Fertility intentions of the children of immigrants in Sweden

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Abstract

Background
The descendants of immigrants are increasingly important for a comprehensive understanding of childbearing patterns in Sweden, as well as other popular destination countries. Despite the fact that fertility preferences are key determinants of behavior in modern societies, earlier research on this population subgroup has mainly focused on actual fertility, with studies on fertility intentions so far being few.

Research questions
The aim of this thesis is to deepen the understanding of the fertility patterns of immigrant descendants by analyzing (1) to what extent the short-term fertility intentions of the children of immigrants in Sweden differ from those of the first generation and those of individuals without an immigrant background and (2) whether there are differences in short-term fertility intentions among the children of immigrants according to the regional origin of their immigrant parent(s).

Data and method
This thesis uses partial proportional odds models to analyze data from the Swedish GGS of 2012/2013. The analysis distinguishes between three generational categories of immigrant descendants: the 1.5 generation and the second generation with either one or two foreign-born parents, and between four parental origins: Western, Eastern European, Middle Eastern/North African, and other non-European.

Findings
Results show that neither of the two second generation groups is significantly different from non-immigrants in their short-term fertility intentions, which holds both when different regional origins are aggregated and for all the different origin groups once they are disaggregated and also both with and without the socioeconomic and demographic control variables. This pattern contrasts sharply to that observed for the first generation, whose intentions are much more positive than those of non-immigrants at every step of the analysis. There is more variation in the results for the 1.5 generation, but the general pattern may be interpreted as in-between the first generation and the two second generation categories.

Conclusions
These group-level differences indicate that convergence to destination country patterns is taking place across immigrant generations, including the 1.5 generation. Contrary to popular belief, the children of immigrants do not seem to retain high-fertility preferences, not even when their parents originate in regions with much higher fertility than Sweden.
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1. Introduction

Similar to other Western European countries, the descendants of immigrants constitute an increasingly important population segment in Sweden. Their numerical significance is now such that any comprehensive analysis of contemporary Swedish demographic patterns must take this group into consideration. There is reason to expect intergroup fertility differences since many of the country’s immigrant communities originate from societies whose demographic patterns distinctly differ from those of mainstream Swedish culture. Earlier research on the fertility of immigrant descendants has found that adaptation to destination country patterns across the generations is often considerable, but also that the level of convergence differs among origin groups (e.g. Scott & Stanfors, 2011; Kulu et al., 2017).

Building on the notion that the patterns of immigrant descendants are indicative of the longer-term integration of minority communities (see De Valk & Milewski, 2011), it is valuable to complement these insights on behavior with the study of fertility intentions. Family size preferences provide information about fundamental motivations for the life course and thereby constitute an additional dimension of demographic assimilation, perhaps at a deeper level than behavior (see Holland & De Valk, 2013). While behavior is affected by a range of intervening factors, preferences are relatively unfiltered representations of fertility norms and ideology. Also, in modern societies with almost universal availability of effective contraceptives and assisted reproductive technology, there is reason to expect ideational factors to become an increasingly important individual-level determinant of fertility outcomes (see Bongaarts, 2001). To my knowledge, 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 thesis is therefore to contribute to a more comprehensive understanding of the fertility patterns of immigrant descendants by extending the focus from behavior to intentions. The further analysis is guided by the following two research questions:

1. To what extent do the short-term fertility intentions of the children of immigrants in Sweden differ from those of the first generation and those of individuals without an immigrant background?

2. Are there differences in short-term fertility intentions among children of immigrants in Sweden according to the regional origin of their immigrant parent(s)?

