Fertility intentions among the children of immigrants in Sweden

Are there differences according to generational status, parental origin, and gender?

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Abstract: Even though fertility preferences among immigrant descendants provide information about their level of ideological adaptation to destination country patterns, there is so far only little research on the topic. In analyzing the short-term fertility intentions among children of immigrants in Sweden, this study contributes new insights both by extending the focus from behavior to preferences and by distinguishing among children of immigrants according to (1) generational status, (2) parental origin, and (3) gender. With data from the Swedish GGS of 2012/2013 (n=3,958), the study uses partial proportional odds models to compare the children of immigrants to non-immigrants and the first generation regarding the propensity to have a more positive intention along a four-category scale (definitely/probably yes/no). Results indicate that convergence to destination country patterns is taking place across immigrant generations, with both the second generation with one and with two foreign-born parent(s) being similar to non-immigrants at every step of the analysis, the first generation having more positive intentions at almost every step, and the 1.5 generation often in a medium position. This pattern of convergence is in line with earlier findings on fertility behavior and holds also when generational categories are disaggregated by four regional origins: Western, Eastern European, Middle Eastern/North African, and other non-European. There are gender differences for all three generational groups of children of immigrants, with men having similar or more positive intentions compared to non-immigrant men and women having similar or less positive intentions compared to non-immigrant women.

Keywords: fertility intentions, children of immigrants, descendants of immigrants, second generation, 1.5 generation

1. Introduction

Decades of immigration has made Sweden an increasingly multicultural society. This new diversity means that any comprehensive analysis of social phenomena such as fertility behavior must take into consideration the potential for variation among population subgroups. As childbearing patterns often vary among national, ethnic, and religious groups, there is reason to expect differences between immigrant communities and the non-immigrant population of the destination country. While much work has been devoted to understanding first generation fertility (see Kulu & González-Ferrer, 2014), the children of immigrants are of special interest since their behavior can be indicative of the longer-term trends of integration among immigrant communities. Earlier research on the fertility of immigrant descendants has found that adaptation to destination country patterns across immigrant generations is the dominant trend, but also that there is variation in the level of convergence among origin groups (e.g. Scott & Stanfors, 2011; Kulu et al., 2017).

The theoretical starting point of this paper is that it is valuable to complement such insights on behavior with studying the fertility intentions of children of immigrants. By representing fundamental motivations for the life course, fertility preferences provide information about individuals' demographic value orientation and thereby constitute an additional dimension to the concept of demographic assimilation, perhaps at a deeper level than actual behavior (see Holland & De Valk, 2013). While behavior is mediated by a range of intervening factors, preferences are relatively unfiltered representations of childbearing norms and ideology and can therefore be considered indicative of the level of ideological adaptation to demographic patterns in the destination country.

Yet, studies on the fertility preferences of immigrant descendants are so far very few (see Kraus & Castro-Martín, 2017, for one example). The aim of this study is therefore to contribute to a more comprehensive understanding of the fertility patterns of immigrant descendants by extending the focus from behavior to preferences. This is done by analyzing whether one specific type of preference, short-term fertility intentions, differ by (1) immigrant generation status, (2) parental regional origin, and (3) gender among children of immigrants in Sweden. Three generational categories of children of immigrants (the second generation with either one or two foreign-born parent(s) and the 1.5 generation) are

distinguished and compared to the first generation and to non-immigrants.[1] The four parental regional origin categories are Western, Eastern European, Middle Eastern/North African, and other non-European. The research questions are analyzed with partial proportional odds models (which is a variant of the ordered logit model), using data from the Swedish Generations and Gender Survey from 2012/2013.

The paper is organized as follows. Section 2 briefly discusses some theoretical considerations on fertility intentions. Section 3 provides an introduction to the characteristics of Sweden's immigrant population. Section 4 deals with theory and findings relating to the fertility patterns of children of immigrants and also presents the hypotheses of the study. While this study deals with fertility intentions, findings on other types of preferences are also discussed as the concepts are clearly closely related. Data, variables, and methods are discussed in section 5, the results presented in section 6, and conclusions drawn in section 7.

2. Theoretical considerations on fertility intentions

In addition to being indicative of the level of ideological assimilation among children of immigrants, there are some more general motivations for studying fertility intentions that apply also to this context. First, fertility intentions can be used to estimate future fertility as they have been found to be important determinants of behavior, both at the individual and at the aggregate level (e.g. Ajzen & Klobas, 2013). It has also been shown that intentions do not just mediate the effect of other variables, but in themselves contribute predictive power in the understanding of childbearing behavior (Schoen et al., 1999). It is reasonable to expect ideational factors to be central individual-level determinants of fertility outcomes in modern, post-transitional societies where the almost universal availability of effective birth control methods can prevent unwanted childbearing and advanced assisted reproductive technologies can prevent unwanted childlessness (see Bongaarts, 2001). Second, preferences may be studied in order to be compared with actual fertility. The finding that desired fertility typically exceeds actual fertility in post-transitional societies (see Bongaarts, 2001; Goldstein, Lutz & Testa, 2003; Liefbroer, 2009; Hartnett, 2014), may be interpreted as indicating that the problem of critically low fertility in many European and East Asian countries could be eased through the removal or mitigation of factors that hinder realization. This proposition has created much interest among researchers in developing the understanding of the factors

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[1] Individuals born in Sweden to two Swedish-born parents are referred to in this paper as "non-immigrants". See sections 3 and 5.2 for more information on the categorization of immigrant generation status.

that determine the realization of fertility intentions (e.g. Schoen et al.,1999; Dommermuth, Klobas & Lappegård, 2011, 2015; Kuhnt & Trappe, 2016).

It is theoretically meaningful to distinguish terminologically among different types of fertility preferences. This study deals with parity-progression intentions, which may be contrasted to quantum preferences of different types, such as the desired, ideal, or expected number of children, and intended parity. While desires and ideals represent more of a vision than a plan for future fertility, intentions are relatively concrete and imply a readiness to act, usually within a specified timeframe. It is possible to conceive of the interrelationship between the different types of preferences as a sequential process, where background factors shape ideological positions and beliefs about quantum which are in turn concretized into intentions that may or may not produce behavior (see Miller & Pasta, 1995; Iacovou & Tavares, 2011; Ajzen & Klobas, 2013). While earlier research has found that parity-progression intentions are better predictors of behavior as compared to quantum preferences (see Balbo, Billari & Mills, 2013: 5-6), there is also variation among different types of intentions so that negative intentions and certain intentions are typically more reliable than positive intentions and uncertain intentions (e.g. Schoen et al., 1999; Toulemon & Testa, 2005; Régnier-Loilier & Vignoli, 2011; Cavalli & Klobas, 2013) and that intentions expressed for the near future are typically more reliable than intentions expressed for the more distant future (Dommermuth et al., 2015).

The measure of fertility intentions used here is expressed within a three-year timeframe and may be given as either "definitely no", "probably no", "probably yes", or "definitely yes", thus allowing for variation in both the positive/negative and the degree of certainty dimensions. For the analyses of this study, this is treated as a four-category ordinal-scale measure of the degree of positivity in the intention, ranging from the least positive "definitely no" to the most positive "definitely yes", and functions as the dependent variable in a set of partial proportional odds models.

