Male immigrants' fertility in Spain

Author: Farhan Ahmad
Supervisor: Gunnar Andersson

Declining fertility in developed countries along with rising number of immigrants and different fertility behavior exhibited by the immigrants make the immigrants' fertility an interesting topic in field of demography. However most of the studies on immigrants' fertility consider the female immigrants as their subject on the assumption that they represent the immigrants' fertility. This study took another perspective and tries to study male immigrants' fertility. Spanish Immigrants' Survey 2007 was used to see how the different migration related factors affect the male immigrants' fertility. Poisson regression was applied on a sample of 3797 childless males who are 16 or older. This study found tentative support to selection hypothesis but no clear support to adaptation hypothesis on male fertility behaviors. There exist differences in the fertility between male immigrants from different regions. Effect of education, number of parent's siblings and mother language on male immigrants' fertility was also analyzed.

CONTENTS

Introduction

Migration is an inseparable, constant, and extraordinarily important part of the development of mankind. Its essence consists in the settlement of new territories for the purpose of improving the settlers' conditions of life (Pylynskyi, Y. 2009, pp. 01). Throughout the second half of the 20th century immigrants, guest workers, ex-colonials, refugees and asylum seekers began arriving in European countries in ever-increasing numbers and consequently, Europe has become home to millions of 'foreigners' (Semyonov et al. 2008, pp.5). Many countries in Europe and around the world have big percentage of the immigrants. Based on the United Nations figures there are currently 200 million first generation immigrants in the world. Immigration has been discussed in different fields of social sciences and has been scrutinized to understand its effect on the overall economy, employment, society and culture of the host country. Conflicting views exist about the importance of the immigration.

In many cases immigrants are not accompanied by their families. It may be because of uncertainty in the host country in terms of environment, accommodation, culture, economic and local reception. After establishing themselves either they bring their families back from home countries or marry in the host country. In any case the pattern of fertility they exhibit becomes a matter both of intrinsic interest from the sociological viewpoint and of importance in the future provision of services of all kinds (Waterhouse & Brabban, 1964, pp. 07). The following discussion sheds light on immigrants and their fertility and tries to explain how important this topic is for the scholars as well as the policy makers.

Immigrants' volume and fertility behavior

Increase in the number of immigrants in Europe during the last decade boosted the interest of the researchers in immigrants' fertility. They became subject of interest not only because of the volume but also because sometimes they appear to exhibit different fertility patterns than the indigenous population in the host country. The effect of immigration on population change includes the impact through the fertility of immigrants (Woldemicael & Roderic 2010, pp.01). There exist a lot of researches describing how the country of origin and duration in the host country affects the immigrants' fertility. Different generations of immigrants exhibit different fertility pattern which makes immigrants fertility complicated and interesting (Hill & Johnson

2004). Many studies show that immigrants usually show fertility level higher than the indigenous population at least in short term (Bledsoe et.al, 2007). Their contribution in the indigenous population rises with increase in their volume. In 2004 the European Union (EU-25) recorded the highest population increase since 1972—0.54 percent—of which 0.38 percent was attributable to a positive migration balance (Sobotka, 2008a, pp.226). In many major European cities, the share of immigrant births approaches 50 percent (Sobotka 2008a, pp. 229; Coleman, 2006). According to census and population register data, Spain hosted 350,000 foreigners in 1991, 1.5 million in 2001 and 3.7 million in 2005 which increased the proportion of foreigners in the total population of Spain rapidly: from 0.9% in 1991 to 8.5% in 2005 (Vila & Martin, 2007, pp. 04). Immigrants contribute substantially to the total number of births and their share of total births has increased in the last decade, exceeding in some countries one fifth of the recorded live births (Sobotka, 2008a, pp.225). This could also be because of young age structure of male immigrants than high fertility.

Below replacement level fertility of EU nations

Since last decade many European countries are experiencing below replacement level fertility. Such countries are desperate to enhance their fertility level because this trend is considered as dangerous to the economy, culture and even to the very existence of Europe by many scholars and politicians. It motivated the governments to introduce the policies that could be beneficial in enhancing the fertility. According to Sobotka, (2008b, pp.28);

> The fears of a population and fertility slump in Europe are not new and have been repeatedly voiced since the late 19th century (Teitelbaum and Winter 1985), especially in times when birth rates in many European societies declined rapidly. Some well-known alarmist examples in this respect are books like "The Decline of the West," published first in 1918 by German philosopher Oswald Spengler, "The Twilight of Parenthood," published in 1934 by Enid Charles, a lecturer at the London School of Economics (and later republished under the title "The Menace of Under-population") and Debré and Sauvy's (1946) laments about the aged, sclerotic, and shrinking French population. A new wave of such publications has come up since the 1970s, concomitant to the rapid decline in fertility rates in most European societies.

