PhD-FHSE-2023-013

The Faculty of Humanities, Education and Social Sciences

DISSERTATION

Defence held on 26/04/2023 in Esch-sur-Alzette

to obtain the degree of

DOCTEUR DE L'UNIVERSITÉ DU LUXEMBOURG

EN *Sciences Sociales*

by

Adda Carla JUSTINIANO MEDINA
Born on 24 February 1986 in La Paz, (Bolivia)

INTERMARRIAGE AND THE INTEGRATION OF IMMIGRANTS

Dissertation defence committee

Dr Marie Valentova, dissertation supervisor
Research Scientist, Luxembourg Institute of Socio-Economic Research (LISER)

Dr Mirna Safi
Professor, Sciences Po

Dr Philippe Van Kerm, Chairman
Professor, Université du Luxembourg, LISER

Dr Sara Ayllón
Professor, Universitat de Girona

Dr Louis Chauvel, Vice Chairman
Professor, Université du Luxembourg

Table of Contents

Acknowledgements

I am extremely grateful for having been given the opportunity to write this PhD thesis and I want to express my gratitude to every person who supported me.

I thank the Fonds Nationale de Recherche for funding my research (PRIDE15/10949242), without their support, this thesis would have been not possible.

I would also like to thank my PhD supervisor committee Dr. Marie Valentova, Prof. Dr. Louis Chauvel and Prof. Dr. Philippe Van Kerm for choosing me and giving me the opportunity to do this PhD and who patiently mentored me through this journey. Special thanks to my supervisor, who dedicated so much of her time and experience into showing me the path.

Special thanks also to Prof. Dr. Philippe Van Kerm who always had a constructive suggestion and a readily answer and humbly helped with all my questions.

A big thanks to all my colleagues in LISER, LIS and the University of Luxembourg for the discussions and for taking the time to read my abstracts, introductions or conclusions or even my whole articles, they not only contributed to this thesis but also inspired me and taught me more than they are aware of. I am lucky to call you friends.

I also thank whomever I encountered in the many conferences or summer schools, who contributed with questions, comments, or suggestions. Special thanks to Prof. Delia Furtado and Prof. Jeffrey Wooldridge.

Words cannot express how thankful I am for my husband, who has always supported me in any possible way, thank you for being so patient and kind. I thank my mother who taught me the value of education and commitment, as well as, my father and grandfather, who are now in heaven, as they pushed me to believe in myself by doing so. Of course, a big thank you for my two sons who taught me so many things in so little time since their birth and even helped

me type this thesis at times when I worked from home. Being their mother brought me the biggest pride during the PhD.

I thank all the odds that pushed me to find a better destiny…

With the deepest gratitude,

Adda Justiniano

Abstracts

The aim of this thesis is to investigate the effect of intermarriage on selected aspects of the integration of the foreign born in Italy and Luxembourg. The thesis consists of introduction, three empirical chapters and conclusions. The introduction provides an overview of the theories and existing research related to the relationship and effect of intermarriage on the various outcomes. Furthermore, it outlines the gaps in the existing literature and the main structure of the thesis. The subsequent two chapters, namely the second and the third chapters, are dedicated to the analysis of intermarriage in employment outcomes of foreign born women in Italy. Subsequently, the fourth chapter is focused on the analysis of intermarriage related to the life satisfaction of foreign born men and women in Luxembourg.

In the second chapter, I estimate the effect of intermarriage on employment-related outcomes, including binary indicators (employed or not), continuous variables (average weekly hours of work), and a proxy for underemployment, among foreign born women in Italy. Utilizing a linear probability model, the analysis reveals that intermarried foreign born women exhibit a significant decrease of approximately 44 percentage points in the likelihood of being employed compared to their single counterparts. Additionally, they are approximately 6,8 percentage points less likely to be employed compared to women in endogamous marriages. In contrast, women in endogamous marriages experience a reduction in employment likelihood of around 37 percentage points compared to single women. These findings are further corroborated by nonlinear regression models, specifically probit and logit regressions. Taking into consideration the endogeneity of intermarriage, the penalty associated with intermarriage more than doubles, with a decrease of -114 percentage points compared to single women and a decline of nearly -70 percentage points compared to women in endogamous marriages.

With respect to employment intensity, it is observed that women in all marital statuses exhibit an average reduction of approximately 16 hours in their weekly working hours compared to single women. Furthermore, women in both intermarriages and endogamous marriages demonstrate a higher likelihood (between 7 and 5 percentage points) of experiencing underemployment compared to their single counterparts. Notably, marital status, encompassing both intermarriage and endogamous marriage, emerges as the primary and sole significant predictor of underemployment among employed foreign born women in Italy.

In the third chapter, a variety of econometric techniques are employed to address the issue of self-selection into employment while simultaneously accounting for the endogeneity of intermarriage among foreign born women in Italy. The sample consists of foreign born married women, selected randomly from a representative sample of families with foreign born people residing in Italy. The econometric methods applied include Ordinary Least Squares, Heckman sample correction, Instrumental Variables, and the combined method. These approaches enable the examination of potential biases arising from women's' self-selection into the labor market and address the concerns regarding the endogeneity of intermarriage in a comprehensive manner. The findings of the study indicate a statistically significant "raw premium" of 9 percentage points in hourly earnings for foreign born women who are intermarried compared to their endogamous counterparts. Nonetheless, this wage premium diminishes when additional individual characteristics are included in the analysis, as well as when considering the effects of endogeneity and self-selection into employment, both separately and simultaneously. Based on these empirical results, the study concludes that the observed higher wages among foreign born women who marry natives can be attributed to their observable and unobservable characteristics, rather than being solely attributable to the act of intermarriage itself

In the fourth chapter, an exploration is conducted to examine the general life satisfaction (LS) of foreign-born individuals in relation to their partner's origin, specifically comparing those in endogamous relationships (partners of the same origin) with those in intermarriages (partners of different origins). The analysis is based on data obtained from the Luxembourg Statistics on Living Conditions surveys conducted in 2011 and 2013. Luxembourg, a country where the foreign-born population comprises nearly half of the total population, serves as the context for this investigation.

The findings of the study indicate that foreign-born individuals who are intermarried to natives experience a positive effect on their general life satisfaction (LS), indicating a premium. Conversely, those who are intermarried to foreigners of a different origin face a negative effect, implying a penalty, when compared to their endogamous counterparts. It is important to note that the observed effects differ in terms of magnitude and significance between men and women. Specifically, women demonstrate a significant LS premium resulting from intermarriage to a native partner. In contrast, men encounter an LS penalty arising from intermarriage to a partner of foreign origin.

The empirical findings of this study demonstrate heterogeneity in the relationship between intermarriage and life satisfaction (LS), contingent upon the maturity and size of the immigrant community of themselves and of their spouses in Luxembourg. Specifically, men originating from countries where the immigrant community is not yet mature and lacks significant size exhibit a notable LS premium resulting from intermarriage with a native partner. Furthermore, for women, those who intermarry individuals from a large and well-established immigrant community also experience a substantial LS premium. In contrast, women who intermarry individuals of different origins outside of a well-established community face a penalty of similar magnitude on their LS. These findings underscore the significance of contextual factors, namely the maturity and size of the relevant immigrant

community of their selves and of their spouses, in shaping the association between intermarriage and LS outcomes.

1 Introduction

As of 1 January 2021, the number of foreign born people living in the EU totaled 37,4 million, or around 8,4 percent of the total resident population. Of these, 23,7 million came from a country outside of the European Union (around 5,3 percent of the total population) (EUROSTAT, 2022). However, these figures are more nuanced when looking at the ranking of the top 10 EU receiving countries, based on the percentage of foreign born peoples out of the total population. For example, Luxembourg is in the highest position, with the proportion of foreign born people exceeding 48,7 percent. This is followed by Malta with 23 percent, Cyprus with 22 percent, Austria and Sweden with 20 percent, Iceland, Germany, Belgium, and Ireland each with 18 percent, and Norway with 16 percent. Italy is in twenty-first place, with 11 percent of foreign born in the total resident population (EUROSTAT, 2022).

A high number of foreign born residents is said to alter different aspects of the receiving country, such as the labor market (wages and employment) and the supply and demand for consumer goods and services (Chiswick and Hatton, 2003; The Migration Observatory, 2022). Moreover, immigration might change the composition of the population, the fertility rate (Furtado, 2016), and the marriage and divorce rates (Vignoli et al., 2017). A notable insight is that, despite the overall trend in the number of marriages in the European Union is in decline, the rate of intermarriages between foreign born people and native residents has an increasing trend (Johnson and Kreider, 2013; Lanzieri, 2012; Livingstone and Brown, 2017).

As the proportion and diversity of the populations in European countries grow, so does the concern regarding the integration of the foreign born into the receiving societies. This is also evidenced by a survey, in which around 68 percent of the people interviewed stated that integration of the foreign born is a priority issue faced by the EU (Eurobarometer, 2022).

On arrival in the receiving country, a foreign born individual is likely to possess limited local-specific information, a restricted local network, and may also have a limited command of the local language compared to native individuals (Chiswick, 1978). However, it is important to note that this may vary depending on the individual's country of origin (Chiswick and Miller, 2002). In many receiving countries, foreign-born individuals generally experience disadvantages relative to natives in terms of salaries (Ingwersen and Thomsen, 2019; Choe and Van Kerm, 2018; Nordin and Rooth, 2009), employment (Ballarino and Panichella, 2017), and even in more holistic indicators such as general life satisfaction (LS) (Safi, 2010; Sarracino, 2014). Nevertheless, the situation of foreign born individuals tends to improve with an increased duration of residence in the receiving country (Meng and Meurs, 2009; Chiswick and Miller, 2002; Chiswick, 1978). Moreover, one potential avenue for accelerating this improvement is through intermarriage with a native person (see, among others, Meng and Meurs, 2009; Gevrek, 2009; Furtado and Theodoropoulos, 2009; Nottmeyer, 2010; Georgarakos and Tatsiramos, 2009).

The intermarriage rate is frequently regarded as the rate of acceptance between cultures, a sign of diminished social distance, and a proxy for the integration of foreign born residents (Muttarak, 2004; Kalmijn, 1998; Gordon 1964). Moreover, it is suggested that intermarriage could act as an environment to accelerate the integration of foreign born people, as it could help to expand their network of natives, improve local language proficiency, and increase specific local knowledge, for example, about culture and idiosyncrasies (Kantarevic, 2004; Meng and Meurs, 2009; Gevrek, 2009; Furtado and Theodoropoulos, 2009). This could, in turn, facilitate the labor market integration of foreign born people and their well-being; that is, their general life satisfaction.

In this thesis, the primary objective is to examine the relationship and impact of intermarriage on various aspects of the integration process for foreign born individuals.

Specifically, the analysis focuses on labor market outcomes for foreign born women in Italy and the overall life satisfaction of foreign born men and women in Luxembourg.

By concentrating on specific country cases where intermarriage holds significance and where existing literature exhibits gaps, this research aims to address the limitations in the current body of knowledge. Moreover, the decision to examine individual countries instead of adopting a cross-country approach is motivated by the desire to avoid complications arising from variations in integration policies among different nations. Such policy disparities could potentially obscure the discernment of the distinct effects of intermarriage (Ziefle and Gangl, 2014).

The following sections present an outline encompassing the main theories and empirical studies that have investigated the relationship between intermarriage and the integration of foreign born individuals in terms of labor market outcomes and life satisfaction. This framework establishes the basis for the analysis conducted in this thesis.

1.1 Theories supporting the intermarriage premium

Based on the Social Capital Theory, foreign born individuals encounter labor market disadvantages due to their predominantly comprised networks and connections, which consist mostly of fellow foreign born individuals with limited familiarity regarding the local labor market dynamics (Aguilera, 2005). Consequently, foreign born individuals face a relative disadvantage in comparison to native-born individuals, as their limited understanding of local labor market conditions translates into increased challenges in securing higher-paying employment opportunities (Gevrek, 2009).

Moreover, marriage to a native would entail the expansion of native contacts by incorporating those of the native spouse, potentially including the spouse's family, friends, and colleagues. The foreign born partner obtains contacts and connections from a native spouse.

Research has found evidence of a positive effect of intermarriage on the native networks of the foreign spouse when compared with endogamously married foreign born people (Rodriguez-Garcia, 2015; Furtado and Song, 2015).

Social capital has an extremely important role in the labor market for individuals, and even more so for the foreign born, because of their otherwise limited networks. Social contacts with natives have a positive impact on the labor market outcomes through the transfer of knowledge about what is in demand in the local labor market and what the job market conditions are, as well as the local culture and customs (Nottmeyer, 2010). Consequently, the foreign born spouse could find an increase in job openings due to improved knowledge, they could tailor their human capital acquisition to the local labor market needs, which would increase their chances to succeed in finding an employment and in obtaining an employment with a higher salary. Moreover, social capital is also a highly important determinant of subjective well-being; in fact, it is one of the main explanatory variables.

The Productivity Theory from literature about the marriage premium states that the productivity of men increases with marriage due to labor specialization and the division of labor within the household (Becker, 1973). The productivity theory implies that men become more productive due to the accumulation of human capital that derives from specializing in market work. In the case of foreign born people, the argument is complemented, firstly, by the improvement of proficiency in the local language. Lochmann and colleagues (2019) and Chiswick and Miller (2002) offer empirical examples showing that language proficiency has a positive impact on the employment and earnings of the foreign born.

Secondly, the native spouse could provide information about different structures and institutions of the local labor market, such as job openings, platforms where job openings are found, as well as by word of mouth and informal rules regulating the labor market (Gevrek,

2009). Such that it could increase job prospects and reduce job search costs, thereby increasing integration into the labor market as well as self-efficacy (Meng and Meurs, 2009; Gevrek, 2009; Furtado and Theodoropoulos, 2009; Nottmeyer, 2010; Georgarakos and Tatsiramos, 2009). Thirdly, intermarriage also signals greater adaptability, commitment, attachment, and familiarity with the local culture and the foreign spouse could count on the referral and references from the native spouse and networks (Furtado and Theodoropoulos, 2010; Nottmeyer, 2010).

The Credit Constraint Theory, also known as the Family Investment Hypothesis (Baker and Benjamin, 1997), posits that families in which both spouses are foreign born are credit constrained. They adopt an integration strategy whereby one of the spouses — the one with lower earnings potential, usually the wife — takes a dead-end job. Such jobs are quicker and easier to find but offer low returns on experience and therefore little prospect of a salary increase. This is done in order to finance the integration of the spouse with the higher earnings potential, usually the husband. In this situation, once the husband is fully integrated, the wife diminishes her supply on the labor market while the husband increases his. On the other hand, intermarried families that are not credit constrained can afford to invest in local human capital without financing this through a dead-end job for one spouse, and they can wait longer to find work with higher earnings. In these two types of families, it is easy to infer that the gender roles could differ between the two types of families, which means that women are affected more. This theory would mean that women usually have higher employment rates in endogamous families, whereas they usually have higher salaries in intermarried families.

In psychology, the self-efficacy theory refers to an individual's belief in their capacity to act in ways that will help in reaching her or his goals (Bandura, 1994). This definition seems to partly mirror the main message of the definition of multidimensional integration of foreign

born people, where it is intended as “having the capacity to build a successful and fulfilling life in the receiving country” (Harder et al., 2018).

More in detail, self-efficacy occurs as one consequence of self-expansion, in which the latter is understood as incorporating new resources, capabilities, and identities (Aron and Aron, 1986). Self-expansion can be achieved through close relationships, and intermarriage to a native could potentially contribute to the expansion of self-efficacy in the receiving country in ways that differ from marriage to a co-ethnic spouse, for example, through the expansion of local native networks, local knowledge, language proficiency, etc. In psychology self-efficacy is strongly related to general life satisfaction (Poorbaferani et al, 2018).

The theories discussed above, namely the Social Capital Theory, the Productivity Theory, the Credit Constraint Theory, and the Self-Efficacy Theory, are interconnected and collectively shed light on the labor market experiences of foreign born individuals in the context of intermarriage. The Social Capital Theory highlights the importance of networks and connections for labor market outcomes, emphasizing how intermarriage expands the social capital of foreign born individuals through access to native networks and knowledge. This expanded social capital, in turn, aligns with the Productivity Theory, as intermarriage facilitates language proficiency, cultural adaptation, and the acquisition of local labor market information, thereby enhancing the productivity of foreign born individuals. Moreover, the Credit Constraint Theory elucidates the differential economic strategies pursued by credit-constrained and non-constrained intermarried couples, influencing the gender roles and employment outcomes within these families. Finally, the Self-Efficacy Theory complements the other theories by emphasizing the psychological impact of intermarriage on foreign born individuals, as it fosters self-expansion, increases self-efficacy beliefs, and contributes to overall life satisfaction. Together, these theories provide a comprehensive framework for understanding

the multifaceted effects of intermarriage on labor market integration and subjective well-being among foreign born individuals.

In contrast to the aforementioned perspective highlighting the positive effects of intermarriage on labor market outcomes and subjective well-being among foreign born people, alternative arguments propose a more nuanced understanding, in the following subsection.

1.2 Theories competing with the intermarriage premium

Gordon's (1964) assimilation theory identifies three key stages of assimilation: acculturation, structural assimilation, and marital assimilation. Acculturation refers to the adoption of cultural norms in the receiving country, while structural assimilation involves gaining access to exclusive structures and institutions such as schools and neighborhoods. Marital assimilation, the final stage, entails intermarriage with a native of the receiving country. According to Gordon's theory, the second stage is pivotal as it enables access to the first stage and ultimately leads to intermarriage. However, recent studies suggest that intermarriage fosters integration in the receiving country, challenging the sequential nature proposed by Gordon's theory (Meng and Gregory, 2005; Meng and Meurs, 2009; Gevrek, 2009).

According to Kalmijn (1998), intermarriage or endogamous marriage may nevertheless depend on three main factors: personal preferences for specific characteristics in a spouse, social pressure or third party interference in the selection process, and the marriage market conditions in which potential spouses are looking for a partner. Furthermore, gender can also influence marriage preferences, as marriage can mean a division of labor within the household and the types of marriage — endogamous or intermarried — may differ in terms of gender norms and the division of labor (Nottmeyer, 2011). As evidenced in a qualitative analysis by Rodriguez Garcia (2015), the cultural gender norms are the main reason for women to marry a Spaniard instead of a man from the same country of origin.

As educational qualifications are often correlated to partner choice (Forse and Chauvel, 1995), a higher level of education could be a determinant for intermarriage as opposed to endogamous marriage, for three reasons: first, because it makes people more tolerant of differences (Song, 2009); second, because it is an indicator of class for men and of attachment to the labor market for women, third, because educational institutions are platforms where people could meet potential partners. Based on these arguments, education, and the interplay with preferences concerning the division of labor within the household could hence be a determinant for intermarriage.

Furthermore, there are arguments that the relationship between intermarriage and employment outcomes, such as earnings, is spurious. This is because the relationship could be determined by unobserved factors that affect both the outcome (earnings, employment, or LS) and the probability of intermarriage. Some of the unobserved factors could be physical appearance (Kantarevic, 2004), the willingness to accept cultural differences (Meng and Gregory, 2005), social skills (Gevrek, 2009), and ambition (Furtado and Theodoropoulos, 2009).

The self-selection theory posits that intermarriage does not generate a premium in terms of salaries, employment, or life satisfaction. While intermarried foreign born individuals may indeed enjoy certain advantages, these are not directly caused by intermarriage itself. Rather, factors such as high salary, employment, or a high level of life satisfaction can lead to intermarriage, rather than the reverse relationship (Nottmeyer, 2010; Bevelander and Irrastorza, 2014; Potarca and Bernardi, 2021). Additionally, individuals who are endogamously married may possess unobservable characteristics that decrease the likelihood of intermarriage and employment prospects. In other words, the endogamous group may exhibit negative selection. For instance, they may reside in ethnic enclaves with limited opportunities for

language improvement, access to information about job openings, or interactions with natives (Furtado and Theodoropoulos, 2009).

1.3 Literature findings

1.3.1 State of the literature concerning the intermarriage premium on labor market outcomes

The very first article to study the effect of intermarriage on the earnings of foreign born people was by Meng and Gregory (2005), although it was published four years after their results were known in 2001. In their results, using Australian data, the researchers identified an intermarriage premium that persists, even after the potential endogeneity of intermarriage is accounted for. Their sample included men and women. The instrument they used was the probability of meeting someone of the same ethnicity, formulated as the number of men (or women) of the same age range, ethnic and religion group observed in a census year divided by the total number of all women (or men) of a given age range observed in the same census year.

The second instrument they used is the sex ratio within the ethnic group to account for competition for potential spouses. This is formulated as the total number of men (or women) from an ethnic group in a census year to the total of women (or men) of the same ethnicity, with the same calculation performed for the genders the other way round. The utilized instruments demonstrate a limited consideration of the spatial dimension, thereby disregarding the notable disparities in migrant concentrations across various cities or regions pertaining to different ethnicities. Moreover, an additional aspect that has been overlooked is the temporal dimension, particularly the timing of marriage. The instruments were created with census data, which is collected every five years in the case of Australia. Whilst it is unclear if the instruments are linked to the time of the marriage or migration, or to the time of the study, however, the

latter seems most plausible. The researchers conclude that the intermarriage premium is a result of economic integration rather than unobserved characteristics.

The second article to examine the intermarriage effect on earnings was by Kantarevic (2004). In her analysis, she used cross-sectional data from the USA and focused on men, the reason for doing so is that she claims women have different issues compared to men regarding selectivity into employment. She compared intermarried men with those who were endogamously married. The research tested two main opposing hypotheses: the productivity hypothesis (suggesting that intermarriage increases the earnings of intermarried men) and the selection hypothesis (in which intermarried foreign born people are self-selected into marriage and employment, and this may be due to unobservable characteristics).

Kantarevic (2004) concluded that intermarried foreign born people were positively selected; hence the intermarriage premium of earnings disappeared once the unobservable characteristics were controlled for with an instrument. The methodology she used relied on endogenous switching regime models. This involved taking the probability of intermarriage as an instrument, formulated as the ratio of the number of the unmarried from a given ethnicity in a given region to the number of unmarried in the country, over the ratio of the number of unmarried natives in a region to the total of unmarried natives in the country. It is not specified whether the instrument was linked to the time of marriage or to the time of migration. However, Kantarevic (2004) also included the same instrument but with a 10-year lag in respect of the time of the study. She also carried out a sensibility analysis, considering only those who never married and a specific age group of those aged 16 to 32.

Similarly to the previous studies, Gevrek (2009) investigated the intermarriage premium of earnings in the Netherlands, considering only the male sample. She used the sex ratio and the probability of meeting a co-ethnic partner as instruments to account for the potential

endogeneity of intermarriage, and linked the instruments to the time of marriage. However, she ignored the space variation. In her exercise, Gevrek (2009) jointly accounted for selection into the labor market while accounting for the endogeneity of intermarriage.

Meng and Meurs (2009) studied the intermarriage premium of earnings in France. They included both women and men in their sample, and they used the sex ratio and the probability of meeting a co-ethnic spouse as instrument exploiting variation at the regional level. They found a positive and significant intermarriage premium of earnings for men and women. They also found a positive selection of the sample, implying that women in particular are less likely to be employed if they marry, and if they work, they would normally earn a higher salary than endogamous women.

Dribe and Lundh (2008) explored the relationship between intermarriage and labor market outcomes in Sweden and found a positive relationship between intermarriage and employment and income for foreign born men and women. However, they did not uncover a causal relationship. To examine this aspect, Dribe and Nysted (2015) used a different approach to that in previous studies. In their analysis, they exploited the time dimension of panel datasets and used distributed fixed effects estimation to account for endogenous intermarriage and to uncover the causal effect of intermarriage on the earnings of foreign born men in Sweden. They found a 20 percentage points premium, which decreased to 7 percentage points once endogeneity was accounted for. The causal effect of the premium is for the groups that have the most difficulties concerning integrating in Sweden, suggesting that this group has greater room for improvement. However, because of the nature of the dataset, the comparison group is unmarried men. Nekby (2010) found that all types of marriage — intermarriage or endogamous — yield similar premiums, concluding that any premiums are the result of self-selection. Nottmeyer (2010) performed the same exercise in Germany, with a panel dataset.

She concluded that intermarriage leads to higher returns on experience in the long term for foreign born men, although in the short term there is no significant intermarriage premium.

The studies using panel data and a fixed effects approach may appear superior to those that use instrumental variables, but there are some drawbacks that are not clearly addressed by the studies. These are the attrition rate, which might be due to the positive selection of the sample, in which only successful couples still remain in the surveys, and where endogamous couples return to their original countries and are not part of the studied sample. Moreover, although observing people's earnings prior to marriage can in part account for selection into the type of marriage, the benefits from intermarriage may not derive from the specific change in marital status, but could be the result of the relationship. In this regard, the information for the time of the relationship is normally not available in datasets. Following the same style of analysis with panel data and fixed effects, but with a slightly different focus, Elwert and Tegunimataka (2016) analyzed the effect of cohabitation and intermarriage of foreign born people related to earnings in Denmark. They found that even after accounting for time constant factors driving the selection into the type of relationship (marriage), there is a positive effect of cohabitation and intermarriage related to earnings for foreign born men and women in Denmark.

An additional study focused on the labor market outcomes of men and women, this time in Sweden. Bevelander and Irrastorza (2014) analyzed the intermarriage effect for foreign born men and women in Sweden using a longitudinal dataset. They distinguish by the heterogeneity in the motivations for migrating, and between refugees, family migrants, and labor migrants.

They found that in terms of earnings, endogamously married women had higher salaries. They also found that the reason for migrating was not statistically significant for women. Moreover, when they tested both of the typically competing hypotheses — intermarriage

premium versus self-selection — they found evidence supporting each hypothesis. This means that the level of salaries and employment rates prior to marriage were higher for foreign born people intermarried to a native, compared with those who married endogamously. When considering the different motivations of the foreign born, the results also fully supported the selection hypothesis for labor and family migrants, and partially supported it for refugees. The intermarriage premium hypothesis was fully confirmed for family migrants and only partially for refugees and labor migrants. The main weakness of this particular study is that the income and employment growth could have been due to factors occurring in parallel to the type of marriage. For example, if intermarried foreign born people are more ambitious —which would be shown by their higher earnings and employment rates prior to marrying a native — they would choose to marry into the group they expect greater benefits from, in this case, natives.

Hence, they would invest effort in obtaining gains from intermarriage driven by their own ambitions. However, it seems difficult to disentangle the effects of ambition from the effects of an intermarriage premium, as they could occur jointly, but ambition is not something observed or measured in datasets.

Basu (2015) studied intermarriage effects, focusing only on the labor market outcomes of women in the USA. Her approach was to use the traditional instrumental variables of the sex ratio and the probability of meeting co-ethnic partners in a given region. The time dimension was not considered when building the instruments, but they are presumably linked to the year of the wave of the census that was used for the analysis. Moreover, self-selection into employment was not accounted for. The results show an hourly wage penalty for all intermarried women of nearly 8 percentage points, while there was a premium in terms of employment of nearly 3 percentage points, as well as a penalty in terms of hours worked of nearly 10 percentage points.

The studies discussed explore the impact of intermarriage on labor market outcomes for foreign-born individuals. There is no consensus in the findings, as some studies conclude an intermarriage premium on earnings, indicating a positive effect, while others find this is due to self-selection. However, there are gaps in the literature concerning geographic disparities and gender-specific analyses. As studies concentrated in more traditionally immigrant receiving countries and in male foreign born. The spatial dimension, such as variations in migrant concentrations across cities or regions, is often overlooked when formulating the instruments. Additionally, the timing of marriage and its implications are not consistently considered.

1.3.2 Literature on the intermarriage premium of life satisfaction

A study examining in general terms the life satisfaction of emigrant women from Latvia was conducted by Koroleva (2022), in which she analyzed the association between life changes and life satisfaction changes for highly-qualified emigrant Latvian women using longitudinal data. She concluded that emigrant women who formed families with natives significantly increased their life satisfaction compared with being single.

Bernardi and Potarca (2021) conducted the pioneering study that directly examined the impact of intermarriage on life satisfaction. In their analysis they utilized a panel sample from Germany and encompassed both foreign-born individuals and natives. The study revealed a positive and statistically significant premium associated with intermarriage in comparison to being single. Moreover, the findings generally did not support the hypothesis of self-selection into intermarriage among foreign born women. However, in the case of foreign born men, the study identified higher levels of life satisfaction prior to the intermarriage with natives.

1.4 Discussion and gaps in the literature

In spite of the above-mentioned studies, some aspects of the effect of intermarriage on the labor market, as well as life satisfaction, remain unexplored.

Firstly, there is a geographical gap in the literature, as the existing studies examining the intermarriage premium predominantly focus on employment outcomes and are primarily conducted in Northern European countries. Examples of these countries include Sweden (Nekby, 2010), Denmark (Elwert and Tegunimataka, 2015), the Netherlands (Gevrek, 2009), Germany (Nottmeyer, 2010), and France (Meng and Meurs, 2009), which serves as the closest example to Southern Europe. There are other examples that focus on countries in other continents, such as the USA (Basu, 2015; Kantarevic, 2004) and Australia (Meng and Gregory, 2005).

Southern European countries, such as Spain, Portugal, or Italy, have not been paid the same attention. Nevertheless, these are considered as immigrant receiving countries by the European Commission (2022).[1] This acknowledgment is supported by the significant proportion of foreign born people residing in these countries, as well as the notable influx of foreign born populations in recent years.[2] Furthermore, there is a lack of empirical analysis on the intermarriage premium in Luxembourg, despite the fact that the country has been considered a recipient of immigration for over a century.[3]

[1] Portugal: https://ec.europa.eu/migrant-integration/country-governance/governance-migrant-integration-portugal_en, Spain: https://ec.europa.eu/migrant-integration/country-governance/governance-migrant-integration-spain_en, and Italy: https://ec.europa.eu/migrant-integration/country-governance/governance-migrant-integration-italy_en

[2] The proportion of foreign born residents in Portugal increased from 4,4 percent in 1990 to 8,01 percent in 2015. In Spain it increased from 2,1 percent to 12,69 percent, and in Italy from 2,51 percent to 9,68 percent in the same period, according to the World Bank statistics (World Bank, 2022. https://datatopics.worldbank.org/world-development-indicators/ .

[3] Luxembourg:https://ec.europa.eu/migrant-integration/country-governance/governance-migrant-integration-luxembourg_en

Second, there is a gender gap in empirical analyses because women are often excluded from the analyses. There are few articles that analyze the intermarriage premium in the labor market of women. Nevertheless, the current context seems to demand this, as there is a trend toward the feminization of migration, particularly in the area of Southern Europe (Bettio, Simonazzi, and Villa, 2006; Ruyssen and Salomone, 2018). An important argument for analyzing the intermarriage wage premium for women is that married women have a specific form of labor participation that differs from that of men (Becker, 1973). This argument is also given as the main reason why women were often excluded from the analyses in most of the above-mentioned studies, which focused on men. This entails another reason for leaving women out of these analyses, is that analyzing the intermarriage premium among foreign born women is methodologically challenging, because in addition to the endogeneity of intermarriage, the intermarriage premium could present bias due to the selection into the labor market of married women that is different from that of married men.

Lastly, there is an evidence gap, as literature on the effects of intermarriage on the integration of the foreign born is mostly focused on labor market outcomes. However, the same mechanisms that potentially affect the labor market are likely to affect the life satisfaction of the foreign born, however, empirical analysis on this remain mostly absent. There is only one recent example to the best of my knowledge that addresses this important aspect of the intermarriage premium, and this focuses on the German context (Bernardi and Portarca, 2021). Hence, this recent study suggests that this seems an area ripe for research.

Accordingly, I have focused on filling the research gaps by analyzing the intermarriage premium on the employment outcomes of foreign born women in Italy in the two following chapters of this thesis. In the fourth chapter, I focus on analyzing the intermarriage effect on the general life satisfaction of foreign born men and women in Luxembourg.

In the second chapter, I analyze the effects of intermarriage on the extensive margin of employment, while accounting for the endogeneity of marriage and intermarriage for women, with the use of instrumental variables. Moreover, I analyze the relationship between intermarriage and the intensive margin of employment, the hours worked, and a proxy of underemployment. In the third chapter, the analysis focuses on examining the impact of intermarriage on the wages of foreign born women. This analysis takes into consideration the issue of self-selection into employment by employing a combined method that addresses both self-selection into employment and the endogeneity of intermarriage. Furthermore, in order to enhance the methodological approach used in previous studies, I incorporate additional improvements. One such improvement involves utilizing hourly earnings instead of yearly earnings as the outcome measure for income. This adjustment is particularly relevant when analyzing women, as they may exhibit significant variations in how they allocate their time between household work and market work. Previous studies have generally neglected to include information on the hours, weeks, or months of work, which could potentially be correlated with the type of marriage, especially for women.

