Western countries, are very few. The dominating groups are most probably from Europe and North America (USA and Canada). A list of countries in all the categories can be found in Appendix I.

4.3 Method and econometric model

In social science research there are two main approaches applied when designing a research topic and method. The most common one applied in quantitative research is a deductive approach where a theoretical framework consisting of established theories and previous research on the topic at hand are used to guide the researcher to assume certain relationships to be tested. These assumptions are usually formulated into hypotheses that examine the data and are either rejected or not rejected (Bryman, 2012).

For this study, I employ a hypothesis deductive method. In order to test the accuracy of my hypotheses I employ statistical analysis in the form of an Ordinary Least Square regression. This is the most common practice when examining correlations in cross-sectional data. We cannot establish causal relationships in our data because of the nature of cross-

sectional data. Cross-sectional data consists of one time observations of each variable, in our case gathered in 2013, and provides us with an image of the situation there and then. A different approach would be to observe the same individual over the course of a number of years, which would then provide a more accurate understanding of the relationship between education and earnings for that individual. However, with that in mind, cross-sectional data is the most readily available and much of the research conducted within the migration context have made use of cross-sectional data. The individuals in the register constitute the entire Swedish population and the observed parent characteristics are of the individual's actual parents.

4.3.1 Econometric model

In order to test whether there is a difference in income between second generation immigrant women and native women an OLS regression estimates the relationship between certain characteristics and the outcome variable. The estimates can provide useful indications of whether the relationships are positive or negative. Furthermore, in order to isolate the effects of parental education on their daughter's earnings, several interactions between the parent's educations have been done. The interacted terms display not only the impact of one parent's education on their daughter, but can estimate the joint effects of the parents.

For this study the following model is used:

$$\log E_i = \alpha_i + X_i' \beta_1 + I_i \beta_2 + S_i^F \beta_3 + S_i^M \beta_4 + \varepsilon_i$$

where $\log E_i$ denotes the yearly earnings (in log) of the second generation woman i , X_i' is a vector of personal characteristics that influences the woman's income such as her age (and its square), level of education, occupation, if she has children and other variables that will be discussed in detail later on. I_i is a control variable indicating the parents' country of birth which in this case takes on seven mutually exclusive values. S_i^F and S_i^M denote the father (F) and mother's (M) level of education. α_i is the constant and ε_i is the error term which is assumed to capture all other factors influencing the earnings but not observed through the model. β_1 is the effect of personal characteristics on the yearly income of individual i , β_2 is the effect of having parents who are born outside Sweden on the yearly earnings of the women in the sample. β_3 and β_4 are the effects of father and mother's education.

In further analysis, the model has been applied to each immigrant group individually in order to capture the effects of parental education within the different immigrant groups.

4.4 Variables used in the Analysis

4.4.1 The Outcome Measure

The main objective of this study is to analyze the differences in labor market outcomes in terms of earnings between young women born in Sweden with native-born parents and those with immigrant parents. Total earnings are widely available in register data and contain many different variables related to income. Over the course of a calendar year an individual may switch between jobs resulting in multiple registrations in tax records from different employers. The main outcome variable provides total income from work during the year 2013 and does not differentiate between employers.

A point to take into consideration is that the data does not take number of hours worked into account. There is no way of knowing if the person has been employed part- or fulltime during the year. As such, the results should be interpreted with caution. In order to account for possible work absences, the dataset includes information on to what extent the individuals have received compensation for work, due to illness or most importantly in this case with younger women, child birth and parental leave. The work absence income is usually given out by the Swedish social system (Försäkringskassan) and is in this study a combination of sickness allowance, work injury benefit, parental benefits and benefits related to care of close relatives (sjukpenning, arbetskadeersättning, föräldrapenning and närståendepenning). It is not possible to decipher the different types of compensations.

4.4.2 Independent variables

Economic theory suggests some explanations for differences in labor market outcomes and status between individuals (Vilhelmson, 2003). The explanations can be divided between covariates linked to individual characteristics and those associated with ethnic background. The covariates relating to ethnic background have in previous studies been used to indirectly explain difference between individuals in the labor market who are born in Sweden with native-born parents and those with parents that have immigrated to Sweden. The covariates are taken from divisions made in existing register data.

The main explanatory variable is parents' ethnic background in terms of country of birth which is depicted as a binary 0/1 variable for each region of origin. The reference group

is individuals with both parents born in Sweden. Additional covariates include; education, age (and its square), presence of children under 7 years and marital/cohabitation status. A binary 0/1 variable is included to account for geographical differences as it has been shown that second generation immigrant women to a larger extent reside in municipalities in metropolitan areas. Occupations and sector are also included in the model as wages differ substantially across different sectors and professions. A list of control variables can be viewed in Appendix I.

4.5 Sensitivity check

The income threshold is set against a minimum of 44,500SEK for the year 2013 according to the “Price base amount” (Prisbasbelopp). The individuals with the lowest earnings in the sample have a yearly income of 56,126SEK and are thus over the threshold. This accounts for earnings and work compensation benefits. The highest earner has a yearly income of approximately 4 million SEK. In a robustness check the minimum threshold was set at 100,000SEK per year and the maximum at 1.5 million SEK. The estimates had no significant change, despite a loss of 12,238 individuals. Robust standard errors have been used throughout to adjust for potential violations of the standard OLS assumptions (homoscedasticity).

Interactions with age and age squared showed no significant results on the impact of age on the earnings. Hence, differences in age cannot explain the differences within the groups, however certain groups are older and may therefore have more established labor market relations than others. They may however also have more sporadic attachments due to childbearing, which may have a negative impact on their earnings.

5. DESCRIPTIVE ANALYSIS

The following section describes the characteristics of the sample used for the study. As previously mentioned, the sample consists of all women ages 25-39 years, registered as living in Sweden in the year 2013. From the main sample, a selection was made with regards to labor force participation and a few other characteristics. This section will give an overview of the data set used and the selection.