During the time of declining fertility, immigration to Europe continued to rise. High fertility of immigrants started to fill the fertility gap created by the indigenous population. Hence knowledge of immigrants' fertility and their behavior became precious and lot of research has been devoted

to it. Immigration has played important role in maintaining the fertility of the European countries which were unable to raise the fertility rate. In Germany, for instance, the natural increase of the population since the 1970s has been negative and net immigration totally accounts for population growth and the same phenomenon has emerged in Greece and Italy where natural population growth turned negative in the late 1990s and their populations rose only as a result of net immigration (Gang et. al 2002, pp.02).

Many researchers take it positively and consider it a cure for the countries which have below replacement level fertility. According to Zuanna (2006) low fertility and sustained immigration acting together have facilitated the formation of human capital, the micro strategies of intergenerational social mobility, the construction of a more balanced labor market and the increase of wages. Moreover he thinks Immigration has been and still is a fundamental resource for the harmonious development of the Italian population and society. But on the other side high immigrants' fertility is considered as a threat to the existence of Europe in terms of economy, social institutions and culture.

Declining European fertility, rising number of immigrants and different fertility behavior exhibited by the immigrants make the immigrants fertility an important and interesting topic which should be studied with various perspectives so that we can prepare for the future with better planning and policies.

Theoretical Problem

Research has been done on immigrants' fertility although most of such studies are American. The simple reason is the presence of great number of immigrants as well as the researchers in the United States. Americans are now studying the second and third generations of the immigrants (Hill & Johnsson, 2004) and their fertility behavior. Whereas in Europe this concept is quite new and research is still mainly focused on the first generation immigrants (see Andersson, 2004).

When it comes to study the fertility of the immigrants most of the previous research focused on the immigrant women (Kulu, 2005; Vila & Martin, 2007; Woldemicael & Roderic, 2010; Carter, 2000). This approach is influenced by the main trend in the field of the demography where women have always been considered as main subject to study the humane fertility. There are various reasons that explain the dominance of women as subject of study in the demography. First

men's reproductive spans are not as clearly defined as women, second women are easier to interview because they spend more time at home than men third if they are not living with both parents, children are more likely to be living with the mother (Green & Biddlecom 2000, pp. 85; Shryock & Siegel 1976). Also in demographic models, males are excluded. According to Li Zhang (2011, pp.05) men are not included in demographic models because including men in these models requires generalizing the demographic events to men and taking into account the role of men in reproduction and population change and this generalization, however, is not easy since it makes demographic models too complicated to be constructed.

Beyond the above mentioned reasons many scholars favor the inclusion of males into demographic studies (Dodoo, 1993; Green & Biddlecom, 2000). In order to make precise analysis of humane fertility behavior, excluding males from fertility studies is not a wise decision because having children requires male and female both. Hence characteristics of both partners should be given due importance.

In case of the immigrants, knowledge of male fertility becomes more precious in order to understand immigrants' fertility behavior because immigrants in many cases come from the male dominant societies. While looking back at the history of the immigrants in the last two decades we can easily grasp the fact that immigrants came to Europe mostly from African, South Asian and Middle Eastern countries because of economic and safety (war) reasons. In male dominant societies males are the decision makers especially in case of the important matters like childbearing. In such societies wives interest are usually subsumed or entirely neglected because of cultural norms. Male dominant societies usually also have the combined family system that makes the decision of the childbearing more complicated because in many cases even the extended family (parents of couple) members have a direct say on having children. This phenomenon can be best understood if we bring the role of culture in the fertility studies.

Moreover existence of power in the relationships also plays role in deciding who is dominant and hence the decision maker. As mentioned earlier often these are the men who immigrate more than women and then they bring their families or marry in the home countries. It makes the immigrant males more dominant because they have spent more time in the host country hence have more knowledge and income than the new wife who came later from the home country.