Women are increasingly more important in immigration flows, as well as in their participation in the labor market, and they often have higher rates of intermarriage compared to foreign born men. These are important factors that are worthy of research attention and analysis. Moreover, as mentioned above, Southern European countries have not been a common target of these types of studies. Hence, in this thesis I attempt to cover the gaps that in this context seem to be demanded.

Furthermore, this study extends the existing literature on the intermarriage premium by examining its impact on the overall life satisfaction of foreign born men and women in Luxembourg. This analysis serves as a complement to the previously discussed research

conducted in the German context but adopts a distinct approach in terms of theoretical framework, contextual setting, and econometric strategy.

1.5 Overview of the empirical chapters

In the first chapter, I use data from the national statistics office of Italy (ISTAT) titled "Living Conditions of Families with Foreigners in Italy" (Condizioni di vita delle famiglie con stranieri). It is a single-wave survey representative of such families, the questionnaire was focused on the foreign born, and the survey was conducted in the ten languages that are spoken among the largest minorities in Italy. The survey followed the guidelines of Eurostat for the EU-SILC data collection and contains information about the socio-economic situation and demographic characteristics of the household and all the individuals in it. The survey was held between 2008–2009.

In this chapter, I analyze the effects of intermarriage and of endogamous marriage compared with being single on different dimensions of the employment of foreign born women in Italy. This includes the extensive margin, where employment is binary and equals one if the women is employed, and zero if she is not. Second, with the guidance of my supervisor, I assessed the effect of intermarriage on the intensive margin of employment (average working hours — this measurement is continuous).

Third, I further analyze the effect of intermarriage on a proxy of underemployment; that is, women who are working on average 30 hours or less in a regular week and wish to work more hours but do not, due to either not finding a job with more hours of work, or due to not being able to choose to work for more hours in their current job.

In the second chapter of the thesis, I analyze the effect of intermarriage on the wages of foreign born women in Italy. For this, I use data from (ISTAT) titled "Living Conditions of Families with Foreigners in Italy", where I account for self-selection into employment as well

as for self-selection into intermarriage. This time, I compare intermarried women with their endogamously married counterparts.

In the third chapter of this thesis, I analyze the effect of intermarriage on the general life satisfaction of foreign born men and women in Luxembourg. This is a small country with a large pool of diverse potential spouses, a prosperous, multilingual economy, and a stagnating level of general life satisfaction. For this, I use the waves from 2011 and 2013 of the statistics on Living Conditions (Panel Socio-Economique Letzebuerg), available from the Luxembourg Institute of Socio-Economic Research (LISER).

In this case, the analysis is further enriched by considering intermarriage between two foreigners of different origin as a separate category and comparing them with those intermarried to a native Luxembourger and those married to another foreign born of the same origin.

2 Is there an employment advantage for immigrant women who marry natives in Italy?

2.1 Introduction

The intermarriage is referred to as an indicator of how accepting the host society is with regard to the immigrant community; and how accepting the immigrant community is of the native population (Alba and Golden 1986; Kalmijn 1998; Muttarak 2007). Moreover, intermarriage between a foreign born person and a native could also be a way of accelerating the integration process of the foreign born partner in the host country (Kantarevic 2004; Dribe and Lundh 2008; Gevrek 2009; Nottmeyer 2010; Furtado and Theodoropoulos 2009).

Existing literature infers different channels through which intermarriage can promote the integration of foreign born people in the host society. One of these channels maybe through the information that native partners share with their foreign born partner, for example, about local culture, specific local information about the institutions, idiosyncrasy, and language (e.g., Meng and Meurs 2009). Another channel is via the social networks of the native partner (e.g., Furtado and Theodoropoulos 2010). For the current paper, the most relevant channel concerns information about the local labor market obtained via a native partner and his networks, which combined with the improved language proficiency may result in a higher likelihood of intermarried foreign born people integrating in the host country's labor market (meaning a higher likelihood to be employed, to work more hours per month, or to have a higher wage).

The vast majority of the literature regarding intermarriage and the integration of foreign born people in the labor market explores the relationship between intermarriage and wages and this literature focuses mainly on foreign born men.[4] The main findings regarding foreign born

[4] For example: in the USA, Kantarevic (2004), Furtado and Song (2015), Furtado and Theodoropoulos(2009), and Furtado andTheodoropoulos(2010); in Sweden, Dribe and Lundh (2008), Dribe and Nystedt (2015), Nekby (2010), and Bevelander and Irastorza (2014); in France, Meng and Meurs (2009); in

men reveal an intermarriage premium in wages. However, it is inconclusive whether this derives from self-selection into intermarriage (Dribe and Nystedt 2015; Nottmeyer 2010; Kantarevic 2004) or from a positive effect of intermarriage (Meng and Gregory 2005; Meng and Meurs 2009; Gevrek 2009). The labor market behavior of female foreign born is shaped by different factors than that one of men and, hence, the findings regarding male foreign born might not be extrapolated and applied on their female counterparts (Livingston, 2006).

There are only a few studies that have analyzed the effect of intermarriage on labor market outcomes among foreign born women. Similar, to the studies focusing on men, the evidence on the effects for woman are inconclusive. Research conducted in the USA and in Sweden suggests that for foreign born women, intermarriage results in a penalty for wages and the hours worked (Basu 2015; Bevelander and Irrastoraza2014). By contrast, the same authors, Basu (2015) and Bevelander and Irrastoraza (2014) found an intermarriage premium with regard to employment, while Meng and Gregory (2005) in Australia and Meng and Meurs (2009) in France found an intermarriage premium on wages.

The link between intermarriage and labor market outcomes—such as being employed or the intensity of employment among foreign born women—remains generally under researched as the few existing studies cover only a very limited range of countries.

Australia, Meng and Gregory (2005); in the Netherlands, Gevrek (2009); in Germany, Nottmeyer (2010); and in Denmark, Elwert and Tegunimataka (2016) United States (Basu 2015), Australia (Meng and Gregory 2005), France (Meng and Meurs 2009), and Sweden (Bevelander and Irastorza 2014). This reveals an important omission in the academic research in relatively recent migration countries in south European, in spite of the increasingparticipation of foreign bornwomen in the labormarket in thesecountries (Ballarino and Panichella, 2018).

Italy has a substantial and increasing feminization of immigration. The stock and share of foreign born people are increasingly made up of women. In year 2008 there were 1 845 011 foreign born women, equivalent to 52 percent of the total stock of foreign born people, moreover, that same year the share of women in foreign born people inflow increased consecutively by 1 percent respect to the previous year.[5,6]

The country also has an increasingly high level of intermarriage for foreign born women. In 2008, nearly 15 percent of all marriages in Italy included a foreign born woman and it increased by a yearly average of 2 percent between the years 2000 and 2011, while marriages among natives decrease by nearly 3 percent in Italy in the same period (ISTAT 2022 and ISTAT 2020). With these figures, intermarriage in Italy has recently attracted academic attention, however, the focus is on its causes rather than its effects (Azzolini and Guetto 2017; Adda, et al 2019; Guetto and Azzolini 2015; Serret and Vitali 2015).

Moreover, the integration of foreign born people in the labor market in Italy is particularly problematic, first because Italy attracts substantial illegal immigration (Reyneri 2001). Second, because foreign born women in Italy are usually occupying the lowest paid jobs in a sector that is particularly prone for illegal work, namely domestic work. Moreover, due to the strict regularization rules for immigration, intermarriage could be used as an instrument to 'self-regulate' illegal immigration and in presence of limited integration policies, it could also be used as the sole strategy for integration (Adda, Pinotti and Tura2019; Caneva2014; Campani 2007).

[5] In 2019, some 54 percent of the non-EU citizens in Italy were women (United Nations 2019)

[6] According to ISTAT data elaborations, extracted from: https://demo.istat.it/ricostruzione/index.php?lingua=ita

In view of this circumstances, the aim of this study is to address under-researched aspects of the relationship between intermarriage, and the labor market of women in Italy by analyzing the effects of intermarriage on the employment of foreign born women. To do so, we focus on the women's self-declared employment status (being employed or not), the intensity of employment (the number of hours worked, if employed) and the underemployment (if they are working 30 hours a week or less but they want to work more hours but cannot find a full-time job or work more hours in this). We also explore the effect of intermarriage including key partners' characteristics such as earnings and dominating gender role norms of their country of origin, as well as homeownership as controls for robustness checks.

2.2 Theories and existing evidence

2.2.1 Theoretical background

The concept of intermarriage premium involves the idea that foreign born people in a mixed union with a native-born partner are better integrated in the labor market than their counterparts in a purely immigrant union. Relevant literature outlines different theories that try to explain the effect of intermarriage on labor market integration: the productivity theory, the social theory, the selection theory, the family investment theory and the gender roles theory.

The Productivity Theory posits that foreign born people in a union with a native-born partner integrate faster than comparable foreign born people in a union with a foreign born partner. Native partners are likely to be a primary resource for a partner with a foreign born background to gain familiarity with the local culture, moreover, native partners play an integral role in human capital accumulation, such as linguistic adjustment, providing knowledge of the local labor market, and offering insights into essential structures (Gevrek 2009; Nottmeyer 2010). Further, native partners may introduce their partner to local customs, norms, and peculiarities (Dribe and Lundh 2008; Nekby 2010). Intermarriage could also signal greater

attachment and adaptability to the receiving country's labor market. All these factors may contribute positively to human capital specific to the host country (Furtado and Theodoropoulos 2009).

Social Theory emphasizes the role of networks in foreign born peoples' integration. This theory suggests that foreign born people are disadvantaged in the labor market mainly because the network of foreign born people comprises members of their own ethnic community, who are less informed about the labor market than natives are (Aguilera 2005). Intermarriage gives access to native networks, which may have a positive impact on labor market integration, as native networks could provide information about labor market conditions, job opportunities and application procedures (Furtado and Theodoropoulos 2010). Moreover, recommendations from a native may also encourage a potential employer in the hiring process (Furtado and Theodoropoulos 2010).

Literature on foreign born women in Italy evidences that they are often overeducated for the type of jobs they find (Andall 1992). However, overeducated women have the potential to find a job that better suits their skills if they have access to appropriate networks. In this regard, intermarriage can more positively affect the employment of highly educated women than immigrant networks.

According to the Selection Theory, the relationship between intermarriage and integration is spurious because first, there are unobserved variables affecting both the probability of intermarriage as well as the labor market success. Intermarried foreign born people are a self-selected subsample of the population of married foreign born people (Kantarevic, 2004), and possesses labor market skills that are also highly valued in the native marriage market. These skills can be in the form of local language proficiency, better communication skills, knowledge of local customs, and even physical appearance (Kantarevic

2004). The theory of selection competes with the social and productivity theories also because there might be reverse causality: where better integration may lead to intermarriage rather than the other way around. Existing literature provides a way to prove this by controlling for the endogeneity of intermarriage or, when possible, analyzing employment outcomes before and after marriage and comparing the outcome to the raw premium resulting from an ordinary least squares estimation.

In the context of the relationship between intermarriage and the intensity of employment there are mainly two theories that point to an effect of intermarriage on the intensity of employment of women, The Family Investment Theory (FIT) and the gender roles theory.

According to the FIT, purely immigrant families are credit constrained and when foreign born women in a union with another foreign born arrive in a host country, they take jobs to finance the integration of their husbands, who initially focus on acquiring local human capital. When a foreign born husband has completed his human capital accumulation, the wife decreases her labor supply while the husband increases his (Worswick 1999; Baker and Benjamin 1997; Blau et al. 2003). Intermarried foreign born women are not constrained in this behavior, because such families have more resources and may not need to rely on the wives for financing the human capital accumulation of the husbands or first earners.

The FIT suggests that women in mixed families, with presumably less credit constraints, would not have to work longer hours to finance their partner's human capital accumulation. Hence, intermarriage could have a negative effect on the labor market intensity of intermarried women.

The gender roles prevailing in the country of origin are known to influence the labor market participation decisions of foreign born women in the receiving country (Scoppa and

Stranges, 2019; Pessin and Arpino, 2017; Blau, 2015; Crompton and Lyonette, 2005; Kangas and Rostgaard, 2007; Haller and Hoellinger, 1994).

Traditional gender role divisions imply that within a family, either the husband or the wife specializes in domestic work or market work, driven by comparative advantage and a preference for utility maximization (Becker, 1991). According to this perspective, when the partner with the higher earning potential, typically the husband, engages in household or childcare responsibilities, the family faces a potential economic loss. Therefore, the husband usually specializes in market work and the wife in housework.

Additionally, it is important to consider that the partner with greater resources, such as higher income, education level, or social status, may exert influence and power within the household, leading to the expectation that the other partner, typically the woman, fulfills unpaid domestic labor (Naldini and Solera, 2018; Lundberg and Pollak, 1996). This dynamic further reinforces traditional gender roles, where women are expected to prioritize household responsibilities over market work.

Values or preferences and beliefs may systematically vary across social or geographic groups (Alesina and Giuliano, 2015; Solera 2009). However, foreign born people who share social norms with the majority (i.e. the natives) experience significantly better employment outcomes, this is particularly the case in first-generation foreign born women (Gorinas, 2014). Moreover, foreign born women with higher human capital might be more likely to devote their time to market work and have more egalitarian gender roles preferences (Arends-Tóth and Van de Vijver 2009; Gorinas, 2014).

2.2.2 Empirical evidence for an employment intermarriage premium. A focus on immigrant women

As this paper focuses on the intermarriage premium related to employment (being employed or not, intensity of employment measured by number of hours worked and underemployment), we will leave aside a review of the extensive empirical evidence regarding the intermarriage premium on foreign born men and on wages (Kantarevic 2004; Furtado and Song 2015; Dribe and Lundh 2008; Dribe and Nystedt 2015; Nekby 2010; Bevelander and Irastorza 2014; Meng and Meurs 2009; Meng and Gregory 2005; Gevrek 2009; Nottmeyer 2010; Elwert and Tegunimataka 2016). And we focus on the literature dealing with the effects of intermarriage on being employed and the number of hours worked, which is, on the contrary, relatively scarce.

One of the few relevant papers is by Dribe and Lundh (2008), where a strong positive association is suggested between intermarriage and employment for foreign born women in Sweden. Bevelander and Irastorza (2014) performed an analysis on earnings and employment for foreign born people in the same country, and similarly found an employment premium for women. Another study by Basu (2015) focused on foreign born women in the USA, and analyzed the intermarriage premium on earnings, working hours, and employment. The results are mixed. When looking at the employment estimates, the author found a positive intermarriage premium, which grows after accounting for endogeneity of intermarriage. However, for the outcome of hours worked, the author found an intermarriage penalty.

A stream of literature that focuses on intensity of employment, working hours, tests the FIT. The relevant findings are varied and depend not only on the location where the analysis was undertaken, but also on the cohort of foreign born people studied. For example, Baker and Benjamin (1997) analyzed data for Canada and found that on arrival, married foreign born

women work more hours than their native counterparts. They also suggest that foreign born women with a native partner do not face the same need to perform a borrowing function for their families as their counterparts with foreign born husbands. Furthermore, Basilio et al. (2009) found that in Germany, endogamous foreign born women are more likely to earn a higher income than their intermarried counterparts, which could be caused by foreign born women working longer hours than they would if they were intermarried. In a similar vein, Blau et al. (2003) found that in the USA, the hours of labor supply are lower for intermarried women compared with endogamous foreign born women.

Ballarino and Panichella (2018) compared various employment outcomes of foreign born women to native women, focusing mainly on their families and the migration strategy (migrated alone, first mover, tied mover, joint mover or intermarried with native). They found that foreign born women in mixed marriages experienced the highest penalty in employment; in fact, their penalty was higher than all other categories of foreign born women.[7]

2.3 Context in Italy

Italy started experiencing immigration relatively recently, when compared to other more traditionally receiving countries. There were a series of events that affected the increasing inflows of foreign born people in Italy which characterized the inflows by decade. In a brief view, the first waves of foreign born people arrived after the international crisis in the 1970s, a time when other traditionally receiving countries started imposing restrictions to immigration; Italy became an option for foreign born people that could no longer migrate to the traditionally receiving countries. Large inflows of foreign born people appeared more significantly in the decade of 1980s, from Iran and former Yugoslavia with as much as 100.000 arrivals per year (Reinery 2001). During the decade of the 1990s, there were more inflows due

[7] -22%, compared to -0,3% for joint, -21% for tied, 13% for first and 16% for alone movers.

to the Balkan war (Del Boca and Venturini 2005). In addition, in the decade of the 2000s, the enlargement of the European Union contributed to the increasing inflows of foreign born people in Italy from Eastern European nations (Fusaro Lopez-Bazo 2018).

It is important to notice that illegal or unregulated immigration is remarkable in Italy. The prominent underground economy together with its geographical position contribute greatly to this phenomenon in Italy (Triandafyllidou 2010, Reyneri 2001; Mingione and Quassoli 2000). However, the immigration, regularization and citizenship regulations in Italy are among the strictest.

It is a recognized fact that the employment opportunities for foreign born women in the country are mostly low qualified jobs in domestic service (Andall 1992; Bettio et al. 2006; Venturini and Villosio 2006; Campani 2007). However, domestic service is a sector particularly prone for unregulated work.[8]

According to the national census, in 2011 there were 4 027 627 foreign born people in Italy. About 53 percent of them were women. The most numerous foreign born groups of foreign bornwomen in 2008 wereRomanians (331 066), Albanians (182 206),Moroccans (158 176), Ukrainians (120 141), Chinese (85 543), Filipinos (61 915), Moldavians (55 003), Peruvians (42 495), Ecuadorians (40 170), Serbian/Montenegrins (35 563), Tunisians (34 043), Indians (33 757), Sri Lankans (27 972), Macedonians (26 849) and Brazilians (26 814). Occupation of foreign born people in Italy differs among regions; this is due to the local structure of the economy. Domestic labor is relevant in the central cities of Bologna, Florence, Rome and Milan and in the biggest cities of the southern regions (Allasino et al., 2004).

[8] The real numbers might remain hidden, however, it was declared by Italian minister Rosi Bindi that only one every four “badanti” (domestic care workers) have a regular working contract in Italy (cited in Campani 2007).

2.4 Hypotheses

In view of the main results from Basu (2015) and Bevelander and Irastorza (2014), as well as the particular situation in Italy, we hypothesize that there is a positive effect of intermarriage on being employed (binary outcome variable) among foreign born women in Italy (H1a).

The second hypothesis concerns the role of partners' characteristics (such as wage, gender role attitudes dominating in men's country of origin and homeownership) in the relationship between intermarriage and labor market outcomes. Since the main analysis does not directly account for the impact of partners' characteristics, as it includes single women as the reference group, we aim to test whether the inclusion of these partner-related theoretically relevant variables affects the findings. We hypothesize that adding partners' characteristics in the analyses will corroborate the assumptions stipulated in H1a, hence that our results are robust (H1b).

When examining the impact of intermarriage on the labor market intensity, specifically the number of hours worked, multiple factors come into play, leading to competing mechanisms. It is reasonable to speculate that intermarriage could potentially result in a reduced adherence to traditional views and gender roles.

Intuitively, intermarriage may foster a departure from conventional beliefs and expectations regarding gender roles. This shift away from traditional norms could lead to a more egalitarian division of labor within the household, wherein both partners, including the foreign born wife, are more likely to actively participate in the labor market and work longer hours.

Additionally, the Family Investment Hypothesis (FIH) suggests that households where both partners are foreign born often face credit constraints. As a result, there may be a greater

financial need for both partners to engage in employment. The economic constraints faced by these families may necessitate a higher labor market intensity, with both partners working longer hours to meet their financial obligations. However, foreign born women in these partnerships, with probably more traditional gender roles, still have to reconcile work and family responsibilities. While foreign born women in a mixed union might have less pressure to work longer hours, they may also have more freedom to devote more hours to market work as opposed to family responsibilities.

In sum, women in endogamous unions might work comparatively longer hours compared to intermarried because there might be more need of their income. However, intermarried women, with less traditional views of gender roles, could be more attached to the employment work as opposed to homework, which would entail longer hours of work as well. In view of the competing mechanisms, we hypothesize that both types of marriages have a similar and negative impact on hours worked and that there is not a significant difference between the coefficients of endogamous and intermarried women (H2).

In the labor market for foreign born women in Italy, there exists a significant power imbalance and limited bargaining power, as documented in the literature (Andall, 1992). This lack of bargaining power can restrict the agency of foreign born women in determining the number of hours they work.

However, being in an intermarriage with a native Italian partner may potentially enhance the bargaining power of foreign born women. Intermarriage can serve as a signal of higher social status and integration into the host society. Consequently, it is hypothesized that intermarriage may have a negative effect on the underemployment of foreign born women (H3).

2.5 Data and descriptive statistics

The data used for the analysis comes from the Italian national statistics office, ISTAT. We use the survey "life conditions of foreign families in Italy" (Condizioni delle famiglie con stranieri), which contains information about the socio-economic position of families with foreign members. The survey was carried out between 2008 and 2009. In our analysis, we focus on a sub-sample of first generation foreign born women, between the ages of 18 and 65, who migrated after the age of 18 and who have an identifiable country of birth, the full sample contains 4 123 observations, while the employed sample contains 2 393 observations.

We also used register data from ISTAT of year 2008 to create the instruments group size, sex ratio and percentage of foreign men. Lastly, we used data set from the fifth wave of the World Values Survey (WVS 2005-2009) to create the proxy for attitudes towards women employment. The question we used to create the variable was" If jobs were scarce, a man should have more of a right to a job than a woman".

A detailed description of the variables and instruments is found in the variables description subsection in the Econometric framework section.

Table 2.1a and table 2.1b present the descriptive statistics of foreign born women for the full sample on the left columns and on the right columns for the sample of those who are employed, by marital status (single, intermarried and endogamous). Women in both types of union, intermarried and endogamous, have similar levels of employment: 41,1 percent for those in an endogamous union and 37,5 percent for those intermarried are employed, the highest employment rate is for single women with 83,7 percent.

Table 2.1a: Descriptive statistics immigrant women in Italy

	Total (N= 4123)		Single (N= 1579)		Endogamous (N= 1850)		Intermarried (N=694)	
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Employment	0,56		0,83		0,41		0,37	
Education level								
Low secondary	0,42		0,38		0,52		0,25	
Upper secondary	0,44		0,47		0,38		0,54	
University	0,12		0,13		0,09		0,19	
Average age	39,08	9,88	42,19	10,66	36,71	8,76	38,32	9,12
Residing in north	0,41		0,35		0,48		0,36	
NDC	0,31	0,581	0,06	0,25	0,48	0,67	0,43	0,62
YSM categories								
0-5	0,41		0,48		0,37		0,37	
6-10	0,35		0,32		0,37		0,35	
11-15	0,12		0,09		0,15		0,13	
>15	0,10		0,09		0,10		0,13	
Place of origin								
West Europe	0,09		0,08		0,04		0,23	
Non-EU	0,39		0,31		0,50		0,30	
East Europe	0,51		0,60		0,45		0,45	
Instruments								
Pct. foreign men	0,08	0,04	0,08	0,04	0,09	0,04	0,08	0,04
Sex Ratio	0,89	0,37	0,75	0,35	1,05	0,33	0,76	0,33
Group size	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Offspring abroad	0,22	0,42	0,40	0,49	0,11	0,31	0,15	0,35

Source: Istituto Nazionale di Statistica. *Condizioni di Vita delle Famiglie con Stranieri. https://www.istat.it/it/archivio/52405*

Women in a mixed union report higher levels of education, while endogamous women report the lowest. Nearly 19 percent of intermarried women report having some degree of tertiary education, while 12,6 percent of single women and only 9,1 percent of endogamous women report having tertiary education. More than half of endogamous women reported having achieved only low secondary education (52,7 percent), while the same is true only for 25,8 percent of intermarried women and 38,4 percent of single foreign born women. Intermarried women are on average nearly two years older than women in an endogamous

union (38,32 and 36,71, respectively), single women have the highest average age, with 39,08 years.

Table 2.1b: Descriptive statistics Employed foreign born women in Italy

	Total (N= 2393)		Single (N= 1338)		Endogamous (N= 781)		Intermarried (N=274)	
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Underemployment	0,13		0,10		0,18		0,14	
Weekly work hours	35,30	12,01	36,68	11,90	33,52	12,32	33,61	10,75
Education level								
Low secondary	0,38		0,38		0,43		0,21	
Upper secondary	0,48		0,48		0,45		0,54	
University	0,13		0,13		0,11		0,23	
Average age	40,28	9,64	42,37	10,22	37,53	8,07	37,90	8,19
Residing in north	0,40		0,35		0,48		0,44	
NDC	0,17		0,04		0,36		0,30	
YSM categories								
0-5	0,42		0,486		0,36		0,29	
6-10	0,35		0,33		0,37		0,40	
11-15	0,11		0,08		0,14		0,15	
>15	0,10		0,09		0,11		0,15	
Place of origin								
West Europe	0,09		0,07		0,04		0,27	
Non-EU	0,34		0,305		0,45		0,32	
East Europe	0,56		0,61		0,49		0,47	
Instruments								
Pct. foreign men	0,08	0,04	0,08	0,04	0,09	0,04	0,09	0,04
Sex Ratio	0,80	0,34	0,74	0,34	0,94	0,31	0,75	0,32
Group size	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
Offspring abroad	0,29	0,45	0,42	0,49	0,12	0,33	0,15	0,36

Source: Istituto Nazionale di Statistica. *Condizioni di Vita delle Famiglie con Stranieri. https://www.istat.it/it/archivio/52405*

All women spent mostly less than 10 years in Italy, in detail, around 80 percent of single women, 75 percent of endogamous women and 73 percent of intermarried women. Single women mostly spent less than 5 years, intermarried women have the highest amount of those

who spent more than 15 years in the country, while endogamous women have the highest percentage of those who spent between 6 and 10; and between 11 and 15 years in the country.

About 49 percent of women in a union with another foreign born live in the northern regions of Italy, compared with around 35 and 37 percent of single and intermarried women. The average number of dependent children (under 6 years old) is 0,49 for endogamous women, 0,44 for intermarried women and only 0,06 for single women.

When looking at the place of origin, most of intermarried women are from east European countries (46 percent), followed by non-European women, with 30,7 percent being intermarried. The smallest proportion of intermarried women comes from another West European country (23,5 percent). Non-European women have the highest proportion of those endogamous, with 50,4 percent, followed by east European women, with 45,3 percent and the smallest proportion is for west European women, with only 4,3 percent. Single women are mostly from east Europe, with 60,4 percent, followed by non-EU, with 31,4 percent and only 8,2 percent come from a west European country. It is worth noticing that the share of intermarried or endogamous east European is the same.

In the last rows of table 2.1a and table 2.1b are found the instruments, the proportion of the instruments reflects the effect they can have in the marital decision. For example, the percentage of foreign men should be lower for intermarried women, while the highest for endogamous women. Children abroad should be the highest for single women and lower for the other two categories. Group size and sex ratio, similarly to percentage of foreign men should be higher for endogamous and lowest for intermarried women.

Table 2.1b is presenting the descriptive statistics for the sample that will be included in the underemployment exercise. In which only those who reported positive number of weekly hours of work are included, therefore it includes only employed women.

The underemployment rate is the highest for the endogamous women, with 14,2 percent, compared with 14 percent for intermarried and 10 for the single. In fact, the average weekly hours of work are the highest for the single, while the difference is negligible for the endogamous and the intermarried (0,08 hours).

In terms of education, endogamous women have the lowest education levels, with the highest percentage of reporting low secondary education or below, followed by single women and then the intermarried ones. Moreover, intermarried women have the highest percentage reporting up to secondary and post-secondary education (nearly55 percent), followed by single women, with 48 percent and endogamous, with 45 percent. Intermarried women have the highest percentage of university education, with nearly 24 percent, followed by single, with 13 percent and endogamous, with 11 percent.

When looking at the average age, we notice, again, that single women have the highest average age, with 42 years, while the difference between intermarried and endogamous is very small, both have nearly 37,5 for endogamous and 38 for intermarried ones.

Endogamous women are mostly living in the northern parts of the country, with a percentage of 48 percent, followed by intermarried (45 percent) and single women (42,3 percent).

The endogamous women in the sample exhibit a significantly higher average number of dependent children (NDC) in the household (0,36) compared to intermarried women (0,3). Single women, as expected, have the lowest average number of dependent children, with only 0,04.

When looking at the years since migration, all women in the sample have relatively recent arrival histories. However, the percentage of those who spent 5 years or less is highest among single women (48,6 percent), followed by endogamous women (36,6 percent) and

intermarried women (30 percent). On the other hand, the percentage of those who spent more than 15 years in the country is highest among intermarried women (15 percent), followed by endogamous women (11,5 percent) and single women (9,2 percent).

Most women in the sample come from an East European country, making up 61,8 percent, 49,7 percent, and 47,8 percent of the single, endogamous, and intermarried sub-samples, respectively. Moreover, the second biggest group consists of women from non-EU countries, representing 30 percent of single women, 45,6 percent of endogamous women, and 32,5 percent of intermarried women. Women from a West European country have the smallest proportion of single women (7,7 percent) and endogamous women (4,7 percent), but still account for a relatively high proportion of intermarried women (27,4 percent).

Since we performed an additional analyzes to test hypothesis H1c including some characteristics of husbands such as the logarithm of yearly salary and the attitudes towards employment of women, we are presenting the descriptive statistics of women including in the sample for this exercise in the Appendix 1 (Table 2.2). Women whose partners have zero earnings were excluded from this part of the analysis as well as single women.

Employment is 1 percent higher for intermarried women, while weekly hours of work are also nearly 1 hour higher for intermarried. Educational level is considerably lower for endogamous women, more than 51 percent have achieved only up to lower secondary education, while the same is true only for nearly24 percent for intermarried women. Moreover, intermarried women have higher percentage of those with secondary and post-secondary education (53 percent) compared to endogamous (40 percent) and the highest percentage of those with university education (23 percent) compared to endogamous (8 percent).

Intermarried women are less than one year older in average than endogamous women, while most of endogamous women live in the northern regions (52 percent) the same is true only for 41 percent of intermarried women.

The average number of dependable children in the household (NDC) is extremely similar for women in both types of union, in this case, and they have spent similar number of years in the country, as evidenced by the years since migration distributions.

When looking at husbands' characteristics, the log of earnings of the intermarried women are slightly higher, while the attitudes towards women employment are also more in favor of women employment for the husbands of intermarried women (the higher, the more egalitarian views). It is interesting no notice that women in both categories have attitudes towards employment of women less favorable to women when compared to their husbands', however, intermarried women have slightly better attitudes towards women employment. With regard to homeownership, the partners of intermarried women have more often homeownership than endogamous women which is to be expected, the percentage of homeownership is more than doubled for partners of intermarried women compared to endogamous ones.

It is interesting to notice that in comparison with the full sample, when including only women whose partner characteristics are included, therefore only with employed partners, employment is higher for intermarried women and lower for the endogamous women when we include partner characteristics, weekly hours of work are also lower for endogamous women, while weekly hours of work are also nearly 1 hour higher for intermarried. The education level is lower for endogamous women and higher for the intermarried, however, the average age is lower for women in both types of union and, surprisingly, the number of dependent children is higher also for both types of women.

2.6 Econometric framework

In order to estimate the effects of intermarriage on employment, we used Mincer equation of earnings as the baseline (Mincer 1974).

$$\boldsymbol{Employment\_outcome_i = \beta_0 + \beta_1 Married + X_2 \beta_2 + \varepsilon_i}$$

2.6.1 Dependent variables

We start by studying the effect of intermarriage on the extensive margin of employment, hence the first outcome is a dichotomous variable that assesses whether a women is employed or not. The employment status is self-assessed, and it equals 1 for a woman who stated to be working full-time, part-time, or being self-employed full-time or part-time. In all other cases (e.g., unemployed, student, disabled, homemaker, inactive, or pensioner) the variable equals 0. The information about employment was cross-validated by looking at the number of hours worked. About 98 per cent of those who reported to be not employed, reported zero working hours, which confirms the status of being not employed.

The second outcome focuses on the intensive margin of employment and is measured by the reported average hours of work in a regular week.

The third outcome is a proxy for underemployment, and we measure it using the question on the reason for working 30 hours or less a week. The variable is binary and it is equals one if a woman who works 30 hours a week or less wishes to work more hours but cannot and it equals zero if the woman either works 30 hours but for a different reason or if she works more than 30 hours a week.

2.6.2 Independent variables

The key independent variable, is categorical and it equals one if a foreign born woman is married with another foreign born (endogamous), it equals two if a woman is married with

a native (intermarriage), and 0 if she is single. We included cohabiting partners and married partners in the same category because less than 3 percent of the women in our sample are in in a cohabiting union without being married, which is a small fraction to create a separate category. Single women are defined as those who live in a household where there is not a reported cohabiting spouse.