5.1 Labor force participation

Statistics Sweden collects data on labor force participation mainly from tax registers and registers on labor market statistics. Individuals are linked to their employers throughout the year, listing primary and secondary (or more) employer. The registers also include information

on self-employment along with gainful employment and combinations of the two. Table 1 shows employment rates for the different groups as well as division of employment status.

Table 1. Proportion of individuals in full sample (in percentages).

	Native	Nordic	EU28, NA, OC	Europe (Non EU28)	Latin America	Africa	Asia	Second generation immigrants
<i>Labor force participation</i>								
Active	84.7	78.6	72.1	77.5	73.8	63.5	66.6	75.7
Not active	15.4	21.4	27.9	22.5	26.2	36.5	33.4	24.3
<i>Employment Status</i>								
Employed	83.4	80.1	73.3	79.9	79.5	73.6	71.0	78.1
Business owner	2.3	2.0	2.6	2.6	1.2	0.6	3.3	2.3
Combination	6.4	4.7	5.2	3.3	4.1	2.2	4.1	4.4
Missing	7.9	13.5	18.9	14.3	15.2	23.5	21.6	15.2

The aggregate measure reveals that second generation immigrant women have a nine percentage point lower labor force participation rate in comparison to natives. Further observation shows that labor force participation rates vary extensively among the different ethnic groups, with those of African heritage facing the lowest participation rates of merely 63.5 percent, a full 20 percentage point lower than their native counterpart. Students are not shown in the sample and this could perhaps explain some of the lower numbers. However, with more than a third of the group not actively engaging on the labor market, it may be indicative of weak labor market attachments for individuals with African and Asian backgrounds.

The division of ‘active’ and ‘not active’ on the labor market can further be divided into employment status of those who are either employed, business owners and entrepreneurs, those who are both self-employed and employed and those with no observed employment status. For the sake of comparability, only individuals that are gainfully ‘employed’ during the year are included in the final sample. Employment rates are not surprisingly highest for those with native born parents, followed by those with parents from the EU28 countries, North America and Oceania. Those with native born parents also represent the highest share of those combining different employment types (6.4 percent).

5.2 Final sample characteristics

The final sample is a selection of those individuals who are: (1) ‘Active’ on the labor market and (2) registered as ‘Employed’. Table 2 shows the number of individuals in each group on the basis of their parent’s region of origin. As previously stated, only second-generation immigrants who have two parents registered as being from the same region of origin are included in the sample. Furthermore, selection has been done on those with registered education for themselves and both their parents. The largest group has native born parents. They constitute almost 96 percent of the sample. Among the second generation immigrants, the largest group have parents born in the Nordic countries. The data does not reveal the country of origin although it can be stated that those with parents born in the Nordic region to a large extent consist of descendants of labor migrants from Finland. The second largest group in the sample are those with parents born in Europe (non EU28). The reason this group is larger than the EU28, North America and Oceania is probably due to the selection on the premises of homogenous parent region of origin. Many migrants from EU28, North America and Oceania may have married native born Swedes and are therefore not included in the sample.

The group with Asian born parents constitute the largest among the non-European groups. This could be due to a large share having parents with registered education as well as parents that have married amongst their own ethnic group. Surprisingly, those of Latin American descent constitute a significantly smaller share than can be expected. This may have several explanations; Firstly education may not be registered for both parents. Secondly, many of the refugees arriving from Latin America in the 1970s may have married native born Swedes and are thus not included in the sample.

Table 2. Final sample by region of origin.

Origin	N	Percent	Cumulative percent
Native	371,574	100	95.8
<i>Second generation immigrants</i>			
Nordic	5,653	35	1.5
EU28, NA, AUS	2,239	13.9	0.6
Europe (Non EU28)	4,653	28.8	1.2
Latin America	839	5.2	0.2
Africa	583	3.6	0.2
Asia	2,179	13.5	0.6
Total	16,146	100	
Total sample	387,720	100	100

A possible explanation to the differences in labor market attachment could be the differences in ages between the groups. Figure 1 shows the distribution of age in three categories; 25-29 years, 30-34 years and 35-39 years. It is clear that the varying representation of ages will have an impact on the differences in income between the groups. Asian and African descendants are among the youngest in the group with more than 50 percent under the age of 30. Together with low labor market participation, this may indicate early childbearing or enrollment in university education among these groups.

The ones with native born parents and parents born in EU28, North America and Oceania constitute the most evenly distributed group which is presumably due to the largest sample size and possibly a steady influx of immigrants from the European countries during the late 1960s until the 1980s. Those with Nordic heritage are the oldest in the group with more than 40 percent being older than 35 years. This has implications for their wages as many of the women may have younger children which may not result in shorter employment spells as it would for those with very young children, but instead entail lower labor market participation as they may work part-time and this will reflect in their total earnings.

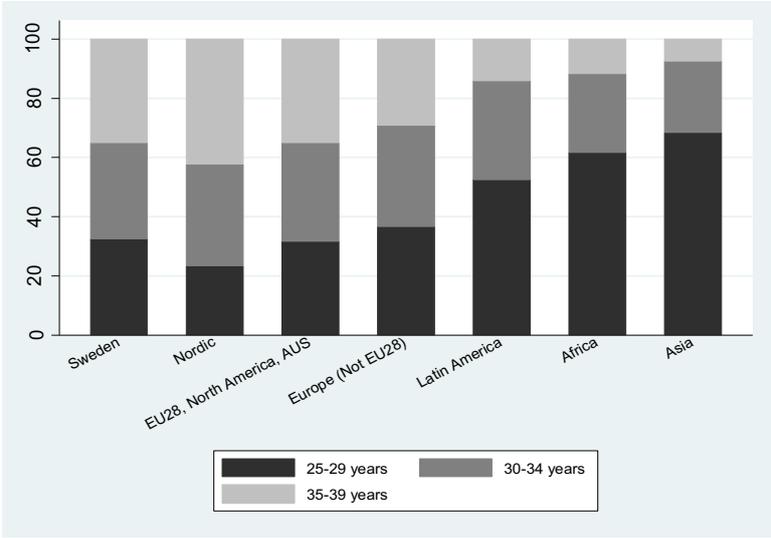


Figure 1. Age distribution within ethnic group

5.2.1 Demographic characteristics

The final table (3) shows the variables used in the model and the representation in the different groups. It is clear that those with Asian born parents have the youngest average age at 28.5 years in comparison with the oldest group with Nordic parents who are approximately 4 years older on average. Furthermore, the difference in age is also apparent when looking at other

demographic characteristics such as proportion married and having children under the age of 7. In the groups who are on average older than 30 years, around 40-50 percent of the women have a child under the age of 7. A larger portion of the individuals in these groups are also married (or in a civil partnership), in comparison to the groups where the average age is lower.