Societal and cultural norms of the home country along with the power given by the knowledge and time spent in the host country make the male immigrants more dominant than their female immigrant spouses who came later. So fertility of Immigrants who came from such societies can be best understood by studying the environment and factors (socioeconomic, cultural, migratory experience etc.) which affected the males.

The field of demography has some influence of western norms and family system (Green & Biddlecom, 2000) where women have strong social status. The rise of modernization along with feminism affected strongly the field of demography. So theories or models developed in the west may be fine for studying the fertility of the European societies but may not necessarily explain the behavior of the immigrants who come from the societies with different norms and culture where roles are different and hence the decision makers.

It is clear that incorporating the male factor into demographic analysis presents a rich potential for better understanding of the dynamics of reproductive decision making (Dodoo, 1993 pp.08). Above discussion explains the need and importance of studying the males' fertility in general and immigrants' male fertility in particular. It also paves the way to focus on the factors affecting the males' fertility. Immigrants which are contributing directly in the European population should be studied in a way that it could provide us useful information on fertility and their behavior towards it. This research has following objective.

How the different migration related factors affect the male immigrants' fertility behavior.

In order to achieve above mentioned objective, effect of following factors or variables on fertility will be studied.

Country of origin, duration of residence, education, age at interview and time of arrival, native language and number of siblings.

There are three reasons for choosing the above mentioned factors for this research. First, most of these factors have been previously studied in terms of their effect on female immigrants' fertility in other studies. Second, data on these variables is usually easily available and well documented and it would allow us in conducting a valuable research. Third, these factors are related to immigration process and have good chances of having effect on the fertility of the subject.

For this research we will use the Spanish Survey on immigrants. Further details on the survey and method will be provided later in this study.

Literature review

This chapter will review the previous research related to male immigrants' fertility. The chapter is divided into two parts where first part is about the research on male fertility and second part focuses on the research on immigrants' fertility. The following discussion will focus on these two parts proceeded by a brief evaluation of the literature which will end the chapter.

Research on male fertility

Most of the previous research on male fertility can be divided into two categories. First category includes the studies which studied the effect of the males on childbearing decision making and family planning and second category includes the studies that focused on the comparison of male and female fertility. In the following discussion we will briefly analyze the research studies done in both of above mentioned categories.

Effect of the males on childbearing decision making

In the literature, role of men in fertility decision making has been extensively studied. The main purpose was to analyze how men affect the contraceptives use and family planning programmes. Most of these studies have been conducted in less developed countries. Usually it is considered that these are males who are hindrance in lowering the fertility especially in the male dominant societies. In such societies males control the resources and hence have more authority at home and in childbearing decision making. Traditional societies by default give the right to husbands to make the family planning decisions (Johansson & Nguyen, 1998). However there exist opposite views as well for example in a study in Ghana, Dodoo (1995) came up with the result that female preferences are more significant than male preferences in predicting contraceptive use. In another study by Derose & Ezeh (2005) on fertility decline in Ghana, they find out that men's education was decisively a strong reason for the rapid decline of the fertility from 1988 to 1998. They further explain that females' education was useful in increasing their autonomy in the decision making.

Mott and Mott (1985) studied a village of Nigeria where they tried to find out fertility intentions of males and females. According to them fertility intentions are essentially formed on an individual and not a family level. Moreover they also found out that even they have different prospective fertility intentions, they have same attitude toward family planning. It means studying the behavior of the couple toward family planning is not sufficient in itself to predict the fertility. It

also proves that husband and wife do not share the same fertility intentions and possess different attitude toward it. Now whose intention would be followed depends on the power relation between the couple which is created by the culture, education, economic resources and even religion.

Some studies also consider couple communication as an important factor in childbearing decision making because it allows equality in husband wife relationship. Becker (1999) claims that lack of couple communication was a major hurdle in the success of the family planning programs. Odimegwu (1999) also claims that couple discussion has positive effect on the family planning practices.

Comparison of male and female fertility

One of the early studies done on comparison of the male and female fertility was by Kiernan and Diamond (1983) in which they studied the age at which childbearing starts for both males and females in Great Britain in 1946. According to them women had their first child at an earlier age than men; the median age of women at their first birth (23.0) was almost three years lower than that of men (25.9) years. They believed that education attainment, career advancement, income accumulation and other life style considerations delayed first birth for men.

