



Sex composition of children born and transition to third birth among immigrants in Sweden

Eleonora Mussino, Vitor Miranda and Li Ma

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Eleonora Mussino

Department of Sociology, Stockholm University

Vitor Miranda

Statistics Sweden

Li Ma

Université catholique de Louvain

Abstract: In this study, we investigate whether immigrant parents hold sex preferences for children in Sweden, a country that promotes gender equality and where parental preference for having a girl prevails. By applying event-history models to Swedish register data, we investigate the transition to third birth by the sex composition of children born among immigrants. Specifically, we test whether 1) those with only girls have a higher likelihood of having a third child than those with two boys and those with a girl and a boy; 2) those with only girls accelerate their process of having a third child; 3) those who have stayed in Sweden for a longer period of time show a lower tendency for son preference than those who have spent a shorter time in Sweden, and 4) those who migrated to Sweden at younger ages exhibit reproductive behavior similar to that of the native born. We pay particular attention to immigrants from China, Korea, India and the former Yugoslavia, where son preference culture has been well documented in the literature. Our findings imply that immigrants tend to maintain aspects of their previous culture and way of life in the destination country.

Keywords: Sex Preferences, Immigrants, Sweden.



Introduction

There is a vast literature on sex preferences for children around the world. A preference for sons over daughters is mainly observed in East Asia (e.g., China, South Korea), South Asia (e.g., India), the countries of the former Soviet Union, and – more recently – in Albania and the Balkans (Arnold 1997, Bongaarts 2013, Fuse 2010; Guilmoto 2009, UNFPA 2012a, b). In these countries, son preference has largely been driven by the perceived greater economic utility for parents – over the course of the life cycle – of sons than of daughters. For example, in many East Asian societies, a woman's traditional primary duty was to bear sons to perpetuate her husband's lineage. The number of sons she had borne greatly impacted her value in her family and community (Mitra 1979). In old age, parents would depend on their sons and daughters-in-law for care. Under such a system, the desire for a son would drive couples to continue childbearing if their previous children were all girls (Ma 2016, Posten 2002).

In most contemporary developed countries, however, children are not seen predominantly as a source of economic security. Instead, they are valued largely for social and psychological reasons, as they provide parents with opportunities for self-realization (Hoffman and Hoffman 1973). Existing research has provided evidence of parents' preference for having at least one child of each sex. Studies focusing on North America and Europe have shown how parents with only daughters or only sons are more likely than other parents to have another child (Andersson et al. 2006, 2007, Jacobsen et al. 1999, Hank and Kohler 2003, Pollard and Morgan, 2002). Moreover, in some of the Nordic countries (Denmark, Norway and Sweden), parents who only have sons are more likely to have another child compared with parents who only have daughters. Such findings reflect an influence of parental preference for daughters on childbearing behavior in that region (Andersson et al. 2006, 2007).

Lately, increased attention has been paid in the literature to the preferences for the sex of children among immigrant parents in different destination countries. Some studies have found elevated sex ratios at birth, especially in third or higher-order births, among immigrant women of an Asian background, indicating sex selection of children among this immigrant group (Almond and Edlund 2008, Almond et al. 2013, Dubuc and Coleman 2007, Hwang and Saenz 1997, Mussino et al. 2017, Singh et al. 2010). A few other studies have looked at parity progression based on the sex composition of previous children (Almond et al. 2013; Adsera and Ferrer 2016; Okun 1996, Ost and Dziadula 2016; Tang 2013). A common finding among those studies is the

extensive sex preference in favor of boys at higher parities among women of East and South-East Asian origin.

In the present paper, we extend this line of research by focusing on Sweden, a universal welfare state where gender equality is a cornerstone. By applying event-history models to Swedish register data, we investigate the transition to third birth by the sex composition of children born among immigrants in Sweden. Specifically, we study whether immigrants coming from countries with strong son-preference cultures have a higher likelihood of third births if their previously born children are both girls; whether they tend to speed up their process of childbearing if the previous children are both girls; whether the son-preference-driven childbearing behavior of certain immigrant groups changes over time following migration; and whether immigrants who came to Sweden at younger ages tend to exhibit the same childbearing behavior as native Swedes. Particular attention will be paid to some immigrants groups from East and South-East Asian countries, as well as South-East European countries, where son preference has been widely documented in previous studies. The findings of this study contribute to our understanding of how different groups of immigrants balance the social norms of their home country and those of the destination country.