Most noteworthy are the proportion living in metropolitan areas. 83 percent of the women with parents born in Africa live either in Stockholm, Göteborg or Malmö. More than 70 percent of all of the second generation immigrant women live in metropolitan areas except for those with parents born in the Nordic region. Immigrant groups generally settled down in metropolitan areas upon arrival and thus the consequences can be observed here, among their children. It is however important to remember that there has been a clear distinction made as to what metropolitan areas are included, which affects the representation.

Table 3. Summary statistics (variable means)

	Native	Nordic	EU28, NA, Oceania	Europe (Non EU28)	Latin America	Africa	Asia
Demographic characteristics							
Age	31,9	32,7	31,8	31,3	29,3	28,7	28,5
Married (Yes=1)	56	57	46	57	36	33	36
Children under age of 7 (Yes=1)	50	50	41	47	40	31	29
Lives in metropolitan area (Yes=1)	41	46	74	74	77	83	78
Human capital characteristics							
Primary education	3,4	7,4	4,9	7	7,6	4,6	4,8
Secondary school	49,5	59,1	46	58	62,4	53,7	46,6
University education	47,1	33,6	49,1	35	30	41,7	48,6
Average annual income Received work compensation in 2013 (Yes=1)	283	277	301	277	240	270	272
59	62	47	55	43	37	33	
Occupation							
Managers and executives	2,9	2,5	2,6	2,2	1	1,9	1,9
Jobs requiring higher education (5+ years)	22,1	14,7	25,2	15,6	13,7	16,6	20,6
Jobs requiring higher education (less than 5 years)	23,7	19,8	22,5	22,1	15,6	24,5	22,3
Administrative staff and clerks Service, healthcare and hospitality	8	10,2	9,7	10,8	8,6	8,6	8,6
23,7	29,2	17,9	28	35	26,8	22	
Construction, forestry, mining Low skilled workers	3,5	5,7	2,3	3,2	2,5	0,9	1,6
3	4,5	2,7	2,5	3,3	1,9	2,1	
Military staff	0,1	0	0	0	0,1	0	0
Unspecified	13,1	13,3	17	15,6	20	18,9	21
Sector							
Private	58	61	66	65	64	66	69
Public	42	39	34	35	36	34	31
Parental characteristics							
Fathers education							
Primary	25.1	44.7	27.3	51.4	21.9	27.1	34.4
Secondary	59	50.2	55.5	45.9	66.8	57.6	51
University	15.9	5.1	17.2	2.7	11.3	15.3	14.6
Mothers education							
Primary	14.6	34.4	27.5	60.9	23.5	39.6	41.8
Secondary	66.2	57.3	54.3	36.8	64.6	51.6	48.1
University	19.2	8.3	18.2	2.5	11.9	8.8	10.2
N individuals	371,574	5,653	2,239	4,653	839	583	2,179

Note: Average annual income is presented in thousand SEK.

5.2.2 Human capital characteristics

Less than ten percent from each group only have a primary education. Since the individuals in the sample are all born in Sweden, it is no surprise that most of the women have completed their primary and secondary schooling. In the initial selection, those with no report on education were excluded: approximately 324 individuals. Women with parents born in the EU28, North America and Oceania have the largest proportion (49.1 percent) of university graduates, followed by those with native born parents (47.1 percent) and children of Asian immigrants (48.6 percent). Those with parents born in Africa are also represented among those with higher education, in comparison to both Latin American (30 percent) and Nordic descendants (33.6 percent). It is important to remember that these women are merely a selection of individuals from a very selected group of migrants. They are chosen on the basis of employment and their own as well as their parents documented education. They are not representative of all second generation immigrant women of all ages, but they constitute the entire population in Sweden of women corresponding the given specifications.

The groups in which women received more work compensation are also the groups with higher average age and childbearing numbers. It can therefore be presumed that the prevalence of maternity leave or sickness absence (due to children) is larger in these groups.

In terms of occupation and sector, a majority of the women work in the private sector. In the Swedish context, this does not include nurses and other health care professionals. However, a large portion of the women work in the service industry as well as in healthcare. What is most surprising is that for many of the groups, between 40-50 percent work in jobs that require a minimum of a university degree (Occupation 2 and 3). The only two groups not included are women with parents born in the Nordic countries or Latin America. For them, a larger share work in the service industry and in healthcare.

As previously discussed, the variable for parental education has its limitations, especially with regards to immigrants who obtained their credentials outside of Sweden. Nevertheless, the parent's education in the sample is used for the estimations. In table 3 it is clear that mothers from Sweden, the other Nordic countries, EU28, Australia and North America consistently have a higher education on average than the fathers. Women born in the European countries (non EU28) are however, the group with the highest share of primary education. They also have the lowest share of university graduates and share this educational division with men born in the same region. Latin American men and women also share this distribution of education. In all the other groups, most of the men and women have a secondary

education. African and Nordic women share a similar division of education within their groups, however among the men, African immigrant men have a larger share with higher education.