Some studies have found that male fertility rates have been lower than the females over the period of time. Male completed fertility rates have been lower than those of females in most European nations since the 1960s for example, the TFRs in France in 1974 were 2.05 for males and 2.11 for females; in Denmark in 1988, the TFRs were 1.37 and 1.50 for males and females, respectively (Zhang, 2011, pp.14 ; Coleman, 2000). Moreover a study, by Bachu (1996) on fertility of American men, shows that male and female fertility differs even on the basis of race, country of origin and marital status. According to his findings, fertility was higher among Black married men with 2.6 children each than it was for White men and Asian and Pacific Islander men with 2.2 children each. Similarly, fertility rates were also higher for ever-married Black women than for White women or Asian and Pacific Islander women (Bachu 1996, pp 14).

Research on immigrants' fertility

If one cannot expect a single theory to explain fertility and fertility changes, the picture gets even more complex in the context of international migration because different environments (at origin

and destination) and the migration process itself may shape fertility behavior and attitudes not only of the migrants, but also of their relatives (Milewski, 2010 pp.19). There are various theories explaining the fertility of immigrants which have been developed over the years. The ones which have been considered useful and hence got more attention are disruption, adaptation and selection hypothesis. Following discussion will focus on these hypotheses.

Disruption hypothesis

Goldstein (1973) found out that the fertility level of the immigrants within Thailand who are new were much lower than the ones who were already well established and had spent long time. The low fertility was because of the disruption caused by the migration. According to this hypothesis migration in itself is a disruptive force that affects negatively on the fertility of the immigrants. Migration is a stressful process and it requires a lot of attention and puts burden not only on the person who migrates but also on his/her spouse. Carlson (1985) describes that family life may get affected by the migration. According to him, "pre-migration matters as economic dislocation, family disruptions, or conscious planning and saving for migration might delay marriage or reproduction. A migration effect on reproduction also results from the separation of husbands and wives for extended periods of time, when spouses do not migrate at the same time. Finally, a migration effect would also include the disruptions following the "settling-in" process, including job and housing searches."

There have been many empirical studies which favors the disruption hypothesis like Hervitz (1985) in Brazil, Goldstein and Goldstein (1981), Goldstein (1973). However there are some studies which challenge the disruption hypothesis. For example while studying the foreign born women in Sweden, Andersson (2004) found out that immigrant women exhibit the elevated childbearing pattern just after the migration.

> Practically all groups of immigrant childless women display elevated propensities of entry into motherhood during their first few years in Sweden. Our findings of elevated levels of childbearing immediately after a migration to Sweden give no immediate support for the notion of "disruptions" in childbearing in connection with international and other long-distance migration (Andersson 2004, pp. 771).

Marriage migration can possibly be a reason for elevated fertility after migration. Immigrants from the male dominant societies could experience this trend more because males usually bring their wives from the home country.

Adaptation hypothesis

The adaptation hypothesis assumes that the fertility preferences of migrants gradually adapt to the new economic, social and cultural environments at places of destination and convergence to the fertility levels of stayers at destination is expected to take place rather rapidly (Hervitz, 1985, pp.294). This adaption to new environment may be triggered by socioeconomic and cultural conditions (Milewski 2010, pp.23). Immigrants usually have the scarce resources so they have to plan the allocation of resources in a fair way. They need to choose if they want to spend more time on household matters or in establishing the career outside the home. So spending more time at home becomes a cost and push down the economic well-being. As a result immigrants start to think like the locals and prefer to adopt the local fertility level in order to enjoy the benefits of having the low number of children.

So in this way labor market status of the immigrants plays an important role in deciding how the immigrants will behave toward childbearing. According to Andersson and Scott (2005) immigrant women usually behave the same way like local women toward the labor market situation. Like Swedish women immigrants are likely to have children if they are well established in the labor market and vice versa. However immigrants usually avoid having too many children if they are well established because they do not want to compromise on their established career. According to the view of Bean and Tienda (1990) sometimes immigrants have even less fertility than the local populations because they do not want to take risk of losing the established market position. Immigrants' adaption can also be because of culture acceptance in the host country. The best way this can happen is because of the marriage with the local person. Marriages between people from different cultures and nationalities are very common now a day. So the people who have the local spouse have more chances to adapt quickly to the local fertility trends. However religion can play a decisive role in this cultural adaption phenomenon. People who have strict religious association are usually less likely to adapt than the ones who are not so religious. Studying the role of the culture in adaption hypothesis is difficult and hence there are not many studies on this.