Preferences for sex of children among immigrants

Immigrants' fertility behavior often indicates the cultural norms of their home country (Algan et al. 2012). Meanwhile, the general climate of childbearing in the destination country may influence immigrants' reproductive behavior (Andersson 2004, Andersson and Scott 2005). During the past decades, the fertility behavior of immigrants has attracted interest among family demographers, leading to different and sometimes conflicting theories on the fertility patterns of immigrants (see Andersson 2004, Kulu and Amparo 2015, Mussino and Strozza 2012). The theory of socialization and the theory of adaptation are frequently used to explain how immigrants adjust their behavior to that of the natives in destination countries. The former theory looks at how the culture of origin, often taken as the country of birth, persists in the destination country and affects reproductive behaviors (Kahn 1994; Schoenmaeckers, Lodewijckx, and Gadeyne 1999; Alders 2000). The latter theory assumes that as more time is spent in the destination country, immigrants tend to adapt their reproductive behavior to the material circumstances of their new institutional context (Andersson 2004, Schoorl 1995).

Parental preference for sex of children, among all other things, is an important indicator of a society's cultural norms (Adsera and Ferrer 2016). Some studies have explored whether preferences for the sex of children among migrants are similar to those of their counterparts in the country of origin (*cultural persistence*) or if those preferences change over time in the destination country (*cultural adaptation*). Using the Canadian Census, Adsera and Ferrer (2016) show that if the first child is a girl, the sex ratio at second birth for South Asian immigrants is higher when compared to that of the native population and other immigrants. Normally, an elevated sex ratio at birth indicates a voluntary use of prenatal sex testing and sex-selective abortion (Goodkind 1996). For the Swedish context, where the preference for a mixed sex composition of children or even girl preference prevails among the native born population, Mussino et al. (2017) found that a longer duration of residence in the country may decrease the differences in sex ratio at birth between immigrants and natives.

Age at migration also matters. Asian immigrant mothers in the US who arrived at younger ages showed behavior similar to that of the natives, suggesting assimilative behavior with regard to sex preferences for children among immigrants who arrived as children (Ost and Dziadula 2016). In Sweden, the difference in sex ratio at birth between immigrants who arrived at young ages and native-born Swedes is small (Mussino et al. 2017). A similar adaptive behavior in childbearing and sex preference has also been found in Israel among immigrants from Asia and Africa (Okun 1996). That study suggests that part of the convergence of the fertility levels of immigrants of Oriental background to the lower fertility levels of Jewish women in Israel is driven by convergence in sex preferences for children between these two groups.

In some contexts, such adaptive behavior is remarkably pronounced among the second generation of immigrants. Tang (2013) showed that Chinese-born immigrants in the US show a preference for sons over daughters, whereas American-born Chinese women prefer one son and one daughter, similarly to native-born Whites. However, findings for some other contexts challenge the adaption theory. An indication of *cultural persistence* is observed among the second generation of some immigrant groups in Canada. Looking at the parity progression in Canada, Almond et al. (2013) found that after two girls were born, the likelihood of having a third child was significantly higher among both first- and second-generation South or East Asian immigrants than other groups.

Sex preferences for children might have an effect on the number of children as well as on the

timing of the next birth, especially when the sex composition of the children already born is taken into account. Couples may continue childbearing until they have a child of the desired sex, and couples who have obtained their desired number of sons or daughters may stop having more children (Bongaarts 2013, Clark 2000). Regarding birth intervals, a study by Teachman and Schollaert (1989) has shown that in the United States, women tend to have a third birth sooner after the second one if they have two sons or two daughters than if they have a boy and a girl. The authors argue that this pattern is largely driven by parents' desire to balance the genders of their children rather than their preference for boys or girls. A different scenario unfolds in contexts with strong son-preference cultures. In India, for example, the interval between the second and third birth for couples with two sons is longer than that of those with two girls (Nath et al. 2000).

The Swedish context

Before the Second World War, international migration to Sweden was relatively low, and the number of immigrants to Sweden began to increase during the war. The Nordic and Baltic regions were the major sources of immigrants, followed by other European countries. Since the 1960s, with the increase in immigrants from different parts of the world, the composition of immigrants has been dynamically changing over time. In 2005, Asia became the largest source of immigrants, accounting for 28% of all immigrants residing in Sweden (Allwood et al. 2006). Today, Sweden can be considered a multicultural country; immigrants arrive from various regions of the world, bringing with them different fertility behaviors and cultural preferences. These cultural traditions and values have a strong chance of being maintained in Sweden, a country that is tolerant of cultural diversity and encourages multiculturalism.

Sweden is an interesting case not only because it attracts immigrants from different fertility settings and preferences but also because it has a relatively high fertility level in the European context. In addition, Swedish women do not show any sign of sex-selective abortion (Mussino et al 2017). Swedish parents have often openly expressed some degree of preference for having daughters over sons. A recent study by Miranda et al. (2016) on parity progressions in Sweden provides indirect evidence that the preference for daughters has increased in Sweden over the last decade. This tendency is shown not only among two-child parents but also among one-child parents.