It is clear that a majority of the immigrant groups have a significant portion of individuals with a minimum of secondary education. Even a brief overview reveals a pattern of selection among the first generation immigrant groups in terms of education. Providing further illustration, table 4 reveals to what extent the parents have the same education or if the mother has a higher or lower education than the father. More than half of the parents in the sample have the same educational level. Almost one third (29 percent) of the Nordic mothers have a higher education level than their spouse. African and Asian women have the largest proportion of women with a lower education than their spouse.

Table 4. Educational homogamy among parents

	Mothers education in relation to spouse's education		
	Lower	Same	Higher
Region of origin			
Sweden	15.1	57.4	27.5
Nordic	17.0	54.0	29.0
EU28, North America and Oceania	18.0	63.5	18.5
Europe (non Eu28)	24.4	60.6	15.0
Latin America	20.3	60.9	18.8
Africa	32.6	52.0	15.4
Asia	26.9	56.9	16.2

6. RESULTS

The results will be divided into three consecutive sections, each of which displays the results corresponding to the initial expectations and the five hypotheses posed for this study. The hypotheses are included in the beginning of each section to guide the findings. Section one will give an overview of the general differences in earnings between second generation immigrant women and women with two native born parents (H1 and H2). Section two will correspond to the third hypothesis (H3) on mothers' education having a larger impact than fathers'. The third section aims to answer the hypotheses four and five (H4 and H5) on the effect of parents' education in relation to if their own relationship is educationally homogamous.

6.1 General overview of initial findings

H1: First and foremost, we can expect to find that second generation immigrant women in Sweden face an earnings disadvantage in relation to women with native-born parents.

H2: We can also expect differences in relation to region of origin, with groups originating from areas further away from Sweden, that are also culturally and linguistically more distinctive, to be worse off than those with parents from countries that are closer to Sweden in this regard. A disadvantage would confirm findings in previous research on the subject

The results obtained in Model 1 (Table 5) reveal an earnings disadvantage for second generation immigrant women in comparison to those with native-born Swedish parents. The negative effect of having two foreign born parents exists for all groups apart from those with parents from the EU28, North America and Oceania. All the effects are statistically significant in the model, with no additional control variables. Most surprising is the magnitude of the disadvantage (0.169) in earnings for women of Latin American heritage in relation to those with native born parents as it is well over the disadvantage faced by other immigrant groups. Potential explanations could be that the women to a greater extent work in the service sector, have on average fewer university graduates as well as the lowest average annual income among the different immigrant groups.

Table 5. Estimation results (no controls). Dependent variable: Income (log)

VARIABLES	Model 1	
	No controls	Robust Std. Error.
Region of origin		
Nordic	-0.0154***	(0.00544)
EU28, North America, Oceania	0.0435***	(0.00996)
Europe (non EU28)	-0.0193***	(0.00616)
Latin America	-0.169***	(0.0154)
Africa	-0.0595***	(0.0191)
Asia	-0.0560***	(0.0101)
Constant	12.47***	(0.000688)
Observations	387,702	
Adjusted R-squared	0.001	
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1		
Ref. category: Women with native born parents		

In model 2 and 3 (Table 6) a set of explanatory variables are included. Adding age and its squared term along with education changes the coefficient for Europe (non EU28), Africa and Asia to a significant positive. Including more control variables that influence earnings adjusts the results back to our expectations, but lessens the negative impact of ethnic origin for all groups. It also introduces a disadvantage for the EU28, North America and Oceania group, however it is not statistically significant. Asia and Latin America are the only two regions with

statistically significant results on a 5 percent level, both facing a disadvantage. Women with Latin American heritage face the largest disadvantage of approximately 8 percent, but are also largely employed in the service industry (35 percent). They also have the highest number of individuals with secondary education (at the expense of university education), which may influence the results.

The independent variables in the full specification (model 3) are according to our expectations. Married women face a disadvantage as do women with children under 7 years, which is expected since they according to previous studies face a “motherhood penalty” due to time away from the labor market (Budig and England, 2001).

The differences in outcomes are not very large, but do reveal an earnings disadvantage for primarily the non-European second generation immigrant women which is in line with our assumptions and hypotheses H1 and H2. All the women in the sample are employed and have positive earnings, however since we cannot observe the number of hours worked, it is difficult to establish if the disadvantage is due to the women working less or if there are other hindrances. One possibility may be the influence of culture, which we cannot measure here, but is still important to mention. Previous research has accredited among others, cultural factors such as transmission of labor supply from the parents’ country of origin to have an influence on second generation immigrant women (Blau et al, 2012; Eylem Gevrek, 2011). Cultural transmissions have shown to have a larger effect if both parents share the same culture and country of origin. In this study, all the second generation women have parents born in the same region and so the cultural transmissions can be expected to play a role in the labor market outcomes for these women as well (ibid.).

Table 6. Regression results. Dependent variable: Income (log)

VARIABLES	Model 2		Model 3	
	Primary controls	Robust Std. Error	All controls	Robust Std. Error
Region of origin				
Nordic	-0.00519	(0.00516)	-0.00415	(0.00479)
EU28, North America, Oceania	0.0426***	(0.00926)	-0.00822	(0.00854)
Europe (non EU28)	0.0226***	(0.00578)	-0.00652	(0.00541)
Latin America	-0.0666***	(0.0142)	-0.0867***	(0.0135)
Africa	0.0337*	(0.0179)	-0.0164	(0.0170)
Asia	0.0284***	(0.00946)	-0.0216**	(0.00879)
Demographic characteristics				
Age	0.0702***	(0.00246)	0.103***	(0.00234)
Age (squared)	-0.000719***	(3.82e-05)	-0.00123***	(3.62e-05)
Education				
Secondary	0.0895***	(0.00351)	0.0647***	(0.00329)
University	0.289***	(0.00353)	0.136***	(0.00364)
Children under 7 years (=1)			-0.115***	(0.00158)
Metropolitan area (=1)			0.0751***	(0.00123)
Married (=1)			-0.0241***	(0.00166)
Sector (Public=1)			-0.129***	(0.00130)
Occupation				
Managers and executives			0.467***	(0.00368)
Jobs requiring higher education (5+ years)			0.299***	(0.00226)
Jobs requiring higher education (less than 5 years)			0.185***	(0.00199)
Administrative staff and clerks			0.0583***	(0.00235)
Construction, forestry, mining			0.128***	(0.00323)
Low skill			-0.0861***	(0.00355)
Military staff			0.478***	(0.0205)
Unspecified			-0.0620***	(0.00259)
Constant	10.80***	(0.0393)	10.35***	(0.0373)
Observations	387,702		387,702	
Adjusted R-squared	0.140		0.273	