In addition, the vector of variables X contains control variables typically found in the Mincer equation, which include age, and its squared term, as a proxy for experience which accounts for decreasing returns, we divided age squared by one thousand, for illustration purposes, and level of education as women with higher educational attainments which relate to higher labor market attachment (Chiplin and Sloane, 1976; Desai and Waite 1991). In order to keep enough observations and harmony among the education levels from the different countries, education is divided three categories. The first category is for up to low secondary education, the second category is for up to upper secondary and the third category is any degree of university education.

Moreover, we include variables to control for other factors that may affect the employment, such as the number of dependent children (NDC) and the region of residence. The dependent children who are under 6 years old, do not have the obligation to attend school in Italy, therefore are requiring a mother's time, hence a mother with dependent children has less availability to devote for an employment (Lalive and Zweimüller, 2009; EC, 2008; Kleven, Landais, and Søgaard, 2019). The region of residence is controlled for with a binary variable equaling one if the woman lives in the northern regions, which are characterized by lower unemployment rates, and the variable equals zero if she resides in other regions.

Additionally, we also include a set of variables that might affect foreign borns' employment integration, years since migration and place of origin. A foreign born who has

spent more years in the host country is usually more integrated but this might not have a linear effect, therefore, we opted for categories (0–5, 6–10, 11–15, and >15).

In the additional analysis, testing the hypothesis H1b, which concerns only married foreign born women (i.e. the independent variable consist of two categories; category 1 when a foreign born woman is intermarried and category 0 when endogamous). In these analyses, we include some characteristics of the partner which could have an impact on employment such as the salary and a proxy for attitudes towards employment of women. The salary is on annual terms and we applied the logarithm to account for the skewed distribution. The proxy for attitudes towards women employment was created by extracting the specific question of: "If jobs were scarce, a man should have more of a right to a job than a woman", where there were three possible answers, "1, for agree, 2 for neither agree or disagree and 3 for disagree", the higher the number the more favorable views towards the employment of women. We created country averages based on age and gender and then linked them to our observations. This proxy for attitudes towards women employment could be the dominant views of the observations themselves. However, foreign born people might be a subsample of the population that do not necessarily mirror the same views. Next to the proxy for husband's attitudes towards employment of women we also add the proxy for attitudes of the wives themselves. Finally, in order to test the robustness of the coefficient of intermarriage, against credit constrain related to housing, we also included a variable for homeownership of the husbands. In situations where the husband possesses homeownership, there may be a reduced inclination for foreign born women to engage in employment, as there is less pressure on them to contribute towards housing expenses. The variable was obtained by combining two questions in the questionnaire, one accounts for the type of housing (rent, mortgage, ownership without mortgage, servitude) and the second question accounts for the responsible for accommodation. The variable of

homeownership of the partner equals one if the housing is owned without mortgage and the partner is the responsible for accommodation, it equals zero otherwise.

2.6.3 Instruments

When estimating the effect of the intermarriage on labor market outcomes, it is necessary to account for the endogeneity of intermarriage as intermarried foreign born women might represent a self-selected group of women. In order to model the decision to marry and to intermarry in our first stage regression, we included some measures of the marriage market.

The percentage of foreign men in a given region. This variable would have a negative effect on intermarriage and a positive effect on the endogamous union formation. The higher the ratio the more foreign men available as opposed to native men. Furtado and Theodoropoulos (2009) used a similar instrument for the male case.

The group size, which is the ratio between the men of the same country of origin to the total of men in a given region. This variable measures the marriage market and it also has an effect from third party influence, meaning that it might mirror peer pressure to stay in endogamy (Kalmijn 1998). The variable is expected to have a positive impact on endogamous unions and negative in intermarriage since if there are more men from the same place of origin there will be more chances to meet them.

We also included the sex ratio which is the ratio between women of the same country of birth to the men of the same country in a given region. This variable would have a positive effect on intermarriage and a negative effect on the endogamous unions. The higher the ratio the higher the competition for marrying a partner from the same country of birth.

The standard way to account for endogeneity of intermarriage is by using the instruments group size and the sex ratio (Meurs and Gregory 2005; Meurs and Meurs 2009). In our case, the variables sex ratio and group size were strong, however, the percentage of foreign men was

proved to be stronger for our full sample (comparatively higher F-statistic), and therefore, the other two instruments were dismissed.

In order to ensure the validity of the instruments used to address the endogeneity of endogamous unions and intermarriage, it is crucial that they meet the requirement of the exclusion restriction. This requirement demands that the instruments should not be correlated with the outcome variable, which, in this case, is employment. By adhering to this restriction, we can establish a strong case for the causal relationship between intermarriage and employment outcomes for women.

Factors such as group size, the percentage of foreign-born men, and the sex ratio are unlikely to have a direct influence on women's employment. This assertion is supported by the fact that these factors are expressed as ratios rather than absolute numbers of foreign born individuals. Moreover, the notable occupational gender segregation in Italy, particularly among jobs held by foreign born men and women, indicates limited opportunities for network effects or gender-based competition to shape employment outcomes.

The occupational segregation in Italy gives rise to distinct employment spheres for foreign-born individuals, leading to minimal overlap in job opportunities between men and women. Consequently, this reduces the potential for positive network effects, along with the absence of direct effects resulting from job competition between foreign born men and women. As a result, these observations provide compelling support for adhering to the exclusion restriction.

Moreover, since in our main analysis we include single women as the reference category, we include an instrument that has an impact on the marriage probability, having offspring abroad. The information about the age, gender and any other characteristic of the offspring abroad is not available in the dataset.

The main argument of having offspring abroad having a negative effect in the probability to marriage is that, would diminish the willingness to stay long term and therefore, to create a long-lasting union, marriage. Secondly, being a single mother is associated with a lower likelihood of getting married for the general case and not only in the case of foreign-born women (Graefe and Lichter 2008; Gibson 2011). However, since the child is abroad she is not requiring the mother's time, therefore, it doesn't seem to have a negative effect on employment. It could be that having a child abroad increases pressure in the mother to have an employment in order to send remittances, however, if the woman was married, the pressure to invest in the offspring would be palliated from having a partner (Emmott and Mace, 2015). Moreover, the child abroad is in charge of the person taking care of her or him. Therefore, the effect of having children abroad might not have a direct impact on the employment.

In the first part of the analysis with binary outcomes, we use a Linear Probability Model (LPM) estimation as a baseline, since it provides the best linear approximation. In this way, we can establish the "raw" intermarriage premium for employment, meaning that intermarriage is treated as exogenous.

A common issue when estimating the marriage effect in employment is the potential endogeneity. Since type of union (single, endogamous or intermarriage) may also be correlated with unobserved variables (Meng and Gregory 2005; Kantarevic 2004). Moreover, there could be reverse causality between employment and union type. As discussed above, a type of union may increase the likelihood of being employed, however, being employed may also increase the probability of meeting potential partners and forming a union. For these reasons, there is a high likelihood that intermarriage may be endogenous, either due to unobservable variables or to reverse causality. Therefore, as a second step we account for endogeneity of intermarriage in by including instruments that control for the marriage market in the respective region of residence and for marriage decision.

In the second part of the analysis, we estimate the effect of intermarriage on the intensity of employment; that is, on the weekly number of hours of work. Using this outcome variable poses an additional methodological challenge, because the weekly worked hours worked are observed only for those women who are employed. In this case we are dealing with a corner solution, where there is a large presence of zeros. In order to deal with this issue we use the double hurdle estimation method (Wooldridge, 2002). As a first step we estimated the hurdle equation, which can be interpreted as a selection equation, however, it includes the average weekly hours of women who work zero hours. In the second step, we estimate an equation that takes into account the hurdle equation.

The third part of the analysis consists of estimating the effect of intermarriage on the underemployment on the subsample of employed foreign born women. Since the underemployment variable is a binary we will use a the LPM and probit estimation methods as an additional robustness check.

2.7 Results

2.7.1 The effect of intermarriage on being employed

In the first step of our analyses, we performed an LPM estimation, the results are presented in Table 2.3, where the first model shows the raw endogamous and intermarriage premium for employment. Both are negative and statistically significant (-42,6 and -46,3 percentage points respectively).

Table 2.3: LPM estimation. Employment premium of foreign born women in Italy

Employment status	Model 1	Model 2	Model 3	Model 4
Endogamous (M1)	-0,42***	-0,41***	-0,37***	-0,36***
	(0,01)	(0,01)	(0,01)	(0,01)
Intermarried (M2)	-0,46***	-0,47***	-0,44***	-0,43***
	(0,02)	(0,02)	(0,02)	(0,02)
Education level				
Upper secondary		0,07***	0,07***	0,06***
		(0,01)	(0,01)	(0,01)
University		0,09***	0,09***	0,08***
		(0,02)	(0,02)	(0,02)
Age		0,04***	0,04***	0,04***
		(0,01)	(0,01)	(0,01)
Age2/1000		-0,55***	-0,53***	-0,54***
		(0,06)	(0,06)	(0,06)
North			0,03**	0,03***
			(0,01)	(0,01)
Dependent children			-0,11***	-0,11***
			(0,01)	(0,01)
YSM categories				
6-10				0,02*
				(0,01)
11-15				-0,02
				(0,02)
>15				0,01
				(0,02)
Place of origin				
Other non-EU				-0,03
				(0,02)
East Europe				0,01
				(0,02)
Constant	0,83	-0,17	-0,08	-0,09
	(0,01)	(0,10)	(0,10)	(0,11)
Wald F-test M1=M2	528,60	489,26	361,66	337,31
	(0,00)	(0,00)	(0,00)	(0,00)
Observations	4123	4123	4123	4123

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration from 0 to 5 years. The reference category of country of origin is west European countries. The reference category for intermarried and for endogamous are those who are single.

Moreover, in the second model—when the education and experience variables are added—the magnitude of the coefficients decreases for the endogamous (-41,2 percentage points) while it moderately increases for the intermarried (-47,7 percentage points). In the third model, where we add the dummy variable for living in the north and the number of dependent children, both of the coefficients decrease (to -37,7 and -44 percentage points).

Lastly, in the fourth model, where we add the foreign born specific controls, years since migration and place of origin, the coefficients slightly decrease (to -36,9 and -43,7 percentage points). The difference between the coefficients of those in an endogamous union (M1) and the intermarried (M2) appears statistically significant.

The results of the linear probability model in Table 2.3 are also confirmed by nonlinear estimations, through logit and probit regressions (see Appendix 4, Table 2.4). In each of the models, the marginal effects of a mixed union on employment for the average foreign born woman are very similar to those of the LPM.

The estimations resulted from the LPM could be biased if the effect of intermarriage comes from self-selection or reverse causality. Hence, we used instrumental variables estimation to deal with the potential bias deriving from the endogeneity of intermarriage. Table 2.6 shows the results while table 2.5 is presenting the first stage.

Table 2.6 is presenting four models; all four models include the instruments percentage of foreign men and the presence of offspring abroad; and similar to table 2.3, we added the control variables set progressively onto the models. Respect to the LPM models both of the coefficients for the unions appear higher in each of the models, however, the coefficient for intermarried more than doubled.

Table 2.6: 2SLS estimates. Employment premium of foreign born women in Italy

Employment	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Endogamous (M1)	-0,43***	-0,44***	-0,42***	-0,45***
	(0,06)	(0,07)	(0,09)	(0,10)
Intermarried (M2)	-1,28***	-1,14***	-1,06***	-1,14***
	(0,20)	(0,16)	(0,19)	(0,23)
Education level				
Upper secondary		0,14***	0,13***	0,11***
		(0,02)	(0,03)	(0,03)
University		0,20***	0,18***	0,15***
		(0,04)	(0,04)	(0,04)
Age		0,05***	0,05***	0,05***
		(0,01)	(0,01)	(0,01)
Age2/1000		-0,65***	-0,63***	-0,64***
		(0,07)	(0,07)	(0,08)
Residing in north			0,01	0,02
			(0,02)	(0,02)
Dependent children			-0,06***	-0,05**
			(0,02)	(0,02)
YSM categories				
6-10				0,04**
				(0,02)
11-15				0,01
				(0,03)
>15				0,05
				(0,03)
Place of origin				
Other non-EU				-0,21***
				(0,08)
East Europe				-0,15**
				(0,07)
Constant	0,98***	-0,19	-0,13	0,06
	(0,03)	(0,12)	(0,12)	(0,13)
Wald F-test M1=M2	13,86	14,58	7,50	6,92
	(0,00)	(0,00)	(0,01)	(0,01)
Observations	4123	4123	4123	4123
F-statistic	22,53	30,70	18,85	15,37

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration from 0 to 5 years. The reference category of country of origin is west European countries. The reference category for intermarried and for endogamous are those who are single.

The coefficient of intermarried shows that there is a large and significant penalty related to employment of -129 percentage points when no controls are added, and -115 percentage points in the fourth model, with the full set of controls. This might show that the coefficient was downward bias and once we added the controls they clearly captured the negative effect that was biasing down the coefficient for intermarried.

While the coefficient of endogamous union in the first model indicates a penalty of -43,6 percentage points and -45 percentage points in the model with the full set of variables. The difference between the two coefficients is statistically significant in each of the models.

Moreover, the increase in the penalty with regard to the LPM estimations could indicate that there are unobserved variables biasing upwards previous results which contemporaneously affect positively intermarriage and employment. The intermarriage coefficient does not corroborate our first hypothesis (H1a); that intermarriage has a positive effect on employment.

In comparison with the LPM results (Table 2.3), most of the variables maintain the same direction and significance. However, the variables for living in the north lost significance. The place of origin variable gains in significance and magnitude in respect of the LPM and is negative, indicating that once the endogeneity of intermarriage is controlled for, women from a non-EU or East-European country have a lower probability of being employed than women from west Europe.

Table 2.5: First stage. Determinants of endogamous union and intermarriage of foreign born women in Italy

	M1	M2	M1	M2	M1	M2	M1	M2
Education level								
Upper secondary			-0,17***	0,11***	-0,16***	0,11***	-0,13***	0,09***
			(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
University			-0,21***	0,17***	-0,20***	0,17***	-0,16***	0,12***
			(0,02)	(0,02)	(0,02)	(0,02)	(0,02)	(0,02)
Age			0,01*	0,01**	0,01**	0,01**	0,00	0,01**
			(0,01)	(0,00)	(0,01)	(0,00)	(0,00)	(0,00)
Age2/1000			-0,20***	-0,11**	-0,20***	-0,11**	-0,13**	-0,11**
			(0,07)	0,05	(0,06)	(0,04)	(0,06)	(0,04)
Residing in north					0,02	0,01	0,01	0,02
					(0,02)	(0,01)	(0,02)	(0,01)
Dependent children					0,15***	0,06***	0,14***	0,07***
					(0,01)	(0,01)	(0,01)	(0,01)
YSM categories								
6-10							0,05***	0,01
							(0,01)	(0,01)
11-15							0,11***	0,02
							(0,02)	(0,01)
>15							0,09***	0,04**
							(0,02)	(0,02)
Place of origin								
Other non-EU							0,23***	-0,27***
							(0,02)	(0,02)
East Europe							0,17***	-0,24***
							(0,02)	(0,02)
Instruments								
Pct. foreign men	1,53***	-0,71***	1,65***	-0,81***	1,34***	-1,01***	1,20***	-0,92***
	(0,17)	(0,13)	(0,16)	(0,13)	(0,24)	(0,18)	(0,23)	(0,18)
Offspring abroad	-0,29***	-0,07***	-0,21***	-0,08***	-0,19***	-0,07***	-0,17***	-0,05***
	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
Constant	0,38***	0,24***	0,39***	0,01	0,25**	-0,03	0,18	0,24***
	(0,01)	(0,01)	(0,11)	(0,08)	(0,11)	(0,08)	(0,11)	(0,08)
Observations	4123	4123	4123	4123	4123	4123	4123	4123

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration from 0 to 5 years. The reference category of country of origin is west European countries.

2.8 Validation of the main results including partners' characteristics and gender role attitudes dominant in country of origin

It might be that the negative effect of union, endogamous or intermarried, on employment derives from a negative effect from the husbands' income or probably from the preferences or attitudes towards the employment of women or even it might derive from the pressure related to credit constrain that could be alleviated by homeownership of the partner. In order to assess if this is the case we made one more exercise including the logarithm of the salary of the husband, the attitudes towards employment of women of the husband (cohabiting partner), the proxy for attitudes towards the employment of women of the women and the partner homeownership. The results are presented in Appendix 3, Table 2.7.

We can see that there is a negative and significant coefficient of intermarriage compared to endogamous women in each of the models. The husband earnings do seem to have a negative effect in the employment of women, which is larger in magnitude to the effect of intermarriage. However, the coefficient of husband earnings stops being significant once we take into account the endogeneity of intermarriage. Moreover, when looking at the coefficient of husband attitudes towards the employment of women, the positive attitudes are associated with a positive effect on employment, this is significant in each of the models, even after we account for the endogeneity of intermarriage. Wife attitudes towards women employment appear as less significant than that of the husband and they seem to not have a significant effect at all once we take into account the endogeneity of intermarriage.

Even after we take into account the attitudes of both foreign born women and their partners and the partners 'earnings and homeownership of the partner, intermarriage still has a negative and significant effect on employment of -83,9 percentage points. This corroborates

hypothesis H1b and indicates that the results of the main analysis are robust and hold, even after accounting for additional characteristics.

2.8.1 The association between intermarriage and the intensity of employment (hours worked)

With regard to hypothesis (H2) about the association of intermarriage to labor intensity, the results of our analyses show that there is a significant negative effect of intermarriage on the working hours of women and marriage is the most significant determinant of working hours, the other covariates for education, age, years since migration and country of origin are significant and the direction is as expected.[9]

The complete set of results are found in table 2.8. We can interpret the result as being in a union with a foreign born decreases the working hours by 15 hours a week, compared to being single, the penalty for intermarried women is nearly 17 hours a week. However, when we tested whether the difference between the coefficients for intermarried and endogamous union, the difference appeared as statistically not significant, therefore, even though being in a union has a negative and statistically significant effect when compared to being single, the type of union is not a determinant. This corroborates our hypothesis that both types of marriages are equally determinant of labor intensity (H2).

[9] Age2/1000 coefficient is larger than that of being in a union, but age2 is extremely small.

Age2 is divided by 1000 for illustration purposes.

Table 2.8: Hurdle model. Working hours of foreign born women in Italy.

Hours worked	
Endogamous (M1)	-15,09***
	(0,69)
Intermarried (M2)	-17,08***
	(0,85)
Education	
Upper secondary	2,49***
	(0,60)
University	2,90***
	(0,90)
Age	1,55***
	(0,20)
Age2/1000	-18,88***
	-2,51
Place of origin	
Other non-EU	-0,82
	-1,05
East Europe	0,83
	-1,03
YSM categories	
6-10	0,54
	(0,64)
11-15	-1,53*
	(0,90)
>15	0,16
	-1,04
Residing in north	1,13**
	(0,48)
Dependent children	-3,67***
	(0,42)
Wald F-test M1=M2	0,00
	(0,99)
Observations	4123

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration from 0 to 5 years. The reference category of country of origin is west european countries. The reference category for intermarried and for endogamous are those who are single. Hurdle are the marginal outcomes.

2.8.2 The relationship between intermarriage and underemployment

We hypothesized that intermarriage had a negative effect on the underemployment because it could improve the bargaining power of foreign born women, when compared to women in endogamous unions, Table 2.9 is presenting the results. We used LPM and probit estimation methods including only the sample that reported positive hours of work. Both estimations confirm that being in a union is the most significant predictor for underemployment, the controls for education, age, years since migration and place of origin have the expected direction, however, they are not statistically significant. We can interpret the results such as that being in an endogamous marriage increases the probability of being underemployed by nearly 8 percentage points when compared to singles while being in an intermarriage increases the chances of being underemployed by nearly 5 percentage points when compared to single.

However, the difference between coefficients for endogamous and intermarried are statistically not significant. Our hypothesis H3 that intermarriage has a negative effect on underemployment is not corroborated in our estimations, however women in an intermarriage seem to be less penalized than women in an endogamous union.

Table 2.9: Underemployment among foreign born women in Italy

Underemployed	**LPM**	**Probit**
Endogamous	0,07***	0,07***
	(0,01)	(0,01)
Intermarried	0,04**	0,04**
	(0,02)	(0,02)
Education		
Upper secondary	0,01	0,01
	(0,01)	(0,01)
University	-0,02	-0,02
	(0,02)	(0,02)
Age	0,01	0,01
	(0,01)	(0,01)
Age2/1000	-0,08	-0,08
	(0,06)	(0,07)
YSM categories		
6-10	0,01	0,01
	(0,01)	(0,01)
11-15	0,02	0,02
	(0,02)	(0,02)
>15	-0,00	-0,01
	(0,02)	(0,02)
Place of origin		
Other non-EU	0,03	0,04*
	(0,02)	(0,02)
East Europe	0,05**	0,06**
	(0,02)	(0,02)
Constant	-0,10	
	(0,11)	
Wald F-test M1=M2	1,16	0,84
	(0,28)	(0,35)
Observations	2393	2393

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration from 0 to 5 years. The reference category of country of origin is west european countries. The reference category for intermarried and for endogamous are those who are single.

2.9 Conclusions

The aim of the paper is to analyze the effect of intermarriage on employment (being employed or not being employed), the intensity of employment (the number of hours worked) and underemployment for foreign born women in Italy. To contribute to existing literature, we used a dataset of the living conditions of families in Italy with foreign members, and applied a linear probability model, binary estimation (probit and logit), instrumental variables, hurdle and binary, nonlinear estimations. For our employment binary outcomes, we accounted for endogenous intermarriage (self-selection into intermarriage), and for the intensity of employment, we control for corner solution due to the presence of zeros on labor supply.

During our analyses, we had to overcome several limitations. One was related to a relatively low number of observations, whereas a larger number could help to make the analyses more specific and reliable. Another limitation concerns a lack of information about language proficiency, as this information could help in isolating the sole effect of language from the intermarriage effect and from the time since migration. Moreover, the survey of the main dataset we used was conducted in year 2008, this year was experiencing an exceptionally high level of unemployment rate due to the financial crisis which started in year 2007, therefore, the unemployment might be exacerbated if this was spread heterogeneously among endogamous foreign born or mixed families. The last limitation is the lack of information of country of origin for a large number of women in our sample. This prevented us from matching the instrument specific on country of birth. Despite these limitations, we obtained the findings detailed below.

The raw intermarriage premium shows that on average, intermarried foreign born women have 43 percentage points lower probability of being employed compared with single woman, and -7 percentage points when compared to endogamous women; and this result is

confirmed by the nonlinear regressions. Moreover, the intermarriage penalty more than doubles once we account for endogeneity by including the instrumental variables, indicating that on average there is a nearly 114 percentage points lower likelihood of being employed for a woman who is in a union with a native than for a single woman.

This finding is in line with the results reported in previous literature (Ballarino and Panichella, 2018). The growth in the penalty from our raw estimates to our instrumental variables estimates suggest that the unobserved variables were positively correlated to the employment. Hence, once we account for them the penalty grows larger. This finding partly supports the family investment hypothesis, where women in endogamous marriages have higher employment rates than intermarried women.

Moreover, in our robustness check where we included partner's earnings and a proxy for attitudes to women employment, the robustness of the results regarding the effect of intermarriage on being employed was corroborated.

Some of the possible explanations for the intermarriage penalty on being employed can be deduced from the difficult integration path of foreign born women, in the absence of active integration policies (Caneva 2014) and presence of strict migration policies (Adda, Pinotti, and Tura 2019) in Italy. It can also be that the single women in our sample is a highly selected subgroup of the population of foreign born women, who are extremely attached to the labor market. It can also be that intermarried women are a selected subgroup who migrate with the motivation to form a family with a native in Italy. It can also be that married women prefer to not be employed due to the difficult and limited employment opportunities they find in Italy (Andall, 1992). Which particularly affects intermarried women, who showed to have higher education.

With regard to the intensity of labor market, it appears that married women are equally penalized by marriage (be it endogamous or intermarried). This could be the result of the low bargaining power of foreign born women with regard to deciding how many hours to work (Andall 1992). Hence, we also found that compared to being single, married women exhibit higher probability of experiencing underemployment. Hence, being married appeared as the strongest and only statistically significant determinant of underemployment. However, it might be noted that, in terms of magnitude, women in an intermarriage seem to be slightly less penalized by underemployment than women in an endogamous union.

Azzolini and Guetto (2017) concluded that foreign born women who face greater difficulties in integrating, may choose intermarriage in order to improve their situation in Italy. However, our results suggest that women who intermarry in Italy exhibit lower employment probabilities and are equally penalized in terms of hours worked and have higher underemployment probabilities than single women.

Further research would be required in order to improve the precision of estimating the intermarriage effect, by finding and analyzing a richer dataset with more information about language proficiency and with, larger number of observations and a time dimension. Finding alternative instruments for intermarriage would also be beneficial.

To verify the external validity of our findings, we would suggest that similar analyses should be conducted in other south European countries, or other countries with a similar pool of foreign born people and different policies, and the results could then be compared.

3 The effects of intermarriage on wages for immigrant women in Italy

3.1 Introduction

Over recent years, developed economies have been increasingly affected by the growing inflow and number of foreign born people. Hence, efficient integration of foreign born people is one of the priorities of host societies and a major concern for the European Union (EUROSTAT, 2011). There are various ways in which foreign born people can integrate in a host society, including intermarriage. Intermarriage is a partnership between individuals from different ethnic or religious backgrounds, such as between a native and a foreign born. The intermarriage rate is a two-way indicator of social integration. On the one hand, it indicates the acceptance of the immigrant population by the host society; on the other hand, it demonstrates the level of foreign born peoples' acceptance of the native population (among others, see Furtado and Song, 2015; Dribe and Nystedt, 2009; Meng and Meurs, 2009; Nekby, 2010; Gevrek, 2009; Furtado and Theodoropoulos, 2009; Dribe and Lundh, 2008; Kantarevic, 2004; Alba and Golden, 1986). However, intermarriage does not solely indicate the degree of integration. It might also provide an effective environment for the integration of the foreign born spouse (Kantarevic, 2004; Dribe and Lundh, 2008; Gevrek, 2009; Nottmeyer, 2010; Furtado and Theodoropoulos, 2009).

According to Eurostat, between 2008 and 2010 around 5 percent of the native women in Europe formed mixed marriages with foreign born people, whereas more than one third of foreign born women formed mixed marriages with natives. The percentage for intermarriage among foreign born women is higher in Italy than in other European countries: for example, 28,6 percent in Germany and 36,7 percent in France compared with 39,2 percent in Italy in the same period. Moreover, in Italy the intermarriage rate for foreign born women is nearly five

times that for foreign born men: in 2010, there were 14 215 intermarriages for foreign born women while only 2 954 foreign born men intermarried (ISTAT, 2020).

Existing literature details several channels through which intermarriage favors the integration of foreign born people. One channel concerns the information that native spouses share with their foreign born partner about local culture and language (Meng and Meurs, 2009; Meng and Gregory, 2005). Another channel is the native spouse's local social networks, which can be useful to integrate their partner in different domains of the host country (Furtado and Theodoropoulos, 2009). Lastly, and of interest for this paper, is the channel comprising information about local job market opportunities. Combined with networks and language proficiency, this increases the likelihood of finding a job and obtaining better pay for foreign born people who intermarry.

Several studies have explored the relationship between intermarriage and labor market outcomes such as wages, though with inconsistent findings. Some studies support the selection hypothesis, concluding that intermarried foreign born people have higher earnings because they are positively selected (Kantarevic, 2004; Nottmeyer, 2010; Dribe and Lundh, 2008), while other studies support the productivity hypothesis, where intermarriage itself has a positive effect on integration (Gevrek, 2009; Meng and Gregory, 2005; Meng and Meurs, 2009). The results may vary due to the different stock of foreign born people; however, the number of studies that address the issue of an intermarriage wage premium among women—accounting simultaneously for selection into employment and selection into intermarriage—is limited (for an exception, see Meng and Meurs, 2009). From a geographical perspective, literature dealing with an intermarriage wage premium has focused on Northern and Western European countries, such as Sweden (Dribe and Nystedt, 2009; Nekby, 2010; Dribe and Lundh, 2008), the Netherlands (Gevrek, 2009), Germany (Nottmeyer, 2010), and France (Meng and Meurs,

2009); or other continents, including the U.S. (Furtado and Song, 2015; Kantarevic, 2004) and Australia (Meng and Gregory, 2005).

Despite the aforementioned empirical evidence, we can identify some aspects of intermarriage and labor market integration that remain unexplored. First, although literature focusing on an intermarriage premium among foreign born women is scarce, there is a trend toward the feminization of migration; indicating the growing number of women who migrate compared with men (Ruyssen and Salomone, 2018; Bettio et al., 2006). This clearlyshows that a focus on women is required, especially in countries where the feminization of migration is strong, such as Italy—where according to ISTAT, in 2012, 56 percent of the foreign born over 18 were women.

Second, an important argument for analyzing the wage premium among women is that women have a very specific form of labor market participation, as they generally have lower rates of employment and lower salaries (OECD, 2008). Exploring the intermarriage premium among foreign born women is theoretically and methodologically highly relevant, because foreign born women's earnings are potentially subject to a double or triple penalty. These penalties may, however, be counterbalanced by a positive labor market effect of intermarriage. Further, analyzing data for women is important because marriage affects the labor market outcomes of women differently than those of men (Becker, 1973). Therefore, assessing the effect of the type of marriage (mixed or endogamous) on the labor market outcomes of women will help in terms of understanding and potentially improving the position of married foreign born women in the labor market.

Third, we observe that the topic of an intermarriage wage premium has received less research attention in Southern European countries than in other parts of the world, despite the fact that the geographical position of these countries makes them more accessible to

immigration, especially from African countries. Southern European countries have been attracting and receiving foreign born people over many decades, beginning earlier than the 1980s, as they are part of the Southern European migration path. This has been one of the most used routes to access Europe over past decades, particularly for illegal immigrants (Reyneri, 2001; Sutcliffe, 2006; Kassar and Dourgnon, 2014).

The current paper aims to deal with the aforementioned gaps by addressing the question: to what extent does intermarriage affect the earnings of married foreign born women in Italy? Concretely, the paper contributes to existing literature in three ways. First, it studies the integration of foreign born women and the effect that the type of marriage has on their labor market outcomes. As previously stated, women have a disadvantaged position in their employment and wages compared with men (OECD, 2008), and have also been disregarded in research concerning an intermarriage premium. Second, foreign born women coming from outside the EU suffer disadvantages not only when compared with native and foreign born men, but also with native women and foreign born women from within the EU (Raijman and Semyonov, 1997). Third, we analyze the situation of foreign born women in Italy, a country in Southern Europe where empirical studies on an intermarriage wage premium are rare (the closest one being for France: Meng and Meurs, 2009). Italy is an excellent country to study, as the number of its foreign born population has grown in recent decades, reaching 4,052,081 in 2012 (7 percent of the total population).[10] Immigration in Italy is also highly feminized, as demonstrated by figures from ISTAT: in 2012, 56 percent of foreign born people over 18 years old in Italy were women. As indicated earlier, the proportion of intermarried foreign born women in Italy compared with other European countries further illustrates the relevance of the

[10] These are figures for legal migrants. However, according to Mauri and Micheli (1992, cited in Allasino et al., 2004) Italy attracts mainly illegal immigration. Estimates of the largest early flows of people to the country suggest that about half were irregular immigrants

issue in this country; particularly for women, since foreign born women in Italy are as much as five times more likely to intermarry than foreign born men (ISTAT).

3.2 Theoretical framework

On arrival, the position of a foreign born in the labor market is disadvantaged because their human capital is devalued, as they might lack language proficiency, social networks, and recognized credentials (Dribe and Lundh, 2008). However, this situation may change during the process of integration, which implies an improvement in language proficiency and job searching strategies through better knowledge of the local labor market (Chiswick, 1978). It is hypothesized that intermarriage accelerates this process. There are several theories on how intermarriage affects labor market integration and the outcomes: the productivity theory, the social theory, the self-selection theory, and the family investment theory.

The productivity theory suggests that foreign born people in a union with a native-born spouse integrate faster than foreign born people in a union with another foreign born (Kantarevic, 2004; Gevrek, 2009; Basu, 2015), because spouses play an integral role in human capital accumulation (Benham, 1974). A native spouse boosts linguistic adjustment and provides knowledge of the local labor market, access to social networks, and insights into important structures (Gevrek, 2009; Nottmeyer, 2010). In addition, the spouse can explain local customs, norms, and peculiarities (Meng and Gregory, 2005). Intermarriage may also signal greater adaptability and attachment to the receiving country, and could act as an incentive to improve language skills and to invest in local human capital (Basu, 2015).

The self-selection theory stipulates that the relationship between intermarriage and labor market integration is spurious, because foreign born people in a union with a native are a selected subsample of the entire population of foreign born people in a union or partnership.