Additionally, high-quality administrative data is available on the entire population of Sweden, including demographic characteristics such as information on fertility and immigration. That allows us to disentangle – in detail – variations in sex preferences for children by country of origin by looking at immigrant groups' transition to third birth by the sex composition of the children already born. Furthermore, Sweden is characterized by a universalistic welfare state that has taken positive action to promote gender equality (Esping-Andersen 1990; Thévenon 2011). This gender-equality oriented environment may shape immigrants' sex preferences for children. Hence, Sweden offers us a compelling context in which to examine whether and how certain groups of immigrants adjust their reproductive behavior to that of the natives.

Aims and Hypotheses

This paper contributes to a better understanding of the gendered nature of family behavior and immigrant integration in Sweden. We estimate parity progression rates by the sex composition of existing children and investigate whether there are signs of *cultural persistence* or *adaptation*.

When migrants come to a destination country, they bring along cultural traditions from their home country, including values and ways of thinking. Their behavior in the destination country, including their reproductive behavior, might be influenced by their pre-migration norms. The cultural norms of the home country may shape their sex preferences for children in the destination country as well (*socialization hypothesis*). Hence, we hypothesize that **1**) immigrants coming from countries with strong son preference cultures should be more likely to have a third child if they have had only daughters (Arnold 1997). Additionally, we hypothesize that **2**) immigrants coming from countries with strong son preference cultures should be more likely to speed up their process of having a third child if their first two children are both girls.

Behavior might change over time. Although immigrants might continue to draw on pre-migration norms after they settle in the destination country, they might gradually modify their behavior and preferences because of the influence of the social, economic and cultural factors in the destination country (Foner 1997). Specifically, as the time spent in the destination country increases, the differences in sex preferences for children between the natives and immigrants should shrink (*adaptation hypothesis*). Hence, we hypothesize that **3**) a sign of *cultural adaptation* should occur among immigrants coming from countries with a son preference culture as their time in Sweden increases. Accordingly, those who stay in Sweden for a longer period of

time should show a lower tendency for son preference than those whose residence time in Sweden is shorter. In addition, being exposed during childhood to new preferences is expected to strengthen the influence of the destination country, thus we hypothesize that 4) after being exposed to the cultural norm of Sweden since childhood, those who migrated to Sweden at a younger age (1.5 generation) should demonstrate reproductive behavior similar to that of native-born Swedes.

In particular, but not exclusively, the study focuses on migrants coming from China, South Korea, India and the former Yugoslavia. The first three origin countries represent an important source of East Asian immigrants in Sweden today, while the former Yugoslavia is an important source of immigrants for South-East Europe. These countries share a son-preference culture, which has been documented in the literature.

In China, son preference has deep cultural roots (Arnold and Liu 1986). It was traditionally a norm for women to bear at least one son for the family in order to carry on the family line. A woman's status within the household would remain rather low unless she produced a son (Das Gupta et al. 2003, Murphy et al. 2011). Before the introduction of the population control policy, if the existing children were all girls, couples would normally continue with childbearing until they had a son. Once they had a son, they might delay or stop childbearing. This normative requirement for sons can also be seen in other Asian societies. In South Korea, son preference was rather prevalent and a strong indicator for continued childbearing. In the 1980s, Korean women who bore a girl for the first birth had a substantially higher likelihood of having a second child than those who had had a boy. In the 2000s, however, the gender of the first child ceased to make a difference for second-birth fertility, indicating that son preference has lost its importance in Korean society in the new century (Ma 2016). In India, a preference for sons also prevails. Upon their weddings, Hindu women often receive a blessing that they will become a mother of a hundred sons (Bumiller 1990). In addition, the need to pay dowries for daughters further drives parents to show preferences for sons (Das Gupta et al. 2003).

Apart from South and East Asia, parental preference for having sons seems to be observed in South-East and Eastern Europe. A rise in sex selection at birth has been noted in several Balkan states and, in general, after the wars of Yugoslav succession (Guilimoto 2010). The economic crisis of the 1990s and conditions of conflict, as well as patriarchal norms and the emergence of sex-detection technology, had an effect on sex imbalances at birth, especially in several countries

that are part of the former Yugoslavia, such as Montenegro, Kosovo and Macedonia (UNFPA 2012b).

Data and methods

The data come from the Swedish population register, which is kept by the Swedish national bureau of statistics. These administrative data began to be digitalized in the 1960s and they include all individuals registered as residents in Sweden as well as births, deaths and international migrations. This data source has been widely used by previous studies, and an in-depth description of its content and availability to researchers has been published elsewhere.

Maternal birth histories were constructed using data on all first, second and third births that occurred in Sweden between 1968 and 2015 to women born in 1954 or later. Information on the country of birth of women and the number and sex of their existing children was used. Mothers who had multiple births at any point in their lifetime were not included in the study, and only live births were considered.