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Ref. category: Region of origin 'Sweden', Education 'Primary', Occupation 'Service, hospitality'

6.2 Impact of parental education

H3: In terms of parental education and its influence on the earnings of their daughters, the mother's educational level is expected to have a larger impact than the father's education for women with an immigrant background. A stronger positive effect can be anticipated among those with highly educated mothers and mothers with lower education will have a more positive influence than fathers with the same level. This would confirm findings by Niknami (2010) for Sweden that among women with an immigrant background, mother's education is more intensely transmitted to their daughters than father's education.

Investigating the impact of parental education on their daughter's annual earnings, models 4 (no controls) and 5 (all controls) in table 7 shows the impact of mother and fathers education respectively on their daughter's earnings. Model 4 does not include any control variables and

reveals overall positive effects of both mother and fathers education on the earnings, where parents with university degrees have a stronger positive impact on the earnings of their daughters in comparison to those with primary education. Most noteworthy is the overwhelmingly positive influence of mothers with a university degree who are born outside Europe. Mothers from Asia, Africa and Latin America have between 12-21 percent¹ (0.114-0.191) positive effects on the earnings of their daughters in comparison to mothers with only primary education from these areas. These findings suggest, although they are not statistically significant, a positive influence of mothers' education among those of non-European descent (Asia and Africa in particular). Mothers with a university degree from Asian, African and European (non-EU28) countries have the strongest positive effect and the findings are in line with our expectations according to the study by Nikami (2010). In her study, the intergenerational transmission of education was stronger among immigrant women with higher education, which in this case may be translated into a positive effect on the yearly earnings for their daughters.

For women with fathers from Africa or Asia, the effect of father's education, both secondary and university education, is negative in comparison to fathers with a primary education, although it is not statistically significant. These negative effects persist when we control for all other explanatory variables (model 5). Statistically significant negative effects emerge for Asian fathers with secondary education as well as increased negative effects for fathers with a university degree. The negative effects of having a father with a university degree range between 1.9-4.9 percent (0.019-0.049) for those of Asian, African and to some extent European (non-EU28) descents. There are several plausible explanations for these results, however most of them are speculative as they cannot answer why the effects are so large. A possible explanation could be that these fathers come from cultures with a more gendered division of household labor, thus not functioning as the main role model for their daughters. That this would have such a strong negative effect is however surprising and it is difficult to find support for this in the theories employed in this study.

Mothers from Latin America and the Nordic countries, with a university degree do not have a positive effect on their daughters' earnings which is not in line with our expectations. However, Nikami (2010) proposes an explanation related to the low socioeconomic status of Chilean immigrants in Sweden. As previously mentioned, many Chilean immigrants, who potentially make up a large part of the Latin American immigrant

¹ Calculations of the coefficients are done by using the formula: $100 * (e^{\beta} - 1)$ as the model is log-linear.

group, did not believe their stay in Sweden would be very long and thus did not make any great investments in Swedish society (Niknami, 2010). Many highly educated Chileans stayed in the socially disadvantaged areas where they first arrived and took temporary blue-collar jobs in order to not get attached to their work, as they hoped to go back to Chile (ibid.). This would potentially explain why the Latin American second generation immigrant women face the largest disadvantage (model 3, table 6) and why their mothers' high education has a negative effect on their earnings, as the mothers' earnings do not correspond with their education.

For Swedish parents, the results are all statistically significant, which is presumably due to the large sample size. Even for fathers with university degrees from the Nordic countries and EU28, North America and Oceania, the results are statistically significant. The results are in line with studies conducted in the Netherlands and Switzerland, with the paternal education effect being larger (Ours and Veenman, 2003; Bauer and Rihphan, 2007). The fathers with a university degree from these countries also have a larger positive effect than mothers with the same level of education. The results correspond to those in Pronzato's (2012) study of Norwegian parents, where highly educated fathers had a larger positive impact on their children's education than mothers with the same level of education. This is not surprising considering Sweden and Norway share many similarities in terms of culture and values which can be assumed to play a role in these findings.

The overall results with the inclusion of control variables are to a certain extent in line with our expectations, with the exception of Latin American and Nordic mothers with university degrees having negative effects. The absence of statistically significant effects are due to the small sample size. We may not be able to draw any conclusions of strong correlations based on the results, however they do point in the direction we expected.

Table 7. Regression results on parental education. Dependent variable: Income (log)