3. Immigrant generations and regional origins in the Swedish context

As a popular destination country for immigrants of diverse origins since the 1950s, modern Sweden is an increasingly heterogeneous society. Several immigrant generation and regional origin categories constitute substantial shares of the total population. The first generation make up 17.9 %, the second generation with two foreign-born parents is 5.4 %, and the second generation with one foreign-born parent make up 7.4 %, all in all 30.6 % of the Swedish population (Statistics Sweden, 2017), numbers that are clearly above EU15 averages

(Eurostat, 2017). It is meaningful to distinguish between these two subgroups of the second generation, as it has, for example, been shown that having one Swedish-born parent, especially the mother, is associated with first birth transition rates that are closer to non-immigrant patterns (Scott & Stanfors, 2011: 198). It is also meaningful to distinguish among the first generation between those who immigrated as adults and those who immigrated as children, since the former group spent the "formative years" of childhood and adolescence fully in the origin country, while the latter are socialized partly in the origin country and partly in the destination country. For the analyses of this study, the 1.5 generation is defined as those individuals who immigrated to Sweden prior to age 15 and the first generation as those who immigrated at age 15 or later.[2]

Sweden's immigrant community is heterogeneous not only when it comes to generational status but also regarding national origins. This means that, given the relatively limited sample size of the Swedish GGS data, origin is best analyzed at the regional level in this study. Based on cultural proximity to Sweden, the numerical presence of different national origins (see Statistics Sweden, 2017), and the possibilities offered by the Swedish GGS data, immigrants and their children are categorized into the following four geographical regions of origin:

1. *Western countries*. This group includes countries in Western, Northern, and Southern Europe as well as the US, Canada, Australia, and New Zeeland, with the most common origin countries being Finland, Norway, Germany, and Denmark.

2. *Eastern European countries*. This group includes Eastern Europe as well as most of the former state socialist countries in Central Europe, Asian Russia, and the former Soviet Union, but not post-Soviet Central Asia. The most common national origins are the former Yugoslavia, Poland, and Bosnia & Herzegovina.

3. *Middle Eastern/North African countries*, mainly Iraq, Syria, Iran, Turkey, and Lebanon

4. *Other non-European countries*. The most common national origins in this heterogeneous group are Somalia, Thailand, Chile, Eritrea, and Afghanistan.

In addition to group size and cultural distance, having Eastern European and Middle Eastern/North African origins as separate categories can be further motivated by findings from earlier research that immigrant descendants with such origins in Sweden exhibit specific

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[2] Krapf and Wolf (2015: 145) have noted that there is no universally accepted standard for how to define the 1.5 generation. Among the articles reviewed for this study, there is considerable variation in where to draw the line with the range stretching from 10 years (Scott & Stanfors, 2011) to 18 years (Wiik & Holland, 2015). 15 years is used here because it is situated roughly midway between these two extremes and because it is the age commonly considered the onset of being at risk of parenthood in demographic research.

fertility patterns (see section 4; Scott & Stanfors, 2011; Andersson et al., 2017). Another reason to have Middle Eastern/North African origin as a separate category is that this group can be expected to grow considerably in the near future due to its young age structure as a result of its recent immigration history.

The four regional origin groups differ regarding the level of demographic and general cultural proximity to Sweden. Similar to Sweden, the other Western countries have long been characterized by patterns typical of the second demographic transition (SDT) with fertility at or below replacement-level. Eastern Europe has similar fertility levels but are typically less advanced along the SDT (see Hoem, Kostova, Jasilioniene & Mureşan, 2009; Lesthaege, 2010). There is more variation within the other two groups, but many of the most common origin countries are in the final stages of the first transition with period fertility ranging from below to clearly above replacement-level. Regarding the general level of integration into Swedish society, a similar pattern can be observed, with European immigrants faring better than non-European immigrants on many indicators, including income and labor market participation (Statistics Sweden, 2010, 2013). Yet, there is of course considerable variation within such aggregated groups (see e.g. Bevelander & Lundh, 2007, for the relative success of Iranian immigrants).

As the effect of culture on fertility can be assumed to work primarily at the level of ethnicity, it is of course not optimal to aggregate distinct groups into broad regional categories. However, national-level aggregates can have similar problems. For example, fertility within Turkey varies greatly according to ethnicity (Kurds have relatively high rates of higher order births: Yavuz, 2006) and region (Eryurt & Koç, 2012). While there are no official statistics on ethnicity in Sweden, it is clear that a substantial proportion of the country's Middle Eastern-origin population identify with ethnic groups that constitute minorities in their respective origin countries, primarily Kurds and Assyrians/Syriacs. Similarly, ethnic Bosnians are overrepresented among individuals with a national origin in the former Yugoslavia. While the Swedish GGS does not allow it, these groups should ideally be analyzed separately rather than as part of national or regional aggregates.

4. The fertility of children of immigrants

Earlier research on the fertility patterns of immigrant descendants in Europe has identified differences among origin groups. Groups with a parental origin in other European or other Western countries tend to exhibit fertility patterns that are similar (e.g. Milewski, 2007, 2010; Guarin & Bernardi, 2015) or somewhat depressed (see e.g. Kulu & Hannemann, 2016; Kulu

et al., 2017; Van Landschoot, De Valk & Van Bavel, 2017) as compared to the majority population in the destination country. While this pattern is followed also by many other groups of diverse origins, an alternative pattern where fertility behavior is somewhere in-between that of the parental generation and that of non-immigrants has been observed among some groups with a non-Western and non-European origin in countries with high fertility relative to the destination country.

This pattern of persistent but diminishing differentials across immigrant generations has been found for many different origin groups and in many different European destination countries, including Turks in Germany, the Netherlands, Belgium, and elsewhere (Garssen & Nicolaas, 2008; Milewski, 2011), Morocccans in the Netherlands and Belgium (Garssen & Nicolaas, 2008), Bangladeshis and Pakistanis in the UK (Coleman & Dubuc, 2010), and Middle Easterners in Sweden (Scott & Stanfors, 2011). Interestingly, the medium position of the second generation from this type of origin is consistent across many different aspects of fertility, such as quantum (Garssen & Nicolaas, 2008; Coleman & Dubuc, 2010), age at first birth (Garssen & Nicolaas, 2008), parity-specific transition rates (Milewski, 2007, 2010, 2011; Kulu & Hannemann, 2016), and ideals about quantum and the age of entry into parenthood (De Valk, 2013). The behavior of the second generation has also been shown to be in-between the 1.5 generation and non-immigrants (Scott & Stanfors, 2011; Krapf & Wolf, 2015) and the expected age at entry into parenthood for the 1.5 generation has been found to be in-between that of non-immigrants in the destination country and the average in the origin country (Kraus & Castro-Martín, 2017), further supporting the notion of convergence working across immigrant generations.