Overall both economic and cultural conditions affect the adaption hypothesis of fertility but in many cases more research exists on the role of economic conditions of immigrants in their adaptation to the host country trends.

Selection hypothesis

Selectivity suggests that immigrants are different than nonimmigrants in a number of ways that may be associated with lower levels of fertility, including having lower desired family size (Hill & Johnson 2004, pp.813). It means immigrants are usually part of the special group which is different than the others based on their education, economic and fertility intentions. They could be the ones who were already more inclined to act like the people in the host country. This hypothesis claims that it was not due to the adaptation or disruption that immigrants behaved like locals instead it was because they were already inclined to have low fertility.

The selection hypothesis predicts convergence of fertility patterns between immigrants and their counterparts in the host society because migrants are assumed to share the fertility intentions of the persons at destination and hence, immigrants may not have the fertility intentions dominant in their country of origin, but may instead have intentions similar to those of the receiving country (Milewski 2010, pp.29). In today's globalized world where information and knowledge moves across the boundaries in matter of seconds through media and internet, this argument has some credibility. Presence of Hollywood movies and music channels all around the world has some influence on the way of thinking of young generation. It is also true that positive image of the host country's culture and system can trigger the immigration. The immigrants which will come in this context will have good chances of adopting the fertility level of locals. Ribe and Schultz (1980) has an extreme view in favor of selection hypothesis. They believe that it is actually the fertility desires that decide the destination for immigrants. According to them this can be true in a context where immigrants want to be in a country which provides the best environment to have smaller families and also provides the full benefit of having small families. However we do not have any knowledge if male and females exhibit similar patterns.

A glance on literature review

After reviewing the literature we can see that there exist research on male fertility but it has been done from the perspective of analyzing their role in childbearing decision making or for

comparison with female fertility at macro level. When it comes to study the fertility for policy making and analysis at micro level then it is always the female fertility because that is considered as more valuable. Recently the focus has started to shift on male fertility because of its usefulness in making good analysis along with female fertility. Moreover the understanding of the fact that female fertility cannot represent the humane fertility alone is a major driving force in motivating the researchers. But still there is a long way to go. By involving the males into the fertility, it is difficult to develop the models and present theoretical explanations for the change in fertility levels over the period of time.

Dominance of the female fertility in the mainstream research also influenced the study of immigrants' fertility. Most of the studies on immigrants fertility take the female immigrants into their consideration and hence in model building and analysis. Hypothesis discussed above study the female immigrants' fertility while little consideration is given to the possibility that immigrants who usually come from the male dominant societies may experience strong male dominance in childbearing decisions.

Author here does not suggest replacing the female immigrants' fertility entirely with the male immigrants' fertility instead it would be ideal to include the both fertilities so we can better understand the differences and hence develop the policies in our best benefit. But the question is that studying only the female immigrant fertility against different migration related variables and factors, is a wise move or not. Previously the effect of various immigration related factors have been studied on female immigrant fertility. However male immigrants have not been studied from this perspective which means still we are lacking in our complete understating of the immigrants' fertility that includes both male and female immigrants' fertility. In this study author wants to study the effect of some of these factors on male immigrants' fertility so that we can get view of other half of the picture as well. The data that we are using in this study allows us to study the male immigrants' fertility trends in general that can be useful in finding some interesting information on male immigrants' fertility. However it is difficult to specify very specific duration-specific hypotheses and test them with this data. In this study I will use the Spain as test case and study the male immigrants in Spain. Presence of a lot of immigrants in Spain makes it a good candidate to study the male immigrants and I believe it can provide us some useful information on the male immigrants' fertility behavior.

Data and Methods

The data for this research was taken from Spanish immigrants' survey 2007 conducted by Universidad Complutense de Madrid and the ministry of labor and social affairs of Spain. Survey has 16400 subjects aged 16 or more who born outside the Spain excluding the ones who have Spanish nationality by birth. Persons were interviewed regarding their immigration experience, conditions at the home country before departure and current condition in Spain[1]. It provides a useful and broad set of variables that can be used to study the immigrants from different perspectives. But here we will only extract the information needed for fertility research. Some new variables were created based on the information which was present in existing variables in the survey.