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1 The following terminology is used in this thesis: Individuals born in Sweden to one or two foreign-born parents is referred to as “the second generation” or as “second generation immigrants”. Individuals born in Sweden to two Swedish-born parents are referred to as “non-immigrants” or as “individuals without an immigrant background”. Individuals who are born outside Sweden are referred to as “immigrants”, “the first generation” or
This thesis is organized as follows. Section 2 offers a brief theoretical review of the study of fertility intentions. Section 3 consists of a discussion of the Swedish context with special regard to the characteristics of its immigrant population. Section 4 deals with theory and findings relating to the fertility patterns of immigrant descendants. The data 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

There are at least three motivations for the study of fertility intentions. First, fertility intentions can be used to estimate future fertility. 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, there is reason to assume fertility preferences to be central factors in determining actual fertility (see Bongaarts, 2001). It has, indeed, been found that fertility intentions are important determinants of behavior, both at the individual and aggregate level (e.g. Ajzen & Klobas, 2013). Schoen et al. (1999) find that fertility intentions do not just mediate the effect of other variables, but in themselves contribute predictive power in the understanding of childbearing behavior. Second, 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 that determine the realization of fertility intentions (e.g. Schoen et al.,1999; Dommermuth, Klobas & Lappegård, 2011, 2014; Kuhnt & Trappe, 2016).

The third reason to study fertility preferences is because they convey information about individuals’ demographic value orientation. As a range of intervening factors affect the intention-realization link, preferences better than behavior represent fertility norms and ideology. Moreover, while the aggregate gap between desired and realized fertility seems to be, in general, less than one child and often closer to half a child or less (see Bongaarts, 2001; Liefbroer, 2009; Testa, 2014; Hartnett, 2014), differences in desired fertility may vary considerably more than that, both among social groups within society and between different as “first generation immigrants”. See section 5 for more details on how individuals have been categorized and for information on further subdivisions of the immigrant generation groups in the analysis sections of the thesis.
countries. There is, therefore, reason to consider the understanding of the factors that determine the formation of fertility preferences and how these vary within society as an essential aspect of modern fertility research.

It is theoretically meaningful to distinguish terminologically among different types of fertility preferences, so that while the desired or ideal number of children may be thought of as relatively distant from actual behavior and as reflecting more of a vision than a plan for future fertility, the expected number of children incorporates the actual circumstances of the individual’s life situation, and fertility intentions are even more concrete as they usually involve a specified timeframe (see Miller & Pasta, 1995; Iacovou & Tavares, 2011). It is thus possible to think of these concepts as constituting distinct stages in a sequential process, where desires precede intentions and intentions precede behavior. Kuhnt, Kreyenfeld and Trappe (2017: 237) have described this relationship as follows: “Desires are ‘internal factors’, such as motivations, attitudes, and beliefs [and if they] become more manifest, they materialize into intentions, which will in turn be translated into behavior if conditions are favorable”.

This type of stepwise understanding of the psychological process leading up to childbearing behavior can be found also in the most commonly employed theoretical framework in analyzing the formation of fertility intentions, the Theory of Planned Behavior (TPB). The TPB, as applied to fertility research, describes a sequence where individual, demographic, and societal background factors, such as personality traits, religion, and the socio-economic context first shape attitudes and a subjective norm toward having a child, as well as the perceived control over this outcome, which then combine to shape fertility intentions, which in turn lead to behavior, if actual control is not unfavorable (see Ajzen and Klobas, 2013: 205-206). Although this theoretical model has found much support in empirical research and is frequently referred to in studies on fertility intentions (e.g. Ajzen & Klobas, 2013; Dommermuth et al, 2011, 2014; Mencarini, Vignoli & Gottard, 2015; Kuhnt & Trappe, 2016), there are also indications that it does not fully describe the relationships involved in the intention formation process. Several studies find that the effect of different background variables are not fully mediated via the so-called primary antecedents and intentions as they affect behavior, as suggested by the TPB (e.g. Philipov & Berghammer, 2007; Balbo & Mills, 2011; Mencarini et al., 2015; Kuhnt & Trappe, 2016).

In addition to distinguishing between different types of preferences, it is also meaningful to distinguish among different types of fertility intentions, e.g. between positive and negative intentions (i.e. the intention to have or not to have a/another child), the degree of certainty
expressed in relation to the intention (e.g. definitely yes/no as compared to probably yes/no) and according to the timeframe for which the intention is expressed. Regarding the timeframe, it has been shown that intentions expressed for the near future are typically more reliable than intentions expressed in general or for the more distant future, especially for childless individuals (e.g. Miller & Pasta, 1995; Dommermuth et al., 2014). It has been shown that both positive and negative intentions are good predictors of behavior, with consistency being considerably higher for the latter than for the former in post-transitional societies. When expressed with certainty, about 50-70% of individuals realize a positive intention while about 90% or more realize a negative intention, with numbers being considerably lower for intentions expressed with uncertainty (e.g. Schoen et al., 1999; Toulemon & Testa, 2005; Régnier-Loilier & Vignoli, 2011; Cavalli & Klobas, 2013).