Research on the fertility of immigrant descendants in Sweden has produced similar results as those for the rest of Europe. In aggregate, it seems that second generation period fertility is close to, but slightly lower than, that of non-immigrants (Statistics Sweden, 2010; Andersson et al., 2017). While the Nordic-origin second generation is very similar to non-immigrants, those with a parental origin in non-Nordic EU countries or in medium-HDI countries outside Europe have lower total fertility rates (Statistics Sweden, 2010). Comparing parity-specific transition rates among different origin groups of the second generation, many groups, including those with a parental origin in high-fertility countries, have similar or lower transition rates to first and second birth but higher transition rates to third birth compared to non-immigrants (Statistics Sweden, 2010; Andersson et al., 2017). Among the groups that do not follow this pattern, Andersson et al. (2017) find that the Turkish and Arab Middle Eastern second generation stand out by having similar or higher transition rates at every parity

examined. Scott and Stanfors (2011) find that most second-generation origin groups have first-birth transition rates that are relatively similar to non-immigrants, but that those with Middle Eastern parental origin have higher rates and those with Eastern European parental origin have lower rates.

4.1. Mechanisms explaining the fertility of children of immigrants

Three types of mechanisms can explain the fertility patterns of immigrant descendants and why there may be reason to expect differences in relation to non-immigrants. These are discussed below as socialization vs. adaptation, minority group status effects, and demographic and socioeconomic factors.

4.1.1. Socialization vs. adaptation

One theoretical approach to the fertility patterns of immigrant descendants focuses on the two competing processes of socialization into the culture and patterns of the parental origin country and adaptation to the patterns of the destination country. As the intergenerational transmission of fertility preferences and behavior is a well-established phenomenon in demographic research (e.g. Murphy & Knudsen, 2002; Eschelbach, 2015) and it has been shown that such linkages are due primarily to value transmissions rather than socio-economic continuities (Kolk, 2013), there is reason to expect persistent influences from the parental origin country culture. However, as most children of immigrants are exposed also to the values and customs as well as the institutional context of the destination country during the formative years, there is also reason to expect adaptation. Milewski's (2011) finding that first birth transition rates among the Turkish second generation in Europe differ across destination countries while they are consistently higher than those of non-immigrants indicates that both socialization and adaptation processes are at play simultaneously.

Regarding what, more specifically, high-fertility socialization might consist of in the European immigrant context, it would seem that religion/religiosity and conservative family arrangements are important elements. Kulu and Hannemann (2016) find that religiosity is positively associated with higher-order parity transitions for both the first and the second generation in the UK. Westoff and Frejka (2007) find that Muslim fertility is higher than non-Muslim fertility in most of Europe and that this gap can largely be explained by higher marriage rates among Muslims (see also Kulu & Hannemann, 2016) and by a higher prevalence of conservative family and gender role attitudes. Milewski (2010: 319) suggests that the relatively high fertility of the Turkish-origin second generation in Germany may be

explained by conservative characteristics of the Turkish German community: leaving the parental home and getting married often occur together and at young ages, there is social pressure to conceive once married, and there is a high frequency of transnational marriages where one of the partners is a Turkish German and the other a Turkish Turk. Conservative family values have also been observed and linked to high-fertility behavior among the second generation of Pakistani descent in the UK (Hampshire, Blell & Simpson, 2012).

When it comes to origin countries with lower fertility than Sweden, it is possible to interpret such patterns not primarily as expressions of culture but rather as reactions to particularly unfavorable policies in low-fertility countries. Testa (2014) shows that a two-child norm exists throughout Europe, both in high- and low-fertility regions and suggests that the variation in desired family size that does exist can, at least to some extent, be explained by differences in the policy climate. Yet, there are indications that low-fertility behavior is sometimes transferred to the destination country. As was mentioned above, Scott and Stanfors (2011) find that individuals from the second generation of Eastern European parental origin in Sweden tend to have lower first-birth transition rates compared to non-immigrants. Similarly, Andersson (2004) finds that first-generation immigrants in Sweden from Eastern European countries have relatively low transition rates to second and higher-order births.

To summarize, fertility intentions can be expected to vary among immigrant generational groups so that generations that are socialized more in the culture of the origin country differ more from non-immigrants and those that are socialized more in the culture of the destination country differ less. Thus (H1a), differences relative to non-immigrants should be most likely among the first generation, less likely among the 1.5 generation, and least likely among the second generation. However, first generation intentions may also be explained by factors linked to the actual migration process (see section 4.2).

4.1.2. Minority group status effects

The segmented assimilation perspective on immigrant integration highlights that pluralistic societies do not only offer one standard path of assimilation as has sometimes been assumed in research (see Portes & Zhou, 1993; Alba & Nee, 1997). Instead, some immigrants may assimilate into existing minority groups which may be perceived as closer to the origin country culture. Such segmented assimilation may have important consequences for both adaptation and socialization processes. First, adaptation to destination country patterns does not necessarily mean adaptation to the mainstream culture of the destination country. Second, socialization into cultures other than the mainstream in the country of destination is not

exclusive to the period preceding or following shortly after migration but may continue long after and for successive generations.

Segmented assimilation may be related to an ethnic hierarchy, where individuals at lower positions experience disadvantage relative to other groups. Two types of reaction to such perceptions are possible, which may have different effects on minority fertility. First, minority groups may react by emphasizing differences vis-à-vis the majority culture through the promotion of cultural maintenance and intragroup loyalty, what may be referred to as reactive ethnicity (see Rumbaut, 2008). McQuillan (2004) has described how this is one path through which religion may influence fertility, as it may function as a marker of identity in contexts of intergroup conflict, thereby gaining in significance. This type of coping strategy may have a boosting effect on fertility levels either indirectly through the conservation of traditional family values and gender norms or directly via explicit attention to achieving increased numerical strength (e.g. Courbage, 1992; Sahu and Hutter, 2012: 530; Varley, 2012; Okun, 2016, 2017). Second, Goldscheider and Uhlenberg (1969) have described how minority groups may react to disadvantages in a different way that may instead have negative effects on fertility. The minority group status hypothesis suggests that individuals from disadvantaged population subgroups must spend relatively high levels of resources on education and the labor market career when seeking to advance their social position, and therefore choose to limit childbearing in order to permit a concentration of resources into the achievement of upward social mobility.

Based on this discussion, the following hypotheses can be stated: First, within the second generation, socialization into a minority culture in the destination country as part of segmented assimilation is more likely for those with two foreign-born parents, meaning (H1b) there is reason to expect this group to differ more from non-immigrants compared to the second generation with one foreign-born parent. Second, when children-of-immigrant groups are disaggregated by parental origin, groups that are culturally and demographically relatively distant from Sweden are more likely than more culturally proximate groups to be influenced by socialization into a minority culture as part of segmented assimilation. Similarly, less integrated groups may be influenced by reactive ethnicity. Often, the more culturally distant groups are also those that are less integrated. Thus (H2a), more culturally distant and less integrated parental origin groups can be expected to differ more from the patterns of non-immigrants, mostly in the positive direction as many of the more disadvantaged groups in Sweden have an origin in countries with relatively high fertility. Third (H2b), partly in conflict with H2a, groups that are less well integrated can also be

expected to have less positive intentions in order to concentrate resources into the achievement of upward social mobility, as described by the minority group status hypothesis.