Event-history models were estimated to study the transition to third-order childbearing in Sweden. The data are organized with monthly precision of exposures and birth outcomes. We measure the relative risks of having an additional child by the sex composition of the previous two children. In particular, we examine whether women speed up their process of having a third child if their prior children are both girls. In this study, we also control for, and consider as a key dimension, time since migration in order to explore how the sex preferences of immigrants may develop as they reside in Sweden for a longer period of time. Time since migration is grouped into 1-3 years, 4-5 years, and more than 5 years in Sweden. Immigrants who arrived in Sweden during their childhood are exposed to the cultural norms of the host society during their growing-up process and therefore may be more influenced by those norms than those who arrive as adults. To distinguish their reproductive behavior from that of adult immigrants, we separately categorize those who arrived in Sweden when they were younger than 16 as 1.5 generation immigrants (see Kulu et al. 2017). We additionally control for calendar year and age of the mother. Women are right-censored in the study if they do not experience a third birth within ten years after the second birth.

Table 1 presents the distribution of second births and third births by women's country of origin. It also shows the sex composition of existing children for two-child mothers. A third of

the native-born two-child mothers had a third child during the period under study. Progression to third birth was the highest among women born in the Horn of Africa and in Turkey, at over 50%. The percentage for two-child mothers born in China, Korea, or India, or in Poland or Iran, is only 20% or lower.

Table 1: Distribution of second and third births, and parity progression ratio (PPR) from second to third birth by women's country of origin, Sweden (1968-2015)

Country of origin	2nd births				Person Years	3rd births	PPR*	Mean age at 2nd birth
	Total	2 boys	2 girls	1 girl,1 boy				
Afghanistan, Pakistan	4863	1329	1129	2405	16694	1976	41%	27.58
Americas and Oceania	19579	5148	4597	9834	101667	5726	29%	30.22
China, Korea, India	9575	2447	2284	4844	48532	1896	20%	31.46
Horn of Africa	14554	3847	3385	7322	46633	8108	56%	27.97
Iran	10974	2887	2622	5465	66312	1727	16%	30.89
Iraq	22316	6041	5118	11157	95100	9419	42%	28.53
Poland	12685	3336	2957	6392	71109	2461	19%	29.95
Rest of Africa	12678	3284	2986	6408	51696	5367	42%	29.51
Rest of Asia	16550	4382	3908	8260	68375	7103	43%	28.41
Rest of Europe	74272	19604	17501	37167	397876	20377	27%	29.48
Southeast Asia	15949	4139	3727	8083	83895	4377	27%	29.98
Sweden	1069798	283400	251407	534991	7056509	348903	33%	29.52
Syria	11774	3285	2568	5921	33674	4699	40%	27.41
Turkey	10892	2896	2552	5444	55969	5641	52%	27.07
former Yugoslavia	31635	8483	7233	15919	174587	9114	29%	27.97

Notes: * PPR: Parity progression ratios from 2nd to 3rd birth

Results

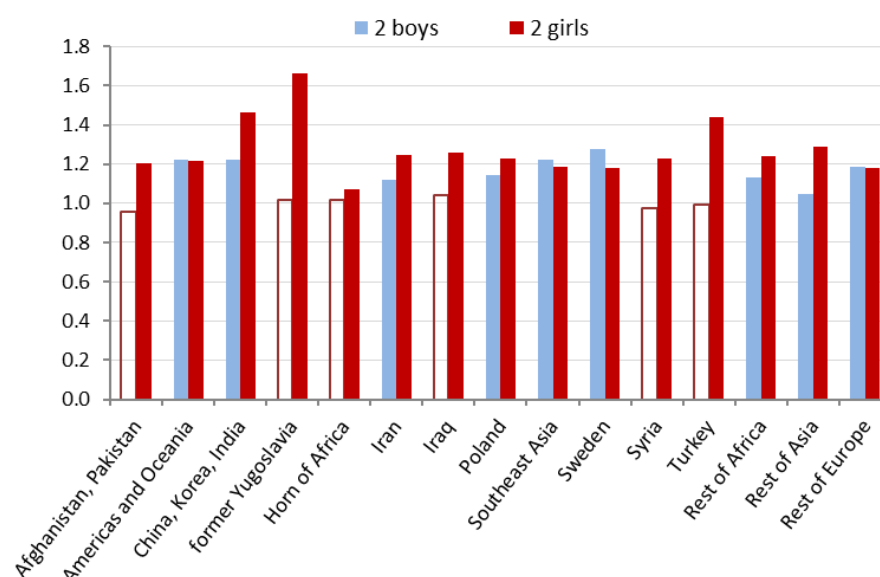
Figure 1 shows the relative risks of having a third child by the sex composition of the previous children among women of different countries of origin, while other covariates are standardized (i.e., time since the second child, time since migration, calendar year, age at birth of the second child). Separate models were estimated by the country of birth of the mother.