The analysis of this thesis deals with fertility intentions (i.e. not the ideal, desired, or expected number of children) expressed within a three-year timeframe. Among the dimensions of fertility preferences and fertility intentions discussed above, only the degree of certainty and whether or not the intention is positive or negative are allowed to vary. Since fertility desires and intentions are interrelated concepts, the discussion in section 4 includes theory and findings on both types of preferences.

3. The Swedish setting

Contemporary Swedish demographic patterns are characterized by features typical of the second demographic transition (SDT), such as high rates of extramarital childbearing, postponement of parenthood, a weakened importance of marriage, a high frequency of union disruption, and a high level of female labor market participation. The total fertility rate is slightly below replacement-level but comparatively high in a European context. Average desired fertility is among the highest in the EU at above 2.3 (Testa, 2014). Both Sweden’s overall demographic patterns and its fertility levels differ distinctly from many of the common origin societies of the country’s immigrants. Thus, Sweden’s multicultural character means that demographic rationales other than the mainstream may exist within important segments of the population.

Not only the ideational context is important for how fertility intentions are formed, but the policy context of course matters as well. Testa (2014) suggests that variation in desired family size within the EU can, at least to some extent, be explained by differences in the policy climate. One factor of particular importance for Sweden’s fertility patterns is the generous parental leave system which is linked to prior incomes, meaning that it is
economically beneficial to get established in the labor market before becoming a parent. Research has shown that the positive effect of employment on fertility is largely similar for non-immigrants and immigrants, especially regarding first births (Andersson & Scott, 2005, 2007; Scott & Stanfors, 2011; Lundström & Andersson, 2012). The observation that immigrant fertility follows the strongly fluctuating period trends of overall Swedish fertility very closely (see Andersson, 2004; Andersson, Persson & Obućina, 2017) further supports the notion of immigrants’ general integration to the Swedish institutional setting.

Sweden’s immigrant community is both large and heterogeneous. According to Statistics Sweden (2017), the share of foreign-born individuals is 17.9% while the second generation make up 5.4 or 12.8% of the population (depending on whether or not those with one Swedish-born parent are included), meaning that the combined first and second generations constitute 23.2 or 30.6% of the Swedish population. These numbers are considerably higher than EU28 averages and also clearly above EU15 averages (Eurostat, 2017). Based broadly on cultural proximity to Sweden, the numerical presence of different national origins\(^2\), and the constraints of the data of the Swedish GGS, the following four geographical regions of origin are used to distinguish between immigrant backgrounds in the following analysis:

1. **Western countries.** This group includes countries in Western, Northern, and Southern Europe as well as the former British settler colonies in North America and Oceania, with the most common origin countries being Sweden’s neighbors Finland, Norway, Germany, and Denmark (Statistics Sweden, 2017). This group of countries, and especially the other Nordic countries, has demographic patterns that are relatively similar to those of Sweden. However, there are important differences within the group, as, for example, origin-country national fertility varies from lowest-low to around replacement-level. Immigrants from this group consist primarily of labor or family migrants (Statistics Sweden, 2004) and they and their descendants are generally well integrated into Swedish society (Statistics Sweden, 2010, 2013).

2. **Eastern European countries** (including most of the Central European former state socialist countries), with the former Yugoslavia, Poland, and Bosnia & Herzegovina being the most common national origins (Statistics Sweden, 2017). Eastern Europe has long since completed the original demographic transition and there are indications of SDT.