These two conflicting theories on minority behavior could explain the finding that some second-generation groups are characterized by polarization, where high- and low-fertility behavior coexists within the same community (e.g. Kulu & Hannemann, 2016; Kulu et al., 2017). Scott and Stanfors (2011) have shown that such polarization is related to the individual's level of education, where the lower-educated have higher fertility and the higher-educated have lower fertility as compared to non-immigrants. Similarly, Krapf and Wolf (2015) find that higher levels of education is negatively related to second birth risks for the second generation of Turkish immigrant descent in Germany while the association is positive for non-immigrants. This would suggest that while some individuals from disadvantaged minorities limit their childbearing in order to achieve upward social mobility, others follow an alternative path oriented towards the family more than the labor market. Therefore, it could be expected (H2c) that polarization exists within the less well integrated parental origin groups (primarily the non-European groups, but possibly also the Eastern European group), so that both the least and the most positive intentions are particularly common relative to non-immigrants.

Given the finding that the female advantage in educational performance that exists within the general population is present also among the second generation, in Sweden as well as in other Western destination countries (Fleischmann et al., 2014), it is not implausible to imagine that there is a gender dimension to the polarization described above. Having better prospects, female children of immigrants from disadvantaged minorities may be more likely to pursue a labor market career and, building on the minority group status hypothesis, intend to limit childbearing in order to achieve upward social mobility. On average, male children of immigrants from disadvantaged minorities have weaker labor market prospects and may therefore choose the alternative family-oriented life course. Being relatively marginalized in the destination society, they may also be more likely to develop a reactive ethnicity, which should tend to be oriented towards high fertility as many of the more disadvantaged groups in Sweden have an origin in countries with relatively high fertility. Although previous research has found that there are small or no gender differences in the level of fertility preferences (Berrington, 2004; Miettinen & Paajanen, 2005; Hartnett, 2014; Dommermuth et al., 2015), there might thus be reason to expect (H3) children-of-immigrant men to have more positive intentions than women of the same generational category.

4.1.3. Demographic and socioeconomic factors

Culture and ideology are of course not the only determinants of fertility intentions. Research has identified a wide range of macro-, meso- and micro-level factors that are important to consider in understanding childbearing patterns (see Balbo, Billari & Mills, 2013). When it comes to the fertility behavior of immigrant descendants, some studies find that controlling for demographic and socioeconomic factors can largely explain differences among origin and generational groups (see Milewski, 2010; Coleman & Dubuc, 2010; Pailhé, 2017), while others find that they explain only some of the differences (e.g. Statistics Sweden, 2010; Krapf & Wolf, 2015; Kulu & Hannemann, 2016; Kulu et al., 2017; Andersson et al., 2017). Among the demographic and socioeconomic factors that have been found to influence fertility intentions and behavior, the following are included in the further analysis as control variables (see also section 5.2).

First, *age* is a relevant control variable since social groups differ in the timing of fertility and because there is, within the final sample of this study, considerable variation in the age distribution for the different subgroups, reflecting the young age structure of some recent immigrant groups. Earlier research has shown that quantum preferences tend to be higher at younger ages (Smallwood and Jefferies, 2003; Quesnel-Vallée and Morgan, 2003; Hayford and Morgan 2008: 1171-2; Heiland, Prskawetz & Sanderson, 2008; Iacovou & Tavares, 2011; Hartnett, 2014), that younger individuals are more likely to revise their expected number of children (Iacovou & Tavares, 2011), and that the degree of certainty in intentions varies with age (Berrington & Pattaro, 2014). There are findings indicating that the relationship between age and fertility intentions is inversely U-shaped (e.g. Hiekel & Castro-Martín, 2014), so that intentions are, on average, low at younger and older ages and high in the prime childbearing ages.

Second, the effect of *educational attainment* on fertility intentions and outcomes has been found to vary among countries, both generally (e.g. Régnier-Loilier & Vignoli, 2011; Balbo et al., 2013) and when focusing specifically on the children of immigrants (see Krapf & Wolf, 2015; Kulu & Hannemann, 2016). Studying the second generation in Sweden, Andersson et al. (2017) find that having three or more years of post-secondary education is positively associated with first, second, and third birth transition rates. There are indications that the higher educated tend to have relatively high preferences in the early phase of the reproductive career (Testa, 2014), but they have also been found to have less concrete (Dommermuth et al., 2011) and relatively unstable (Heiland et al., 2008) intentions.

Third, *labor market status* has been found to affect the formation of intentions in several ways. Earlier research shows that being established in the labor market is an important prerequisite for having children in Sweden, both for immigrants and non-immigrants (Andersson & Scott, 2005, 2007; Scott & Stanfors, 2011; Lundström & Andersson, 2012). Also, it has been shown that students are especially unlikely to have positive fertility intentions (e.g. Hiekel & Castro-Martín, 2014) and to enter parenthood (Scott & Stanfors, 2011; Ni Bhrolcháin & Beaujouan, 2012). Berrington and Pattaro (2014) find that unemployment and economic inactivity is associated with uncertainty, intentions to remain childless, and underachievement of fertility desires in the UK.

Fourth, *parity* is of course very important for how fertility intentions are formed (see Dommermuth et al., 2011, for differences between the childless and parents). Perhaps not surprisingly in the low-fertility context, Balbo and Mills (2011) find that being at higher parities is associated with having lower intentions.

Fifth, an individual's *number of siblings* has been shown to be an important determinant of both fertility preferences (Heiland et al., 2008; Berrington & Pattaro, 2014) and behavior (e.g. Murphy & Knudsen, 2002; Baykara-Krumme & Milewski, 2017; Pailhé, 2017). De Valk (2013) finds that variation in family size preferences across ethnic groups is largely attributable to differences in the number of siblings that an individual grew up with.

4.2. First generation fertility

Since the first generation functions as a point of reference for the different categories of children of immigrants in the following analysis, it is meaningful to briefly present theory and findings on the fertility of first generation immigrants. Extensive research (see Kulu & González-Ferrer, 2014) has led to the development of five main hypotheses to describe and explain first-generation fertility behavior (e.g. Milewski, 2007, 2010; Sobotka, 2008; Mussino & Strozza, 2012; Baykara-Krumme & Milewski, 2017). As for immigrant descendants, there is support for both adaptation (e.g. Mayer & Riphahn, 2000; Andersson, 2004; Milewski, 2007, 2010) and socialization (Sobotka, 2008; Mussino & Strozza, 2012; Cygan-Rehm, 2014) effects for the first generation. In addition to these two forces, there are also three ways in which the migration experience in itself can affect childbearing behavior. First, disruption in the life course in general and in partnership dynamics in particular may have a negative effect on fertility. While Mussino and Strozza (2012) find support for this factor, other European studies fail to do so (e.g. Mayer & Riphahn, 2000; Andersson, 2004; Milewski, 2007, 2010; Baykara-Krumme & Milewski, 2017). Second, migration is often

interrelated with other important life course events, such as marriage and childbearing, which can drive up period fertility in the years following migration (see Andersson, 2004; Milewski, 2007, 2010). Third, selection into migration from origin country populations may have an either positive or negative effect on fertility (see Bagavos, Tsimbos & Verropoulou, 2008).