The results for the native-born Swedes are consistent with earlier findings (Andersson et al. 2006, Miranda et al. 2016). The birth risks of two-boy and two-girl mothers are also elevated when compared to boy-girl mothers. Moreover, the birth risk of two-boy mothers is higher than that of two-daughter mothers. They are consistent with the preference for having at least one child of each sex but also indicate a stronger desire to have at least one daughter compared to having at least one son.

In contrast, women who migrated to Sweden from the Americas, Oceania, and the rest of Europe do not show a particular preference for the gender of their offspring. In this group, the birth risks of two-boy and two-girl mothers are elevated when compared to boy-girl mothers. However, there is no clear distinction in birth risks between two-girl and two-boy mothers. This pattern is consistent with the preference for having at least one child of each sex but no strong preference for sons or daughters. This is consistent with the results of similar studies on third births among women from these regions in their own home countries (e.g., Pollard and Morgan 2002, Tian and Morgan 2015).

A preference for having sons over daughters can be seen among almost all the other groups of immigrant women. However, we can distinguish two different patterns. The first includes, for example, immigrant mothers from China, Korea and India. In this group, the birth risks of two-boy and two-girl mothers are also elevated when compared to boy-girl mothers. However, the birth risk of two-daughter mothers is higher than that of two-boy mothers. Similar to the case of Swedish-born mothers, this is consistent with a desire to have at least one child of each sex. Nonetheless, in contrast to the pattern of Swedish mothers, this pattern indicates a stronger desire to have at least one son compared to having at least one daughter.

Figure 1: Hazard ratios of third birth by sex composition of the previous born children and women's country of birth, Sweden (1968-2015) (Reference category: 1 girl, 1 boy)



Note: Register data, authors' elaborations, $p < 0.01$, white bar not significant. Separate regressions by country of birth of the mother. The models include controls for age at birth of the second child, time since the birth of the second child, time since migration (for the foreign-born only), calendar year, country of birth of the mother, and sex of the previous children.

The second pattern includes immigrant mothers from Afghanistan and Pakistan; Iraq; the Horn of Africa; Syria; Turkey, and in particular, the former Yugoslavia. In this group, the birth risks of two-boy and boy-girl mothers are not significantly different, while the birth risk of two-girl mothers is elevated. Similarly to the case of mothers from China, Korea, India, and Iran, this suggests a strong preference to have at least one son compared to having at least one daughter. However, the results do not show evidence of a strong desire to have at least one child of each sex among immigrant mothers from these countries. These results are consistent, for example, with previous studies on birth risks among native-born women in Pakistan (Zaidi and Morgan 2016). In a way, this second pattern could be seen as a stronger form of son preference than that shown in the first son preference pattern described above.

Taken together, these results suggest that when immigrants practice their childbearing behavior in the destination country, they seem to be very likely to continue to draw on the norms of their home country.

To explore in depth whether immigrants coming to Sweden from regions with son preference cultures accelerate their process of having a third child if the previous children are both girls, we estimate the interactive effect of time since second birth and sex composition of children, while other covariates are standardized. Figure 2 shows the results for women

coming from China, Korea and India, and the former Yugoslavia. The results for native-born Swedish women and women from the rest of Europe are also shown for comparison¹.