\(^2\) Among the thirteen most common countries of origin (all represented by more than 60,000 immigrants or immigrant descendants), all but 11th-placed Somalia can be fitted into the first three categories (figures from Statistics Sweden, 2017).
characteristics (see Hoem, Kostova, Jasilioniene & Mureșan, 2009; Lesthaege, 2010). National fertility levels are generally very low for countries within this group, although there are important exceptions. Immigrants from these countries are mostly refugees, labor migrants, or family migrants (see Statistics Sweden, 2004) and they and their descendants are in general relatively well integrated in Swedish society (Statistics Sweden, 2010, 2013). In addition to group size and general cultural distinction, findings from earlier research that immigrants and immigrant descendants with an Eastern European origin in Sweden exhibit specific fertility patterns (Andersson, 2004; Scott & Stanfors, 2011) function as a further motivation to keep this group as a separate category in the further analysis.

3. **Middle Eastern/North African countries** (mainly Iraq, Syria, Iran, Turkey, \(^3\) and Lebanon: Statistics Sweden, 2017). These countries have either relatively recently completed the first demographic transition or are in its final stages. Compared to the previous two groups, demographic patterns within the countries of this group diverge more from those of the Swedish mainstream. Immigrants from these countries are primarily refugees and their families (see Statistics Sweden, 2004). While non-European immigrants are generally the least well integrated in Swedish society (e.g. Statistics Sweden, 2010, 2013), there is considerable variation within this group (see e.g. Bevelander & Lundh, 2007, for the relative success of Iranian immigrants in Sweden). Much of the growth of this group has occurred in the recent decades, which means that the number of immigrant descendants in childbearing ages is considerably lower than the group’s overall share of the Swedish population. In addition to group size and cultural distinction, the observation that the importance of this group can be expected to increase in the near future function as an extra motivation to keep it as a separate category in the further analysis.

4. **Other non-European countries.** Obviously, this group is characterized by great heterogeneity, with national origins in Sub-Saharan Africa, Latin America, and most of Asia and Oceania. The most common national origins are Somalia, Thailand, Chile, Eritrea, and Afghanistan (Statistics Sweden, 2017). What the different origin countries have in common is that their demographic patterns are all relatively distant from those of the Swedish mainstream. Immigrants from this group may be refugees, labor migrants, or

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\(^3\) Turkey is, of course, a country that could be categorized either as European or as Middle Eastern. In the Swedish GGS, the country is categorized as Middle Eastern. This is in line with the purposes of this thesis for two reasons: 1. Religion and religiosity are often thought of as important determinants of fertility intentions and Turkey’s religious ties are primarily to the Middle East. 2. Since many Swedes with Turkish national origin identify ethnically as Kurds and the same holds also for those with Iraqi, Syrian, and Iranian national origin, it would be unfortunate to split this group into different regional origins.
family migrants (see Statistics Sweden, 2004). While non-European immigrants are generally the least well integrated in Swedish society (e.g. Statistics Sweden, 2010, 2013), the heterogeneity of this group is mirrored also in the level of integration of its constituent subgroups.

It has already been noted that while there are important commonalities within these regional origin groups, they are far from homogeneous. Combining distinct groups into regional categories is not an optimal strategy. However, similar problems with intragroup heterogeneity would arise also if origin were to be analyzed at the national level. 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). Sweden does not keep statistics on ethnicity, but 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 Albanians and Bosnians are overrepresented among individuals with a national origin in the former Yugoslavia. As the effect of culture on fertility can be assumed to work primarily at the level of ethnicity, these groups should ideally be analyzed separately. However, the Swedish GGS data does unfortunately not allow this.

4. The fertility of immigrant descendants

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. Other groups, with a non-Western and non-European origin in countries with high fertility relative to the destination country, tend to have fertility behavior that is somewhere in-between that of the parental generation and that of non-immigrants.

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), Moroccans 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 country of destination and the average in the country of origin (Kraus & Castro-Martín, 2017), further supporting the notion of convergence working across the 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). When comparing different origin groups, it has been found that the second generation with a national origin in non-Nordic EU countries or in medium-HDI countries outside Europe has lower fertility than individuals without an immigrant background, while the patterns for those with immigrant parents from the other Nordic countries are very similar to the population that does not have an immigrant background (Statistics Sweden, 2010). Looking at patterns for parity-specific transition rates, Andersson et al. (2017) find that most immigrant groups, including those with an origin in many high-fertility countries, have lower transition rates to first and second birth but higher transition rates to third birth compared to individuals without an immigrant background. Among the groups that do not follow this pattern, the Turkish and Arab Middle Eastern second generation stand out by having similar or higher transition rates at every parity examined (ibid.: 1170). Scott and Stanfors (2011) also find that first birth transition rates differ among second generation origin groups, with individuals with Middle Eastern parentage having higher rates than non-immigrants and individuals with Eastern European parentage having lower rates.