5. Research design

5.1. Data and sample selection

In aiming to answer the three research questions, this study uses data from the Swedish Generations and Gender Survey (GGS) of 2012/2013. The Swedish GGS is part of a set of surveys conducted in 19 European and four non-European countries and covers a broad range of demographic and other topics. The GGS is administered by the Generations and Gender Programme (GGP), which was launched by the United Nations Economic Commission for Europe as the successor of the earlier Fertility and Family Survey (FFS). A key feature of the GGS is that it facilitates cross-national comparability through its core questionnaire. As of May 2017, the GGS/GGP has generated almost 1,200 scientific publications.[3] The number of respondents in the Swedish GGS is 9,688 and the age range of respondents is 18-79 years. The starting sample was 18,000 and the response rate thus 53.8 %. The information was collected by Statistics Sweden via telephone interviews and complemented by register data. Some additional information was collected via a follow-up postal/online questionnaire, which was filled out by 6,830 respondents (Thomson et al., 2015).

Out of the full GGS sample, only individuals who were asked about their short-term fertility intention and were able to choose between the four available substantive response alternatives ("don't know" was not presented by the interviewer as an available response alternative) are included in the final sample for this study[4], which therefore consists of 3,958 individuals. Out of the 4,060 respondents who were asked about their short-term fertility intention, 92 respondents who did not know about their intention or refused to provide a substantive response were dropped from the further analysis, as were 10 respondents with unclear migration histories (see section 5.2 for further information).

Other than these omissions, everyone else who provided a substantive response to the question on their short-term fertility intention is included in the final sample. In the Swedish GGS, this question was asked not only to women 18-45 years old, but also to men and

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[3] information from the GGP website: www.ggp-i.org (accessed on May 11, 2017)

[4] hereafter referred to as "the final sample"

women whose partner was a woman 18-45 years old, to single men, and to men with a male partner. All these categories are included in the final sample, i.e. both men (2,081 individuals) and women (1,877 individuals), the partnered (2,755 individuals) and the unpartnered (1,203 individuals), as well as 19 men who are older than 55 years (no woman is older than 45 years) and 25 individuals with same-sex partners. Individuals for whom, or for whose partner, it was not physically possible to have (more) children and those who, or whose partner, were pregnant at the time of interview were not asked about their intentions and are therefore not included.

5.2. Variables

For all three research questions of this study, the dependent variable is the intention to have a/another child within the next three years.[5] Four possible substantive response alternatives were available to respondents: "definitely no", "probably no", "probably yes", and "definitely yes". For the final sample as a whole, the number of respondents in the different response categories decreases with the degree of positivity so that "definitely no" is the most common response and "probably yes" and "definitely yes" are the least common (see Table 1 for further information on how individuals are distributed across the intention categories).

The first main explanatory variable is immigrant generation status, which has five categories. *Non-immigrants* make up 74.7 % (2,958 individuals) of the final sample. The category consists almost exclusively of individuals who were born in Sweden and whose parents were also born in Sweden. A few individuals who were born outside Sweden to two Swedish-born parents and who moved to Sweden prior to age 15 are also included in the category. *The second generation with two foreign-born parents* are 3.9 % (156 individuals), while *the second generation with one foreign-born parent* are 8.9 % (367 individuals). A few individuals who were not born in Sweden but have one Swedish-born and one foreign-born parent are categorized as second generation if they migrated to Sweden prior to age 15, while those individuals who are not born in Sweden but have one Swedish-born and one foreign-born parent and immigrated to Sweden at age 15 or later are dropped from the further analysis. Individuals are categorized as *the first generation* (8.1 %, 320 individuals) if they immigrated at age 15 or later and as *the 1.5 generation* (4.0 %, 157 individuals) if they immigrated prior to age 15. Non-immigrants are overrepresented in the final sample relative to their share of the total Swedish population, as official statistics give their number as 69.4

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[5] The intention to adopt is not included since the Swedish GGS data does not allow this to be separated from the intention to take a foster child.

%, while the first and 1.5 generation combined are 17.9 % and the second generation with two and one foreign-born parent(s) are 5.4 % and 7.4 % respectively (Statistics Sweden, 2017).

The second main explanatory variable is the regional origin of immigrants or the parental regional origin for children of immigrants. Following the classification system of Scott and Stanfors (2011) and Andersson et al. (2017), the regional origin of second generation individuals with one Swedish-born and one foreign-born parent is assigned according to the origin of the foreign-born parent and individuals with two foreign-born parents with different origins are categorized according to the origin of the mother. *Western countries* are 10.2 % (405 individuals) of the final sample, *Eastern European countries* are 5.7 % (226 individuals), *Middle Eastern/North African countries* are 5.1 % (202 individuals), and *other non-European countries* are 4.2 % (167 individuals).[6] For the analysis of the second research question, immigrant generation and regional origin are combined to a seventeen-category (non-immigrants + 4 generational categories x 4 origin categories) variable. Thus, regional origin groups are only analyzed separately by generational categories and not at the aggregate level.

Cross-tabulating the fertility intentions, immigrant generation, and regional origin variables (see Table 1), shows that the pattern observed for the sample as a whole that most short-term fertility intentions are negative, and especially definitively negative, is valid also for all the generational groups and for all generation and origin combinations. It is also clear from the cross-tabulation that some of the combinations of categories have very few cases, which of course is not optimal for the reliability of certain aspects of the results. Table 1 also shows that there is considerable variation among the generational groups regarding the distribution of regional origins. Particularly, the second generation with one foreign-born parent is dominated by individuals with a Western origin. This reflects both Sweden's migration history (much of the growth of some origin groups has occurred so recently that a substantial proportion of the second-generation population is yet to reach childbearing ages) and patterns of interethnic partnership formation (immigrants from origins that are culturally proximate to Sweden are more likely than other immigrants to have children with Swedish-born individuals).

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[6] One stateless individual is dropped from the further analysis since it was not possible to group him in any of the four categories.

Gender is the third main explanatory variable. As was stated above, all women older than 45 years are excluded from the final sample,[7] while men are excluded only if they have a female partner older than 45 years. This means that there are somewhat more men than women in the final sample and also that the age distribution is different for the two genders, with a narrower range for women and a wider range for men.

The control variables included in the further analysis are those discussed in section 4.1.3 (i.e. age, educational attainment, labor market status, parity, and number of siblings) plus age squared.[8] Age at interview is included as a continuous variable with the mean at 32 years. Educational attainment is included as a dummy variable with 67 % having no university education and 33 % having at least some university education. Labor market status is included as a categorical variable with 54 % being full-time employed, 16 % part-time employed, 6 % unemployed, 19 % students, and 6 % other (including individuals participating neither in the labor force nor in education). Parity is included as a categorical variable with 53 % being childless, 12 % having one child, and 35 % having two or more children. Number of siblings is included as a continuous variable (0 to 4 or more) with 67 % having either one or two siblings. It was not possible to include either religious denomination or conservative/liberal attitudes as control variables since these items were part of the follow-up postal/online questionnaire, which was only filled out by slightly more than half of the respondents in the final sample.