	Native		Nordic		EU28, NA, OC		Europe (non-EU28)		Latin America		Africa		Asia	
VARIABLES	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5	Model 4	Model 5
Fathers education														
Secondary	0.0195*** (0.0015)	0.0043*** (0.00136)	0.00135 (0.0111)	0.00965 (0.0098)	0.000271 (0.0254)	0.0240 (0.0217)	0.0172 (0.0130)	-0.00482 (0.0114)	0.0593 (0.0389)	0.00748 (0.0355)	-0.0126 (0.0439)	-0.0241 (0.0408)	-0.0249 (0.0231)	-0.0341* (0.0203)
University	0.120*** (0.00249)	0.0171*** (0.00219)	0.0803*** (0.0312)	0.0226 (0.0277)	0.105*** (0.0372)	0.0650** (0.0319)	0.0439 (0.0485)	-0.0190 (0.0438)	0.146*** (0.0624)	0.00993 (0.0547)	-0.0154 (0.0642)	-0.0194 (0.0577)	0.00690 (0.0385)	-0.0497 (0.0325)
Mothers education														
Secondary	0.0177*** (0.00187)	0.0090*** (0.00164)	0.0131 (0.0115)	0.00638 (0.0103)	-0.0175 (0.0249)	-0.00877 (0.0217)	0.0179 (0.0134)	0.00967 (0.0118)	0.0735* (0.0399)	0.0134 (0.0353)	0.0754* (0.0427)	0.0300 (0.0390)	0.0483*** (0.0227)	0.0147 (0.0200)
University	0.0692*** (0.00255)	0.0113*** (0.00225)	0.0285 (0.0244)	-0.0281 (0.0225)	0.0611* (0.0362)	0.0205 (0.0317)	0.168*** (0.0435)	0.0566 (0.0377)	0.135*** (0.0610)	-0.0439 (0.0534)	0.191*** (0.0736)	0.0609 (0.0647)	0.114*** (0.0433)	0.0298 (0.0369)
Constant	12.41*** (0.00185)	10.33*** (0.0382)	12.44*** (0.00991)	10.88*** (0.318)	12.49*** (0.0197)	9.550*** (0.548)	12.43*** (0.00895)	10.88*** (0.350)	12.18*** (0.0371)	9.779*** (1.085)	12.36*** (0.0366)	10.11*** (1.326)	12.39*** (0.0172)	9.634*** (0.594)
Observations	371,574	371,574	5,653	5,653	2,239	2,239	4,635	4,635	839	839	583	583	2,179	2,179
Adjusted R-squared	0.016	0.273	0.002	0.228	0.013	0.276	0.004	0.241	0.017	0.251	0.007	0.216	0.005	0.262

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: Ref. category Mother and Father's education: Primary

Model 4 does not include any control variables.

Model 5 includes all control variables related to the individual (as in model 3).

6.3 Effect of parental education in educational homogamy

H4: In line with previous research on educational homogamy, we can expect to see a positive impact on earnings for those with parents in an educationally homogamous relationship. Since the parents are anticipated to have equal bargaining power, it can be expected that they will not only allocate their time spent with the children equally, but also be in agreement on their investments in their children.

H5: Furthermore, we can expect to see a positive effect that increases with the educational level of parents in a homogamous relationship. This positive effect can be due to highly educated parents valuing education more and thus investing more in the human capital of their children.

In table 9 we observe the joint effect of parental education on their daughter's earnings. The reference category is a parent couple, both with primary education. Parents in educationally homogamous relationships are highlighted in bold. Father's education is labeled FEDUC with the number after denoting level of education (2=Secondary, 3=University). The same applies for mother's education labeled MEDUC. The non-interacted terms for mother and father's education are compared to a relationship where the other partner has a primary education. For instance, native born women whose fathers have a secondary education and mothers have primary education (FEDUC2), the parents have a one percent (0.0102) positive influence on the daughter's earnings than couples where both partners have primary education (table 9, estimation 1). All the models include all control variables, but due to limited space only the relevant variables are presented in the table.

To alleviate the interpretation involving interaction terms, table 8 provides a helpful guide.

Table 8. Guide to interpreting the interaction terms.

Mothers education	Fathers education		
	Primary	Secondary	University
Primary	ref.	FEDUC2	FEDUC3
Secondary	MEDUC2	FEDUC2*MEDUC2	FEDUC3*MEDUC2
University	MEDUC3	FEDUC2*MEDUC3	FEDUC3*MEDUC3

The results are, although not statistically significant for any other group than those with two native born parents, in line with our expectations of positive effects of parents' education for those in educationally homogamous relationships. All the coefficients for parent pairs who both

have university degrees are positive in comparison to the reference group (both parents with primary education). The positive effect of educational homogamy is largest among the immigrant groups with up to a 21 percent positive effect among African parents (0.0254 for Latin American parents and 0.191 for African parents). This confirms our expectation that couples in homogamous relationships, especially those with higher education, will have the largest positive effect on their daughter's earnings. Native born couples and immigrants from Europe (non-EU28) where both spouses have a secondary education have a negative effect on their daughter's earnings. The results are only statistically significant for native born parents and the effects are very small (-0.00638 and -0.00123).

It is also clear that in the couples where the immigrant mothers have a university degree when their spouse has a primary education (Asia, Latin America, EU28, North America and Oceania) have a negative effect on their daughter's earnings. The disadvantage is between 2.9 and 8 percent (-0.0292 and -0.0858). This is also the case for women with a secondary education in partnership with men who have primary education (Africa, Latin America, Nordic, EU28, North America and Oceania). Although these values are not statistically significant they may indicate that these women have a higher opportunity cost and thus spend more time on the labor market, which has a negative effect on their children. It is however important to remember that there are many other mechanisms that may influence these results, such as a cultural or religious background which may discourage female labor supply or that these women, like Latin American mothers, face a disadvantage on the labor market which translates to their children.

Table 10 provides a further analysis of the effect of mother's education in a homogamous relationship. The interaction between mother's education and the variable "Mother's education in relation to father's" is set to isolate the effect of the mother's education on the daughter's earnings when the father either has the same, higher or lower educational level.

It is clear that for mothers with a university degree (MEDUC3), who are in an educationally homogamous relationship, there are strong positive effects among most of the groups, in comparison to mothers with a secondary education. As previously shown, mothers from Latin America with a university degree have a negative effect on their daughter's earnings which is also apparent here, despite the coefficient not being statistically significant (-0.105). This is also the case for Nordic mothers, however the results are very small (-0.0246) and not significant.

The effects of primary educated mother's in homogamous relationships are positive for the non-European immigrant groups and negative for the others. According to

previous research this may indicate a compensatory behavior (Schröder, 2007), where low educated immigrant parents invest in the education of their children in order to outweigh the negative effects of unequal opportunities. It may also reflect the upward mobility which was observed in Niknami's (2010) study, where the intergenerational transmission of education among low educated immigrant mothers was very low. Niknami (2010) mentioned how compulsory schooling of nine years in Sweden may have had an effect, which may be a possible explanation.