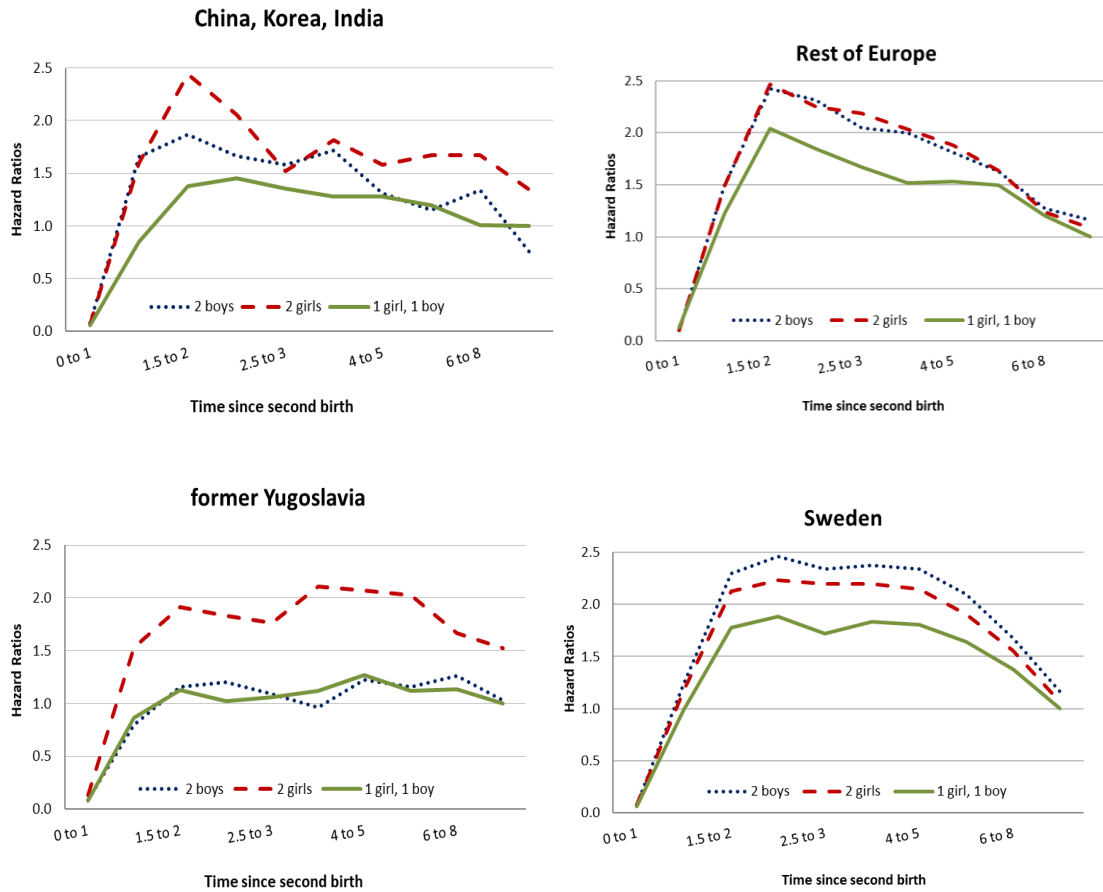
Among immigrants from China, Korea and India who had two girls, there is a noticeable peak of third birth at 1.5-2 years after the second birth. This peak is momentary: after 2 years, the intensity of having a third child declines, and the trend tends to converge towards the trends of other women. Their counterparts with two boys, and those with a boy and a girl, do not have such relatively elevated birth rates in the first two years after the birth of their second child. This finding suggests that those with two girls tend to speed up their third birth.

Among women from the former Yugoslavia, two-girl mothers also have a higher risk of third birth in the first two years after the birth of the second child when compared to two-boy and boy-girl mothers. However, the time trend is markedly different from that of mothers from China, Korea and India. Among women from the former Yugoslavia, birth risks of two-girl mothers and the other mothers did not tend to converge at two years after the second birth. Instead, their higher intensity of having a third child persists over a longer period of time. Taken together, these results indicate that while mothers from China, Korea and India tend to speed up their third birth in order to have a son, mothers from the former Yugoslavia use a strategy that combines shortening birth intervals and maintaining a higher third birth intensity over a longer period of time in order to have a son.

In contrast, native-born women show an elevated third birth risk if they have two boys, indicating a preference for having girls. The difference in birth risks between two-boy and two-girl mothers tends to remain relatively stable during the second to fifth year after the birth of the second child. This suggests that for native-born women, the trajectory is more about having another child rather than shortening birth intervals. Women from the rest of Europe do not show any sign of son or daughter preference. Instead, they manifest a preference for having a child of each sex, as they accelerate the third birth in the same way as if they previously had two girls or two boys.

¹ Additional results for other immigrant groups are available on request

Figure 2: Interactive effect of time since second birth and sex composition of previous children, Sweden (1968-2015) (Reference category: 8-10 years after the second birth; 1 girl, 1 boy mothers)



Note: Separate regressions by country of birth of the mother. The models include controls for age at the birth of the second child, time since the birth of the second child, time since migration (for the foreign-born only), calendar year, country of birth of the mother, and sex of the previous children.

Even though immigrants to the destination country continued to follow the social norms that they had been exposed to before migration, it is necessary to acknowledge that they may modify their behaviors due to the influence of new social, economic and cultural factors in the destination country. To explore whether and how immigrants coming from son-preference cultures modify their childbearing behavior as they spend more time in Sweden, we estimate the interaction term of time since migration and sex composition of children while standardizing other covariates. The results are shown in Figure 3.