People in this subsample possess highly valued labor market skills, which are also highly valued in the host country's native marriage market (Kantarevic, 2004; Meng and Gregory, 2005). These can include local language proficiency, knowledge of customs, social skills, and even physical attractiveness (Kantarevic, 2004).

The social theory emphasizes the importance of social capital for the labor market integration of foreign born people (Aguilera, 2005). According to this theory, foreign born people are disadvantaged because the members of their community comprise a network that is less informed about the labor market relative to natives, in terms of job positions and job searching procedures. Intermarriage gives access to native networks able to provide key information about the job market; information that immigrant networks lack. Further, recommendations from a native might also give more confidence to a potential employer in the hiring process (Furtado and Theodoropoulos, 2009).

According to the family investment theory (Worswick, 1999; Baker and Benjamin, 1997; Blau et al., 2003), the integration of foreign born women might differ depending on their family structure (mixed or endogamous). Foreign born people are assumed to be credit constrained, so in order to invest in human capital or to wait to find a job with a higher salary, the husband in a purely immigrant family would rely on the wife, who would opt for dead-end jobs, long working hours, and high earnings during the first years of stay in the host country. In a second stage, women would decrease their working hours as their husbands integrate in the host country's labor market.

3.3 Existing empirical evidence

Empirical evidence concerning an intermarriage wage premium is relatively recent, and often focuses on male foreign born (Kantarevic, 2004; Gevrek, 2009). Even though some studies include women in addition to men, the issue of self-selection into employment for

women is often not taken into account (Meng and Gregory, 2005; Nottmeyer, 2010; Nekby, 2010; Basu, 2015; Elwert and Tegunimataka, 2016). To the best of our knowledge, only one piece of research considers self-selection into employment of women in the earnings equation (Meng and Meurs, 2009).

It is hypothesized that intermarriage affects earnings positively (Meng and Gregory, 2005; Meng and Meurs, 2009). However, intermarried Foreign born people are likely to be a selected subsample from the population of married foreign born people. Since intermarried and endogamously married couples are different in many observable variables, they are also likely to be different in terms of non-observables that could be correlated to earnings. Therefore, it is vital to consider intermarriage not only as exogenous, but also as an endogenous variable in the earnings equation.

Existing studies employ diverse methodologies, as the main obstacles to finding a relationship between earnings and intermarriage are the endogeneity of intermarriage and the sample selection into employment; particularly in the case of women (Kantarevic, 2004; Gevrek, 2009; Nottmeyer, 2010; Nekby, 2010). To take into account endogeneity in intermarriage, we find two main methodological approaches, which depend strongly on the type of dataset used. Studies that use instrumental variables methods are performed on cross-sectional data (e.g., Kantarevic, 2004; Gevrek, 2009; Meng and Meurs, 2009; Meng and Gregory, 2005), while other studies use fixed effects methodologies when panel data is available (Nekby, 2010; Nottmeyer, 2010; Elwert and Tegunimataka, 2016).

The results produced by the abovementioned studies vary significantly, and there is no consensus on whether intermarriage has a positive, negative, or null effect on earnings. A positive correlation between earnings and intermarriage is frequently found when looking at the raw premium; however, when selection into intermarriage or endogeneity of intermarriage

is controlled for, the results diverge among the different studies. Meng and Gregory (2005), Meng and Meurs (2009), Gevrek (2009), and Dribe and Nystedt (2009) find a positive effect of intermarriage on earnings, indicating that intermarriage favors integration through an increase in earnings—a result that supports the productivity theory. However, the studies by Kantarevic (2004) on foreign born men, and Nekby (2010) on foreign born men and women, both support the selection theory, which stipulates that foreign born people are positively selected into marriage. We can interpret this as intermarried foreign born people having higher earnings because of their own unobservable characteristics. Interestingly, Bevelander and Irastorza (2014), Basu (2015), and Nottmeyer (2010) find that foreign born women suffer an intermarriage penalty in their earnings, which may support the family investment theory. The inconsistent results of the above studies may be due to the different stock of foreign born people in the respective host countries (Kantarevic, 2004), or to whether intermarriage is defined as a legal status change or a simpler cohabitation (Bevelander and Irastorza, 2014).

3.4 Hypothesis

Given the existing findings that argue in favor of the productivity theory, we hypothesize that intermarriage in Italy will have a positive effect on earnings, and once we correct for self-selection bias, these effects may increase, supporting the productivity hypothesis.

3.5 Background of Italy

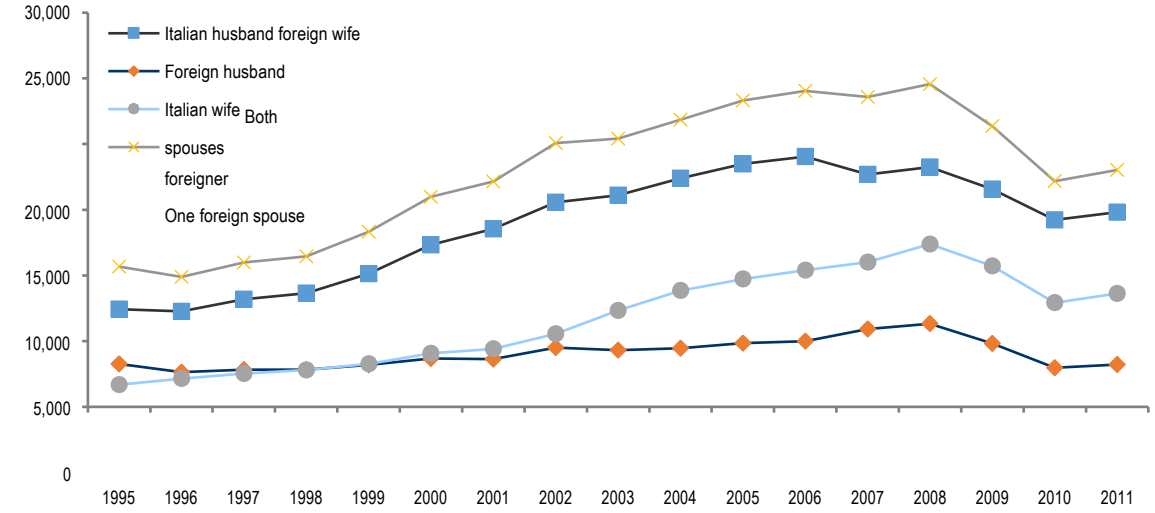
Italy is considered a new receiving country, since it only started attracting foreign born people in recent decades. As a consequence of the economic crisis, traditionally attractive countries for foreign born people closed their frontiers after 1973 (Venturini and Villosio, 2006; Allasino et al., 2004; Zanfrini, 2013). Italy started receiving foreign born people in the 1980s, when foreign born people started to choose to move to Southern European countries where the borders were less regulated.

The sectors employing immigrant labor in Italy are mainly in the informal economy, comprising small factories and domestic help (Allasino et al., 2004). Allasino and colleagues (2004) note that due to the local structure of the economy, the occupations of foreign born people in Italy differ between regions. In general, in the northeastern and central regions, it is mainly small manufacturing firms that employ foreign born people, and there is also seasonal labor demand from agriculture. The larger cities of the southern regions demand mainly domestic labor, and seasonal labor for agriculture is relevant in the rural areas. Foreign born women, however, are mainly employed in domestic service in Italian homes. This often means these women are overeducated for the type of jobs they find, and they also live with their employer; a situation that decreases their bargaining power (Andall, 1992).

In 2011, the ten most sizeable groups of foreign born people in Italy were Romanians (20 percent), Albanians (11 percent), Moroccans (10 percent), Chinese (5 percent), Ukrainians (4 percent), Moldavians (3 percent), Filipinos (3 percent), Indians (2,8 percent), Peruvians (2 percent), and Polish (2 percent) (ISTAT). The ten nationalities with the highest numbers of intermarriages for foreign born women between 2008 and 2011 were Romanian, Ukrainian, Brazilian, Polish, Russian, Moldovan, Albanian, Moroccan, Ecuadorian, and Peruvian (ISTAT).

Figure 3.1 shows the trends for marriages among couples comprising at least one foreign born spouse. Around 18,000 mixed marriages were formed in the year 2011, where one spouse is an Italian native and the other a foreigner. The proportion of mixed marriages where the wife is Italian is small compared with where the husband is Italian, and the trend is also flatter. Marriages where both of the spouses are foreign are constantly increasing, with a steeper slope than for mixed marriages.

Figure 3.1: Marriages according to intermarriage status. Years 1995-2011, absolute values



Source: Istat, Census 2011. http://www.istat.it/it/archivio/75517

With regard to regional differences in marriages, endogamous marriages with both spouses being foreign born people are higher in the northeast and central parts of Italy. By comparison, in the south and the islands, endogamous foreign marriages represent just 1 percent of all the marriages. The islands have five times more mixed marriages than endogamous foreign marriages, followed by the south, the northwest, northeast, and last, the central part of the country. The percentage of mixed marriages out of the total marriages, however, is higher in the northern regions of the country. For more information, please see Appendix 4 and Appendix 5.

3.6 Data and descriptive statistics

The data used for the analysis comes from the Survey of Living Conditions of Families with Foreigners (Condizioni di Vita delle Famiglie con Stranieri). The survey contains information on the socio-economic position of foreign families living in Italy; the full sample contains 6 014 households and 15 036 individuals, surveyed in 2008. The sample was randomly selected and representative of foreign born families living in Italy. The sample for our analysis

contains foreign born women between the ages of 18 and 65 in a partnership (either married or cohabiting) with a native Italian or with another foreign born person.

Table 3.1 presents the descriptive statistics of foreign born women (by the type of union) in the full sample (employed and not employed) and the sample of those that are employed. The table includes the variables that are considered in the estimations of the Mincer equation of earnings, and the instruments included in the instrumental variables exercise, in the Heckman sample correction, and in the combined method. In addition, the variables that are important for foreign born peoples' integration—such as years since migration (YSM categories) and intermarriage—are included, together with a variable indicating the region of residence.

The number of women in the full sample who are not employed is more than double the number who are. The proportion of those who are intermarried is 26 percent in the full sample and 23 percent for the subsample who are employed. Women in a union with another foreign born person have slightly higher average monthly salary (nearly 2 percent greater), and they work nearly half an hour more per week on average. Women in a union with another foreign born person tend to have considerably lower education levels than those in a mixed union in both samples. Women in both types of union have spent similar amount of time in Italy and also live in the wealthiest part of the country (the north), with the exception of those in the full sample who are intermarried (30 percent of them live in the north compared with nearly 50 percent in all the other cases).

The proportion of women from a non-European country is more than 40 percent in each category of type of marriage of both samples (employed and not employed), whereas it is almost 50 percent of the intermarried women in the sample of the employed. The proportion of women from an Eastern European country varies depending on the type of marriage, being

around 30 percent of those in a union with a native Italian and exceeding the 50 percent of those in a union with another foreign born person in both samples.

The instruments probability and sex ratio reflect the expected correlation, being higher for women who are in a union with another foreign born person than for women in a union with a native Italian.

Table 3.1: Descriptive Statistics for foreign born women in partnerships in Italy

	Endogamous (N=1382)		**Exogamous (N=505)**		**Endogamous (N=703)**		**Exogamous (N=216)**	
	Employed and not employed				**Employed**			
Variable	**Mean**	**SD.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Monthly salary	-	-	-	-	892,202	1 969,946	907,107	477,935
Hourly salary	-	-	-	-	7,431	19,789	7,235	4,022
Weekly work hours	-	-	-	-	33,293	11,807	33,704	9,874
Education level								
Lowsecondary	0,5984		0,267		0,432		0,245	
Upper secondary	0,328		0,560		0,464		0,528	
University	0,0738		0,172		0,104		0,227	
Average age	34,984	9,295	38,347	9,577	36,757	8,250	37,315	8,098
YSM categories								
0–5	0,339		0,396		0,343		0,296	
6–10	0,357		0,307		0,383		0,426	
>10	0,304		0,297		0,275		0,278	
Residing in north	0,494		0,309		0,505		0,514	
Place of origin								
Western Europe	0,041		0,244		0,046		0,227	
Eastern Europe	0,543		0,323		0,511		0,282	
Non-EU	0,416		0,434		0,444		0,491	
Instruments								
Number of children	0,604	0,726	0,493	0,640	0,368	0,606	0,324	0,592
Sex ratio	1,132	0,326	0,756	0,337	0,945	0,318	0,781	0,338
Probability	0,015	0,012	0,011	0,012	0,014	0,012	0,012	0,013

Source: Istituto Nazionale di Statistica. *Condizioni di Vita delle Famiglie con Stranieri. https://www.istat.it/it/archivio/52405*

3.7 Econometric framework

In order to estimate the effect of intermarriage on earnings, we use the Mincer equation of earnings (Mincer, 1974):

$$Log(hourly\ wage)_i = \beta_0 + \beta_1\ Intermarried + X_2\beta_2 + \varepsilon_i$$

Where the dependent variable, Log (hourly wage) is the logarithm of the hourly earnings. Intermarried is the variable of interest and is a binary variable equaling "1" for a woman in a mixed union and "0" for a woman in a union with another foreign born person, $\beta 1$ is the coefficient of interest and represents the intermarriage premium. X'2 includes all the other variables that determine earnings, such as education and experience, explained in detail in the variables subsection.

When estimating the intermarriage premium, there is a potential threat termed the endogeneity of intermarriage. Intermarriage is not a random event and it occurs in part due to unobservable variables that can be correlated with the dependent variable. In fact, unobservable variables that are valued in the marriage market may also be valued in the labor market. Some examples of this include ambition, physical appearance, communication skills, and knowledge of local customs (Kantarevic, 2004). Therefore, estimating the earnings equation without taking into account the potential endogeneity of intermarriage could bias the OLS estimates.

An additional issue concerns selection into employment, as we do not observe the potential salary of those who are not working and they remain excluded from the analysis, potentially leading to a positive selection of the sample. A third challenge is dealing with selection into employment and endogeneity of intermarriage simultaneously. We approach these issues in the steps described as follows.

The first step described in literature when estimating the intermarriage premium with cross sectional data, is to estimate an ordinary least squares regression (OLS), which delivers the raw premium (Gevrek, 2009; Meng and Meurs, 2009; Meng and Gregory, 2005).

The second step is to correct for the endogeneity of intermarriage. This step analyzes whether intermarried people are positively or negatively selected into intermarriage. In other words, if the unobservables are positively or negatively correlated to the endogenous variable (intermarriage) and to the outcome (the logarithm of hourly earnings). This requires a method that accounts for the endogeneity of intermarriage, and in this case we use instrumental variables (IV) estimation (Meng and Meurs, 2009; Meng and Gregory, 2005).

The third step in the analysis deals with the sample selection or selection into employment. If the reason for selection into employment is unobserved and correlated with the logarithm of hourly earnings, this would bias the estimates. When estimating the intermarriage premium, only individuals with a salary enter the analysis, as zeros and missing values are automatically excluded. This implies that the sample may be positively selected, as those in employment may tend to have higher earnings than the potential earnings of those who are not employed. In order to correct for the sample selection, we use Heckman sample correction (Heckman, 1979). This method relies on available information from the dependent variables and the instrument to compute an indicator of selection and to correct for the sample selection.

As we face two potential sources of bias, correcting for only one could still lead to biased estimations. Therefore, the fourth step in the analysis is to simultaneously use the methodology that corrects for the endogeneity of intermarriage together with the one that accounts for selection into employment. This approach consists of estimating the selection into employment, obtaining the Inverse Mills Ratio, and including it in the instrumental variables estimation (Wooldridge, 2010).

3.7.1 The dependent variable

The logarithm of hourly wages was obtained using information on the reported net monthly earnings and information about the average weekly working hours. A proxy of worked monthly hours was created by multiplying the average weekly hours by four. Then the monthly earnings were divided by the proxy of monthly hours worked and the logarithm was applied.

Hourly earnings are used because they take into account differences in hours worked that might vary among individuals; since part time work is relatively common among women, we use hourly earnings. If someone is missing information on the hours worked and still declared a monthly salary, they are left out of the regression. Observations equaling zero or missing values are also omitted from the analyses. Since there is a low level of reporting working hours for the self-employed, only those who work as dependent employees are considered.

Due to the above-specified empirical pragmatic arguments, the sample analyzed in the present paper refers mainly to the subpopulation of women who reported monthly salaries and average working hours.

3.7.2 The independent variables

The traditional variables included in the equation of earnings are education (edu) and work experience, where age is used as a proxy. Because of the functional form, it also includes the quadratic term of age (age2) (Mincer, 1974).

The categories of the original variable for education in the dataset were overly complex, as some categories were only descriptive and defined different streams of the same level of education. A variable indicating the level of education was created by aggregating the information into three categories: the first includes individuals with education up to lower secondary level, the second is those with up to upper secondary education, and third for those

with a university degree. The three categories allow us to retain enough observations in each category.

Intermarriage is treated as a dichotomic variable, equaling 1 when a foreign born woman is in a (cohabiting or married) union with a native Italian and 0 in a similar union with another foreign born.[11] A migrant is defined for our purposes as a person born abroad (definition based on the country of origin). The data also contains information on citizenship; however, this information can be biased, because Italian law grants citizenship for people with Italian ancestors, so many people born outside the country may nevertheless hold Italian citizenship.

Years since migration is divided into three categories. The first comprises individuals who have spent up to five years in Italy, the second category includes those who have spent from six to ten years, the third, individuals who have spent more than ten years in the country.

We also add a variable controlling for the region of residence. It equals 1 when a woman lives in the northern regions of the country and 0 otherwise.

To control for place of origin, we grouped countries into three main interpretable categories: Western European, Eastern European, and non-European. Some countries may be erroneously included in the non-European category, such as Former Yugoslavia or Croatia, since in 2008 they were not yet in the European Union. However, in proportion, most of the observations are from the identified largest minorities.[12]

[11] In our dataset, cohabiting or married partners belong to the same category, hence we are not able to differentiate between them.

[12] The category of non EU contains 46,74% of non EU countries that remain unknown countries, while 53,26% are from countries of the identified largest minorities: 21,38% from Morocco, 8,31% from China, 7,07% from Tunisia, 5,17% from the Philippines, 4,65% from India, 3,36% from Ecuador, and 3,32% from Peru.

3.7.3 The instruments

The number of dependent children under six years old is used as an instrument in the Heckman selection correction. The number of dependent children has an effect on the employment of women, as children under six years old do not have to compulsorily attend school, meaning they are demanding in terms of their mother's time (Heckman, 1979). However, the number of dependent children is unlikely to affect the hourly earnings of women in employment.

The instruments commonly used in literature to deal with the endogeneity of intermarriage are sex ratio and the probability of meeting someone from the same place of origin (Gevrek, 2009; Meng and Meurs, 2009; Meurs and Gregory, 2005). These instruments partly reflect the three main factors that affect the decision to marry: individual preferences, the influence of third parties, and the marriage market constraints (Kalmijn, 1998).

The sex ratio instrument reflects the marriage market constraints, as it captures the competition for a spouse of the same ethnicity in the marriage market. A higher ratio indicates less competition for meeting someone of the same place of origin. Therefore, we expect the sex ratio to affect intermarriage negatively.

The second instrument refers to the likelihood of meeting a partner from the same place of origin, and is given by the ratio of total foreign born people of the opposite sex from the same place of origin relative to the entire population of the opposite sex (Gevrek, 2009). This instrument relates to two factors: first, the influence of third parties, where a larger number of members from the same nationality over the whole population might indicate more influence of third parties in the marriage decision; second, a marriage market constraint, where the likelihood of meeting someone of the same ethnicity is expected to have a negative effect on the probability of intermarrying.

In order to be valid instruments, each variable should respect two assumptions. First, it should be correlated with the endogenous variable, intermarriage, and second, it should not be correlated with the dependent variable, logarithm of hourly earnings. The sex ratio respects the first assumption, since the competition in the local marriage market is likely to affect the intermarrying decision negatively. Moreover, the sex ratio in a given region could affect earnings if men and women from the same ethnicity were competing for similar jobs. However, occupations are highly segregated by gender in Italy (Di Belgiojoso and Ortensi, 2015; Strozza et al., 2009; Labadie, 2008); therefore, sex ratio is not likely to affect hourly earnings and it appears to be an appropriate instrument for the intermarriage variable.

The likelihood of meeting a partner from the same place of origin respects the first condition, since it negatively affects intermarriage. Moreover, in a similar way to the sex ratio instrument, because occupational segregation by gender is highly evident—particularly in Italy (Di Belgiojoso and Ortensi, 2015; Strozza et al., 2009; Labadie, 2008)—the ratio of men from the same place of origin as a foreign born woman to the total number of men is not likely to affect the hourly wages of women.

The Inverse Mills Ratio is used as the instrument for the selection into employment in the combined method, which accounts for endogeneity of intermarriage and sample selection simultaneously.

3.8 Results

Following the aforementioned analytical steps, we start by interpreting the results of the Ordinary Least Squares estimation (OLS) that deliver the raw intermarriage premium, presented in Table 3.4. The first model represents a correlation between intermarriage (a union with another foreign born person is the reference category) and hourly earnings. The coefficient in Model 1 can be interpreted as a raw intermarriage premium of 9 percentage points higher

earnings for women who are in a mixed union (intermarriage) compared with women who are in a union with another foreign born person.

Table 3.4: OLS Estimates. Employed foreign born women in partnerships in Italy

Log (hourly wage)				
	Model 1	**Model 2**	**Model 3**	**Model 4**
Intermarriage	0,090**	0,059	0,058	0,034
	(0,040)	(0,040)	(0,040)	(0,041)
Education level				
Upper secondary		0,043	0,039	0,037
		(0,037)	(0,036)	(0,036)
University		0,211***	0,199***	0,169***
		(0,054)	(0,054)	(0,055)
Age		0,021	0,015	0,012
		(0,015)	(0,015)	(0,015)
Age2		-0,231	-0,148	-0,119
		(0,194)	(0,192)	(0,192)
YSM categories				
6–10			0,018	0,016
			(0,039)	(0,039)
>10			0,057	0,039
			(0,044)	(0,046)
North			0,180***	0,178***
			(0,033)	(0,034)
Place of origin				
Non-EU				-0,154**
				(0,065)
Eastern Europe				-0,182***
				(0,064)
Constant	1,767***	1,298***	1,283***	1,507***
	(0,019)	(0,283)	(0,280)	(0,290)
Observations	919	919	919	919

Notes: Standard errors are shown in parentheses. *, **, and ***, denote that the coefficients are statistically significant at the 10%, 5%, and 1% levels respectively. The reference category for education is up to lower-secondary education and for years since migration categories, it is the duration of 0 to 5 years. The reference category for country of origin is European Union (as at 2008, excluding Rumania and Poland). Estimates include only employed, as those who gave information about their salary, average of hours worked, and who had worked for 12 months.

However, once the Mincerian variables, education and experience, are added in the second model, the intermarriage premium decreases and it loses significance (+5.9 percent). In the third column, we can see that adding variables such as the year since migration and region of residence does not affect the intermarriage coefficient considerably (+5.8 percent). The variables have the expected sign; however, only the region of residence and university education are strongly significant. Lastly, in the fourth column when we add the control for country of origin, we observe that coming from a non-EU country has a strong and significant penalty of 15 percentage points compared with coming from a Western European country, while coming from an Eastern European country has a penalty of 18 percentage points. With the inclusion of the country of origin, the coefficient of intermarriage decreases further (+0.34 percent), while all the other variables decrease by a small amount.

In the following exercises, the variable intermarriage is treated as endogenous and we introduce two instruments to correct for the endogeneity. The results are presented in Table 3.5 (see Appendix 6). We estimate three models, with each having a different set of instruments. The coefficient of intermarriage does not seem to have an effect on earnings in any of the models. However, the instruments do not appear to be particularly strong for capturing intermarriage, in fact there only a sufficiently large F-statistic (13,442) when the sex ratio is used alone, in the second model. Even though the sign of the rest of the variables is as expected, they appear as non-significant, with the exception of residing in the north (+17.7%) in the second and third model.

In order to account for selection into employment and for the endogeneity of intermarriage, an approach suggested by Wooldridge (2010) is to add the Inverse Mills Ratio (IMR) to the estimation of the Two Stage Least Squares, correcting simultaneously for the endogeneity of intermarriage.

Table 3.7: Combined method Estimates. Employed Immigrant Women in Partnerships in Italy

Log (hourly wage)	Model 1		Model 2		Model 3	
Intermarriage		-2,502		0,294		0,134
		-6,541		(0,369)		(0,312)
Education level						
Upper secondary	0,291***	0,785	0,284***	-0,032	0,275***	0,015
	(0,031)	-1,914	(0,031)	(0,116)	(0,031)	(0,100)
University	0,419***	1,241	0,399***	0,070	0,396***	0,137
	(0,045)	-2,744	(0,045)	(0,166)	(0,045)	(0,144)
Age	0,111***	0,297	0,110***	-0,013	0,111***	0,005
	(0,014)	(0,725)	(0,014)	(0,045)	(0,014)	(0,039)
Age2	-1,340***	-3,560	-1,338***	0,180	-1,350***	-0,034
	(0,175)	-8,766	(0,174)	(0,548)	(0,173)	(0,479)
YSM categories						
6–10	0,020	0,067	0,033	0,010	0,036	0,013
	(0,029)	(0,157)	(0,029)	(0,040)	(0,029)	(0,039)
>10	0,015	0,080	0,039	0,034	0,040	0,037
	(0,034)	(0,144)	(0,034)	(0,047)	(0,034)	(0,046)
Residing in north	0,151***	0,574	0,172***	0,143**	0,159***	0,168***
	(0,028)	-1,012	(0,028)	(0,068)	(0,028)	(0,060)
Place of origin						
Non-EU	-0,356***	-1,042	-0,279***	-0,062	-0,289***	-0,118
	(0,049)	-2,297	(0,051)	(0,144)	(0,051)	(0,126)
Eastern Europe	-0,102**	-0,421	-0,064	-0,148*	-0,078	-0,163**
	(0,051)	(0,656)	(0,051)	(0,077)	(0,051)	(0,074)
Instruments						
Probability	0,479				2,670**	
	-1,101				-1,203	
Sex ratio			-0,165***		-0,211***	
			(0,044)		(0,049)	
Mills	1,181***	3,036	1,173***	-0,264	1,176***	-0,075
	(0,089)	-7,725	(0,088)	(0,452)	(0,088)	(0,387)
Constant	-3,269***	-6,902	-3,131***	2,219*	-3,130***	1,697
	(0,355)	-21,365	(0,354)	-1,297	(0,353)	-1,123
Observations	919		919		919	
F-statistic	0,190		13,820		9,400	
Prob > F	0,664		0,000		0,000	
Durbin	0,679	(p=0,401)	0,550	(p=0,458)	0,120	(p=0,729)
Wu-Hausman	0,670	(p=0,413)	0,543	(p=0,462)	0,118	(p=0,731)

Notes: Standard errors are shown in parentheses. *, **, and ***, denote that the coefficients are statistically significant at the 10%, 5%, and 1% levels respectively. The reference category for education is up to lower-secondary education and for years since migration categories, it is the duration of 0 to 5 years. The reference category for country of origin is European Union (as at 2008, excluding Rumania and Poland). Estimates include only employed, as those who gave information about their salary, average of hours worked, and who had worked for 12 months.

To follow this approach, we first estimate the selection in the employment equation. After obtaining the IMR from the predicted values of the estimation, we include the term as an exogenous variable in the combined method. The results of the combined method, in Table 3.7, show similar results to those in Table 3.5, where we only control for endogeneity of intermarriage. The coefficient of intermarriage is not significant in any of the three models, where we use a different set of instruments in each. Again, the model with the strongest instruments is the second one, where only sex ratio is used. Moreover, based on the Mills ratio, we can see that there is not a significant self-selection into employment. Based on the results from the OLS estimations, our hypothesis is not supported, and the estimations with correction for self-selection into employment and into intermarriage confirm this finding.

3.9 Conclusions

In the current paper, we investigate the impact of intermarriage on the wages of foreign born women in Italy. Specifically, we examine the effect of intermarriage on the wages of intermarried foreign born women compared with their endogamously married counterparts. As analyzing the wage premium of intermarriage among female foreign born is methodologically challenging due to two sources of possible selection bias (self-selection into intermarriage and self-selection into employment), we use several approaches to deal with selectivity, including techniques that simultaneously account for intermarriage endogeneity and employment selection bias.

Our analyses involved some limitations, such as insufficient cases to carry out heterogeneity analyses for different subgroups of foreign born women. In addition, information on Italian language proficiency is not available, nor is data concerning the time of marriage. Further, the fact that there are many more intermarried women than intermarried men means there are not enough observations to run reliable analyses including intermarried male foreign

born. Despite these limitations, we arrived at the following results. The raw intermarriage premium shows that hourly earnings are 9 percentage points higher for foreign born women in a union with a native Italian, compared with those of foreign born women in a union with another foreign born person. This means that among the analyzed foreign born women, those who live in a couple with a native have wages 9 percent higher than those whose spouse is also a foreign born. However, the wage premium disappears when other sets of controls are added in the model. The intermarriage effect is not significant when we consider intermarriage as endogenous or when we take into account self-selection into employment. The difference in earnings between intermarried and endogamously married foreign born women is thus due to the characteristics of each group.

From the above evidence produced in the different estimations, we conclude that there is no strong effect of intermarriage on the hourly wages of foreign born women. This implies that foreign born women married to or cohabiting with a native do not show significantly different wages compared with women married to or cohabitating with a foreign born man. The tentative explanations for our findings can relate to the situation in Italy. Existing research would suggest that there may not be a substantial difference between intermarried and endogamously married foreign born women in their position in the labor market, as they may compete for similar jobs with similar levels of pay. For example, data shows that most foreign born women work in similar economy sectors in Italy (Andall, 1992; Bettio et al., 2006; Ballarino and Panicchella, 2018). A similar explanation may hold with regard to their remuneration. Other studies (Serret and Vitali, 2015; Vignoli et al., 2017) show that in Italy, men in lower social strata tend to marry foreign born women. This would imply that intermarried foreign born women could benefit from their spouse's network; however, this would lead them only to lower paid jobs. The intermarriage premium could also be balanced out by the extra motivation of endogamously married foreign born women to succeed in the

labor market, once they enter it. This argument is in line with Baker and Benjamin (1997), since foreign born women with a native spouse do not face the same need to perform a borrowing function for their families as their counterparts with foreign born husbands.

In order to improve the reliability of the estimation, a richer dataset with more information about language proficiency and union formation, and with a higher number of observations, would be required. It would also be interesting to extend the study to other Southern European countries with a similar pool of migrants, for example Spain, in order to verify the external validity of our findings.

4 Happily integrated ever after? Intermarriage and life satisfaction in Luxembourg

1.1. Introduction

Luxembourg regularly tops the annual lists of the richest countries in the world, in terms of GDP (PPP) per capita (World Bank, 2022). In 2011, it was among the top five countries in the list; however, it only held the nineteenth place in terms of general life satisfaction (World Happiness Report, 2012). Indeed, the level of life satisfaction has remained stagnant, in spite of the prosperous economy (Sarracino and O'Connor, 2021).[13] Existing research consistently shows that life satisfaction is lower for the foreign born than it is for natives (Safi, 2010; Arpino and de Valk, 2017; Nesterko et al., 2013; Fugl-Meyer et al., 2002). This is particularly relevant in Luxembourg, where around 47 percent of the population is foreign born (STATEC, 2022). However, it has generally been found that those who marry experience an increase in life satisfaction, which remains higher even after accounting for the "honeymoon period" (Zimmerman and Easterlin, 2006; Fugl-Meyer et al., 2002; Happiness World Report, 2012). Interestingly, as the proportion of foreign born people in Luxembourg is continually increasing, so is the trend of marriages including at least one foreign born partner. For example, intermarriage between foreign born women and natives between 2008 and 2010 was around 23,8 percent, and 18,2 percent for foreign born men and native women. The same was true for 27 percent of women and men in 2020. In fact, unions between two natives in 2021 made up only 31 percent of all marriages.

[13] In 2013, the LS in Luxembourg was 7,5. While it peaked at 7,6 between 2018 and 2020, it returned to 7,4 in 2021.

As the Luxembourg economy is greatly dependent on a highly skilled and highly mobile foreign labor force,[14] there is a demanding need for understanding and safeguarding the general life satisfaction, as it is recognized to attract workers (Polegreen and Simpson, 2011), as well as to deter the foreign born from leaving (Shamsuddin and Katsaiti, 2019).

Intermarriage is often regarded as the ultimate indicator of integration, as well as a mechanism that could favor the integration of foreign born people in the receiving country (Gregory and Meurs, 2005; Meng and Meurs, 2009; Furtado and Song, 2015; Basu, 2015).