Table 9. Joint effect of parental education. Dependent variable: Income (log)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Native	Nordic	EU28, NA, Oceania	Europe (non EU28)	Latin America	Africa	Asia
Fathers' education							
FEDUC2	0.0102*** (0.00291)	0.00327 (0.0160)	0.0185 (0.0317)	-0.00521 (0.0144)	-0.0389 (0.0577)	-0.0671 (0.0566)	-0.0392 (0.0271)
FEDUC3	0.0168* (0.00922)	-0.112 (0.120)	0.103 (0.0783)	-0.0443 (0.0792)	-0.0482 (0.253)	-0.176 (0.125)	-0.107 (0.0842)
Mothers' education							
MEDUC2	0.0132*** (0.00252)	-0.00233 (0.0141)	-0.00782 (0.0336)	0.00962 (0.0176)	-0.0372 (0.0618)	-0.0535 (0.0670)	0.00425 (0.0314)
MEDUC3	0.0152*** (0.00488)	1.25e-05 (0.0434)	-0.0292 (0.0997)	0.0105 (0.0947)	-0.0858 (0.0846)	0.0449 (0.160)	-0.0292 (0.167)
Interactions							
FEDUC2*MEDUC2	-0.00638* (0.00332)	0.0163 (0.0205)	0.00768 (0.0444)	-0.00123 (0.0236)	0.0724 (0.0751)	0.107 (0.0851)	0.0155 (0.0413)
FEDUC2*MEDUC3	-0.0123** (0.00565)	-0.0529 (0.0520)	0.0361 (0.107)	0.0638 (0.103)	0.0887 (0.108)	-0.0208 (0.182)	0.0351 (0.174)
FEDUC3*MEDUC2	-0.00753 (0.00961)	0.125 (0.125)	-0.0688 (0.0897)	0.0397 (0.0994)	0.110 (0.261)	0.221 (0.146)	0.0567 (0.0944)
FEDUC3*MEDUC3	0.00505 (0.0105)	0.126 (0.132)	0.0291 (0.128)	0.0617 (0.159)	0.0254 (0.278)	0.191 (0.216)	0.140 (0.191)
Constant	10.33*** (0.0382)	10.88*** (0.319)	9.556*** (0.550)	10.88*** (0.350)	9.781*** (1.090)	10.08*** (1.312)	9.676*** (0.594)
Observations	371,574	5,653	2,239	4,635	839	583	2,179
Adjusted R-squared	0.273	0.228	0.275	0.240	0.249	0.216	0.262

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: Ref. category for bother mother and father's education is primary education. All control variables are included.

Ref. category in the interaction terms is a mother and father with primary education (e.g. MEDUC1*FEDUC1)

The interaction of parental education did not affect the coefficients of the control variables.

Table 10. Effect of mother's education. Dependent variable: Income (log)

VARIABLES	Mothers education in relation to						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Native	Nordic	EU28, NA, Oceania	Europe (non EU28)	Latin America	Africa	Asia
Mothers education in relation to							
LOW	0.00544** (0.00259)	-0.00653 (0.0370)	0.00772 (0.0369)	0.00176 (0.0591)	0.0281 (0.0487)	0.00491 (0.0640)	-0.0269 (0.0361)
HIGH	-0.00381** (0.00162)	-0.0196 (0.0129)	-0.0262 (0.0312)	0.00645 (0.0187)	-0.0335 (0.0486)	-0.0399 (0.0626)	0.0236 (0.0312)
Mothers education							
MEDUC1	-0.0170*** (0.00233)	-0.0174 (0.0132)	-0.0183 (0.0235)	-0.00319 (0.0141)	0.00403 (0.0469)	0.0135 (0.0491)	0.0192 (0.0231)
MEDUC3	0.0200*** (0.00258)	-0.00246 (0.0373)	0.0842*** (0.0349)	0.0246 (0.101)	-0.105 (0.0908)	0.0735 (0.0853)	0.0234 (0.0436)
Interactions							
LOW*MEDUC1	-0.00511 (0.00386)	-0.00817 (0.0403)	-0.0156 (0.0482)	0.00816 (0.0608)	0.0677 (0.0762)	0.0833 (0.0840)	0.0179 (0.0449)
HIGH*MEDUC3	-0.0198*** (0.00342)	-0.0307 (0.0442)	-0.0568 (0.0530)	0.0207 (0.109)	0.0985 (0.113)	-0.0534 (0.127)	-0.0603 (0.0666)
Constant	10.34*** (0.0381)	10.90*** (0.318)	9.551*** (0.548)	10.88*** (0.350)	9.774*** (1.089)	10.10*** (1.309)	9.654*** (0.594)
Observations	371,574	5,653	2,239	4,635	839	583	2,179
Adjusted R-squared	0.273	0.228	0.275	0.241	0.251	0.217	0.262

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: reference category for mother's education is secondary education when she is in a homogenous relationship (the spouse also has a secondary education)

All the estimations are run with the same model but by origin. The aggregate estimation (8) includes controls for region of origin. The model includes all control variables (demographic, human capital, occupation, place of residence).

7. DISCUSSION

The study set out to assess the impact of parents' education on the earnings of second generation immigrant women as well as investigate to what extent the women faced an earnings disadvantage in comparison to women with two native born parents. The main findings show that second generation immigrant women with parents born outside Europe, face the largest disadvantages in terms of earnings. They also reveal that parents in homogamous relationships have a positive effect on their daughter's earnings. Despite the lack of statistically significant results, the findings are in line with previous studies. The effects are however not causal, as an OLS estimate can only point to associations between the independent and dependent variable.