Final dataset for this research has sample of 3797 childless males and eight variables. All the males in this study were childless when they arrived in Spain. By including only childless males we can better understand the effect of the migration related factors on the subsequent fertility behavior of male immigrants. This survey has a variable that explains if the immigrant had children before the migration. So I excluded all those males who had children before migration and it left only the males who were childless. However it does not contain any information on the timing of births in Spain.

Because the dependent variable is count data in terms of number of children born in Spain so the Poisson regression was used to analyze the data. However in this data mean and variance is not equal which is considered as assumption for the Poisson regression. Poisson regression has been employed in various research settings before like by Goodwin and Sauer (1995) to estimate publications by economists over the life cycle, by Ozuna and Gomez (1994) to estimate a model of recreation demand, by Michener and Tighe (1992) to estimate highway fatalities, and by Mayer and Chappell (1992) to estimate net entry in several industries (Caudill & Mixon, 1995, pp.183). Number of children (children ever born) was dependent variable while all other variables were independent variables.

The description of the variables used in the study is given below.

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[1] http://www.ine.es/en/daco/daco42/inmigrantes/inmigra_meto_en.pdf

Table1.0. Variables and their categories with percentage of immigrants in each category

Variables and their categories	% of immigrants in each category
Region of Birth (ROB)	100
Europe	36.2
Africa	28.1
South America	26.1
North America	4.9
Asia	4.7
Duration of residence in Spain (DRS)	100
18 & more years	32.2
8-17	30.2
less than 8	37.6
Age at Time of Arrival (ATA)	100
15 & less	23.1
16-30	63.7
31-45	13.2
Language (LNG)	100
Spanish	40.2
Non-Spanish	59.8
Level of Education (LEC)	100
No education	3.4
Primary education	16.9
High School	56.6
University	23.1
Number of Siblings (NOS)	100
1	26.0
2	21.4
3 & above	52.6
Age	100
15-20	3.5
21-25	9.5
26-30	17.6
31-35	19.4
36-40	16.5
41-45	13.1
46-50	7.1
51 & above	13.2

Region of birth

Region of birth has been divided into regions because of too many countries. Americas has been divided into South and North because many Spanish speaking people come from South America to Spain so it could be useful to have separate category for them. But we can see that there are not many people from North America in Spain but as we know some countries in North America are developed and have less fertility like USA and Canada so giving them a separate category should

not be a problem. Just for clarification Mexico is included in the North America although it is a Spanish speaking country. But in the survey there are not many people from Mexico. Overall Europe and Africa have the highest and Asia and North America has lowest number of male immigrants in Spain as compared to other parts of the world.

Duration of residence in Spain

As we know with increase in the duration of residence in the host country chances of having child increases because of the longer stay. That is why we need this variable in order to control the effect of the duration of the stay of male immigrants in Spain. The survey was conducted in 2007 so category "18 and more" means male immigrants who arrived before 1990. Apparently we can see that most of the male immigrants in Spain arrived after 1990. Category "less than 8" years means male immigrants who arrived after 2000.

Age at time of arrival in Spain

This variable can be useful in understanding that how the culture and environment of host country affect the fertility of the male immigrants especially when they arrive at age less than 15 because then they have more chances to integrate into the society and adopt local trends. In many cases usually these are the adult people who migrate to other countries. This is actually true if we look at the percentages. Almost 64 % of the people were between 15 and 30 when they arrived in Spain.

Age

This is age at interview. In order to get the real effect of age at arrival we need to control for final age. It has been divided into intervals of five years of age. Age, age at arrival and duration in Spain are all related to each other. I avoid the problem of collinearity by specifying two of the variables with very broad non-overlapping categories.

Mother Language

This variable is useful in understanding difference in fertility due to different mother language. All the Spanish speaking people were put into one category and vice versa. Overall in this data, male immigrants who do not have Spanish as their mother tongue are more than the ones who do have Spanish as their mother tongue.

Highest level of education completed

This variable will see the effect of education on male immigrants' fertility. This is the education that they had when they arrived in Spain. Here primary and high school education mean at least 5 and 12 years of education respectively. University education means at least bachelor education i.e. 15 years of education. Overall male immigrants in Spain with no education are very less i.e. only 3.44%. Most of the immigrants had some education.