There are several studies that have assessed the effects of intermarriage on the employment and salaries of foreign born men and women (Kantarevic, 2004; Gevrek, 2009; Meng and Gregory, 2005; Meng and Meurs, 2009; Furtado and Song, 2015; Basu, 2015). Integration is reflected in employment and salaries; however, it entails more dimensions, in terms of how the foreign born have the capacity to build a successful and fulfilling life in the receiving country (Harder et al., 2018).

Intermarriage could affect domains of the integration of foreign born residents, for example, through language proficiency, knowledge of local customs, and the expansion of native networks, as well as the sense of belonging, the expansion of emotional/financial support coming from natives, an enhanced feeling of connection with the receiving country, and people's desire to remain in the receiving country. This could be better measured by a holistic index; that is, the general life satisfaction. Nonetheless, to the best of my knowledge there is only one example that empirically assessed the effect of intermarriage on the general life

[14] Some 70 percent of the labor force in Luxembourg comprises highly skilled workers, and this is predicted to increase(ADEM, 2022; Albanese andMarguerit, 2022; Biagi, 2020; OECD, 2008)

satisfaction of the foreign born finding a statistically positive effect (Potarca and Bernardi, 2021).

Luxembourg is an extremely relevant case study to analyze the impact of intermarriage on general life satisfaction. First, while efforts have been made to increase the level of general life satisfaction in the country, because of concerns about stagnating life satisfaction in spite of the prosperous economy, this is driven by the large proportion of foreign born.[15] Second, because there is an increasing pattern of intermarriage in the country, as well as an ever increasing flow of highly-skilled and mobile foreign born. Moreover, based on the theoretical potential for intermarriage to affect life satisfaction through non-monetarily visible channels (for example, expansion of the native social networks, improvement of language adjustment, knowledge of local customs, and self-efficacy in the receiving country), Luxembourg seems to offer a relevant context to study the intermarriage effect on general life satisfaction of the foreign born.

In this paper I therefore attempt to fill the gap in previous literature by assessing the effects of intermarriage — and intermarriage to another foreign born partner compared with endogamous counterparts — on the life satisfaction of foreign born people residing in Luxembourg.

Ordinary Least Squares estimation was used on data from two waves of the Socio Economic Panel of Liewen zu Lëtzebuerg for 2011 and 2013, from the Luxembourg Institute of Socio-Economic Research (LISER). The findings show that intermarriage is related to an average increase in LS of nearly 0,16 points for women with respect to their endogamous

[15] In fact, it went from nineteenth to eighth place in the global country ranking of the happiest countries in 2021: https://worldpopulationreview.com/country-rankings/happiest-countries-in-the-world

counterparts, while men from other European countries exhibit a premium from intermarriage to natives of 0,67 points with respect to their endogamously married counterparts. Moreover, when accounting for the social capital interaction with intermarriage (via a proxy), both women and men show a penalty of intermarriage to another foreign born partner of 0,22 for women and 0,35 for men. However, marrying a Portuguese man is related to an increase in LS of 0,5 points for a foreign woman, while a Portuguese woman suffers a penalty of intermarriage to another foreign born person of 0,59 points.

It should also be noted that the main objective was to establish a causal effect of intermarriage on the general life satisfaction of the foreign born in Luxembourg, however, the instruments that are commonly used with cross-sectional datasets, the sex ratio of a given ethnicity and the probability of meeting a coethnic partner, were proven to be too weak in the Luxembourgish context.

The contribution of this paper is twofold. First, it adds to literature on the integration of foreign born people — that is, psychological integration — by inferring the family contribution to life satisfaction of the foreign born through intermarriage to natives and to other foreign born people. Second, it contributes to literature on the intermarriage premium, considering not only salary and employment, but also other dimensions of foreign born life that are normally not visible in labor market outcomes.

The article is structured as follows: The following section (Section 2) outlines the theoretical framework and existing evidence, and Section 3 presents the Luxembourg context. Section 4 presents the hypothesis, Section 5 outlines the econometric strategy, Section 6 presents the descriptive statistics, and Section 7 presents the results. Section 7,1 supplements the results with a sensibility analysis and Section 8 offers the conclusions.

4.1 Theoretical framework and existing evidence

In view of the lack of theories and studies that explain and assess the effect of intermarriage on the general life satisfaction of the foreign born, I collected arguments from different strands of literature that could potentially help me explain the effect of intermarriage on the general life satisfaction of the foreign born. These arguments are linked to literature on the marriage premium, the intermarriage premium, the life satisfaction of foreign born people, and some concepts in the self-expansion theory from the field of psychology.

The self-expansion theory posits that any individual is motivated to self-expand by incorporating new resources, capabilities, and identities (Aron and Aron, 1986), in order to enhance self-efficacy; that is, "people's beliefs about their capabilities to produce effects" (Bandura, 1994). In turn, the enhancement of self-efficacy in the receiving country could positively affect the life satisfaction of the foreign born (McIntyre et al., 2022; Çakar, 2012).

Self-expansion can occur through a partner or spouse. As natives have more valuable information and skills specific to the receiving country, a foreign born person could enhance her or his self-efficacy in the receiving country by marrying a native, since this would help them incorporate specific resources from the receiving country that could be helpful in succeeding there.

There are some other theories in literature about the intermarriage premium that support the self-expansion theory. First, according to the productivity theory, a marriage between two foreign born partners and one between a foreign born person and a native may systematically differ in terms of the division of labor within the household, as the gender roles preferences may be different (Kantarevic, 2004). This is due to the fact that women normally carry the burden of domestic duties, and this may overlap with market work caused by the financial pressures of the foreign family's integration (Blau et al., 2003). Unsurprisingly, women have a

higher level of life satisfaction in marriages where there is a specialized division of labor, for example, a single breadwinner (Stutzer and Frey, 2005). Furthermore, having a native spouse would benefit the integration of a foreign born partner, increasing the local human capital acquisition through local language improvement and better awareness of local customs (Meng and Gregory, 2005). These domains are linked to what is defined as "self-efficacy."

Along the same lines, the social capital theory posits that the foreign born are disadvantaged in the receiving country, because their network is mainly composed of other foreign born people who are less informed about the receiving country compared with natives. In this regard, intermarriage may increase the life satisfaction of foreign born people through acquired social capital, since intermarriage is recognized to expand the native networks of the foreign born (Rodríguez-García et al., 2015; Furtado and Theodoropoulos, 2009). As migration causes a disruption to a person's social relations, because their relatives and friends are left in the origin country, intermarriage may be particularly important for the foreign born and this in turn could have an impact on life satisfaction. Social networks, and the lack thereof, have been shown to have a direct effect on life satisfaction, particularly for the foreign born (Kamp and Dush, 2005; Arpino and de Valk, 2018).

The self-selection theory nevertheless suggests that intermarried foreign born people are a subsample of married individuals who possess highly valued characteristics for the marriage market, which in this case could also affect the life satisfaction of the foreign born. To the best of my knowledge, there has only been one analysis in the literature dealing with the effect of intermarriage on the life satisfaction of foreign born people — the research by Bernardi and Potarca (2021). In their analysis of a panel sample, they generally did not find evidence for self-selection into intermarriage compared with endogamous marriages for the foreign born, but they found a positive and statistically significant premium of intermarriage. Using longitudinal data, Koroleva (2022) analyzed the relationship of life changes to life satisfaction

for highly-qualified emigrant Latvian women. The results show that those who formed families with natives significantly increased their life satisfaction.

Another theory supporting the intermarriage premium in the life satisfaction of foreign born people concerns the psychological integration of foreign born people. Intermarriage to a native could promote the psychological integration of foreign born people through an enhanced sense of belonging to the receiving country, while also favoring future prospects (Dusch and Amato, 2005). Two studies have demonstrated that as foreign born people become more self identified with natives, they have a higher level of life satisfaction (Amit, 2010; Angelini et al., 2015). However, it should be recognized that Luxembourg is an exceptional case, because considering the proportion of foreign born residents relative to the total population, natives might not be the majority (more details are provided in the section on the Luxembourg context). The segmented assimilation theory needs to be considered, where the experience of new waves of foreign born people may depend on the experience of the previous waves of the same nationality (Portes, 1995; Zhou, 1997). There are minorities in Luxembourg with large, well established communities, as well as other smaller ones that started settling more recently.

Intermarriage could, however, also negatively affect the life satisfaction of foreign born people if they trade their higher education for a higher status. In such cases, there may be less compatibility within a couple when compared with endogamous and homogamous couples in terms of education. In this regard, homogamy in a couple, in terms of education, has been demonstrated to have a positive impact on life satisfaction (Frey and Stutzer, 2005). Moreover, if the families of intermarried spouses do not support their union, the feeling of isolation could decrease the level of life satisfaction (Koelet and de Valk, 2016). Intermarried couples could encounter difficulties in addition to the regular problems faced by endogamous couples, such as cultural differences or conflicts (Singla and Holm, 2012), which could in turn decrease the level of life satisfaction. However, it emerges from psychological literature that intermarried

couples do not experience significantly lower relationship satisfaction than endogamous couples (Uhlich et al., 2021).

The relationship I examine in this paper should be interpreted as the net relationship of competing mechanisms. In this, the place of birth of the spouse — as a native, a foreigner with the same place of birth, or a foreigner of a different nationality — plays a role in the life satisfaction of foreign born people.

4.2 Luxembourg context

Luxembourg is characterized by traditionally being a receiving country for foreign born people. This originated with the start of industrialization and mining activities in the nineteenth century, when there was a demand in these sectors that attracted workers from abroad. By1875, the number of foreign born residents had already reached 10 percent of the total population (Kirps and Reitz, 2001; Valentova and Berzosa, 2012; STATEC, 2022). At that time, the foreign born originated mainly from the neighboring countries: Germany (3,497), Belgium (1 353), and France (853). In the subsequent period at the beginning of the 1900s, the first major waves of Italian workers started arriving. In the 1960s, the flows of Italian workers stagnated due to the growth of the Italian economy, while the first waves of Portuguese born started to arrive in Luxembourg, substituting for the Italian inflows. Moreover, during the 1960s, Luxembourg started developing its financial sector, and during the same period it became one of the centers of administration of the European Union. This attracted skilled workers mainly from the neighboring countries — Germany, France, and Belgium — and other countries to a lesser degree (Valentova and Berzosa, 2012; Kirps and Reitz, 2001). During the decade of the 1990s, the conflicts in former-Yugoslavia caused large inflows originating from this region into Luxembourg (Valentova and Alieva, 2018).

During the period from 2001 to 2010, the inflows of foreign born migrants intensified, which might have been due to a steep growth in the gross domestic product (more than 3.36 percent per annum), complemented by the new developments of the free movement of people legislation from 2004 (Rojas and Bollen, 2018). The inflows were mainly from France, Portugal, and other European countries; however, the numbers from other non-EU countries also intensified significantly (STATEC, 2022).

The foreign born population has grown consistently since the beginning of the nineteenth century. It totaled 220,522 foreign born residents in 2011 (304 000 in 2022), equating to 43 percent (47 percent in 2022) of the population. Moreover, since several efforts have been made to increase the political participation of the foreign born through their naturalization, the proportion of foreign born residents in the total of the population may be underestimated in these figures. In fact, between 1994 and 2011, some 16,532 people obtained Luxembourg citizenship by naturalization, which is nearly the 6 percent of the Luxemburg nationals. This could mean that the majority of the residents in Luxembourg are in fact of foreign origin. Allegrezza et al. (2015) already noted in 2015 that Luxembourg nationals, defined as born in Luxembourg to Luxembourger parents, made up only 38,5 percent of the total residents.

The main nationalities 2011 were from the following countries: Portugal (82 363), France (31 456), Italy (18 059), Belgium (16 926), Germany (12 049), Great Britain (5 471), The Netherlands (3 891), Spain (3 657), Poland (2 709), and Denmark (1 964). While the main nationalities of non-EU countries in 2011 were: Montenegro (3 814), Cabo-Vert (2 472), Bosnia and Herzegovina (2 261), Serbia (2 159), China (1 610), Kosovo (1 324), United States (1 295), Brazil (1 203), Russia (930), and India (569).

With regard to intermarriages, the natural tendency for increasing intermarriage rates is also found in Luxembourg (Lanzieri, 2012). Of the 1 714 marriages that took place in the grand duchy in 2011, 29 percent were intermarriages between a foreign spouse and a Luxembourger. Between 2008 and 2010, 18 percent of the married population in Luxembourg comprised intermarried couples (see Lanzieri, 2012). The main nationalities to marry Luxembourg nationals are Portuguese, German, French, Belgian, Italian, Brazilian, Bosnian, Moroccan, Dutch, and Romanian. These are mostly women marrying Luxembourg nationals; however, the difference between men and women is not particularly large.

For life satisfaction in Luxembourg, it has been empirically established that natives have experienced increasing LS over time, while foreign born people have shown a decrease (Sarracino, 2014). This is in line with what is regularly found in other contexts, where natives' life satisfaction is usually higher than that of the foreign born (Safi, 2010; Arpino and de Valk, 2017; Nesterko et al., 2013; Fugl-Meyer et al., 2002).

4.3 Hypotheses

The aim of this paper is to analyze the relationship between intermarriage and life satisfaction among foreign born men and women in Luxembourg. The main hypotheses to test are as follows:

In line with the theory of productivity and self-expansion, I expect that foreign born people intermarried with native Luxembourgers will have greater life satisfaction than the endogamously married. I expect that intermarriage has a positive and significant effect when compared with endogamous marriages (H1).

Moreover, according to the productivity theory and the family investment hypothesis, in mixed families, women may have a role that is less attached to traditional gender roles and they may not experience the overlapping pressures from family duties and economic integration.

This would mean that foreign born women and men could experience different gains in mixed marriages, hence I expect that the intermarriage premium for women is larger than that for men (H2).

The self-efficacy model implies that intermarriage between a foreign born person and a Luxembourg native would increase the self-efficacy of the foreign born, and this would in turn increase the life satisfaction. I hypothesize that the intermarriage premium of marrying a Luxembourg national would be higher than that of marrying a foreign born person of a different nationality (H3).

Intermarriage to a native would favor the expansion of the native networks of the foreign born compared with an endogamous marriage and it would lead to an increase in LS, because according to the social capital theory, the networks of foreign born residents are less informed about the local labor market, local culture, customs, and practices. Hence, I hypothesize that the social capital resulting from intermarriage will have a positive effect on the general life satisfaction of foreign born residents when compared with their endogamously married counterparts (H4), and the social capital in interaction with intermarriage to another foreign born person will be lower than that from intermarriage to a native (H4.1).

The self-identification theory implies that those who feel more self-identified with the native population will experience a higher level of life satisfaction, while the segmented theory implies that foreign born peoples' experiences depend greatly on the experiences of previous waves of foreign born people with the same origin (Portes, 1995; Zhou, 1997). It is accordingly expected that the intermarriageeffect willvarywith the origin of the foreign born. Ihypothesize that intermarriage will have a positive and larger effect for foreign born from other European countries, as well as for all the other countries, due to the enhancement of the self-identification with the natives. This will be different for more established communities of minorities, where

they will have less benefit from self-identity with the natives due to the size and maturity of their communities (H5).

Lastly, in line with the segmentation theory, I expect that intermarriage of a foreign born to another foreign born person from a well-established minority, as opposed to partners from origins that have a more recent migration trajectory in Luxembourg, will be higher and more significant compared with endogamous counterparts. Accordingly, I hypothesize that intermarriage to a foreign born person from a different nationality and from a large and more established community (for example, Portuguese born), will have a positive effect on the general life satisfaction (H6).

4.4 Econometric model

Ordinary least squares is utilized as the estimation method and the model is specified as follows:

$$\boldsymbol{LS_i = Intermarried_i + X_i\beta_i + \varepsilon_i}$$

Where i refers to individuals. LS refers to general life satisfaction at the time of the survey, and was obtained from the question "All things considered, how satisfied are you with your life as a whole these days?" The possible values range from 0 = not satisfied at all, to 10 = very satisfied. In 2011, the question had 10 possible answers, with 1 being the minimum value. In 2013 the question was phrased as follows: "Overall, how satisfied are you with… Your life these days?" There were 11 possible values, this time 0 was the minimum, meaning "not satisfied at all," while 10 stood for "completely satisfied." In 2013, there were only 18 observations reporting 0 for general life satisfaction: about 3 percent of the full sample in the analysis. More about this variable can be found in Appendix 8.

The variable "intermarried" is binary that takes the value of 1 when an individual is married or involved in a quasi-marriage (a cohabiting union) with a native. It assumes a value

of 0 when an individual is quasi-married or married to a foreign born partner. In the analysis of heterogeneity based on the type of intermarriage, "intermarried" is a categorical variable with three distinct values. It assumes a value of 0 if both partners are foreign-born and belong to the same country of birth, a value of 1 if the individual is married or quasi-married to a native Luxembourger, and a value of 2 if the individual is (quasi) married to a partner from a different country of birth.

Finally, X refers to a vector of controls that could affect the overall life satisfaction and/or intermarriage. These variables include socio-demographic factors such as age, age squared, and highest level of education attained (primary, secondary, and tertiary). Additionally, immigration-related factors are taken into account, such as the number of years since migration (categorized into six intervals: 0-5, 5-10, 10-15, >15, and not reported), country of birth, and country of birth of the spouse (represented as categorical variables encompassing six categories: Luxembourg, Portugal, bordering countries, Italy, other European countries, and other countries).

Moreover, controls pertaining to marriage are included, namely whether the current marriage is the individual's first, second, or third, as well as whether it is a cohabiting union and the duration of the (quasi) marriage. Furthermore, economic controls are introduced, such as a variable accounting for self-reported employment status (where 1 indicates being employed and 0 indicates otherwise), a variable capturing total household disposable income (defined as the sum of all income sources for all household members after deducting taxes during the survey period), and a categorical variable indicating homeownership status (with three categories: renting, homeowner, or homeowner with a mortgage).

Additionally, subjective health status is accounted for using a four-category measure (very good, good, good enough, and bad health). A proxy for social capital is also included,

represented by a binary variable indicating trust towards people in general (coded as 1 for "yes" and 0 for "no"), with the variable from 2013 rescaled to a binary form to resemble the sample distribution of the dichotomous variable for 2011.

The selection of the proxy for social capital, specifically trust, was motivated by the availability of a consistent question on trust in both waves of data used in the analysis This was not the case for other possible proxies for social capital, such as participation in associations (Valentova and Justiniano, 2020) or time spent with friends and colleagues (Arpino and de Valk, 2018), lacked the necessary data coverage in the present study. Furthermore, trust as a proxy for social capital has been employed in prior empirical analyses conducted in Luxembourg (Sarracino, 2014), further supporting its suitability for the current investigation.

Additionally, alternative measurements were incorporated for certain control variables. Age was categorized into three groups: 18-34, 35-50, and 51-65, allowing for a more refined examination of age effects. Furthermore, a binary variable called "honeymoon" was introduced to capture whether the duration of the (quasi) marriage was two years or less (= 1) or longer (= 0), thus accounting for the initial phase of marriage commonly referred to as the "honeymoon phase."

Moreover, total disposable income was divided into quintiles, enabling a comprehensive exploration of the relationship between income and the outcomes of interest. Additionally, the education level of the partner/spouse was considered as a separate variable, allowing for an assessment of the partner's educational attainment and its potential influence on the dependent variables.

One of the potential threats to the analysis is the potential bias caused by reverse causality, whereby the type of marriage self-selected by foreign-born individuals might be determined by their level of life satisfaction. To address this concern, two widely-used

instruments that measure the local marriage market were created: the sex ratio and the probability of encountering a partner from the same country of birth (Gevrek, 2009; Kantarevic, 2004; Meng and Meurs, 2009; Furtado and Song, 2015; Meng and Gregory, 2005). These instruments were constructed using register data that encompasses the entire population, incorporating information on nationality, gender, and age.

To align with data availability, the instruments were formulated for the years 1981, 1991, 2001, and 2011, and were subsequently linked to the timing of marriages. Upon conducting the 2SLS (two-stage least squares) estimations, it was observed that the instruments exhibited low strength, as evidenced by the first stage and the F-test statistics. Furthermore, it was discovered that the instruments displayed a high degree of correlation with one of the explanatory variables, specifically country of birth. Consequently, by including this variable in the estimations, partial control was achieved for the selection into intermarriage based on country of birth.

By examining the equation of selection into intermarriage (the first stage of the 2SLS), it was inferred that Luxembourg, being a small and internationally well-connected country with continuous population flows, possesses a marriage market that extends beyond its borders.

The results of the 2SLS analysis are available on request.

4.5 Dataset description

I used the dataset from the Income and Living Conditions/Panel Socio Economic Liewen zu Lëtzebuerg (EU-SILC PSELL) survey.[16] This was retrieved at the Luxembourg Institute of Socio-Economic Research (LISER). This survey has been conducted in Luxembourg every

[16] The number of those who reported being born outside Luxembourg but who did not report a year of arrival is negligible (about 11 observations), and they were dropped from the analysis.

year since 2003. I used the waves from 2011 and 2013, because only these two contain a question on overall life satisfaction. Our sample consists of 5 199 individuals, aged between 18 and 65, (quasi) married and foreign born. That is, those who stated they were born outside Luxembourg and who reported a year of arrival as first-generation foreign born people (wave 2011 and 2013), [17] as well as those who were born in Luxembourg to a foreign born parent, namely second-generation foreign born. Information on parents' place of birth was present only for year 2011 people (from the 2011 wave only: 267 men and 313 women). Table 4.1 presents the descriptive statistics.

Initially, nearly 23 percent of foreign born women are married to a Luxembourger man (627/2744), while around 19 percent of them are married to another foreign born person (517/2744). Some 17 percent of foreign born men are married to a Luxembourger woman (411/2455), while 20 percent are married to a foreign born partner (494/2455). The average life satisfaction is the highest for intermarried women (7,94) and the lowest for men intermarried to another foreign women (7,43).

Foreign born men and women married to foreign born partners have higher percentages of tertiary education (around 46 and 41 percent, respectively), while endogamously married men and women have higher percentages of primary education (nearly54 and 58 percent, respectively). Moreover, intermarried men and women are older on average (48 and 49 years old, respectively), while the youngest are foreign born women intermarried to another foreign born partner, and endogamous women (nearly 44 years old).

[17] Other waves did not contain a question about the parents' place of birth; the 2013 wave does not contain second generation immigrants.

Table 4.1: Descriptive Statistics. Foreign born in a marriage/marriage-like union in Luxembourg

	Women						Men					
	Endogamous (N= 1600)		Intermarried to Luxembourger (N=627)		Intermarried to other (N=517)		Endogamous (N=1550)		Intermarried to Luxembourger (N=411)		Intermarried to other (N=494)	
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Life satisfaction	7,44	1,86	7,94	1,60	7,63	1,77	7,49	1,84	7,81	1,68	7,43	1,92
Education level												
Primary	0,58		0,36		0,28		0,54		0,30		0,28	
Secondary	0,22		0,39		0,31		0,23		0,39		0,26	
Tertiary	0,20		0,25		0,41		0,23		0,31		0,46	
Average age	43,95	10,90	47,97	10,85	43,77	10,62	46,62	10,82	49,37	10,99	47,47	10,99
YSM categories												
0-5	0,12		0,04		0,14		0,10		0,04		0,11	
6-10	0,27		0,12		0,30		0,25		0,08		0,26	
11-15	0,11		0,08		0,14		0,11		0,08		0,15	
>15	0,42		0,52		0,42		0,44		0,53		0,48	
ysm=.	0,07		0,24		-		0,09		0,27		0,00	
Place of birth												
Luxembourg	0,07		0,24		-		0,09		0,26		-	
Portugal	0,51		0,09		0,14		0,48		0,13		0,19	
Bordering countries	0,18		0,38		0,44		0,17		0,35		0,38	
Italy	0,04		0,04		0,03		0,04		0,10		0,14	
Other Europe	0,10		0,10		0,13		0,11		0,06		0,13	
Other countries	0,11		0,15		0,26		0,12		0,09		0,17	
Marriage												
First	0,83		0,75		0,70		0,83		0,70		0,69	
Second or third	0,05		0,14		0,10		0,06		0,11		0,14	
Cohabitation	0,12		0,12		0,19		0,11		0,19		0,17	
Years of partnership	19,35	12,79	20,23	14,19	15,48	12,56	19,44	13,12	18,91	13,82	15,81	12,76
Employment status	0,60		0,47		0,59		0,73		0,68		0,73	
Disposable income	65,18	38,85	83,85	80,31	78,12	48,97	65,08	41,75	78,73	39,75	76,68	44,57
Home ownership												
Renter	0,37		0,11		0,29		0,36		0,14		0,32	
Owner	0,13		0,43		0,19		0,14		0,34		0,20	
Mortgage	0,50		0,47		0,52		0,50		0,53		0,48	
Number of children	1,47	1,15	1,19	1,14	1,51	1,11	1,46	1,16	1,12	1,09	1,43	1,12

Source: http://dataservice.liser.lu/en_US/dataservice/

Table 4.1: Descriptive Statistics. Foreign born partners in a marriage/marriage-like union in Luxembourg (continuation)

	Women						Men					
	Endogamous (N= 1600)		Intermarried to Luxembourger (N=627)		Intermarried to other (N=517)		Endogamous (N=1550)		Intermarried to Luxembourger (N=411)		Intermarried to other (N=494)	
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Subjective health												
Very good	0,20		0,20		0,31		0,20		0,23		0,23	
Good	0,46		0,52		0,46		0,49		0,48		0,50	
Good enough	0,23		0,22		0,16		0,21		0,23		0,20	
Bad	0,11		0,07		0,07		0,11		0,06		0,06	
2013	0,29		0,22		0,33		0,25		0,22		0,29	
Trust	0,84		0,90		0,85		0,87		0,87		0,85	
Equal												
no	0,47		0,46		0,47		0,50		0,43		0,48	
yes	0,42		0,48		0,42		0,44		0,53		0,44	
(=.)	0,11		0,06		0,12		0,06		0,04		0,08	
Age categories												
18-35	0,26		0,14		0,25		0,17		0,11		0,14	
36-50	0,45		0,45		0,49		0,47		0,43		0,47	
>50	0,29		0,41		0,26		0,36		0,46		0,38	
Honeymoon	0,08		0,09		0,14		0,08		0,12		0,12	
Income quintile												
1	0,21		0,10		0,15		0,23		0,12		0,16	
2	0,31		0,17		0,22		0,29		0,16		0,22	
3	0,21		0,25		0,20		0,21		0,21		0,19	
4	0,14		0,25		0,20		0,14		0,28		0,19	
5	0,13		0,23		0,23		0,12		0,22		0,23	
Spouse's birth place												
Luxembourg	0,02		-		-		0,03		-		-	
Portugal	0,52		-		0,20		0,49		-		0,13	
Bordering country	0,19		-		0,35		0,19		-		0,43	
Italy	0,05		-		0,13		0,05		-		0,03	
Other European	0,11		-		0,13		0,12		-		0,13	
Other countries	0,11		-		0,18		0,13		-		0,28	
Spouse's education												
Primary	0,56		0,26		0,30		0,58		0,34		0,29	
Secondary	0,21		0,45		0,27		0,21		0,47		0,28	
Tertiary	0,23		0,28		0,44		0,20		0,19		0,42	

Source: http://dataservice.liser.lu/en_US/dataservice/

The intermarried show the highest proportion of those with the most years since migration, with around 53 percent of men and women having spent at least 15 years in the country. When looking at the country of origin, those with the highest proportion of endogamous marriages are the Portuguese (51 and 48 percent for women and men, respectively). The highest proportion of those intermarried to a Luxembourger come from bordering countries, at 38 and 35 percent for women and men, respectively. Women and men from bordering countries also make up the largest proportion of those intermarried to other foreign born people, at 44 and 38 percent for women and men, respectively.

Those with the lowest employment rate are intermarried women (at 47 percent), while they have the largest total disposable income (83 858 euros per annum). The highest employment rate is for the foreign born men married to another foreign born partner, and those in endogamous unions (at 70 percent), while their total disposable income is 73 684 and 65 080, respectively. Further, when looking at the home ownership status, the highest proportion of those who own a home without a mortgage are intermarried women, at 40 percent, followed by intermarried men, at 34 percent. The largest proportion of renters are endogamously married women and men, at 37 and 36 percent, respectively.

When looking at subjective health, those who report "good" or "very good" health are the highest for women intermarried to another foreign born partner (77 percent). Lastly, when looking at the equality of life satisfaction within couples, they are largely similar. Intermarried men have the lowest proportion, at 43 percent, while endogamous men have the highest at 50 percent.

4.6 Results

Table 4.2 reports the first set of results. Model 1 shows the life satisfaction premium of intermarriage for foreign born men and women. In the first column, can be seen that being intermarried is related to an increase in the life satisfaction of women of 0,16 points, and 0,03 for men. However, the coefficient for men is not statistically significant, while for women it is just significant. These finding confirm our first hypothesis that intermarriage is positively related to LS (H1) for women, while I did not find evidence for this among men. Since the premium is much larger for women than it is for men, this also confirms our second hypothesis that women's life satisfaction would be particularly favored by intermarriage (H2).

Furthermore, once I include the second level of intermarriage (marriage to another foreign born person) in Model 2, I can see that being intermarried to another foreign born person is related to a penalty in LS (-0,28), which also has a high level of statistical significance in the case of men. This finding confirms our third hypothesis: that intermarriage to a native is more favorable to LS than intermarriage to another foreign born person (H3).

Moving on to Model 3, it introduces the proxy for social capital "trust," as well as its interaction with intermarriage. The coefficient for social capital shows a positive and highly significant effect for men and women, at 0,6 and 0,93 points, respectively. While the interaction with intermarriage is not significant for men, it is significant for women, and the interaction term with intermarriage to another foreign born person is significant in both cases. Once I test the statistical significance of the joint effect (0,34-0,66 for women and 0,21-0,56 for men), it is statistically significant: the net effect of intermarriage to a foreign born partner is a penalty of 0,22 for women and 0,35 for men, while that of intermarriage to a Luxembourger is not statistically significant.

Table 4.2: Life satisfaction and intermarriage of foreign born people in Luxembourg

	Model 1		Model 2		Model 3	
Satisfaction	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Intermarried	0,16*	0,03	0,12	-0,05	0,69***	0,36
	(0,08)	(0,09)	(0,09)	(0,10)	(0,23)	(0,28)
Intermarried a foreign-born			-0,12	-0,28***	0,34	0,21
			(0,10)	(0,10)	(0,21)	(0,25)
Education						
Secondary	-0,03	0,07	-0,03	0,08	-0,04	0,08
	(0,09)	(0,10)	(0,09)	(0,11)	(0,09)	(0,10)
University	0,06	0,20*	0,06	0,23*	0,03	0,22*
	(0,10)	(0,12)	(0,10)	(0,12)	(0,10)	(0,12)
Age	-0,02	-0,08**	-0,02	-0,07**	-0,01	-0,07**
	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)
Age2/1000	0,07	0,92**	0,07	0,91**	0,00	0,92**
	(0,31)	(0,37)	(0,31)	(0,37)	(0,31)	(0,37)
YSM categories						
6-10	0,02	0,07	0,03	0,08	0,05	0,08
	(0,13)	(0,15)	(0,13)	(0,15)	(0,13)	(0,15)
11-15	0,05	0,15	0,05	0,16	0,09	0,16
	(0,15)	(0,17)	(0,15)	(0,17)	(0,14)	(0,17)
>15	0,29**	0,22	0,3**	0,23	0,33**	0,23
	(0,14)	(0,16)	(0,14)	(0,16)	(0,14)	(0,16)
ysm=.	0,80*	0,43	0,78*	0,45	0,78*	0,48
	(0,41)	(0,30)	(0,41)	(0,33)	(0,44)	(0,33)
Birth country						
Portugal	0,27	-0,12	0,24	-0,09	0,23	-0,05
	(0,41)	(0,28)	(0,42)	(0,32)	(0,45)	(0,32)
Bordering country	0,65	0,04	0,65	0,11	0,60	0,14
	(0,41)	(0,28)	(0,41)	(0,31)	(0,44)	(0,32)
Italy	0,55	-0,05	0,53	0,07	0,49	0,09
	(0,42)	(0,28)	(0,43)	(0,32)	(0,45)	(0,32)
Other European country	0,91**	0,15	0,90**	0,21	0,83*	0,22
	(0,42)	(0,29)	(0,42)	(0,32)	(0,45)	(0,32)
Other countries	0,60	-0,22	0,60	-0,16	0,58	-0,14
	(0,41)	(0,29)	(0,41)	(0,32)	(0,44)	(0,32)
Marriage						
Second/third	-0,28*	0,02	-0,27*	0,04	-0,24	0,04
	(0,17)	(0,15)	(0,17)	(0,16)	(0,16)	(0,15)
Cohabitation	-0,15	-0,15	-0,14	-0,14	-0,11	-0,15
	(0,11)	(0,11)	(0,11)	(0,11)	(0,11)	(0,11)
Years of partnership	0,01	0,00	0,01	0,00	0,01	0,00
	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
Number of children	-0,01	0,02	-0,01	0,02	-0,02	0,02
	(0,04)	(0,04)	(0,04)	(0,04)	(0,04)	(0,04)
Employment status	0,12	0,64***	0,12	0,64***	0,12	0,64***
	(0,08)	(0,13)	(0,08)	(0,13)	(0,08)	(0,12)
DI/10000	0,02***	0,02***	0,02***	0,02***	0,02***	0,02***
	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
Homeowner						
Owner	0,39***	0,41***	0,4***	0,44***	0,40***	0,44***
	(0,12)	(0,13)	(0,12)	(0,13)	(0,12)	(0,13)
Mortgage	0,35***	0,36***	0,35***	0,36***	0,34***	0,36***

(continues)

Table 4.2: Life satisfaction and intermarriage of foreign born people in Luxembourg (continuation)

Satisfaction	**Model 1**		**Model 2**		**Model 3**	
Health	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Good	-0,45***	-0,6***	-0,46***	-0,6***	-0,46***	-0,59***
	(0,08)	(0,08)	(0,08)	(0,08)	(0,07)	(0,08)
Good enough	-1,01***	-0,96***	-1,02***	-0,96***	-1,00***	-0,95***
	(0,10)	(0,11)	(0,10)	(0,11)	(0,10)	(0,11)
Bad	-2,00***	-2,17***	-2,01***	-2,17***	-1,98***	-2,15***
	(0,17)	(0,18)	(0,17)	(0,18)	(0,17)	(0,18)
2013	-0,26***	-0,33**	-0,26***	-0,33***	0,12	-0,11
	(0,07)	(0,08)	(0,07)	(0,08)	(0,08)	(0,10)
Trust					0,93***	0,60***
					(0,14)	(0,17)
Intermarried2*trust						
Intermarried*trust					-0,66***	-0,46
					(0,23)	(0,29)
Intermarried a foreign-born partner*trust					-0,54**	-0,56**
					(0,22)	(0,25)
Constant	7,69***	8,54***	7,71***	8,52***	6,75***	7,93***
	(0,74)	(0,77)	(0,74)	(0,79)	(0,77)	(0,82)
Observations	2744	2455	2744	2455	2744	2455

Notes: Standard errors are shown in parentheses. *, **, and ***, denote that the coefficients are statistically significant at the 10%, 5%, and 1% levels, respectively. The reference category for education is primary education, for years since migration categories, it is 0 to 5 years, for country of birth it is Luxembourg, for marriage it is first marriage, for home ownership it is rent, for health it is very good health.