An interesting finding is the large negative effects associated with university educated mothers who are born in Latin America. Their possible low socioeconomic position in Sweden may have offset the positive effect of their high education. This revealed a very important fact: despite having parents with high education, other socioeconomic factors clearly have a strong influence on the earnings of the adult daughters. Controlling for parents' education is important as the results revealed other interesting findings, such as fathers from Africa and Asia having a negative effect on the earnings of their daughters. However, these findings point out the difficulties associated with explaining the different effects of parental education. The theory assists in highlighting an area of research that has not been extensively explored in Sweden, which is the impact of the different compositions of immigrant parents' education on their children's earnings. The limitations in the theory to explain the findings lies in the complexity of the mechanisms that the theory is trying to explain. Further analysis on the effects of mothers' education on their daughters' earnings would perhaps require a different methodological approach and several theories to explain the effects as they are not straightforward.

7.1 Limitations

Limitations in this study include the use of cross-sectional data to review the differences in earnings between those with two native born parents and second generation immigrants. The results obtained describe the differences in the year 2013, but are not statistically significant. The use of longitudinal data would instead be able to provide more accurate and statistically significant estimates. Furthermore, the use of an econometric method such as matching, where native and second generation immigrants, who are similar in certain aspects, would be

compared instead of the entire group, may also have provided more statistically significant results.

Another limitation is the use of parental education without an additional measurement for parents' socioeconomic status. In the case of the Latin American second generation women facing a large disadvantage, even among those with highly educated parents, it clearly emphasizes the social position of the parents and the opportunities available for their children. Another limitation is the assumption that both the parents are or have been present in their daughter's life. Their joint educational effect as well as the effect of the mother's education in relation to the father's level of education assumes that the parents are together. The joint effects may potentially be biased as the mother's may not be influenced by the father at all.

Furthermore, the study does not control for the educational level or ethnicity of the spouse of the second generation immigrant woman (for the women who are married or cohabitating). With the theory of educational homogamy and household division of labor, it can be believed that the presence of a spouse would further influence the women's earnings which would not be connected to the parent's education or influence. Future research could potentially apply the theories of educational homogamy on the second generation immigrant women and their spouses.

This thesis opens up the discussion on the different influences that impact the earnings of second generation immigrant women in Sweden. Further investigation on the role of parents' educational composition and the subsequent effects on the daughter's labor market performance, would be of interest. In-depth qualitative studies on the role and involvement of immigrant mothers in their daughters' education would also be of interest as it may help disentangle some of the results obtained in this study regarding the influence of mothers with low education.

8. CONCLUSION

The aim of the thesis was twofold. Firstly, to examine the differences in earnings between second generation immigrant women and women with native born parents in Sweden. According to previous research an earnings disadvantage would be expected for women with an immigrant background. The findings corresponded to these expectations even when controlling for personal characteristics that may influence the differences in earnings. Women with both parents born outside Europe (excluding North America and Oceania) faced the largest disadvantages in comparison to women with two native born parents. The findings were

however only statistically significant for women with parents born in Asia and Latin America. This is most probably due to the small sample size of the second generation immigrant women. A larger sample size and observations over a longer time period, would be able to provide more accurate results regarding the size and direction of the differences in earnings.

The second aim was to explore the impact of parents' education on the earnings of their daughters and in particular the mother's education. Parents with the same level of education were expected to have a positive effect on their daughter's earnings, with larger positive effects for highly educated parents. For women with immigrant parents, the mother's education was expected to have a stronger positive effect than father's education on their earnings. The results were in line with the expectations on the immigrant mother's education having a larger positive effect, but only for mother's from non-European countries. Parent unions where both parents had a university education had the largest positive impact on their daughters. However, in the case of Latin American mothers with university education, the effects were negative. This could potentially be due to their low socioeconomic status, despite their high level of education.

In conclusion, the results correspond to some of the previous findings, but highlight an area of research that would be of interest to explore further in order to create a better understanding of the mechanisms affecting the labor market outcomes and earnings of second generation immigrant women in Sweden.

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APPENDIX

Table 11. Region of origin (List of countries)

<p>Africa All 54 countries in Africa are represented</p>
<p>Asia All countries in Asia including the Middle East and former Soviet Union (in Asia).</p>
<p>EU28 Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Czechoslovakia, Danzig, Estonia, France, Great Britain and Northern Ireland, Greece, German Dem Rep (DDR), Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain</p> <p>North and Central America Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, Canada, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, Virgin Islands, USA</p> <p>Oceania Australia, Fiji, Kiribati, Micronesia, Nauru, New Zealand, Palau, Papua New Guinea, Solomon Islands, Samoa, Tonga, Western Samoa</p>
<p>Europe (non EU28) Albania, Andorra, Belarus, Bosnia Herzegovina, Gibraltar, Kosovo, Liechtenstein, Macedonia, Moldavia, Monaco, Montenegro, Russia, San Marino, Serbia, Serbia and Montenegro, Switzerland, Turkey, Ukraine, Yugoslavia</p>
<p>Nordic Denmark, Finland, Iceland, Norway</p>
<p>Latin America Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela</p>

Table 12. Variable list

Age	Age in years
Married	Yes=1, No=0
Children under age of 7	Yes=1, No=0
Lives in metropolitan area (Yes=1)	Yes=1, No=0
Human capital characteristics	
Primary education	9 years or less schooling
Secondary school	12 years schooling
University education	12+ years schooling
Average annual income	in thousand(s) SEK
Received work compensation	Yes=1, No=0
Occupation	
Managers and executives	Yes=1, No=0
Jobs requiring higher education (5+ years)	Yes=1, No=0
Jobs requiring higher education (less than 5 years)	Yes=1, No=0
Administrative staff and clerks	Yes=1, No=0
Service, healthcare and hospitality	Yes=1, No=0
Construction, forestry, mining	Yes=1, No=0
Low skilled workers	Yes=1, No=0
Military staff	Yes=1, No=0
Unspecified	Yes=1, No=0
Sector	
Public	Yes=1, No=0 (if no, Private sector)
Parental characteristics	
Fathers education	
Primary	9 years or less schooling
Secondary	12 years schooling
University	12+ years schooling
Mothers education	
Primary	9 years or less schooling
Secondary	12 years schooling
University	12+ years schooling