Table 1: Distribution of fertility intention categories across immigrant generations and regional origins

	def. no	prob. no	prob. yes	def. yes	total
2nd gen., two foreign-born parents	**77**	**32**	**31**	**16**	**156**
Western	33	11	11	6	61
Eastern European	19	11	7	4	41
MENA	15	5	8	5	33
other non-European	10	5	5	1	21
2nd gen., one foreign-born parent	**161**	**103**	**50**	**53**	**367**
Western	112	67	37	40	256
Eastern European	25	16	3	5	49
MENA	10	7	4	3	24
other non-European	14	13	6	5	38

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[7] In principle, it was possible for women older than 45 years to be included if they had a female partner who was not older than 45 years. However, this did not affect a single individual in the final sample.
[8] Twelve individuals in the final sample have missing or unclear information for one of the control variables. These individuals are maintained in the sample and assigned to a specific category (which is not presented or discussed in the results section) for categorical variables and to the mean for continuous variables.

first generation	**117**	**81**	**54**	**68**	**320**
Western	25	17	11	11	64
Eastern European	30	26	16	16	88
MENA	38	22	15	20	95
other non-European	24	16	12	21	73
1.5 generation	**71**	**34**	**28**	**24**	**157**
Western	11	9	4	0	24
Eastern European	18	10	12	8	48
MENA	22	8	9	11	50
other non-European	20	7	3	5	35
non-immigrants	**1,356**	**799**	**462**	**341**	**2,958**
full final sample	**1,782**	**1,049**	**625**	**502**	**3,958**

5.3. Method

The three research questions are analyzed by means of the partial proportional odds model. This model is a variant of the ordered logit model (also called the proportional odds model), which is the most frequently used model for logistic regression analyses with ordinal dependent variables (O'Connell, 2006, Williams, 2016). The basic idea of the two models is similar, i.e. to conduct a series of binary logistic regressions by cumulatively combining the categories of the ordinal dependent variable. For the dependent variable of this study, which has four categories, this means that three separate binary logistic regressions are performed where first category one is compared to categories two, three, and four combined, then categories one and two combined are compared to categories three and four combined, and finally categories one, two, and three combined are compared to category four.

While the ordered logit model assumes that the odds for each included variable are proportional across all the separate binary logistic regressions and summarizes the series of regressions into only one set of results, the partial proportional odds model allows the odds to vary across the separate binary regressions for the variables that do violate the assumption. Whether the assumption of proportionality is realistic or not can be analyzed through a Brant test. When conducting this test at various steps of the analyses of this study, it repeatedly showed that the proportional odds assumption was violated at a 5 % significance level for several of the variables, including both the main explanatory variables and some of the control variables. Disregarding violations of the proportional odds assumption may produce "incorrect, incomplete, or misleading results" (Williams, 2006: 62). Thus, being less restrictive than the ordered logit model but also more parsimonious than fitting a set of binary logistic models and more in line with the ordinal nature of the dependent variable as compared to multinomial models (see O'Connell, 2006: 47; Williams, 2006, 2016), the partial proportional odds model is best suited for this study.

For the purposes of this study, violations of the proportional odds assumption so that "definitely yes" and/or "definitely no" answers are particularly likely may be indicative of intragroup polarization into high- and low-fertility patterns (see H2c, section 4.1.2).

An alternative approach to the partial proportional odds model would have been to instead use linear regression (e.g. Billingsley & Ferrarini, 2014). It is not clear, however, to what extent the continuous approximation of the four-category intention variable is appropriate (see Thomson & Brandreth, 1995). As a robustness check for the results presented and discussed below, a set of linear regressions were conducted, with the results being essentially similar to those obtained from the partial proportional odds models. A second alternative approach would have been to merge the "probably yes/no" categories with their respective "definitely yes/no" categories and use binary logistic regression. By allowing for more cases in the combined "yes" and "no" categories, this could have improved the possibilities of obtaining reliable and statistically significant results. However, an important disadvantage of using binary regression in this case is that meaningful information contained in the responses expressing uncertainty would be lost (see Morgan, 1982; Thomson & Brandreth, 1995). It has, for example, been found that uncertain and certain respondents differ considerably in their realization of intentions (e.g. Toulemon & Testa, 2005) and that uncertainty levels vary within the population according to factors such as age and labor market status (Berrington & Pattaro, 2014).

6. Results

6.1. The effect of immigrant generation status on fertility intentions

The first research question concerns whether the short-term fertility intentions of children of immigrants differ in their degree of positivity from those of the first generation and from those of non-immigrants. Results are expressed as odds ratios where non-immigrants function as the reference category. The research question is tested first with immigrant generation status as the only explanatory variable and second with also the set of demographic and socioeconomic control variables discussed in sections 4.1.3 and 5.2 included. The comparison between all other categories and "definitely no" is referred to as split 1, the comparison between both types of positive with both types of negative intention is referred to as split 2, and the comparison between "definitely yes" and all other categories is referred to as split 3.

When no control variables are included, results (see Table 2) show that only the first generation is significantly more likely than non-immigrants to have a more positive fertility intention, with the odds being almost two-thirds higher. For all children-of-immigrant groups, differences relative to non-immigrants are smaller and not statistically significant. The proportional odds assumption is not violated for any of the generational groups. When the demographic and socioeconomic control variables are introduced, there are some interesting changes to the results. The first generation now stands out from the other groups even more than before with the odds of having a more positive intention about two times that of non-immigrants. Another interesting result from adding the control variables is that the proportional odds assumption is now violated for both the second generation with two foreign-born parents and the 1.5 generation. While differences relative to non-immigrants do not reach statistical significance for the former group, individuals of the 1.5 generation have significantly higher odds of being in the more positive intention category for both split 2 and 3, but not for split 1.

The demographic and socioeconomic control variables are all significant. Age has a strong, positive effect on the likelihood of having a more positive intention. There is also support for the inversely U-shaped effect of age. The positive effect of age is most pronounced for split 3 and least pronounced for split 1, perhaps reflecting that uncertainty is a less viable approach at older ages. Both having university education and having a higher number of siblings have significant but relatively modest positive effects on the odds of having a more positive intention. Compared to parity 0, being at parity 1 is associated with higher odds of having a positive intention of any kind and especially with having a definitively positive intention, while being at parity 2 is associated with much lower odds of having a more positive intention. These findings reflect the importance of the two-child norm in Sweden. Employment status matters for the formation of fertility intentions in the following way: Neither the part-time employed nor the unemployed differ significantly from the full-time employed. In line with earlier research, students are especially unlikely to have a more positive intention. Individuals within the "other" category are significantly more likely than the full-time employed to have a more positive intention, reflecting that individuals not participating in either the labor force or in education often choose childbearing as an alternative life course trajectory. Including the control variables raises the pseudo-R^2 from 0.002 to 0.104.