Table 4.2.1: Social capital and intermarriage joint effect

	Women			**Men**		
Intermarriage2 *trust	**int. term**	**net effect**	**p-value**	**int. term**	**net effect**	**p-value**
Intermarried to Lux *trust=0		0,69***	(0,23)		0,36	(0,28)
Intermarried foreign-born*trust=0		0,34	(0,21)		0,21	(0,25)
Intermarried*trust=1	-0,66***	0,03	(0,73)	-0,46	-0,10	(0,32)
Intermarried foreign born*trust=1	-0,54**	- 0,22**	(0,04)	-0,56**	-0,35***	(0,00)

This unexpected finding does not confirm our hypothesis that the social capital related to intermarriage would increase the general life satisfaction (H4), while the penalty in LS in interaction to SC when intermarried to other foreign born confirms our hypothesis that the

social capital in interaction to intermarriage to a Luxembourg national is higher than that of intermarriage to other foreign born (H4.1).

Moving on to the next models, in Table 4.3 I introduce controls for country of birth of the foreign born, an interaction term for country of birth with intermarriage, and that of the foreign born spouse. In Model 4 can be seen that the interaction between the categorical variable for country of birth and intermarriage is significant for men from other European countries who are intermarried to a Luxembourger woman, while women who are intermarried to another foreign born partner normally show a negative coefficient. This is statistically significant for women from Portugal, and just significant for women from bordering countries. In the case of men, it is significant for Portuguese men and for men from other European countries. When looking at the net effects I find that men from other European countries have a premium of intermarriage to a Luxembourg-born spouse of 0,67 points and it is statistically highly significant. This confirms our hypothesis (H5) in the case of men from other European countries, where intermarriage in interaction with origin is higher for people from recent migration countries. Interestingly, in the case of women, Portuguese women intermarried to another foreign born partner have a statistically significant penalty in LS of 0,56 points.

Next, in Model 5 I include an interaction term for the three levels of the intermarried variable and the country of birth of the spouse. The interactions do not show any statistical significance in the case of men, while those for women are highly significant if their partner is from Portugal or Italy. Moreover, when looking at the net effects, women intermarried to Portuguese men have a highly significant premium of 0,5 points, while women marrying men from other countries have a highly significant penalty of 0,04. Men also experience a penalty of intermarriage to women from other countries (of 0,3), which is statistically highly significant. These results confirm our hypothesis that intermarriage into established communities yields a premium (H6).

Table 4.3: Life satisfaction and intermarriage of foreign born people in Luxembourg. Partner characteristics

	Model 4		Model 5		Model 6	
Satisfaction	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Intermarried	0,11	-0,11	-0,45	-0,26	0,16*	-0,10
	(0,21)	(0,19)	(0,29)	(0,30)	(0,08)	(0,09)
Intermarried to a foreign-born partner	0,26	-0,54**	-0,04	-0,30***		-0,29***
	(0,20)	(0,25)	(0,09)	(0,10)		(0,10)
Birth country/Spouse birth country (Model 5)						
Portugal	0,25	-0,18	-0,85***	-0,39	0,15	-0,17
	(0,46)	(0,33)	(0,30)	(0,31)	(0,42)	(0,38)
Bordering country	0,72	0,14	-0,58*	-0,11	0,54	0,04
	(0,45)	(0,33)	(0,30)	(0,30)	(0,41)	(0,38)
Italy	0,37	0,22	-0,58*	-0,09	0,41	-0,01
	(0,47)	(0,36)	(0,32)	(0,34)	(0,43)	(0,38)
Other European country	0,88*	-0,02	-0,32	-0,21	0,83**	0,15
	(0,46)	(0,34)	(0,31)	(0,31)	(0,42)	(0,38)
Other countries	0,35	-0,19	-1,07***	-0,28	0,48	-0,22
	(0,47)	(0,34)	(0,31)	(0,31)	(0,42)	(0,38)
Intermarried2*Birth country/*Spouse birth country (Model 5 and 6)						
Intermarried*Portugal	0,10	-0,32				
	(0,31)	(0,31)				
Intermarried*Bordering	-0,21	0,14				
	(0,25)	(0,25)				
Intermarried*Italy	0,59	-0,62				
	(0,39)	(0,40)				
Intermarried*Other European	-0,05	0,78**				
	(0,31)	(0,34)				
Intermarried*Others	0,45	0,39				
	(0,31)	(0,33)				
Intermarried to a foreign-born partner*Portugal	-0,85**	0,69**	1,11***	-0,41		
	(0,34)	(0,32)	(0,29)	(0,37)		
Intermarried to a foreign-born partner *Bordering country	-0,42*	-0,04	0,45	-0,27		
	(0,25)	(0,30)	(0,28)	(0,25)		
Intermarried to a foreign-born partner *Italy	-0,39	0,18	0,73**	-0,48		
	(0,47)	(0,41)	(0,35)	(0,42)		
Intermarried to a foreign-born partner *Other European country	-0,29	0,65**	0,46	0,01		
	(0,30)	(0,33)	(0,31)	(0,32)		
Education						
Secondary	-0,03	0,07	0,06	0,08	-0,05	0,07
	(0,09)	(0,11)	(0,09)	(0,10)	(0,09)	(0,10)
University	0,04	0,22*	0,18*	0,21*	0,06	0,24**
	(0,11)	(0,12)	(0,10)	(0,11)	(0,10)	(0,12)
Age	-0,02	-0,07**	-0,02	-0,08**	-0,02	-0,06*
	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)	(0,03)
Age2/1000	0,12	0,89**	0,04	0,95**	0,05	0,78**
	(0,31)	(0,37)	(0,31)	(0,37)	(0,31)	(0,36)
YSM categories						
6-10	0,01	0,08	-0,03	0,09	0,02	0,08
	(0,13)	(0,15)	(0,13)	(0,15)	(0,13)	(0,15)
11-15	0,03	0,16	-0,01	0,18	0,00	0,12
	(0,15)	(0,17)	(0,14)	(0,17)	(0,15)	(0,16)
>15	0,29**	0,24	0,21	0,23	0,27*	0,21
	(0,14)	(0,16)	(0,14)	(0,16)	(0,14)	(0,15)
ysm=.	0,76*	0,42	0,05	0,36**	0,66	0,35

(continues)

Table 4.3: Life satisfaction and intermarriage of foreign born people in Luxembourg. Partner characteristics (continuation)

	Model 4		Model 5		Model 6	
Satisfaction	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Marriage						
Second/third	-0,28*	0,05	-0,26	0,05	-0,28*	
	(0,16)	(0,15)	(0,17)	(0,16)	(0,16)	
Cohabitation	-0,13	-0,17	-0,12	-0,16	-0,12	
	(0,11)	(0,11)	(0,11)	(0,11)	(0,11)	
Years of partnership	0,01	0,01	0,08	0,00	0,07	
	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	
Dependent children	0,00	0,02	0,01	0,02	0,00	
	(0,04)	(0,04)	(0,04)	(0,04)	(0,04)	
Employment status	0,13	0,67***	0,11	0,64***	0,13	0,64***
	(0,08)	(0,12)	(0,08)	(0,13)	(0,08)	(0,12)
Disposable income/10000	0,02***	0,02***	0,02***	0,03***	0,02***	0,02***
	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
Home owner						
Owner	0,39***	0,40***	0,39***	0,44***	0,38***	0,43***
	(0,12)	(0,13)	(0,12)	(0,13)	(0,12)	(0,13)
Mortgage	0,35***	0,35***	0,34***	0,36***	0,33***	0,35***
	(0,09)	(0,09)	(0,09)	(0,09)	(0,09)	(0,09)
Health						
Good	-0,46***	-0,59***	-0,45***	-0,6***	-0,45***	-0,56*
	(0,08)	(0,08)	(0,08)	(0,08)	(0,07)	(0,08)
Good enough	-1,03***	-0,96***	-1,02***	-0,96***	-0,98***	-0,9***
	(0,10)	(0,11)	(0,10)	(0,11)	(0,10)	(0,11)
Bad	-2,02***	-2,15***	-2,02***	-2,15***	-1,96***	-2,1***
	(0,17)	(0,18)	(0,17)	(0,18)	(0,17)	(0,18)
2013	-0,25**	-0,32*	-0,26***	-0,32***	-0,22***	-0,22**
	(0,07)	(0,08)	(0,07)	(0,08)	(0,08)	(0,09)
Equal						
yes					0,46***	0,5***
					(0,07)	(0,07)
missing					0,23*	0,02
					(0,12)	(0,15)
Constant	7,82**	8,57***	8,83***	8,86***	7,50***	8,04***
	(0,75)	(0,78)	(0,66)	(0,76)	(0,74)	(0,80)
Observations	2744	2455	2744	2455	2744	2455

Notes: Standard errors are shown in parenthesis. *, **, and ***, denote that the coefficients are statistically significant at the 10%, 5%, and 1% levels, respectively. The reference category for education is primary education , for years since migration categories it is 0 to 5 years, for country of birth it is Luxembourg, for marriage it is first marriage, for home ownership it is rent, for health it is very good health.

Table 4.3.1: Birth country and intermarriage joint effect

	Women			Men		
Intermarried (IM)*Birth place	**int. term**	**Net effect**	**P-value**	**int. term**	**Net effect**	**P-value**
IM		0,11	(0,21)		-0,11	(0,19)
IM*Portugal	0,10	0,21	(0,36)	-0,32	-0,43*	(0,07)
IM*Bordering	-0,21	-0,10	(0,48)	0,14	0,02	(0,88)
IM*Italy	0,59	0,70**	(0,04)	-0,62	-0,74**	(0,03)
IM*Other European	-0,05	0,05	(0,81)	0,78**	0,67**	(0,02)
IM*Others	0,45	0,56**	(0,02)	0,39	0,28	(0,30)
IM to foreign-born *Portugal	-0,85**	-0,59**	(0,03)	0,69**	0,15	(0,45)
IM to foreign-born *Bordering country	-0,42*	-0,16	(0,24)	-0,04	-0,58***	(0,00)
IM to foreign-born *Italy	-0,39	-0,13	(0,76)	0,18	-0,36	(0,28)
IM to foreign-born *Other European	-0,29	-0,03	(0,89)	0,65**	0,11	(0,60)
IM to foreign-born *Other	0,26	0,26	(0,20)	-0,54**	-0,54**	(0,03)

Table 4.3.2: Birth country and intermarriage joint effect

	Women			Men		
Intermarried(IM)*Spouse birth place	**int. term**	**Net effect**	**P-value**	**int. term**	**Net effect**	**P-value**
IM to lux		-0,45			-0,26	
IM to foreign-born *Portugal	1,11***	0,50***	(0,01)	-0,41	-0,52*	(0,09)
IM to foreign-born *Bordering country	0,45	-0,16	(0,31)	-0,27	-0,38**	(0,01)
IM to foreign-born *Italy	0,73**	0,12	(0,65)	-0,48	-0,59	(0,12)
IM to a foreign-born *Other European	0,46	-0,15	(0,46)	0,01	-0,10	(0,70)
IM to foreign-born *Other	-0,04	-0,04***	(0,01)	-0,30***	-0,30***	(0,60)

4.6.1 Sensibility analysis

In order to verify if the results change when the control variables use a different measurement, I included alternative measurements of the control variables as follows: I included an interaction term between LS and equality in LS within the couple to account for a joint effect. Moreover, as the literature suggests a U-shaped relationship between age and life satisfaction (Frijters and Beaton, 2012), I identified three age categories in which life satisfaction differs on average: 18–34, 35–50, and 50–65. I included this as an alternative measurement of age and age2/1000 in the regression. As the marriage premium of life satisfaction generally peaks within two years and decreases to "regular" levels (Zimmerman and Easterlin, 2006), I included a binary variable to indicate whether the marriage is in a

honeymoon phase or not. Moreover, I created categories for each quintile of the total disposable income distribution and included this as an alternative measurement to total disposable income.

To rule out the possibility that the spouse's education, as opposed to their country of birth, is driving the results, I used the spouse's education as an alternative to spouse's country of birth. The results are shown in Tables 4.4 and 4.4.1.

In Model 7, it can be seen that the interaction term is statistically roughly significant for intermarried women when there is equality, while for intermarried men, it is highly significant if the spouse did not report it. Moreover, the net effect is highly significant for the same categories. For women, the net effect of intermarriage became larger and more significant (with respect to Model 1). This is also the case for men, where it became much larger in respect to Model 1 when the LS satisfaction was not reported by the spouse. Since the spouse might not have reported the LS for several reasons, I am tentatively inferring it is because the LS is exceptionally high, which is why the wife did not report it. This is correlated to the LS of the partner, when he is intermarried to a Luxembourger woman.

Continuing with Model 8, when alternative measurements of the control variables are included, the coefficient for women became slightly smaller compared with Model 1 (from 16 to 13) and it also lost its statistical significance, which was already at the 10 percent level, although it remained fairly close to having significance (p =1,63). In the case of men, compared with Model 2 the coefficient increased slightly (from -0,28 to 0,30) and the statistical significance was not affected. Further, in Model 9 the interactions with intermarriage and the spouse's education are not significant in any of the cases. The net effect is significant only in the case of women when they are intermarried to a foreign born partner with university education. The same applies for men; however, it is only roughly significant in this case.

Table 4.4: Life satisfaction and intermarriage of foreign born people in Luxembourg. Sensibility analysis (continuation)

	Model 7		Model 8		Model 9	
Satisfaction	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Disposable income/10000 / income quintile (Model 8)	0,02*** (0,01)	0,022*** (0,01)	0,11 (0,11)	0,08 (0,12)	0,02*** (0,01)	0,02*** (0,01)
Third			0,26** (0,12)	0,18 (0,12)		
Fourth			0,34*** (0,12)	0,20 (0,13)		
Fifth			0,41*** (0,12)	0,41*** (0,13)		
Home owner						
Owner	0,38*** (0,12)	0,39*** (0,13)	0,36*** (0,12)	0,49*** (0,13)	0,40*** (0,12)	0,43*** (0,13)
Mortgage	0,33*** (0,09)	0,34*** (0,09)	0,30*** (0,09)	0,32*** (0,09)	0,35*** (0,09)	0,35*** (0,09)
Health						
Good	-0,45*** (0,07)	-0,56*** (0,08)	-0,45*** (0,08)	-0,59*** (0,08)	-0,44*** (0,08)	-0,60*** (0,08)
Good enough	-0,98*** (0,10)	-0,90*** (0,11)	-1,01*** (0,10)	-0,96*** (0,11)	-0,99*** (0,10)	-0,96*** (0,11)
Bad	-1,96*** (0,17)	-2,10*** (0,18)	-2,00*** (0,17)	-2,21*** (0,18)	-1,99*** (0,17)	-2,17*** (0,18)
2013	-0,22*** (0,08)	-0,22** (0,09)	-0,26*** (0,07)	-0,33*** (0,08)	-0,25*** (0,07)	-0,33*** (0,08)
Spouse's education						
Secondary					0,05 (0,12)	0,06 (0,13)
University					0,31** (0,14)	0,09 (0,14)
Spouse's education*intermarried=1						
Secondary					-0,03 (0,21)	-0,08 (0,22)
University					-0,05 (0,21)	0,12 (0,25)
Spouse's education*intermarried=2						
Secondary					-0,04 (0,24)	-0,09 (0,28)
University					-0,27 (0,21)	0,04 (0,24)
Equal						
Yes	0,40*** (0,08)	0,49*** (0,08)				
Missing	0,18 (0,13)	-0,10 (0,16)				
Intermarried*Equal						
Intermarried* yes	0,25* (0,15)	0,05 (0,18)				
Intermarried *missing	0,27 (0,24)	0,98*** (0,32)				
Constant	7,60*** (0,73)	8,14*** (0,78)	7,26*** (0,45)	7,28*** (0,38)	7,61*** (0,74)	8,50*** (0,78)
Observations	2744	2455	2744	2455	2744	2455

Notes: Standard errors are shown in parenthesis. *, **, and *** denote that the coefficients are statistically significant at the 10%, 5%, and 1% levels, respectively. The reference category for education is primary education, for years since migration categories it is 0 to 5 years, for country of birth it is Luxembourg, for Marriage it is first marriage, for home ownership it is rent, for health it is very good health.

Table 4.4.1: Spouse's education, equality of LS and intermarriage joint effect

	Women			Men		
Intermarried*Equal	**int. term**	**Net effect**	**P-value**	**int. term**	**Net effect**	**P-value**
IM *Equal	0,25*	0,27***	(0,01)	0,05	-0,03	(0,76)
IM*missing	0,27	0,29	(0,16)	0,98***	0,84***	(0,01)
Intermarried*Spouse education						
IM*primary	0,16	0,16	(0,35)	-0,03	-0,03	(0,84)
IM*Secondary	-0,03	0,13	(0,31)	-0,08	-0,12	(0,41)
IM*University	-0,05	0,11	(0,40)	0,12	0,07	(0,65)
IM to a foreign-born partner*primary	0,00	0,00	(0,99)	-0,27	-0,27	(0,18)
IM to a foreign-born partner *Secondary	-0,04	-0,04	(0,82)	-0,09	-0,38	(0,06)
IM to a foreign-born partner *University	-0,27	-0,26**	(0,04)	0,04	-0,22*	(0,07)

4.7 Conclusions

In this article, the main objective is to disentangle the effect of intermarriage on the life satisfaction of the foreign born in Luxembourg. There are many concerns that drove me to focus on the analyzed context. These include the growing number of intermarriages compared with the decreasing trend of total marriages, the stagnating life satisfaction level at the country level in spite of the prosperous economy, and more importantly, the gap in life satisfaction between natives and foreign born. The latter evidences the need to increase the level of life satisfaction for a highly mobile and skilled labor force, on which the economy is highly dependent.

I encountered a number of different limitations when realizing this study. The weakness of the conventional instruments for the endogeneity of intermarriage in the Luxembourgish context did not allow for obtaining causal results. Moreover, the limited number of observations restricted me to perform more in depth analyses and the limited availability of the datasets containing relevant information. In this regard, I could only include two waves out of the existing 17, due to the fact that questions on life satisfaction were not asked at every wave, and the access to waves from 2016 onwards is extremely restricted and distributed by a

different entity (STATEC). An improvement in the future would be the inclusion of more waves of the same dataset. Furthermore, information for the country of birth of parents was available only for the 2011 wave. As a result, I could only identify the second-generation foreign born people in this wave and the results maybe less rich for this category, due the small number of second-generation foreign born people.

Another potential limitation is related to the external validity of the findings. Luxembourg is a particular country in terms of size and context, hence it may appear difficult to extrapolate these results elsewhere. However, a similar case exists in Switzerland, or even Brussels in Belgium and other cosmopolitan cities in Europe that reflect the context of a small multilingual country, with an extremely high proportion of foreign born residents and a prosperous economy. Accordingly, our results could potentially be extrapolated to Switzerland or even to Belgium (Helbling, 2008). Another limitation is the possibility that the analyzed sample could also be positively selected because unsuccessful couples could either divorce or return home, and therefore would not be included in the sample (Borjas and Bratsberg, 1996).

Nonetheless, despite the limitations, I performed the analyses and obtained the following results: I can confirm that intermarriage with a Luxembourg national is related to an increase in life satisfaction for foreign born women of 0,16 points, compared with endogamous marriages; however, this is only roughly statistically significant. In the case of men, this is highly significant only when considering the joint effect with equality of LS within the couple and only in the case that the spouse did not report it — the premium in that case is 0,98 points and it is highly significant. Moreover, foreign born men from other European countries also experience a significant and positive premium of intermarriage to natives of 0,67 points. This result is in line with the self-expansion theory and productivity theory that intermarriage increases life satisfaction for both women and men. It is also important to note that while 0,16

and 0,67 points might not seem large values, the average life satisfaction is 7,6, with an average variation of 1,8 points, hence 0,16 and 0,67 points for a range of 7,6 ±1,8 is relatively large.

Furthermore, the relationship of intermarriage to a foreigner of a different nationality to LS proved to be negative for men (-0,28). When the interaction with social capital was considered, the penalty also became significant for women (-0,22) while it increased for men (-0,35). I infer that this may be due to the fact that the social capital driven by intermarriage to another foreign born person might be related to bonding, as opposed to bridging, which has been shown to have a negative association to LS (Chu, et al., 2018). Moreover, the intermarriage to a foreigner of a different nationality might lead to self-expansion in a way that is negatively related to LS when compared to the self-expansion of endogamous counterparts.

Nonetheless, a foreign woman intermarrying a Portuguese man experiences an increase in LS of 0,5 point. This premium is larger and statistically more significant than intermarriage to a native, probably because the community of Portuguese nationals is well established in Luxembourg. This can favor the self-expansion of another foreign woman because the experience of the Portuguese spouse is specialized in integrating. By contrast, a native partner may have a broader knowledge, but this does not necessarily mean that it is tailored to what would increase the self-efficacy of a foreign born woman. This aspect is not statistically significant for men, it could be because women generally adapt more than men (Uhlich et al., 2020). Moreover, another explanation might lie in the subjective nature of LS, such that it depends on how a person compares to others and the intermarriage to a native might mean that the foreign born compares herself/himself to natives as opposed to another foreign, and as natives generally have a better situation, that might mean that the foreign born perceives her situation to be worse than it would be if she was comparing to another foreign born. Moreover, a Portuguese woman marrying out of the Portuguese community experiences a penalty in life

satisfaction of 0,59 points, which could confirm the general conclusion for foreign women marrying a Portuguese man.

The exercise including the education of the spouse did not lead to significant findings, hence, I believe the factor of educational level of the spouse does not lead the results.

5 Summary of the results

In this concluding part of the dissertation, I contemplate the thesis in its entirety. I elucidate the findings, limitations, and implications, as well as the potential for future research.

The purpose of this thesis was to find causal effects of intermarriage between a foreign born person and a native on different domains of the foreign born partner's integration in the receiving country. This was carried out by anchoring the hypotheses to a combination of strands of the literature on the intermarriage premium in connection with multidimensional integration. This converges with psychology literature concerning self-efficacy and self-expansion.

Intermarriage is understood both by economists as a proxy for the integration of the foreign born, and by social scientists as the final stage of assimilation. However, a notable body of literature analyzes intermarriage as a mechanism that favors and accelerates the integration of foreign born people in the receiving country (see, among others, Kantarevic, 2004; Meng and Gregory, 2005; Meng and Meurs, 2009; Gevrek, 2009). Intermarriage to a native could improve the language proficiency, expand native networks, and give access to local-specific knowledge. This can increase the integration of the foreign born person in different domains, and would translate into economic and non-economic gains, reflecting better employment outcomes and higher salaries, as well as increased LS.

The aim of the first chapter of the thesis was to analyze the effects of intermarriage and endogamous marriage, compared with being single, on different dimensions of the employment of foreign born women in Italy. This first involves the extensive margin of employment, which is treated as binary equal to one if the woman is employed and zero if she is not. Second, I assess the effect of intermarriage on the intensive margin of employment, taken as the average working hours (this measurement is continuous). Third, I further analyze the effect of intermarriage on a proxy of underemployment; that is, for women who are working on average

30 hours or less in a regular week and would like to work more hours but cannot, due to either not finding a job with more hours of work, or not being able to choose to work for more hours in their current job. This variable is defined only for working women who work on average 30 hours a week or less.

In the second chapter of the thesis, the aim was to analyze the effect of intermarriage on the salaries of foreign born women in Italy. In this, I account for self-selection into employment, as well as for self-selection into intermarriage. This time, I compare intermarried women with foreign born women in an endogamous marriage.

In the third chapter of this thesis, the aim was to analyze the effect of intermarriage on the general life satisfaction of foreign born men and women in Luxembourg. In this case, the analysis is further enriched by considering intermarriages between two foreigners of different origin than their own as a separate category.

Although several previous studies have examined intermarriage effects in the labor market, they have mainly focused on men, and in northern European countries, the USA, and Australia. Hence, intermarriage effects in the different domains of the labor market of foreign born women in southern European countries have not been studied. The first two chapters of the thesis complement the existing literature, by analyzing the effects of intermarriage on employment outcomes (employment status, hours of work, underemployment, and wages), while accounting for the endogeneity of intermarriage and self-selection into employment of foreign born women in Italy. In terms of the intermarriage premium, this is an under-researched country in which there is substantial feminization of immigration, and where limited integration policies are in place (MIPEX, 2022). In this context, intermarriage to a native may possibly be the one strategy that yields integration.

The third chapter of the thesis uncovers the relationship between intermarriage and the general life satisfaction of foreign born men and women in Luxembourg. In the existing body of literature, the effects of intermarriage are mainly explored in relation to labor market outcomes. Nevertheless, other domains could also be affected via the mechanisms through which intermarriage affects labor market outcomes (the expansion of networks, enhancing language proficiency, and local-specific knowledge). Since the literature on the intermarriage premium has focused on labor market outcomes, other areas remain under-researched (see, among others, Kantarevic, 2004; Meng and Gregory, 2005; Meng and Meurs, 2009; Gevrek, 2009). My contribution complements existing literature dealing with the intermarriage premium by unravelling a holistic effect of intermarriage that is not visible in labor market outcomes — that is, the intermarriage premium related to the general life satisfaction of the foreign born in the specific context of Luxembourg.

The results are reviewed as follows.

5.1 The effect of intermarriage on being employed

In the first part of the analyses on the effects of intermarriage and endogamous marriage (compared with single women) on employment outcomes. The approach was to first estimate the relationship between intermarriage and employment in terms of its extensive measurement; that is, binary (employed or not). The raw results showed both types of marriages have negative and statistically significant correlations to employment: -42,6 for intermarriage and -46,3 percentage points for endogamous marriage. Moreover, the coefficients decreased with the inclusion of additional variables (to -36,9 for endogamous and -43,7 percentage points for intermarried). These results are statistically significant when the comparison category is with single women, as well as when comparing the difference between the coefficients for intermarried couples and those in an endogamous marriage (-6,8 percentage points). The results

of the linear probability model were confirmed by nonlinear estimations, through logit and probit regressions. In each of the models, the marginal effects of intermarriage and endogamous marriage on employment, with respect to the average, are very similar to those obtained in the LPM.

The estimations resulting from the LPM could, however, be biased if the effect of intermarriage is spurious because of self-selection, omitted variables, or reverse causality. Hence, instrumental variables were used in order to deal with the potential bias deriving from the endogeneity of intermarriage. Compared with the LPM models, the inclusion of the instruments lead to higher coefficients for both of the unions than for single women. Being intermarried relates to a large and significant penalty in employment (-114 percentage points) and the coefficient of an endogamous union also indicates a penalty (-46,1 percentage points). The difference between the two coefficients is statistically significant and equals nearly -70 percentage points of penalty related to intermarriage compared with women in an endogamous marriage.

Moreover, the increase in the penalty with regard to the LPM estimations could indicate that there are unobserved variables biasing the previous results upwards, contemporaneously affecting intermarriage and employment positively. The intermarriage coefficient corroborates the first hypothesis — that intermarriage has a negative effect on employment — and goes in the opposite direction to the results commonly found for men.

It may be that the negative effect of marriage — endogamous or intermarriage — on the extensive margin of employment stems from a negative effect of the husbands' income or possibly from attitudes concerning the employment of women. It may also be a result of economic pressure related to credit constraint that could be alleviated by the partner's homeownership. In order to assess if this is the case, a further exercise was carried out by

including the logarithm of the husband's salary, a simulated proxy for the dominant attitudes to the employment of women (held by the partner and the wife), and the partner's homeownership status.

The findings show that there was still a negative and significant coefficient of intermarriage compared with endogamous women. The husbands' earnings do seem to have a negative effect on the employment of women in the sample, and this effect is larger in magnitude than that from intermarriage. Even after accounting for the proxy for attitudes toward women, the employment of foreign born women and their partners, and the partners' earnings and homeownership status, intermarriage still has a negative and significant effect on employment of -83,9 percentage points compared with endogamous married women. This corroborates the previous result and indicates that the results of the main analysis are robust and hold, even after accounting for additional characteristics that could potentially absorb the effect of intermarriage itself.

5.2 The effect of intermarriage on employment intensity (worked hours)

It is possible that the type of marriage (intermarriage or endogamous) also affects the intensive margin of employment; that is, the number of hours working. In this regard, it has been argued that one of the strategies for integration is that the secondary earner, often the wife, takes a job working long hours in order to finance the integration of the family member with the higher earnings potential, in this case the husband (Blau et al., 2003). Since intermarried women are assumed not to be credit constrained, they do not need to take up this strategy for their husbands to integrate. Hence, it may be crucial to analyze intermarriage in relation to the intensive margin of employment. With regard to the impact of intermarriage on labor intensity, we accordingly used a hurdle estimation model, accounting for the corner solution, in which the hours worked are zero for a considerable proportion of the studied sample. The results of

the analyses show that there is a significant and negative effect of marriage on the working hours of women, and that marriage is the most significant determinant of working hours, as the other control variables do not show similar magnitudes of statistical significance. Endogamous married women work on average 15 hours fewer per week than single women, while intermarried women work nearly 17 fewer hours per week than single women. The difference between the coefficients for intermarried and endogamous married women is nevertheless not statistically significant. Therefore, the effect of the type of marriage is not significantly different from zero; both types of unions have a similar penalty on employment intensity with respect to single women.

5.3 The effect of intermarriage on underemployment

Foreign bornwomen are assumed to havelow bargainingpower, becauseof the specific labor market in Italy. This also means that foreign born women have less freedom over the decision about how manyhours to work(Andall, 1992). Moreover, assumingthat intermarriage to a native could signal higher status, and in turn a less vulnerable position, this could favor the bargaining power of foreign born women by decreasing the underemployment rate.

We accordingly analyzed the relationship of intermarriage to underemployment. Underemployment here is a binary variable indicating a person who works 30 hours a week or less, and who want to work more but cannot find a job offering more working hours, or cannot work more hours in their current job. The sample in this exercise was restricted to women working30 hours or less, and who reported the reason for working these hours. LPM and probit estimation methods were used. Both estimations confirm that being in a marriage has the most significant coefficient for underemployment among all the controls that were included. Being in an endogamous marriage is related to an increase in the probability of being underemployed by nearly 8 percentage points when compared with being single, while being intermarried is

related to an increases of being underemployed by nearly 5 percentage points, again when compared with being single. However, the difference between the coefficients for endogamously married and intermarried women is statistically not significant. Hence, whilst marriage is the strongest determinant for underemployment, the difference between the type of marriage — intermarriage or endogamous marriage — is not statistically different from zero.