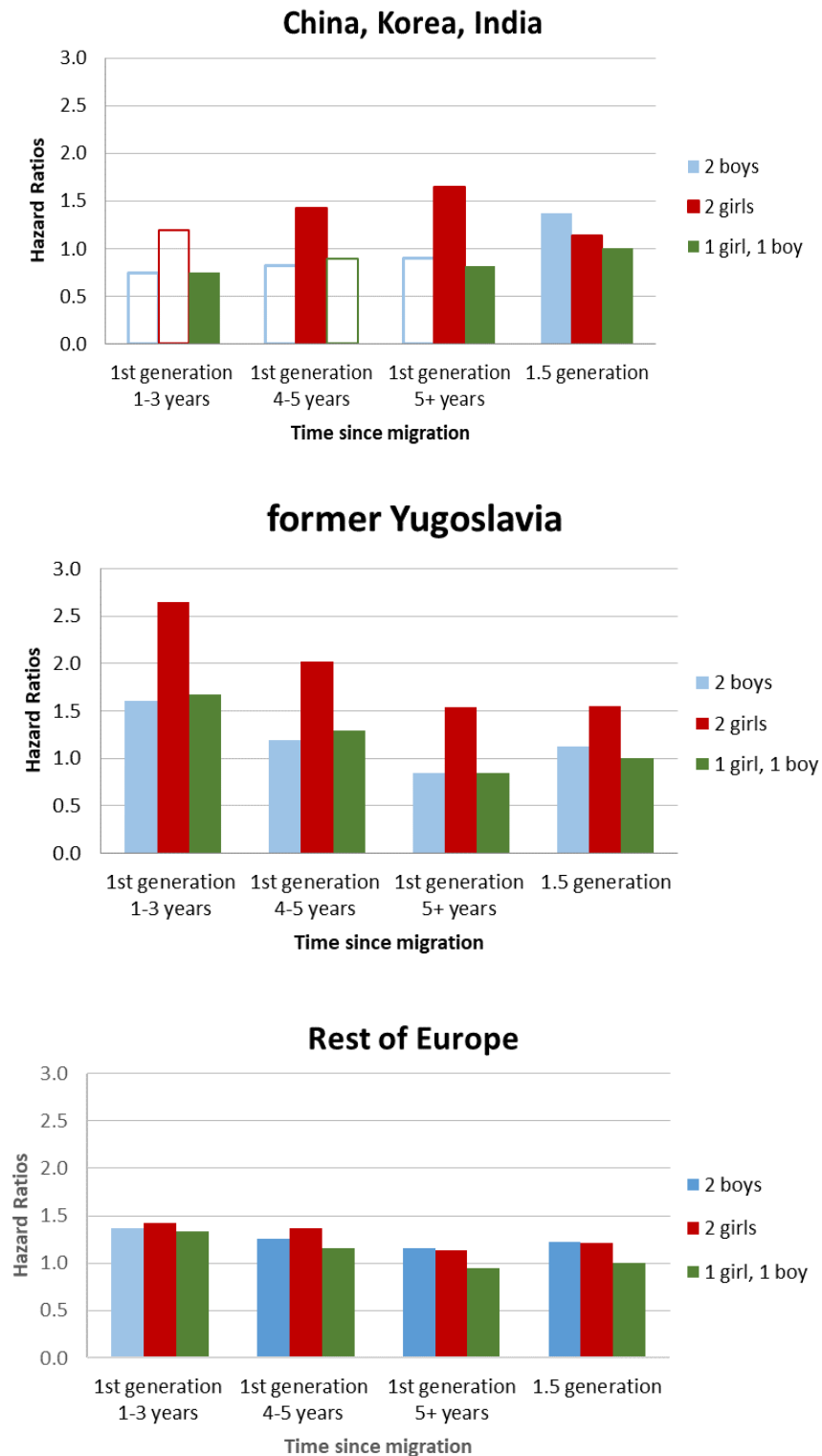
Surprisingly, immigrants from China, Korea and India do not show any sign of adjusting their childbearing behavior to the Swedish norm. They have a notably higher likelihood to have a third birth if they have only girls, despite the longer time they have spent in Sweden

by that point. However, the reproductive behavior of the 1.5 generation immigrants resembles that of the native-born Swedes. Specifically, they have a higher likelihood of a third birth if the previous children are of the same sex, especially if both of the children are boys.

Immigrants from the former Yugoslavian countries do not adjust their childbearing behavior, either. Although their likelihood of a third birth declines as they spend more time in Sweden, their preference for having a son continues. Women with only girls have a significantly higher likelihood of a third birth compared with those with at least one son, regardless of their time spent in Sweden. Such son-preference-driven childbearing behavior can even be seen among the 1.5 generation immigrants.

The sex composition of children does not have any significant effect on the likelihood of third births among immigrant women from the rest of Europe during the early years of their time in Sweden. However, as their time in Sweden extends beyond five years, they show a tendency towards a preference for having at least one child of each sex, as those with two boys or two girls have a similarly higher likelihood of pursuing a third birth as those with children of mixed sex composition. The 1.5 generation immigrants also exhibit their preference for a mixed sex composition of children.