Number of siblings

This variable will be useful in understanding the relation between the number of siblings of the male parent and number of his children.

Results and Discussion

Poisson regression in Stata gives the results in coefficients which are difficult to interpret so that is why this data is presented in incidence rate ratios. Stata allows showing the Poisson regression results in IRR as well which makes the interpretation quite easy. In IRR first category in each variable is considered as reference and then values of other categories are described in reference to the first one. For example in our first variable ROB, Europe is the reference category. IRR value of males from Africa is 1.13 that means males who came from Africa have 1.13 times as many children as those who came from Europe. All the results are given in the table 2.0. In the variable "region of residence" only "Africa" category was significant whereas other categories were not significant. In all other variables there were no significant differences at the conventional five percent level. However for year of "arrival in Spain" variable "people who arrived before 15" were significantly different from people who arrived after 15 years of age.

From the results we can see that male immigrants from South America have the lowest fertility and Africa have the highest fertility as compared to all other regions. Male immigrants from Africa have 13% more children than the male immigrants from Europe when we control for their composition followed by the Asian males who have 11% more children than the European male immigrants in Spain, while controlling all other variables. High fertility among African immigrants was also noticed by the Woldemicael and Roderic (2010) in their study of the immigrants in Canada. Asian males have higher fertility than males from South and North Americas. Based on the results we can say that African males continue to have higher fertility than other male immigrants.

In some cases it is assumed that immigrants from high fertility countries continue having high fertility even after migration at least in short term so it seems to be partly true in this study in case of African male immigrants in Spain. North American males have as much children as European counterparts and South American males have 2% less children than the European male immigrants in Spain. Overall the difference between three is minor and fertility of males from these three regions is more and less the same. Overall the difference between the regions is not huge.

Table 2.0, IRRs of Region of birth, Duration of residence in Spain, Age at time of arrival in Spain, Language, Education and Number of siblings obtained with Poisson Regression

Variable	IRR	Variable	IRR
Region of Birth		**Language**	
Europe (reference group)	1.00	Spanish (reference group)	1.00
Africa	1.13	Non-Spanish	0.97
North America	1.00		
South America	0.98	**Level of Education**	
Asia	1.11	No education (reference group)	1.00
		Primary education	0.94
Age at Time of Arrival		High School	0.85
15 & less (reference group)	1.00	University	0.90
16-30	1.00		
31-45	0.92	**Number of Siblings**	
		1 (reference group)	1.00
Age		2	0.95
15-20	1.00	3 & above	1.00
21-25	1.27		
26-30	1.19	**Duration of Residence**	
31-35	1.24	18 & more years	1.00
36-40	1.41	7-17	0.88
41-45	1.52	7 & less	0.76
46-50	1.53		
51 & above	1.96		

According to the adaptation hypothesis, immigrants adopt quickly to the host country trends and environment. It also says that with increase in the duration of the residence, immigrants' fertility pattern become more like the natives. Several studies have shown that length of residence in the host country influences the fertility patterns of immigrants (Vila & Martín, 2007, pp.22) and just for clarification it cannot really be studied in this study because we only have information on

accumulated fertility and not on what is happening along the way. However In this study variable age at time of arrival in Spain can give some insight on the effect of the duration of residence on the fertility behavior of the male immigrants. According to the figures mentioned in the table 2.0, males who arrived at the ages between 15 and 30 have as much children as the ones who arrived in Spain at the ages less than 15. However people who arrived after 30 years of age have 8% less children than the ones who arrived before 15 years of age while controlling all other variables. It means that there is no considerable effect of age of arrival in the Spain on male immigrants' fertility. People who arrived after 30 years of age has less fertility but that may be because of their older age and may be it took them more time to establish themselves in the host country which had negative effect on the fertility. By establishing I mean economic and social integration. In total, findings here do not support the adaptation hypothesis.

Some studies have previously found out that native language also effect on the fertility of the immigrants (Kohli, 1998). Fertility may be different for immigrants with different native languages. In this study variable language was classified into two categories: Spanish and non-Spanish language. This category is justified because of the fact that there are a lot of immigrants in Spain from South America who are Spanish speakers. In this study I did not find any huge difference between immigrants who were Spanish or non-Spanish speakers. Non-Spanish speakers have only 3% less children than the ones who have Spanish as a native language. This difference could be possibly because of the economic and social hurdles which may arise due to the lack of knowledge of the language of the host country. Because then it may take more time to establish economically and socially in the host country and it could have negative impact on the fertility. Moreover it was not significant.