Table 2: Propensity to have a more positive short-term fertility intention, expressed as odds ratios, by immigrant generation status

	without contr.	with controls			
	proportional odds	proportional odds	non-proportional odds		
			split 1	split 2	split 3
immigrant gen. status					
non-immigrants (*ref.*)					
2nd gen. with 2 FB par.	0.94		0.80	1.18	0.87
2nd gen. with 1 FB par.	1.09	1.11			
first generation	1.62***	2.04***			
1.5 generation	1.15		0.94	1.47**	1.59*
age at interview			1.65***	1.84***	1.89***
age at int. squared			0.99***	0.99***	0.99***
having univ. educ.		1.26***			
labor market status					
full-time empl. (*ref.*)					
part-time employed		0.88			
unemployed		0.87			
student		0.45***			
other empl. status		1.54***			
parity					
childless (*ref.*)					
1 child			1.03	1.66***	2.36***
2 or more children		0.19***			
number of siblings		1.09***			

Note: Split 1 is all other categories compared to "definitely no". Split 2 is positive of either degree of certainty compared to negative of either degree of certainty. Split 3 is "definitely yes" compared to all other categories. FB = foreign-born. * p<0.1, ** p<0.05, *** p<0.01.

6.2. Variation in fertility intentions among parental regional origin groups

The second research question concerns whether the children of immigrants differ in the degree of positivity in their short-term fertility intentions according to the regional origin of their parents. Again, results are expressed as odds ratios with non-immigrants as the reference category. The research question is tested first with the combined generational and regional origin variable as the only explanatory variable and then also with the same set of demographic and socioeconomic control variables that were used in the analysis of the first research question. The results for the control variables are very similar to those already presented in Table 2 and are therefore not shown or discussed. The pseudo-R^2 for the different models are somewhat higher than earlier at 0.003 and 0.124 respectively.

Interestingly, results (see Table 3) differ across the categories of immigrant generation status. For all regional origin groups of the second generation, with one or two foreign-born parents, there are no significant differences in fertility intentions as compared to non-

immigrants, a pattern that does not change when the controls are introduced. For the first generation, on the other hand, individuals from all regional origin groups except for Westerners are significantly more likely than non-immigrants to have a more positive intention. When controls are introduced, the odds ratios increase for all regional origin groups and become significant also for Westerners. For the 1.5 generation, there is considerable variation among the regional origin groups. Individuals with an Eastern European origin are significantly more likely than non-immigrants to have a more positive intention only when controls are not included. The opposite holds for the 1.5 generation of Middle Eastern/North African origin, which is significantly different from non-immigrants only after controls are introduced, and only in being more likely to have a definitively positive intention. Neither the 1.5 generation of Western nor of other non-European origin differ significantly from non-immigrants, either with or without controls.

Table 3: Propensity to have a more positive short-term fertility intention, expressed as odds ratios, by immigrant generation status and regional origin

imm. gen./reg. origin combination (ref: non-imm.)	without contr.	with controls			
	proportional odds	proportional odds	non-proportional odds		
			split 1	split 2	split 3
2nd gen., 2 FB par.					
Western	0.80	0.75			
Eastern European	0.97	0.99			
MENA	1.26	1.13			
other non-European	0.92	0.89			
2nd gen., 1 FB par.					
Western	1.14	1.20			
Eastern European	0.75	0.84			
MENA	1.15	1.03			
other non-European	1.28	1.04			
first generation					
Western	1.38	1.56*			
Eastern European	1.60**	2.24***			
MENA	1.47**	2.18***			
other non-European	2.19***	2.10***			
1.5 generation					
Western	0.79	1.40			
Eastern European	1.59*	1.42			
MENA	1.43		0.80	1.50	2.16**
other non-European	0.71	0.75			

Note: The control variables are age at interview, age at interview squared, educational attainment, labor market status, parity, and number of siblings. Split 1 is all other categories compared to "definitely no". Split 2 is positive of either degree of certainty compared to negative of either degree of certainty. Split 3 is "definitely yes" compared to all other categories. FB = foreign-born. * $p<0.1$, ** $p<0.05$, *** $p<0.01$

6.3. Gender differences in fertility intentions among the children of immigrants

The third research question concerns whether there are gender differences among the children of immigrants regarding the degree of positivity in short-term fertility intentions. Men of different immigrant generations are compared to non-immigrant men and women of different immigrant generations are compared to non-immigrant women.[9] Results are again expressed as odds ratios relative to either of the two reference categories and the research question is again tested with and without the set of demographic and socioeconomic control variables.

Results (see Table 4) indicate that there are important gender differences among all children-of-immigrant generational groups. For the 1.5 generation, the differences relative to non-immigrants found earlier seem to pertain only to men. Men from the second generation with one foreign-born parent are significantly more likely than non-immigrant men to have a definitively positive intention, while there are no significant differences for the other splits. For the second generation with two foreign-born parents, it is instead women who differ from their non-immigrant counterparts by being significantly less likely to have a more positive intention. For the first generation, both men and women are significantly more likely than non-immigrants to have a more positive intention. When running separate models for each generational group,[10] there are only significant gender differences for the two second generation groups and for non-immigrants, with women being less likely to have a more positive intention among the second generation with two foreign-born parents and more likely to have a more positive intention among the other two groups. Thus, the gender differences found among the first and 1.5 generations are attributable primarily to gender differences within the non-immigrant reference group. The relative similarity of the second generation with one foreign-born parent to non-immigrants is not due to this group being dominated by individuals with a Western parental origin since running separate models for those with Western and non-Western origin within this generational category shows that only among the latter are women significantly more likely than men to have a more positive intention.

Results for the control variables are not shown in Table 4,[11] but some interesting gender differences should be mentioned. The positive effect of age on the likelihood of having a more positive intention is significant for both genders, but is much stronger for women. This probably reflects that women are more affected by time pressure at higher ages due to their

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[9] Including regional origin as an explanatory variable was avoided due to sample size considerations.
[10] These results are not shown but are available upon request.
[11] See Appendix Table 1 for the full results.

generally shorter period of fertile years. Both educational attainment and the number of siblings have a small but significant positive effect for men, while there is no such effect for women. The positive effect of having "other" as employment status observed earlier seems to pertain only to women, which indicates that parenthood as an alternative to a labor market career is a phenomenon that primarily affects women.

Table 4: Propensity to have a more positive short-term fertility intention, expressed as odds ratios, by immigrant generation status and gender (note: immigrant and children-of-immigrant men are compared to non-immigrant men, while immigrant and children-of-immigrant women are compared to non-immigrant women)

imm. gen. (ref: non-imm. men/women)		without controls				with controls			
		prop. odds	non-proportional odds			prop. odds	non-proportional odds		
			split 1	split 2	split 3		split 1	split 2	split 3
second gen., two FB par.	M	1.36				1.32			
	W	0.69*				0.66*			
second gen., one FB par.	M		0.99	0.91	1.44		1.07	1.02	1.66**
	W	1.19				1.06			
first generation	M	1.83***				2.46***			
	W	1.44**				1.70***			
1.5 generation	M	1.31				1.46*			
	W	1.01				0.93			

Note: For each generational category, men are the upper row and women the lower row (M = men, W = women). The control variables are age at interview, age at interview squared, educational attainment, labor market status, parity, and number of siblings. Split 1 is all other categories compared to "definitely no". Split 2 is positive of either degree of certainty compared to negative of either degree of certainty. Split 3 is "definitely yes" compared to all other categories. FB = foreign-born. * p<0.1, ** p<0.05, *** p<0.01.