5.4 The effect of intermarriage on earnings

We examined the effect of intermarriage on the wages of intermarried foreign born women compared with their endogamously married counterparts in Italy. Analyzing the wage premium of intermarriage among foreign born women is methodologically challenging due to two sources of possible bias (self-selection into intermarriage and self-selection into employment). Accordingly, we used several approaches to deal with selectivity, including techniques to separately and simultaneously account for intermarriage endogeneity and employment selection bias.

The raw intermarriage premium shows that hourly earnings are 9 percentage points higher for foreign born women intermarried to a native Italian man, compared with foreign born women in an endogamous marriage. However, the wage premium disappears when other sets of controls are added to the model, and the intermarriage effect is not significant when considering intermarriage as endogenous or when taking into account self-selection into employment. The difference in earnings between intermarried and endogamous married foreign born women is thus due to the observed characteristics.

5.5 The relationship between intermarriage and life satisfaction

The last chapter of this thesis was dedicated to analyzing the causal effects of intermarriage on the general life satisfaction of foreign born residents in Luxembourg. The approach uses instruments that are correlated to the endogenous variable, intermarriage, and

uncorrelated to the outcome variable, life satisfaction. These instruments are the sex ratio and the probability of meeting a co-ethnic partner in a given census year prior to the year of marriage. The instruments proved to be weak and the application of 2SLS estimation would be biased, as the first stage revealed the instruments were statistically non-significant and the Ftest was low compared with the acceptable standards. Given this, the findings should be treated as relationships rather than causalities. Nevertheless, since the instruments that I attempted to use are those commonly applied in other studies in similar frameworks of analysis (Kantarevic, 2004; Meng and Gregory, 2005; Meng and Meurs, 2009; Gevrek, 2009; Furtado and Theodoropoulos, 2010), this exercise proves that the context is extremely important. Moreover, the level of precision of the instruments created for this exercise exceeds that of previous studies, by exploiting the age group and time of marriage. The instruments were nevertheless not strong enough, as those reflecting local marriage market conditions are too weak in such a small and highly internationally connected country with an extremely large proportion of foreign born people, meaning that the marriage market is not limited to within the borders. Although this restricted the analysis from being extended to causal findings, the resulting relationships from the analysis that did not include the instruments remain relevant and reveal a previously untold story, filling a gap in the literature. This is illustrated as follows.

The main results point to an increase in the life satisfaction of foreign born women married to a Luxembourg national of 0,16 points when compared with women in an endogamous marriage; however, this is only just statistically significant. A foreign woman intermarried to a Portuguese man experiences an increase in LS of 0,5 points. This premium is larger and highly statistically significant — in fact, larger and with a higher level of statistical significance than intermarriage to a native. A Portuguese woman intermarried to another foreign born person experiences a statistically significant penalty in LS of 0,59 points. In general, foreign born women experience a statistically significant penalty in LS related to

intermarriage to another foreign born when the joint effect with social capital is considered of -0,22 points.

In the case of men, those foreign born from other European countries experience a significant and positive premium of intermarriage to a native woman (of 0,67 points). Furthermore, once the equality of LS within the couple is considered together with intermarriage, the LS for all foreign born men resulting from intermarriage to a Luxembourg national is 0,98 points higher, and is highly statistically significant when the LS is not reported by their spouse. Furthermore, the relationship between LS and intermarriage to a foreign born person of a different nationality proved to be negative for men (-0,28). When the joint effect with social capital was considered, the penalty in LS increased for men to 0,35 points, similarly to the case for women.

5.6 Discussion of the results

This subsection is dedicated to discussing the results, interpretations, and relationships to other findings in previous literature.

The first findings reveal that for foreign born women, intermarriage results in an employment penalty of 114 percentage points compared with being single and a penalty of nearly 70 percentage points compared with women in an endogamous marriage. The penalty of intermarriage on being employed was confirmed by a robustness check, when including the partner's earnings, homeownership, and a proxy for attitudes to women's employment. These findings are in line with the results reported in previous literature (Ballarino and Panichella, 2018). Moreover, the increase in the penalty once accounting for the omitted variable bias suggests that the unobserved variables are positively correlated to the employment probability.

Hence, once the unobserved variables are accounted for, the penalty increases. This finding partly supports the family investment hypothesis (Blau et al., 2003), which posits that

women in endogamous marriages have higher employment rates than intermarried women in order to finance the integration of their husband, who is usually the spouse with the higher earnings potential. Moreover, foreign born single women differ systematically from married foreign born women, and this could be explained by the main motivation for migration — labor migration, as opposed to marriage or family migration.

The labor market pull factors for feminine immigration in Italy have a very specific structure regarding the type of jobs: domestic employment that often includes living in the employer's home (Andall, 1992; Barone and Mocetti, 2011; Bettio et al., 2016; Ballarino and Panichella, 2017). This could contribute to an extremely selective type of labor immigration, in which middle aged women make the move without their family. Hence, marriage and employment may be incompatible, due to the specific employment opportunities foreign born women find in Italy(Andall 1992; Barone and Mocetti, 2011; Bettio et al., 2016; Ballarino and Panichella, 2017).

Single, foreign born women in Italy differ remarkably from their endogamous and intermarried counterparts. First, single women do not have as many dependent children (only 0,06 dependent children on average, compared with 0,48 and 0,43 for endogamous and intermarried, respectively). Second, they report having children abroad over three times more than endogamous and intermarried women (0,4 on average, compared with 0,11 and 0,15 for endogamous and intermarried women, respectively). Lastly, single foreign born women are on average approximately 4–6 years older than their married counterparts.

With regard to the hours of work, married women are penalized regardless of the type of marriage (endogamous or intermarried) compared with single women. This could be the result of the difficulty in reconciling household duties and employment. Hence, the findings also show that compared with being single, married women have a higher probability of

experiencing underemployment. Being married appears as the strongest and the only statistically significant factor for underemployment. Azzolini and Guetto (2017) concluded that foreign born women who face greater difficulties in integrating may choose intermarriage in order to improve their situation in Italy. However, our results show that intermarried women have lower employment probabilities in Italy, and they are equally penalized relative to endogamous women in terms of hours worked and underemployment. They are also more likely to be underemployed than single women, hence they do not show an improvement in conventional ways of integration.

In the analysis of the impact of intermarriage on wages, it was found that the raw intermarriage premium on hourly earnings is a premium of 9 percentage points for foreign born women in a union with a native Italian, compared with endogamous women. However, the wage premium disappears when other sets of controls are added in the model. The intermarriage effect is not significant when intermarriage is considered as endogenous or when self-selection into employment is taken into account. The difference in earnings between intermarried foreign born women and those in an endogamous marriage is thus due to the observed characteristics of each group. A tentative explanation for this result could be that it is usually men in lower social strata who marry foreign women in Italy (Serret and Vitali, 2015; Vignoli et al., 2017). This implies that intermarried foreign born women expanding their networks through those of the native spouse would lead them only to low-paid jobs, similar to those of endogamous women. Another possible explanation is that the intermarriage premium could also be balanced out by the extra effort made by women in an endogamous marriage to invest in the integration of their families. This is in line with the credit constraint argument by Baker and Benjamin (1997).

I next look at the life satisfaction findings related to intermarriage and intermarriage to another foreign born person, compared with endogamous married foreign born men and women

in Luxembourg. The main results point to an average increase in the life satisfaction of 0,16 points for a foreign born woman intermarried to a Luxembourg national, while a foreign woman intermarried to a Portuguese man experiences an increase in LS of 0,5 points — thus larger and statistically more significant than for intermarriage to a native. A Portuguese woman intermarried to another foreign born person experiences a statistically significant penalty in LS of 0,59 points.

For men, the foreign born from other European countries experience a significant and positive premium from intermarriage to a native. For the general sample of foreign born men, intermarriage to a native Luxembourger is positive only when its joint effect with equality of LS is accounted for. Furthermore, the relationship between LS and intermarriage to a foreignborn person of a different nationality proves to be negative for men, and this increases when the interaction with social capital is considered.

These results lead to the conclusion that intermarriage between a foreign born person and a spouse from a well-established immigrant community in the receiving country may prove to be more beneficial than intermarriage to a native. As the community of Portuguese nationals has long-standing experience of integration in Luxembourg, their know-how and networks can favor the self-efficacy of another foreign born person through marriage, because their experience is specialized in integrating into the receiving country. Whereas a native may have broader knowledge, this does not necessarily mean that it increases the self-expansion or self-efficacy of a foreign born partner. This finding was not statistically significant for men, probably because men adapt less than women (Uhlich et at., 2021). The difference between the genders may therefore be because women are generally better at adapting.

In conclusion, intermarriage to another foreign born person could be more beneficial to the LS of the foreign born compared with intermarriage to a native, if the spouse's community

is of an important size and has lengthy experience that would help the self-efficacy of the foreign born. However, this result is asymmetric, because intermarriage to a foreignborn partner from a smaller and less-established community may not be beneficial, as it yields penalties in LS. Another reason related to the premium in LS could lie in the subjective nature of LS, in that it depends on how an individual perceives herself/himself relative to others, as it is the case for financial resources (Ayllón and Fusco, 2016). Intermarriage to a native may mean that the foreign born people compare themselves with natives rather than other foreign spouses, and as natives generally have higher incomes and LS, that could result in the foreign born perceiving their LS as lower than if they compared with other foreign born people.

5.7 Limitations

The results of the analysis should be interpreted in light of the following limitations: In the first step, I outline the limitations related to Chapter 1 and Chapter 2 of the thesis; that is, the analyses based on the data from Italy. In the second step, I refer to the limitations of the third chapter: the analysis of intermarriage and LS in Luxembourg and in the third step I elaborate in challenges related to all three chapters of the thesis.

For the first two chapter, one the limitations relates to the fact that the focus is on the population of foreign born women in Italy. As there are many more intermarried women than intermarried men, the extremely low number means there are not enough observations to run reliable analyses including intermarried male foreign born. Moreover, the results for women cannot be extended to the case of men.

With regard to the case of the intermarriage premium on wages, women reporting hours of work, months of work, and a salary comprise a small proportion of the population, consequently, the analyses were based on a relatively low number of observations. A larger

number could help to make the analyses more specific and reliable, and allow heterogeneity analyses to be conducted for different subgroups of foreign born women.

Another limitation concerns the lack of information about language proficiency, as this information could help in isolating the sole effect of language from the intermarriage effect and from the time since migration.

Further, in the case of the analysis of intermarriage on employment in Italy, the survey for the dataset used was conducted in 2008, a year that had an exceptionally high unemployment rate due to the financial crisis that began in 2007. The rate of unemployment could be uneven among intermarried and endogamous women, and the obtained results might have been affected by this, making it uncertain if they could be extended to other scenarios where the unemployment rate is lower.

Another limitation concerns the lack of information about the country of origin for a large number of women in the sample. This prevented matching the instrument specific to the country of birth, and means that the instrument is not linked to the specific origin but to an aggregated category that contains several countries. This in turn implies the strong assumption that for a woman married to a foreign born partner, the partner has the same origin (in other words, an endogamous marriage). However, there may be a small category of foreign born women married to another foreign born person of a different origin. With the available information, it is not possible to determine this category of women.

In addition, information concerning the time of marriage is not available, meaning that the instrument could not be linked to this date. It was therefore linked to the year of the survey, assuming that the marriage market conditions in that year reflect those of the year when the partnerships were formed.

With regard to the limitations related to Chapter 4 — the analysis of life satisfaction and intermarriage in Luxembourg — first, I could only include two waves out of the existing 17, due to the fact that questions on life satisfaction were not included in every wave. Moreover, the access to data for the waves from 2016 onward is extremely restricted and distributed by a different entity (STATEC). Although the 2018 wave contains a module that includes a question about LS, it was thus not possible to include that wave. Information about the birth country of parents was also only available for the 2011 wave, meaning that second-generation foreign born people were only identified for this year. The results are accordingly less rich for this category, due the small number of second-generation foreign born people recorded. In fact, a number of intermarried foreign born people may be married to second-generation foreign born people.

Another limitation across all the chapters is the possibility that the analyzed sample was positively selected, because unsuccessful couples could either divorce or return home and therefore would not be included in the surveys (Borjas and Bratsberg, 1996).

A further potential limitation is related to the external validity of the findings. Italy and Luxembourg are countries with very particular contexts, particularly regarding immigration history and composition; hence, it may be difficult to extrapolate these results elsewhere.

However, it is argued that the findings in Chapter 1 and Chapter 2, based on data from Italy, could mirror countries with a similar context and recent immigration history, such as Portugal, Spain, or even Malta (Bettio et al., 2006).

For Luxembourg, although the context is quite particular there may be similar realities for which the finding of the thesis could be relevant and that also deserve academic attention.

For example, Switzerland, Brussels, or other cosmopolitan cities in Europe that reflect the context of a small multilingual country with an extremely high proportion of foreign born residents and a prosperous economy, as well as well-established immigrant communities.

5.8 Implications for policy and practice

A common argument in relevant literature is that intermarriage is a means to achieve greater integration. However, the results found in this thesis indicate that intermarriage to natives may not necessarily yield better integration of foreign born people in the labor market in countries such as Italy, where the employment opportunities are of a low quality (Betio et al., 2006; Andall, 1992).

Intermarriage to a native in Italy leads to negative outcomes relative to single women and those in endogamous marriages. Foreign born women in Italy have a vulnerable position in the labor market and this does not improve with intermarriage to a native — in fact the opposite is true, in that intermarriage as an integration strategy does not lead to positive outcomes. However, single foreign born women differ from their endogamous and intermarried counterparts in many ways. The main one concerns their motivations, while another difference is in the tradeoff they face between homemaking, leisure, and market work.

Moreover, married women — endogamous and intermarried — are likely to have more dependent children, implying a different tradeoff in terms of allocating their time and homemaking duties, as well as gains from the division of labor within the household. One solution to improve the labor market outcomes of married women could be to target foreign born women of reproductive age with policies that offer work-life reconciliation, such as early education care for dependent children. Moreover, the particular sector where foreign born women are most often employed — domestic work — could also be targeted for interventions by regulating the quality of the jobs and offering women the freedom to decide if they want to

live in their employer's home. This would increase the compatibility between marriage and work, as well as improving the work-life balance.

In the case of life satisfaction and intermarriage in Luxembourg, if the positive relationship could be shown to be causal, and intermarriage to natives, as well as to Portuguese nationals has a positive effect on LS, this could be explained by enhanced self-efficacy, meaning greater capacity to build a successful and fulfilling life. Interventions could be directed toward facilitating these capacities, for example, by creating apps helping with navigation in the multilingual country, or by incentivizing connections among residents via social engagement and participation in voluntary associations and other social events (Valentova and Justiniano, 2019). If it is the integration experience of the spouse that has positive effects in self-efficacy increasing LS, then efforts could be directed at collecting information on the long-term experience of well-established foreign born communities and generating guidelines to be shared with newer waves of foreign born through easily accessible platforms, such as phone apps or social media pamphlets.

5.9 Further research

The findings in this thesis provide empirical evidence that intermarriage to a native may not yield positive labor market outcomes for foreign born women in a context similar to Italy. Moreover, intermarriage to someone from a mature and well-established foreign born community is related to an increase in LS for foreign born women that is greater than the increase related to intermarriage to a native born in Luxembourg.

These findings serve as a basis for further research into the specificities of the intermarriage premium and penalties, and the mechanisms that yield the results. Some questions that remain unanswered are related to the intermarriage penalty in employment in the case of Italy, in terms of whether this translates into more leisure time or homemaking time. In

other words, what is the effect of intermarriage for homemaking, leisure time, and generally in the satisfaction with the time use in the case of foreign born women? It would also be interesting to study how native Italian women compare with foreign born women in terms of intermarriage/marriage premiums and penalties in labor market outcomes, when the spouse has similar characteristics. Moreover, it would be enlightening to analyze the outcomes for foreign born men in the labor market related to intermarriage, as well as those of native Italian men.

Would these results hold in other Southern European countries? It would be interesting to extend the study to relevant countries with a similar context and pool of migrants — for example, Spain — in order to verify the external validity of the findings.

In the case study of Luxembourg, further research is necessary to understand the determinants of intermarriage and endogamous marriage, in order to establish the structure of the marriage market, where the locals meet potential spouses in such a particular context. Moreover, the mechanisms through which the intermarriage is related to an increase in LS to foreign born or Luxembourg native partners is an area ripe for research.

References

Adda, J., P. Pinotti, and G. Tura. (2020). There's more to marriage than love: the effect of legal status and cultural distance on intermarriages and separations. CEPR Discussion Paper No. DP14432. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3547365 Accessed 8 July 2020

ADEM. (2022). Overview of the labour market. Available online: https://adem.public.lu/en/marche-emploi-luxembourg/panorama-marche-emploi.html Accessed 30 January 2023

Aguilera, M. B. (2005). The impact of social capital on the earnings of Puerto Rican migrants. The Sociological Quarterly, 46(4), 569-592.

Aguilera, M. B. (2002). The impact of social capital on labor force participation: Evidence from the 2000 Social Capital Benchmark Survey. Social Science Quarterly 83(3), 853–874.

Alba, R.D. and Golden, R.M. (1986). Patterns of ethnic marriage in the United States. Social Forces 65(1), 202–223.

Albanese, A. and Marguerit, D. (2022). The gap in the middle: Luxembourg attracts low and high-skilled cross-border workers. Available online: https://liser.elsevierpure.com/ws/portalfiles/portal/35011915/policy_brief_06.03.pdf Accessed 27 December 2022

Alesina, A., and Giuliano, P. (2015). Culture and institutions. Journal of Economic Literature, 53(4), 898-944.

Allasino, E., Reyneri, E., Venturini, A. and Zincone, G. (2004). Labour market discrimination against migrant workers in Italy. Geneva: International Labour Organization. Available Online:

http://www.oit.org/wcmsp5/groups/public/---ed_protect/---protrav/--migrant/documents/publication/wcms_201593.pdf Accessed 25 August 2020

Allegrezza, S., Thill, G. and Peltier, F. (2015). Regards sur les électeurs potentiels. doi 10.13140/RG.2.1.2737.2240. Available online: https://www.researchgate.net/publication/282666414_Regards_sur_les_electeurs_potentiels Accessed 30 January 2023

Amit, K. (2010). Determinants of life satisfaction among immigrants from Western countries and from the FSU in Israel. Social Indicators Research, 96(3), 515–534.

Andall J (1992). Women migrant workers in Italy. Women's Studies International Forum 15(1), 41–48.

Angelini, V., Casi, L., and Corazzini, L. (2015). Life satisfaction of immigrants: does cultural assimilation matter? Journal of Population Economics, 28(3), 817-844.

Arends-Tóth, J., and F. J. Van de Vijver. (2009). Cultural differences in family, marital, and gender-role values among immigrants and majority members in the Netherlands.

International Journal of Psychology, 44(3), 161–169.

Aron, A., and Aron, E. N. (1986). Love and the expansion of self: Understanding attraction and satisfaction. Hemisphere Publishing Corp/Harper and Row Publishers.

Arpino, B., and de Valk, H. (2018). Comparing life satisfaction of immigrants and natives across Europe: The role of social contacts. Social Indicators Research, 137(3), 1163–1184.

Ayllón, S., & Fusco, A. (2017). Are income poverty and perceptions of financial difficulties dynamically interrelated?. Journal of economic psychology, 61, 103-114.

Azzolini, D., and Guetto. R. (2017). The impact of citizenship on intermarriage: Quasiexperimental evidence from two European Union Eastern enlargements. Demographic Research 36, 1299–1336.

Baker, M. and Benjamin, D. (1997). The role of the family in immigrants' labor-market activity: an evaluation of alternative explanations. The American Economic Review 87, 705–727.

Ballarino, G., and N. Panichella. (2018). "The occupational integration of migrant women in Western European labor markets." Acta Sociologica 61(2), 126–142.

Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), Encyclopedia of human behavior (Vol. 4, pp. 71–81). New York: Academic Press. (Reprinted in H. Friedman [Ed.], Encyclopedia of mental health. San Diego: Academic Press, 1998).

Barone, G., and Mocetti, S. (2011). With a little help from abroad: the effect of low-skilled immigration on the female labour supply. Labour Economics, 18(5), 664-675.

Basilio, L., T. K. Bauer, and M. Sinning. (2009). "Analyzing the labor market activity of immigrant families in Germany." Labor Economics 16(5), 510–520.

Basu, S. (2015). Intermarriage and the labor market outcomes of Asian women. Economic Inquiry, 53(4), 1718–1734.

Becker, G. S. (1991). A treatise on the family: Enlarged edition. Harvard University Press.

Becker G.S. (1973). A theory of marriage: Part I. Journal of Political Economy 81(4), 813–846.

Benham L (1974). Benefits of women's education within marriage. Journal of Political Economy 82 (2, Part 2), S57–S71.

Bettio F, Simonazzi A and Villa P (2006). Change in care regimes and female migration: the 'care drain' in the Mediterranean. Journal of European social policy 16(3), 271–285.

Bevelander, P. and N. Irastorza. (2014). Economic integration of intermarried labor migrants, refugees and family migrants to Sweden: premium or selection? IZA Institute of Labor Economics Discussion Paper No. 8265. Available online: https://www.iza.org/publications/dp/8065/economic-integration-of-intermarried-labourmigrants-refugees-and-family-migrants-to-sweden-premium-or-selection Accessed 8 July 2020.

Biagi, F., Castaño-Muñoz, J., and Di Pietro, G. (2020). Mismatch between Demand and Supply among higher education graduates in the EU. European Union, Luxembourg.

Blau, F. D. (2015). "Immigrants and gender roles: assimilation vs. culture." IZA J Migration 4, 23. https://doi.org/10.1186/s40176-015-0048-5

Blau, F. D., Kahn, L. M., Moriarty, J. Y., and Portela Souza, A. (2003). The role of the family in immigrants' labor-market activity: an evaluation of alternative explanations: comment. American Economic Review, 93(1), 429–447.

Borjas, G.J. and B. Bratsberg (1996). Who leaves? The out-migration of the foreign born.

Review of Economics and Statistics, 78(1), 165-176.

Çakar, F. S. (2012). The Relationship between the Self-Efficacy and Life Satisfaction of Young Adults. International Education Studies, 5(6), 123–130.

Campani, G. (2007). Gender and Migration in Italy: State of the Art. Florence: University of Florence Working paper, (6-WP4).

Caneva, E. (2014). The integration of migrants in Italy: an overview of policy instruments and actors. INTERACT Research Report 2014705. https://cadmus.eui.eu/handle/1814/32019 Accessed 8 July 2020.

Chiplin, B., and Sloane, P. J. (1976). Sex discrimination in the labour market. Springer.

Chiswick, B., and Hatton, T. J. (2003). International migration and the integration of labor markets. In Globalization in historical perspective (pp. 65-120). University of Chicago Press.

Chiswick, B. R., and Miller, P. W. (2002). Immigrant earnings: Language skills, linguistic concentrations and the business cycle. Journal of population economics, 15, 31-57.

Chiswick, B.R. (1978). The effect of Americanization on the earnings of foreign born men. Journal of political Economy 86(5), 897–921.

Choe, C., and Van Kerm, P. (2018). Foreign workers and the wage distribution: what does the influence function reveal?. Econometrics, 6(3), 41.

Chu, Y., Shen, C., and Yang, J. (2018). Country-level bonding, bridging, and linking social capital and immigrants' life satisfaction. Applied Research in Quality of Life, 13(3), 745-759.

Collet, B. (2015). From intermarriage to conjugal mixedness: Theoretical considerations illustrated by empirical data in France. The ANNALS of the American Academy of Political and Social Science, 662(1), 129–147.

Crompton, R. and C. Lyonette. (2005). The new gender essentialism: domestic and family 'choices' and their relation to attitudes. The British Journal of Sociology 56(4), 601–620.

Del Boca, D., and A. Venturini. (2005). "Italian migration." European migration: What do we know. IZA Discussion Paper No. 938.

Desai, S. and L. Waite. (1991). Women's Employment during Pregnancy and after the First Birth: Occupational Characteristics and Work Commitment. Rand Note N-33-53-NICHD. Santa Monica, CA: Rand Corporation.

Di Belgiojoso, E.B. and Ortensi, L.E. (2015). Female labor segregation in the domestic Services in Italy. Journal of International Migration and Integration 16(4), 1121–1139.

Docquier, F., Tenikue, M., Brosius, J., Weiss, P., Besch, S., Kruten, T., and Sanz, M. G. (2022). Le racisme et les discriminations ethno-raciales au Luxembourg: rapport d'étude quantitative et qualitative. Retrieved December 27, 2022, from https://liser.elsevierpure.com/ws/portalfiles/portal/34476202/2022_Rapport_d_etude_Enquete_Ra cisme_full.pdf

Dribe, M., and P. Nystedt. (2015). “Is there an intermarriage premium for male immigrants? Exogamy and earnings in Sweden 1990–2009.” International Migration Review 49(1), 3–35.

Dribe, M. and Nystedt, P. (2009). Intermarriage and Earnings among Immigrant Men in Sweden, 1990-2005. In SULCIS Integration Conference, Lund, November.

Dribe, M. and Lundh, C. (2008). Intermarriage and immigrant integration in Sweden: An exploratory analysis. Acta Sociologica 51(4), 329–354.

Dush, C. M. K., and Amato, P. R. (2005). Consequences of relationship status and quality for subjective well-being. Journal of Social and Personal Relationships, 22(5), 607–627.

Elwert, A., and A. Tegunimataka. (2016). “Cohabitation premiums in Denmark: Income effects in immigrant–native Partnerships.” European Sociological Review 32(3), 383–402.

Emmott, E. H., and R. Mace. (2015). Practical support from fathers and grandmothers is associated with lower levels of breastfeeding in the UK millennium cohort study. PLoS One 10(7): e0133547.

EUROSTAT (2022). Migration and migrant population statistics https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Migration_and_migrant_population_statistics#Migrant_population :_23.7_million_non-EU_citizens_living_in_the_EU_on_1_January_2021 Fetzer, J. S. (2011). Luxembourg as an immigration success story: the grand duchy in panEuropean perspective. Lexington Books.

Forsé, M., and Chauvel, L. (1995). L'évolution de l'homogamie en France: une méthode pour comparer les diagonalités de plusieurs tables. Revue française de sociologie, 36, 123-142.

Frey, B. S., and Stutzer, A. (2005). Happiness research: State and prospects. Review of social economy, 63(2), 207–228.

Frijters, P., and Beatton, T. (2012). The mystery of the U-shaped relationship between happiness and age. Journal of Economic Behavior & Organization, 82(2-3), 525-542.

Fugl-Meyer, A. R., Melin, R., and Fugl-Meyer, K. S. (2002). Life satisfaction in 18-to 64year-old Swedes: in relation to gender, age, partner and immigrant status. Journal of rehabilitation medicine, 34(5), 239–246.

Furtado, D. (2016). Fertility responses of high-skilled native women to immigrant inflows. Demography, 53(1), 27-53.

Furtado, D., and Song, T. (2015). Intermarriage and socioeconomic integration: Trends in earnings premiums among US immigrants who marry natives. The ANNALS of the American Academy of Political and Social Science, 662(1), 207–222.

Furtado, D., and N. Theodoropoulos. (2010). Why does intermarriage increase immigrant employment? The role of networks. The BE Journal of Economic Analysis and Policy 10(1), 1–31.

Furtado, D., and Theodoropoulos, N. (2009). I'll marry you if you get me a job: Marital assimilation and immigrant employment rates. International Journal of Manpower, 30, 116126.

Fusaro, S., and López-Bazo, E. (2018). The Impact of Immigration on Native Employment: Evidence from Italy. AQR–Working Papers. Available online: https://www.ub.edu/irea/working_papers/2018/201822.pdf Accessed 30 January 2023

Georgarakos, D., & Tatsiramos, K. (2009). Immigrant self-employment: does intermarriage matter?. In Ethnicity and Labor Market Outcomes (Vol. 29, pp. 253-271). Emerald Group Publishing Limited.

Gevrek E (2009). Interethnic marriage and the labor market integration of immigrants. Job Market Paper. Available online: http://www.u.arizona.edu/~eylem/jobmarket.pdf Accessed 25 May 2019

Gibson-Davis, C. (2011). Mothers but not wives: The increasing lag between nonmarital births and marriage. Journal of Marriage and Family 73(1), 264–278.

Gordon, M. M. (1964). Assimilation in American life: The role of race, religion, and national origins. Oxford University Press on Demand.

Gorinas, C. (2014). "Ethnic identity, majority norms, and the native–immigrant employment gap." Journal of Population Economics 27(1), 225–250.

Graefe, D. R., and D. T. Lichter. (2008). "Marriage patterns among unwed mothers: Before and after PRWORA." Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management 27(3), 479–497.

Guven, C., Senik, C., and Stichnoth, H. (2012). You can't be happier than your wife.

Happiness gaps and divorce. Journal of Economic Behavior and Organization, 82(1), 110130.

Haller, M., and F. Hoellinger. (1994). “Female Employment and The Change of Gender Roles: The Conflictual Relationship Between Participation and Attitudes In International Comparison.” International Sociology 9(1): 87–112. doi:10.1177/026858094009001006

Harder, N., Figueroa, L., Gillum, R. M., Hangartner, D., Laitin, D. D., and Hainmueller, J. (2018). Multidimensional measure of immigrant integration. Proceedings of the National Academy of Sciences, 115(45), 11483–11488.

Heckman, J. J. (1979). Sample selection bias as a specification error. Econometrica: Journal of the econometric society, 153-161.

Helbling, M. (2008). Practising citizenship and heterogeneous nationhood: Naturalisations in Swiss municipalities (p. 214). Amsterdam University Press.

Helliwell, J., Layard, R., and Sachs, J. (2012). World happiness report. Retrieved December 27, 2022, from http://eprints.lse.ac.uk/47487/

Ingwersen, K., and Thomsen, S. L. (2021). The immigrant-native wage gap in Germany revisited. The Journal of Economic Inequality, 19(4), 825-854.

ISTAT (2015). Principali Cittadinanze. Available online: http://www.istat.it/it/immigrati/grafici-interattivi/principali-cittadinanze Accessed 25 May 2018

ISTAT (2015). Census. Available online: http://www.istat.it/it/censimento-popolazione Accessed 25 May 2018

ISTAT (2015). I Matrimoni in Italia. Available online: http://www.istat.it/it/archivio/75517 Accessed 15 August 2018

ISTAT. (2022). Foreigners in Italy. Available online at: https://demo.istat.it/ricostruzione/index.php?lingua=ita ISTAT. (2020). Census. Available

online at: https://www.istat.it/it/files/2013/12/Notadiffusione_stranieri20122013.pdf Accessed 18 June 2020.

ISTAT. (2011). Matrimoni in Italia. Available online at : http://dati.istat.it/Index.aspx?DataSetCode=DCIS_MATRIND# ISTAT. (2009). Condizioni di Vita delle Famiglie con Stranieri. Available online at: https://www.istat.it/it/archivio/52405 Accessed 30 September 2019.

Johnson, T. D., and Kreider, R. M. (2013). Mapping the geographic distribution of interracial/interethnic married couples in the United States: 2010. In Annual Meeting of the Population Association of America, New Orleans, LA.

Kalmijn, M. (1998). "Intermarriage and homogamy: Causes, patterns, trends." Annual review of sociology 24(1), 395–421.

Kangas, O., and T. Rostgaard. (2007). Preferences or care context? Predictors for working life opportunities in seven European countries. Journal of European Social Policy 17(8), 240–256.

Kantarevic, J. (2004). Interethnic marriages and economic assimilation of immigrants. IZA Discussion Paper No. 1142, http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.705.943 Accessed 2 September 2019.

Kassar H and Dourgnon P (2014). The big crossing: illegal boat migrants in the Mediterranean. The European Journal of Public Health 24(suppl_1), 11–15.

Kirps, J., and Reitz, J. (2001). National Report Luxembourg. Strasbourg: Cultural Policy and Action Department, Directorate General IV–Education, Culture and Heritage, Youth and Sport, Council of Europe.

Kleven, H., Landais, C., and Søgaard, J. E. (2019). Children and gender inequality: Evidence from Denmark. American Economic Journal: Applied Economics, 11(4), 181-209.

Koelet, S., and de Valk, H. A. (2016). Social networks and feelings of social loneliness after migration: The case of European migrants with a native partner in Belgium. Ethnicities, 16(4), 610–630.

Koroļeva, I. (2022). A Longitudinal Study of Factors Affecting Migrant Subjective WellBeing: Empirical Evidence from Latvian Emigrant Surveys. In Society. Integration. Education. Proceedings of the International Scientific Conference, 2, 9–24.