In this study I also found out that education has some impact on the male immigrants' fertility. In general education as a predictor of the fertility has been studied quite often and in some cases it has been found out that education effects fertility. According to the table 2.0, male immigrants who have no education have the highest number of the children. Whereas the male immigrants who have primary education and high school education have 6% and 15% lower number of children respectively as compared to the ones who have no education. However male immigrants who have university education have 10% less children than the ones who have no education at all. Overall trend is that with increase in education fertility decreases but after the university education it increases.

Immigrants who have higher education may have higher chances of establishing themselves in the host country in short time period as compared to the immigrants with low education. Possibly this is what happened in case of male immigrants in Spain. In this study education means the education that immigrants had when they arrived in Spain. It is possible that immigrants attained more education after arriving in Spain which is a weakness of this variable because it does not have any information about that. The results show that with the higher education male immigrants have lower fertility however difference is not huge.

Sometimes it is believed that more the number of siblings higher the fertility in the next generation (for a recent review, see Kolk, 2011). It is based on the theory that culture in which children are raised usually affect the decisions in their lives later on. The characteristics of one generation may affect the next generation in the important matters of life including childbearing. Ben-Porath (1975) found out that number of children in the second generation have the direct relationship with number of children in the previous generation .i.e. siblings of the parents. However this is not true in case of the male immigrants in Spain. Male immigrants who had two siblings have 5 % less children than the ones who had only one sibling. If we believe on the concept of more the siblings more the children in next generation then male immigrants with three or more siblings should have higher fertility than all other categories here. Overall in this study there are no clear or large effects of this variable.

Conclusion

The purpose of this study was to study the fertility behavior of the male immigrants against some immigration related variables. Male immigrants did not get a lot of attention before. It has been the women when it comes to study the immigrants. Recently, trend of obtaining the data on male immigrants' children has started that provides an opportunity to demographers to explore the fertility behavior of the male immigrants. In this study I did not have optimal data but was still able to derive some important findings. I found out that male immigrants in Spain appear to show no support to the adaptation hypothesis but some support to selection hypothesis. In case of adaptation hypothesis we do not see any considerable difference in the fertility of males who arrived before 15 and after 15 years of ages. Then in case of selection hypothesis we found out that male immigrants with two siblings have less fertility than the ones who have one sibling although the difference is not huge while male migrants from Africa have somewhat higher

fertility than others. In general, the findings partially support the selection hypothesis that says immigrants are usually the special group of people who already had intentions of low fertility and move to the country of low fertility. Such people have behavior different than the indigenous population in the country they stem from. From this perspective male immigrants in Spain may be a special group of people who were actually different from the people in their country of origin. But we cannot decide this unless we have detailed information on their background and other people at the home country. It is also possible that immigration experience in itself affected the immigrants' fertility behavior.

There exist differences in fertility between male immigrants from different regions but all in all they are not very large. Male Africans have the highest fertility than any other region that means to some extent they still keep the home country culture of fertility. I also found out that mother language does not has any considerable effect on the fertility behavior of the male immigrants that goes against the findings of some previous studies on woman immigrants. In case of education I found out those male immigrants who are more educated have less fertility than the ones who are not educated at all. However there exist some differences in fertility between the male immigrants with different levels of education (excluding the uneducated).

This study also has some weaknesses. In Poisson regression a basic assumption is that mean and variance of the variable under study should be equal. However this is not the case in this study. In the future, research can be conducted by using more longitudinal information, and by having more background variables. Moreover inclusion of the Spanish population in data for comparison purpose could also be useful in getting some new insights. Moreover comparison of male and female immigrants' fertility against a set of variables can be very useful in analyzing how the two sexes behave and take the effect of the immigration process while taking Spanish males and females as reference population. The Spanish survey does not have any information on the timing of births. By including information about timing of births, fertility of male immigrants can be analyzed in a proper way that can generate very useful information. Finally, in this study I only included the men who were childless when they arrived in Spain. I think a separate research can also be conducted to see the fertility behavior of the male immigrants who already had children and a comparison can be made against the ones who were childless.

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