7. Conclusions

The aim of this study is to contribute to a more comprehensive understanding of the fertility patterns of immigrant descendants by analyzing whether short-term fertility intentions differ by (1) immigrant generation status, (2) parental regional origin, and (3) gender among children of immigrants in Sweden. Starting with generational status, results indicate a rapid convergence to the patterns of non-immigrants across immigrant generations, with the 1.5 generation in a medium position between the relatively positive intentions of the first generation and those of the seemingly assimilated second generation. These results are in line with H1a, i.e. that differences relative to non-immigrants should be more pronounced for generations who have been socialized primarily in the origin country and less pronounced for generations that have been socialized primarily in the destination country. The relatively positive intentions of the first generation could also be explained by factors such as the interrelation of demographic events in the migration process (see section 4.2). As neither of

the two second generation groups are significantly different from non-immigrants, there is no support for H1b, which stated that the second generation with one foreign-born parent should be more similar to non-immigrants than the second generation with two foreign-born parents.

When the generational groups are disaggregated according to parental regional origin, the general pattern of convergence across the generations still hold. There is partial support for H2a, which stated that children of immigrants from more culturally distant and less integrated origin groups should have higher intentions, as the Eastern European (only without controls) and the Middle Eastern/North African (only for split 3 and only with controls) 1.5 generation have more positive intentions than non-immigrants. The findings for the Middle Eastern 1.5 generation means that there is also partial support for H2c, which stated that polarization could be expected among less integrated origin groups. However, since no children-of-immigrant group has significantly lower intentions than non-immigrants, there is no support for H2b, which stated that this could be expected among less integrated origin groups.

Regarding gender, there is support for H3, which stated that children-of-immigrant men should have more positive intentions than children-of-immigrant women. For all three generational categories of children of immigrants, either men have significantly more positive intentions than non-immigrant men, for at least one of the three splits, or women have significantly less positive intentions than non-immigrant women. For the second generation with two foreign-born parents, gender differences in the expected direction are found also when men are compared to women of the same generational category. The finding that the second generation with one foreign-born parent is least different from non-immigrants is in line with H1b, which suggested that this could be expected because socialization into a minority culture is relatively unlikely for this generational group. Further analysis of gender differences in fertility preferences among immigrant descendants is an interesting topic for future research.

It is important to stress that the findings of this study on differences, and lack of differences, in fertility intentions among population subgroups in Sweden should not be interpreted so that similar differences necessarily hold also for behavior. Research has shown that a large set of factors are involved in determining realization of fertility intentions (e.g. Schoen et al., 1999; Régnier-Loilier & Vignoli, 2011; Kuhnt & Trappe, 2016). For example, earlier findings that the fertility behavior of the second generation of Eastern European and Middle Eastern origin in Sweden differ from that of non-immigrants (Scott & Stanfors, 2011; Andersson et al., 2017) are not reflected in the short-term fertility intentions of these groups,

which are not significantly different from those of non-immigrants. One possible explanation for this is that differences in intentions do exist but are smaller than what the relatively small sample size of this study could detect. It might also be a result of intergroup differences in patterns of realization. Hartnett's (2014) finding that Hispanic Americans have, on average, both higher desired fertility and realization rates compared to White Americans shows that such group-level differences can exist within a population. Analyzing realization patterns among the children of immigrants in Sweden is another interesting topic for future research.

There are some important limitations to this study. First, the sample size was not optimal. Since immigrants and immigrant descendants were not oversampled in the Swedish GGS, some of the categories and combinations of categories had relatively few respondents, which of course affect the reliability of parts of the results negatively and reduced the possibilities of attaining statistically significant results. Parts of the results that do not reach statistical significance point in the expected direction, which may indicate that more intergroup differences would be observed if the sample of certain subgroups had been larger. Future research could benefit from using data sources with larger samples of immigrants and immigrant descendants. Second, due to data constraints, it was not feasible to include some potentially interesting control variables, such as religiosity and conservative/liberal attitudes, in the analysis. Third, it is possible that intergroup differences in stated intentions can be partly attributed to reporting heterogeneity. It is not unreasonable to imagine cultural differences in the propensity to state both positivity/negativity and uncertainty. If such differences exist, they may have important implications for the results and their interpretation. Fourth, the aggregation of parental origin groups for the analysis of the second research question is likely to hide many interesting patterns as low- and high-fertility subgroups probably even each other out. As the impact of culture (e.g. via socialization or reactive ethnicity) on the formation of fertility intentions could be assumed to work primarily at the level of ethnicity, future research should ideally focus on ethnic identity rather than regional or national origin. In case information on ethnicity is not available, a possible alternative could be to use data on language as a proxy.

In spite of these limitations, it may be concluded that this study does contribute to a more comprehensive understanding of the fertility patterns of immigrant descendants, as was the aim. The idea behind the study is that extending the focus from fertility behavior to intentions gives a better insight into the degree of ideational adaptation of children of immigrants to the patterns of the destination country. As the descendants of immigrants constitute a growing population segment in Sweden as well as in other Western European

countries, improving the understanding of this group is increasingly important for demography as well as other fields of social science.

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Appendix

Table A1: Propensity to have a more positive short-term fertility intention, expressed as odds ratios, for men and women separately

	men				women			
	prop. odds	non-proportional odds			prop. odds	non-proportional odds		
		split 1	split 2	split 3		split 1	split 2	split 3
imm. gen.								
non-imm. (*ref.*)								
2G, 2 FB par.	1.32				0.66*			
2G, 1 FB par.		1.07	1.02	1.66**	1.06			
first gen.	2.46***				1.70***			
1.5 generation	1.46*				0.93			
age at int.	1.59***					2.54***	3.10***	2.98***
age at int. sq.	0.99***					0.98***	0.98***	0.98***
univ. educ.	1.29**				1.15			
labor market								
FT empl. (*ref.*)								
PT employed	0.82				0.89			
unemployed	0.89				0.87			
student	0.43***				0.45***			
other	1.04				1.42**			
parity								
childless (*ref.*)								
1 child		0.94	1.53***	2.48***		1.02	1.80***	2.63***
2 or more ch.		0.19***	0.20***	0.35***	0.21***			
no. of siblings	1.10**				1.05			

Note: Split 1 is all other categories compared to "definitely no". Split 2 is positive of either degree of certainty compared to negative of either degree of certainty. Split 3 is "definitely yes" compared to all other categories. FB = foreign-born. FT = full-time. PT = part-time. * p<0.1, ** p<0.05, *** p<0.01