Labadie-Jackson G (2008). Reflections on domestic work and the feminization of migration. Campbell Law Review 31(1), 67–90.

Lalive, R., and J. Zweimüller. (2009). "How does parental leave affect fertility and return to work? Evidence from two natural experiments." Quarterly Journal of Economics 124(3), 1363–1402.

Lanzieri, G. (2012). Mixed marriages in Europe, 1990–2010. Cross-border marriage: Global trends and diversity, 81–121.

Livingstone, G., and Brown, A. (2017). Intermarriage in the US: 50 years after loving V. Virginia (pp. 1-35). Washington, DC: Pew Research Center.

Livingston, G. (2006). "Gender, job searching, and employment outcomes among Mexican immigrants." Population Research and Policy Review 25(1), 43–66.

LISER (2014). Panel Socio-Economique Liewen zu Lëtzebuerg Statistics. Available on http://dataservice.liser.lu/en_US/dataservice/db=23

Lochmann, A., Rapoport, H., & Speciale, B. (2019). The effect of language training on immigrants' economic integration: Empirical evidence from France. European Economic Review, 113, 265-296.

Lundberg, S. J., and A. R. Pollak. (1996). “Bargaining and Distribution in Marriage.” Journal of Economic Perspectives 10(4), 139–158.

McIntyre, K. P., Mattingly, B. A., Stanton, S. C., Xu, X., Loving, T. J., and Lewandowski, G. W. (2022). Romantic relationships and mental health: Investigating the role of self-expansion on depression symptoms. Journal of Social and Personal Relationships, doi: 02654075221101127.

Meng, X., and D. Meurs. (2009) “Intermarriage, language, and economic assimilation process: A case study of France.” International Journal of Manpower 30(1-2), 127–144.

Meng X and Gregory RG (2005) Intermarriage and the Economic Assimilation of Immigrants. Journal of Labor Economics 23(1), 135–175.

Mincer, J. (1974) Schooling, Experience, and Earnings. Human Behavior and Social Institutions No. 2. New York NY: National Bureau of Economic Research, Inc.

Mingione, E., and F. Quassoli. (2000). The participation of immigrants in the underground economy in Italy. In Eldorado or Fortress? Migration in Southern Europe, 29–56. London: Palgrave Macmillan.

MIPEX (2020) Main Findings. Available online: https://www.mipex.eu/key-findings Accessed 30 January 2023 Muttarak, R. (2004). Marital assimilation: Interethnic marriage in Britain. In 12th Biennial Conference of the Australian Population Association (pp. 15-17).

Naldini, M., and C. Solera. (2018). “When Husbands and Wives Don’t Agree, who ‘Wins’?” In Fathers, Childcare and Work, Vol. 12, edited by A. Santero and M. Musumeci, 45–76. Yorkshire: Emerald Publishing

Nekby, L. (2010). “Inter-and intra-marriage premiums revisited: It's probably who you are, not who you marry!” IZA Discussion Paper No. 5317. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1712624 Accessed 9 September 2019.

Nesterko, Y., Braehler, E., Grande, G., and Glaesmer, H. (2013). Life satisfaction and healthrelated quality of life in immigrants and native-born Germans: the role of immigration-related factors. Quality of Life Research, 22(5), 1005–1013.

Nordin, M., and Rooth, D. O. (2009). The ethnic employment and income gap in Sweden: Is skill or labor market discrimination the explanation?. Scandinavian Journal of Economics, 111(3), 487-510.

Nottmeyer, O. (2011). Couple’s Relative Labor Supply in Intermarriage. IZA Discussion Paper No. 5567, March.

Nottmeyer, O. (2010). Does Intermarriage Pay Off? A Panel Data Analysis. DIW Berlin Discussion Paper No. 1044. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1659707 Accessed 9 September 2019

OECD. (2008) OECD Employment Outlook 2008. Available online: https://www.oecdilibrary.org/employment/oecd-employment-outlook-2008/the-gender-employment-gapvaries-widely-across-oecd-countries_empl_outlook-2008-graph3_2-en Accessed 21 December 2019.

OECD. (2008). The global competition for talent: Mobility of the highly skilled. Paris: OECD Publishing. Available online: https://www.oecd.org/sti/inno/theglobalcompetitionfortalentmobilityofthehighlyskilled.htm

Patel, K., and Vella, F.. (2013). Immigrant networks and their implications for occupational choice and wages. Review of Economics and Statistics 95(4), 1249–1277.

Pessin, L., and Arpino, B. (2017). Immigrants' Gender Role Attitudes toward Women's Employment in Europe: A New Approach to Studying Assimilation. In PAA 2017 Annual Meeting. PAA.

Polgreen, L. A., and Simpson, N. B. (2011). Happiness and international migration. Journal of Happiness Studies, 12(5), 819-840.

Poorbaferani, Z., Mazaheri, M. A., & Hasanzadeh, A. (2018). Life satisfaction, general selfefficacy, self-esteem, and communication skills in married women. Journal of education and health promotion, 7.

Portes, A. (Ed.). (1995). The economic sociology of immigration: Essays on networks, ethnicity, and entrepreneurship. Russell Sage Foundation.

Potarca, G., and Bernardi, L. (2021). The intermarriage life satisfaction premium. Journal of Happiness Studies, 22(3), 1413–1440.

Raijman, R. and Semyonov, M. (1997). Gender, Ethnicity, and Immigration: Double Disadvantage and Triple Disadvantage among Recent Immigrant Women in the Israeli Labor Market. Gender and Society 11(1), 108–125.

Reyneri, E.. (2001). Migrants' Involvement in Irregular Employment in the Mediterranean Countries of the European Union. Available online: http://wcmstraining2.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/--migrant/documents/publication/wcms_201875.pdf Accessed 21 November 2018.

Rodríguez-García, D. (2015). Intermarriage and integration revisited: International experiences and cross-disciplinary approaches. The ANNALS of the American Academy of Political and Social Science, 662(1), 8-36.

Rodríguez-García, D., Lubbers, M. J., Solana, M., and de Miguel-Luken, V. (2015). Contesting the nexus between intermarriage and integration: findings from a multidimensional study in Spain. The ANNALS of the American Academy of Political and Social Science, 662(1), 223–245.

Rojas-Romagosa, H., and Bollen, J. (2018). Estimating migration changes from the EU's free movement of people principle. CPB Netherlands Bureau for Economic Policy Analysis, 385.

Ruyssen, I. and Salomone, S. (2018). Female migration: A way out of discrimination? Journal of Development Economics 130, 224–241.

Safi, M. (2010). Immigrants' life satisfaction in Europe: Between assimilation and discrimination. European sociological review, 26(2), 159-176.

Sarracino, F., and O'Connor, K. (2021). A Measure of Well-being Productivity Based on the World Happiness Report. In Virtual Workshop on Productivity and Well-being: Measurement and Linkages, November 16 and 17. International Association for Research in Income and Wealth

Sarracino, F. (2014). Richer in money, poorer in relationships and unhappy? Time series comparisons of social capital and well-being in Luxembourg. Social indicators research, 115(2), 561–622.

Scoppa, V., and M. Stranges. (2019). "Cultural values and decision to work of immigrant women in Italy. Labour 33(1), 101–123.

Semyonov, M., Raijman, R., and Gorodzeisky, A. (2006). The rise of anti-foreigner sentiment in European societies, 1988-2000. American sociological review, 71(3), 426–449.

Serret, J. and Vitali, A. (2014). Understanding intermarriage from the native's perspective: Spain and Italy compared. Paper presented at the Annual Meeting of the Population Association of America, Boston, USA, May 1–3, 2014.

Shamsuddin, M., & Katsaiti, M. S. (2020). Migration and happiness: Evidence from Germany. Journal of Happiness Studies, 21(8), 2931-2955.

Singla, R., and Holm, D. (2012). Intermarried couples, mental health and psychosocial wellbeing: Negotiating mixedness in the Danish context of 'homogeneity'. Counselling Psychology Quarterly, 25(2), 151–165.

Solera, C. (2009). Women in and out of paid work: Changes Across Generations in Italy and Britain. Bristol. Policy Press.

Song, M. (2009). Is intermarriage a good indicator of integration?. Journal of Ethnic and Migration studies, 35(2), 331-348.

STATEC (2022). Population par nationalités détaillées au 1er janvier. Available at: https://lustat.statec.lu/ Strozza S, Paterno A, Bernardi L and Gabrielli G (2009) Migrants in the Italian labor market: Gender differences and regional disparities. Gender and migration in 21st century Europe 131–160.

Sutcliffe, B. (2006) The path of the Sea: Human Migration across the Western Mediterranean. Revista de Economía Mundial 14, 121–169.

The Migration Observatory (2022). The Fiscal Impact of Immigration in the UK. Available online: https://migrationobservatory.ox.ac.uk/resources/briefings/the-fiscal-impact-ofimmigration-in-the-uk/ Accessed 30 January 2023

The World Bank (2022). GDP per capita, PPP. Available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?locations=LU

Triandafyllidou, A. (2010). Controlling Migration in Southern Europe (Part 2): Gate-keeping Strategies (ARI). ARI Papers, Real Instituto Elcano, 8. http://www.realinstitutoelcano.org/wps/portal/rielcano_en/contenido?WCM_GLOBAL_CONTEXT=/elcano/elcano_in/zonas_in/ARI8-2010 Accessed September 2019.

Uhlich, M., Luginbuehl, T., and Schoebi, D. (2022). Cultural diversity within couples: Risk or chance? A meta-analytic review of relationship satisfaction. Personal Relationships, 29(1), 120–145.

United Nations. (2019). Population Division. International Migration stock. Available online at: https://www.un.org/en/development/desa/population/migration/data/estimates2/estimates19.asp Accessed 8 July 2020.

United Nations (2020), Population Division. International Migration stock. Available online: https://www.un.org/en/development/desa/population/migration/data/estimates2/estimates19.asp

Valentova, M., and Alieva, A. (2018). Do non-EU immigrants exhibit different patterns of participation in voluntary associations from those of natives and EU immigrants?. Ethnic and Racial Studies, 41(5), 804–823.

Valentova, M., and Justiniano Medina, A. C. (2020). Comparing Voluntary Activities Among Immigrant and Non-immigrant. Focus on Third Country Nationals. Child Indicators Research, 13, 1257-1281.

Valentova, M., and Berzosa, G. (2012). Attitudes toward immigrants in Luxembourg. Do contacts matter? International review of sociology, 22(2), 341–363.

Van Wolleghem, P. G., De Angelis, M. and S. Scicchitano. (2019). Education-occupation mismatch of migrants in the Italian labor market: the effect of social networks. GLO Discussion Paper, 398. http://oa.inapp.org/xmlui/bitstream/handle/123456789/653/Inapp_DeAngelis_Scicchitano_VanWolleghem_Education_Occupation_Mismatch_2020.pdf?sequence=1andisAllowed=y Accessed 8 July 2020.

Venturini, A. and Villosio, C. (2006). Labour market effects of immigration into Italy: An empirical analysis 1. International Labour Review 145(1–2), 91–118.

Vignoli, D., Pirani, E., and Venturini, A. (2017). Female migration and native marital stability: Insights from Italy. Journal of family and economic issues, 38, 118-128.

Wooldridge JM (2010) Econometric analysis of cross section and panel data. Cambridge MA: MIT Press.

Wooldridge, J. M., and M. Weeks. (2002). "Introductory Econometrics: A Modern Approach." Journal of Applied Econometrics 17(2), 191–193.

Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data. Cambridge, MA: MIT Press

World Values Survey (2010) WVS5 Available on: https://www.worldvaluessurvey.org/WVSContents.jsp

Worswick, C.. (1999) Credit constraints and the labor supply of immigrant families in Canada. Canadian Journal of Economics 152–170.

Appendices

Appendix 1

Table 2: Descriptive statistics Foreign born women in Italy, husband characteristics

	Total (N= 1657)		Endogamous (N= 1295)		Intermarried (N=362)	
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**
Employment	0,40		0,40		0,41	
Underemployment						
Weekly work hours	32,77	11,58	32,51	11,96	33,69	10,13
Education level						
Low secondary	0,45		0,51		0,23	
Upper secondary	0,43		0,40		0,53	
University	0,11		0,08		0,23	
Average age	35,92	8,10	35,77	8,24	36,49	7,57
Residing in north	0,49		0,51		0,41	
NDC	0,49		0,49		0,50	
YSM categories						
0-5	0,39		0,39		0,39	
6-10	0,37		0,37		0,34	
11-15	0,13		0,13		0,13	
>15	0,09		0,08		0,12	
Place of origin						
West Europe	0,07		0,034		0,27	
Non-EU	0,43		0,47		0,31	
East Europe	0,48		0,49		0,45	
Husband earnings	9,77	0,39	9,72	0,37	9,96	0,39
Husband attitudes	111	1,01	1,84	0,41	2,13	0,43
Homeownership	0,18	0,38	0,13	0,34	0,32	0,47
Wife attitudes	1,91	0,47	1,79	0,44	1,99	0,56
Instruments						
Pct. foreign men	0,09	0,04	0,09	0,04	0,08	0,04

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration up to 5 years. The reference category of country of origin is west European countries and for intermarried and endogamous are those who are single.

Appendix 2

Table 2.4: Binary models. Employment premium of foreign born women in Italy. Mean marginal effects

	Probit				Logit			
Employment	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Endogamous (M1)	- 0,426***	- 0,411***	- 0,380***	- 0,373***	- 0,426***	- 0,412***	- 0,382***	- 0,375***
	(0,015)	(0,015)	(0,016)	(0,017)	(0,015)	(0,015)	(0,016)	(0,017)
Intermarried (M2)	- 0,463***	- 0,479***	- 0,446***	- 0,443***	- 0,463***	- 0,482***	- 0,448***	- 0,445***
	(0,021)	(0,020)	(0,021)	(0,021)	(0,020)	(0,020)	(0,021)	(0,021)
Education level								
Upper secondary		0,077***	0,071***	0,062***		0,079***	0,073***	0,064***
		(0,015)	(0,015)	(0,015)		(0,015)	(0,015)	(0,015)
University		0,095***	0,087***	0,081***		0,099***	0,091***	0,085***
		(0,022)	(0,022)	(0,022)		(0,022)	(0,022)	(0,022)
Age		0,047***	0,044***	0,045***		0,047***	0,045***	0,045***
		(0,005)	(0,005)	(0,005)		(0,005)	(0,005)	(0,005)
Age2/1000		- 0.545***	- 0.535***	- 0.540***		- 0.556***	- 0.539***	- 0.545***
		(0,062)	(0,060)	(0,061)		(0,062)	(0,061)	(0,062)
Residing in north			0,034**	0,039***			0,034**	0,039***
			(0,014)	(0,014)			(0,014)	(0,014)
Dependent children			- 0,106***	- 0,104***			- 0,105***	- 0,103***
			(0,012)	(0,014)			(0,012)	(0,013)
YSM categories								
6-10				0,027*				0,028*
				(0,016)				(0,016)
11-15				-0,026				-0,025
				(0,022)				(0,022)
>15				0,004				0,006
				(0,026)				(0,025)
Place of origin								
Other non-EU				-0,033				-0,035
				(0,026)				(0,026)
East Europe				0,015				0,013
				(0,026)				(0,026)
Wald F-test M1=M2	2,76	9,74	8,81	9,63	2,75	10,21	8,88	9,83
	(0,097)	(0,002)	(0,003)	(0,002)	(0,098)	(0,001)	(0,003)	(0,002)
Observations	4123	4123	4123	4123	4123	4123	4123	4123

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration from 0 to 5 years. The reference category of country of origin is west European countries. The reference category for intermarried and for endogamous are those who are single.

Appendix 3

Table 2.7: Employment premium of foreign born women in a partnership in Italy

Employment	**LPM**				**2SLS**	**First Stage**
Intermarried	-0,056*	-0,081**	-0,077**	-0,067*	-0,839***	
	(0,033)	(0,034)	(0,034)	(0,034)	(0,290)	
Education level						
Upper secondary	0,115***	0,105***	0,109***	0,111***	0,158***	0,070***
	(0,029)	(0,029)	(0,029)	(0,029)	(0,039)	(0,024)
University	0,197***	0,184***	0,188***	0,191***	0,294***	0,135***
	(0,043)	(0,043)	(0,043)	(0,043)	(0,063)	(0,035)
Age	0,051***	0,052***	0,051***	0,052***	0,068***	0,022**
	(0,012)	(0,012)	(0,012)	(0,012)	(0,015)	(0,010)
Age2/1000	-0,642***	-0,655***	-0,654***	-0,656***	-0,875***	-0,301**
	(0,153)	(0,153)	(0,153)	(0,153)	(0,200)	(0,128)
Residing in north	0,075***	0,083***	0,083***	0,089***	-0,011	-0,017
	(0,028)	(0,028)	(0,028)	(0,028)	(0,050)	(0,032)
Dependent children	-0,115***	-0,108***	-0,110***	-0,108***	-0,096***	0,018
	(0,020)	(0,020)	(0,020)	(0,020)	(0,024)	(0,017)
YSM categories						
6-10	0,039	0,039	0,037	0,037	0,042	0,011
	(0,029)	(0,029)	(0,029)	(0,029)	(0,035)	(0,024)
11-15	0,080*	0,083*	0,085*	0,091**	0,103*	0,019
	(0,046)	(0,045)	(0,045)	(0,046)	(0,053)	(0,037)
>15	0,130**	0,136**	0,141**	0,144**	0,190***	0,072
	(0,056)	(0,055)	(0,056)	(0,056)	(0,066)	(0,045)
Place of origin						
Other non-EU	-0,209***	-0,195***	-0,044	-0,038	-0,349**	-0,370***
	(0,052)	(0,051)	(0,083)	(0,084)	(0,153)	(0,070)
East Europe	-0,01	0,003	0,079	0,083	-0,138	-0,256***
	(0,051)	(0,051)	(0,061)	(0,061)	(0,108)	(0,050)
Husband earnings	-0,191***	-0,202***	-0,200***	-0,195***	-0,048	0,220***
	(0,035)	(0,035)	(0,035)	(0,035)	(0,069)	(0,030)
Husband attitudes		0,118***	0,129***	0,133***	0,261***	0,162***
		(0,030)	(0,031)	(0,031)	(0,060)	(0,026)
Homeownership				-0,062*	0,070	0,168***
				(0,034)	(0,064)	(0,029)
Wife attitudes			0,114**	0,116**	0,042	-0,088**
			(0,050)	(0,050)	(0,066)	(0,042)
Pct. foreign men						-1,917***
						(0,390)
Constant	1,404***	1,292***	0,939**	0,851*	0,219	-1,036***
	(0,403)	(0,403)	(0,433)	(0,435)	(0,576)	(0,371)
Observations	1311	1311	1311	1311	1311	1311
F-statistic					*24.099*	

Notes: Standard errors are shown in parenthesis. *. ** and ***, denote that the coefficients are statistically significant at the 10%. 5% and 1% levels, respectively. The reference category for education is up to lower secondary education and for years since migration categories, it is duration of migration from 0 to 5 years. The reference category of country of origin is west European countries. The reference category for intermarried and for endogamous are those who are single.

Appendix 4

Table 3.2: Marriages, by citizenship combination, year 2011, absolute values and percentages

REGION	Type of marriage					
	Both spouses Italian		One foreign spouse		Both spouses foreign	
	Absolute values	% values	Absolute values	% values	Absolute values	% values
Piedmont	11,427	84,6	2,088	15,4	603	4,5
Valle d'Aosta	354	85,9	58	14,1	13	3,2
Liguria	4,256	82,4	907	17,6	227	4,4
Lombardi	23,647	84,0	4,489	16,0	1,250	4,4
Trentino-Alto Adige	2,956	78,8	796	21,2	330	8,8
Bolzano	1,496	73,9	528	26,1	270	13,3
Trento	1,460	84,5	268	15,5	60	3,5
Veneto	12,299	79,4	3,197	20,6	1,417	9,1
Friuli-Venezia Giulia	2,846	81,4	652	18,6	158	4,5
Emilia-Romagna	10,278	82,3	2,206	17,7	563	4,5
Tuscany	9,597	77,0	2,866	23,0	1,416	11,4
Umbria	2,456	81,0	576	19,0	197	6,5
Marche	3,956	85,0	699	15,0	153	3,3
Lazio	15,774	84,7	2,856	15,3	873	4,7
Abruzzo	3,493	89,2	421	10,8	64	1,6
Molise	918	92,7	72	7,3	6	0,6
Campania	23,295	92,3	1,939	7,7	956	3,8
Puglia	15,698	95,7	704	4,3	49	0,3
Basilicata	2,073	94,2	128	5,8	12	0,5
Calabria	7,984	94,4	470	5,6	37	0,4
Sicily	19,667	94,7	1,101	5,3	204	1,0
Sardinia	5,239	93,0	392	7,0	84	1,5
Italy	**178 213**	**87,0**	**26 617**	**13,0**	**8 612**	**4,2**
Northwest	**39 684**	**84,0**	**7 542**	**16,0**	**2 093**	**4,4**
Northeast	**28 379**	**80,6**	**6 851**	**19,4**	**2 468**	**7,0**
Center	**31 783**	**82,0**	**6 997**	**18,0**	**2 639**	**6,8**
South	**53 461**	**93,5**	**3 734**	**6,5**	**1 124**	**2,0**
Islands	**24 906**	**94,3**	**1 493**	**5,7**	**288**	**1,1**

Source: Istat, Census 2011 : http://www.istat.it/it/archivio/75517

Appendix 5

Table 3.3: Marriages with at least one foreign spouse, main citizenships, year 2011, absolute values and percentages

Origin Country	Italian husband foreign wife		Origin Country	Foreign husband Italian wife		Origin Country	Both spouses foreign	
	Absolute Value	% Value		Absolute Value	% Value		Absolute Value	% Value
Romania	2617	17,7	Morocco	320	10	Romania	864	18,8
Ukraine	1467	9,9	Albania	260	8,1	Nigeria	567	12,3
Brazil	1132	7,6	UK	234	7,3	China	526	11,4
Russia	971	6,6	USA	155	4,8	Moldova	251	5,5
Poland	947	6,4	Germania	152	4,7	Ukraine	213	4,6
Moldova	699	4,7	Tunis	152	4,7	Peru	199	4,3
Albania	619	4,2	France	150	4,7	Morocco	191	4,2
Peru	390	2,6	Romania	140	4,4	Albania	179	3,9
Morocco	357	2,4	Spain	117	3,6	Ireland	132	2,9
Ecuador	279	1,9	Brazil	100	3,1	Ecuador	129	2,8
Germania	267	1,8	Senegal	95	3	Ghana	113	2,5
Cuba	258	1,7	Egypt	79	2,5	UK	90	2
France	208	1,4	Cuba	59	1,8	Poland	73	1,6
USA	205	1,4	Argentina	46	1,4	Cameron	68	1,5
Dominican R.	198	1,3	Netherlands	44	1,4	Russia	65	1,4
Other	4185	28,4	Other	1103	34,5	Other	940	20,3
Total	**14799**	**100**	**Total**	**3206**	**100**	**Total**	**4600**	**100**

Source: Istat, Census 2011 : http://www.istat.it/it/archivio/75517

Appendix 6

Table 3.5: 2SLS Estimates. Employed foreign born women in partnerships in Italy

Log (hourly wage)	Model 1		Model 2		Model 3	
Intermarriage		-6,944		0,278		0,148
		-48,228		(0,343)		(0,301)
Education level						
Upper secondary	0,084***	0,625	0,076***	0,016	0,068**	0,027
	(0,030)	-4,074	(0,029)	(0,047)	(0,030)	(0,044)
University	0,166***	1,329	0,146***	0,129	0,142***	0,150**
	(0,044)	-8,020	(0,044)	(0,079)	(0,044)	(0,074)
Age	0,000	0,010	-0,001	0,012	0,000	0,012
	(0,012)	(0,087)	(0,012)	(0,015)	(0,012)	(0,015)
Age2	0,005	-0,08	-0,004	-0,12	-0,011	-0,119
	(0,156)	-1,128	(0,155)	(0,194)	(0,154)	(0,191)
YSM categories						
6–10	0,053*	0,387	0,066**	0,003	0,069**	0,01
	(0,032)	-2,571	(0,032)	(0,043)	(0,032)	(0,042)
>10	0,033	0,272	0,058	0,031	0,059	0,035
	(0,037)	-1,630	(0,038)	(0,048)	(0,038)	(0,047)
Residing in north	0,004	0,216	0,026	0,177***	0,014	0,177***
	(0,029)	(0,328)	(0,028)	(0,034)	(0,028)	(0,033)
Place of origin						
Non-EU	-0,393***	-2,882	-0,313***	-0,059	-0,322***	-0,109
	(0,053)	-18,853	(0,055)	(0,149)	(0,056)	(0,133)
Eastern Europe	-0,335***	-2,509	-0,295***	-0,1	-0,309***	-0,144
	(0,052)	-16,091	(0,052)	(0,131)	(0,052)	(0,118)
Instruments						
Sex ratio			-0,178***		-0,220***	
			(0,048)		(0,053)	
Probability	0,176				2,463*	
	-1,202				-1,315	
Constant	0,470**	4,793	0,589**	1,392***	0,597**	1,453***
	(0,236)	-22,772	(0,236)	(0,335)	(0,236)	(0,322)
Observations	919		919		919	
F-statistic	0,021		13,442		8,493	
Prob > F	0,884		0,000		0,000	
Durbin	0,695	(p=0,405)	0,532	(p=0,466)	0,148	(p=0,701)
Wu-Hausman	0,686	(p=0,408)	0,526	(p=0,469)	0,146	(p=0,703)

Notes: Standard errors are shown in parentheses. *, **, and ***, denote that the coefficients are statistically significant at the 10%, 5%, and 1% levels respectively. The reference category for education is up to lower-secondary education and for years since migration categories, it is the duration of 0 to 5 years. The reference category for country of origin is European Union (as at 2008, excluding Rumania and Poland). Estimates include only employed, as those who gave information about their salary, average of hours worked, and who had worked for 12 months.

Appendix 7

Table 6: Heckman correction estimates. Foreign born women in partnerships in Italy

	Heckman 2 steps				Heckman ML			
Log (hourly wage)	**Model 1**		**Model 2**		**Model 1**		**Model 2**	
	Emp	**Salary**	**Emp**	**Salary**	**Emp**	**Salary**	**Emp**	**Salary**
Intermarriage	-0,231***	0,044	-0,208***	0,027	-0,224***	-0,023	-0,207***	-0,041
	(0,060)	(0,045)	(0,062)	(0,044)	(0,059)	(0,046)	(0,062)	(0,046)
Education								
Post-secondary	0,303***	0,063	0,274***	0,046	0,282***	0,167***	0,251***	0,147***
	(0,055)	(0,045)	(0,056)	(0,043)	(0,054)	(0,043)	(0,055)	(0,042)
University	0,352***	0,235***	0,335***	0,181***	0,339***	0,353***	0,315***	0,305***
	(0,084)	(0,063)	(0,086)	(0,062)	(0,083)	(0,063)	(0,085)	(0,063)
Age	0,132***	0,029	0,134***	0,017	0,131***	0,069***	0,134***	0,062***
	(0,020)	(0,019)	(0,020)	(0,019)	(0,020)		(0,020)	
Age2	-1,702***	-0,337	-1,689***	-0,175	-1,668***	-0,822***	-1,662***	-0,707***
	(0,256)	(0,240)	(0,258)	(0,238)	(0,254)	(0,217)	(0,256)	(0,213)
Ndchild	-0,312***		-0,308***		-0,238***		-0,221***	
	(0,041)		(0,042)		(0,036)		(0,036)	
YSM categories								
6–10			0,112*	0,019			0,096	0,050
			(0,061)	(0,040)			(0,060)	(0,044)
>10			-0,034	0,037			-0,032	0,018
			(0,068)	(0,046)			(0,067)	(0,051)
North			0,184***	0,184***			0,159***	0,253***
			(0,051)	(0,037)			(0,051)	(0,038)
Origin country								
Non-EU			-0,009	-0,155**			-0,014	-0,168**
			(0,098)	(0,065)			(0,097)	(0,073)
Eastern Europe			0,169*	-0,174***			0,174*	-0,107
			(0,097)	(0,066)			(0,096)	(0,072)
Constant	-2,845***	1,020**	-3,118***	1,350***	-2,886***	-0,243	-3,158***	-0,155
	(0,381)	(0,463)	(0,399)	(0,488)	(0,377)	(0,337)	(0,394)	(0,345)
/mills lambda	0,096		0,051					
	(0,126)		(0,127)					
/athrho					1,068***		1,105***	
					(0,094)		(0,091)	
/lnsigma					-0,408***		-0,419***	
					(0,045)		(0,044)	
Observations	2806		2806		2806		2806	

Notes: Standard errors are shown in parentheses. *, **, and ***, denote that the coefficients are statistically significant at the 10%, 5%, and 1% levels respectively. The reference category for education is up to lower-secondary education and for years since migration categories, it is the duration of 0 to 5 years. The reference category for country of origin is European Union (as at 2008, excluding Rumania and Poland). Estimates include only employed, as those who gave information about their salary, average of hours worked, and who had worked for 12 months.

Appendix 8

Selected variables definition and categorization

- Life satisfaction definition: According to the data documentation about overall life satisfaction from the data provider: Life satisfaction represents a report of how a respondent evaluates or appraises his or her life taken as a whole. It is intended to represent a broad, reflective appraisal the person makes of his or her life. The term life is intended here as all areas of a person's life at a particular point in time (these days). The variable therefore refers to the respondent's opinion/feeling about the degree of satisfaction with his/her life. It focuses on how people are feeling "these days" rather than specifying a longer or shorter time period. The intent is not to obtain the current emotional state of the respondent but for them to make a reflective judgement on their level of satisfaction.
- Total disposable household income definition: The sum of all household members of gross personal income components in the period of reference: gross cash or near cash income, company car, gross cash benefits or loses from self-employment, pensions, unemployment benefits, old age benefits, survivor benefits, sickness benefits, disability benefits, education elated allowances, income from rental of property or land, family-related allowances, housing allowances, inter-household transfers, interests and dividends from capital investments, and income received by people aged under 16, minus taxes on wealth, paid inter-household transfers, income taxes and insurance contributions.
- Country category aggregation for the computation of the intermarried variable
    - 1. Yugoslavia and ex-Yugoslavia: Yugoslavia, Montenegro, Serbia, Bosnia and Herzegovina, Kosovo, Macedonia, Albania, and Slovenia Croatia

- 2. Portuguese speaking African countries (PAF): Cap-Vert, Angola, Mozambique, Guinea-Bissau, São Tomé e Príncipe
- 3. Brazil
- 4. China
- 5. India:
- 6. Arabic speaking countries (ASC): Syria, Morocco, Tunisia, Egypt, Lebanon, Iraq, Jordan, Palestine, and Algeria
- 7. Russian speaking countries (RSC): Russian Federation, Ukraine, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Georgia, Azerbaijan, Moldova, Estonia, Latvia, Lithuania
- 8. Latin America (LA): Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Mexico, Colombia, Ecuador, Guatemala, Venezuela, Paraguay, Peru, Panama, Nicaragua, Cuba, El Salvador, Honduras, Uruguay, Haiti , Jamaica, Dominicana
- 9. Wealthy third countries (WTC): United States of America, Canada, Australia, Switzerland, New Zealand, Iceland
- 10. Asian wealthier countries (AWC); Singapore, Taiwan, Japan, South Korea, Malaysia
- 11. Middle east (ME): Iran, Turkey, Afghanistan, Armenia, Israel
- 12. Asian developing countries (ADC): Philippines, Thailand, Vietnam, Bangladesh, Cambodia, Indonesia, Nepal, Pakistan, Sri Lanka, Laos and Mongolia
- 13. African countries (AC): Cameroon, Benin, Burkina, Burundi, Central African Republic Congo, Comoros, Ivory Coast, Democratic Republic of Congo, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Liberia,

Malawi , Mali, Madagascar, Mauritius, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, South Africa, Togo, Uganda, Zambia.

    - Others: the rest of the countries not included in other categories

- Country category aggregation for place of origin variable (other European and other countries categories):
    - Other European: Yugoslavia and ex-Yugoslavia: Yugoslavia, Montenegro, Serbia, Bosnia and Herzegovina, Kosovo, Macedonia, Albania, Slovenia, Croatia, Russian Federation, Ukraine, Belarus, Moldova, Estonia, Leetonia, Lithuania, Britain, Ireland, Sweden, Netherlands, Austria, Denmark, Spain, Finland, and "other European."
    - Others: Portuguese-speaking African countries, Brazil, China, India, Arabic-speaking countries, Latin America, wealthy third countries, wealthy Asian countries, Middle East, developing Asian countries, Asian countries and "others."