Figure 3: Interactive effect of time since migration and sex composition of previous children, Sweden (1968-2015) (Reference category: 1.5 generation; 1 girl, 1 boy)



Note: Register data, our elaborations, $p < 0.01$, white bar not significant. The model is controlled for time since the second child, calendar year, and age at the second child

Conclusion

In this study, we demonstrate how immigrants exhibit their sex preferences for children in Sweden, a country that promotes gender equality and where parental preference for having a girl prevails. We pay particular attention to immigrants from China, Korea, India and the former Yugoslavia, where son preference culture has been well documented in the literature. Based on the theory of socialization (on *cultural persistence*), we hypothesize that immigrants from countries with strong son-preference cultures tend to maintain this cultural norm of their home country in Sweden. 1) Those with only girls should have a higher likelihood of having a third child than those with two boys and those with a girl and a boy; 2) those with only girls should speed up their process of having a third child. Based on the theory of adaptation (on *cultural adaptation*), we hypothesize that 3) those who have lived in Sweden for a longer period of time should show a lower tendency for son preference than those who spent a shorter time in Sweden, and that 4) those who migrated to Sweden at younger ages should exhibit reproductive behavior similar to that of the native-born. Event-history models were estimated to study the transition to third birth.

Our results confirmed the first hypothesis, namely that immigrant women indeed maintain preferences similar to those of their home country: these results are consistent with previous findings from the native population in the origin country. Immigrants from China, Korea, India, and the former Yugoslavia did have a higher likelihood of transitioning to a third birth if the children born were both girls. In comparison, immigrants from the rest of Europe and other Western societies did not show signs of son preference. Instead, as their counterparts do in their home country, they show a preference for having at least one child of each sex. These findings point in the same direction and support the theory of socialization: the culture and norms of immigrants' home countries play an important role in affecting their reproductive behavior in the destination country. Previous studies from Al Harahsheh (2011) and Andersson et al. (2007) provide the same evidence of cultural persistence.

Our results confirmed the second hypothesis, though variations exist between immigrants from different son-preference cultures. Immigrants from China, Korea and India did accelerate their process of having a third child if the children born were both girls. However, beginning two years after the second birth, their intensity of having a third child declined. Adsera and Ferrer (2016) found similar results for South Asians immigrants and among Sikhs born outside Canada. The strategy of immigrants from former Yugoslavia is different: compared to mothers with at least one boy, those with only girls did show a higher likelihood of having a third child approximately 1.5 to two years after the birth of the second child. It is

noteworthy that their intensity of third birth did not decline thereafter. Instead, their higher third-birth intensity persists over a longer term. These findings imply that different immigrant groups pursue the common goal of having a son in different ways.

Our results cannot sufficiently support the theory of adaptation. Immigrants from China, Korea and India do not show any sign of adaptation, while immigrants from the former Yugoslavia showed only weak signs of adjusting their reproductive behavior to the cultural norm of Sweden as their residence time in Sweden increased. Their intensity of having a third child remained significantly higher if they had two girls than if they had two boys or a girl and a boy, regardless of the time spent in Sweden. Hence, our third hypothesis cannot be confirmed.

Our fourth hypothesis cannot be fully confirmed. Our results were mixed with regard to the importance of arriving as a child in the host country as an adaptive mechanism. Among the 1.5 generation immigrants from former Yugoslavia, those with only girls had a significantly higher likelihood of pursuing a third birth than those with two boys and those with a mixed sex composition of children. In contrast, the 1.5 generation immigrants from China, Korea and India have a higher likelihood of pursuing a third birth if the existing children are two boys. These results indicate that the 1.5 generation immigrants from former Yugoslavia exhibit as strong a son preference as their parents' generation did, whereas the 1.5 generation immigrants from China, Korea, and India display a sign of assimilation: their reproductive behavior shows a daughter-preference, which is similar to the reproductive behavior of the native-born Swedes. These results seem to suggest that relative to immigrants from the former Yugoslavia who came to Sweden during childhood, their counterparts from China, Korea and India are more engaged in assimilating into Swedish culture and norms.

Similar results for Asian immigrants have been found from Ost and Dziadula (2016): they also interpreted, as evidence of cultural assimilation, the closeness between 1.5 generation immigrants and the native population with regard to behavior on sex preferences.

We believe that this paper could contribute to research on gender discrimination and will produce results of high policy relevance. First, our findings imply that immigrants tend to maintain aspects of their previous culture and way of life in the destination country. In our case, the persistence of son-preference among immigrants from China, Korea, India and the former Yugoslavia, combined with the persistence of having at least one child of each sex among immigrants from the rest of Europe, empirically support this viewpoint.

Second, our findings suggest that adapting to the norm of the destination country is not a pattern shared among different immigrant groups. In our case, the persistence over time

of son preference among first-generation immigrants from China, Korea, India and former Yugoslavia proves that the influence of the cultural norm of the home country can last longer than expected. Our findings suggest that Sweden's tolerance of cultural diversity and the multiculturalism that has been encouraged in Swedish society provide immigrants with better opportunities to maintain their cultural traditions and values. However, the girl preference tendency among the 1.5 generation immigrants from China, Korea and India implies that growing up in such a context might also influence cultural norms.

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