4.1. Mechanisms explaining the fertility of immigrant descendants

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, and socio-economic and demographic 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 country of origin and adaptation to the patterns of the country of destination. 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 intergenerational 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 immigrant descendants 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.

The patterns of variation among groups of immigrant descendants described in the previous subsection suggest that the degree of adaptation is positively associated with the level of cultural proximity between the countries of destination and origin, so that socialization effects are more pronounced when the cultural distance between origin and destination is greater. 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 one immigrant community may be influenced simultaneously by both socialization and adaptation processes.

Regarding the issue of 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 first and second generation immigrants 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 marriage are both interconnected and relatively early life events, there is social pressure to conceive once married, and the frequency of transnational marriages where one of the partners is a Turkish German and the other a Turkish Turk is high. 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 not clear whether it is reasonable to interpret this as expressions of culture or primarily as reactions to particularly unfavorable policies in low-fertility countries. Testa (2014) has shown that the two-child norm exists throughout Europe, both in high- and low-fertility regions and she 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.

4.1.2. Minority group status

The segmented assimilation perspective on immigrant integration highlights that pluralist 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 that are perceived as closer to the culture in the country of origin. 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.

Furthermore, minority group status can in itself affect fertility patterns either negatively or positively. The minority group status hypothesis, as developed by Goldscheider and Uhlenberg (1969), 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. This pattern could explain the finding that some second generation groups are characterized by polarization, where high- and low-fertility behavior coexists within the same minority
community (e.g. Kulu & Hannemann, 2016; Kulu et al., 2017), as 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 give up on the labor market and choose “the motherhood/fatherhood track”. As the labor market prospects vary among Sweden’s disadvantaged minorities, it is plausible that the depressing effect dominates for some groups while the boosting effect dominates for others. Thus, labor market and minority group status interaction effects could explain both low and high fertility among second generation immigrants in Sweden and elsewhere in Europe.

There is another way in which minority group status can have a positive effect on fertility patterns. Minority groups may react to disadvantages by emphasizing differences vis-à-vis the majority culture through the promotion of cultural maintenance and intragroup loyalty. 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). If this type of behavior occurs at all in Sweden, it should be most likely among segments within the most marginalized groups and could possibly be a factor in driving up aggregate fertility for the two non-European regional origin groups.

4.1.3. Demographic and socioeconomic factors

Fertility research has identified a wide range of macro-, meso- and micro-level factors that are important to consider in understanding fertility patterns (see Balbo, Billari & Mills, 2013). When it comes to the behavior of immigrant descendants, some studies find that controlling for demographic and socioeconomic factors can largely explain differences among origin and generation status 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.,
Among the demographic and socioeconomic factors which have been found to influence fertility intentions and behavior, the following are included in the further analysis as control variables (see also section 5.2.4).

**Age:** This is a relevant control variable since social groups differ in the timing of fertility and because there is, within the final sample for the analysis of this thesis, considerable variation in the age distribution for the different subgroups, reflecting the young age structure of some recent immigrant groups. Findings on the association between age and fertility intentions have shown that young adults are more likely to have higher intentions and desires than individuals who are at a more advanced stage of their fertility career (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 the intention varies with age (Berrington & Pattaro, 2014). There are findings indicating that the relationship between age and fertility intentions is U-shaped (e.g. Hiekel & Castro-Martín, 2014), so that intentions are low at younger and older ages and high in the prime childbearing ages. Being at an older age is not only negatively associated with the formation of intentions but also with their realization (e.g. Régnier-Loilier & Vignoli, 2011).

**Educational attainment:** Findings on the relationship between educational attainment and fertility intentions and outcomes show that the effect varies among countries (e.g. Régnier-Loilier & Vignoli, 2011; Balbo et al., 2013). Research comparing second generation groups also fails to find a uniform pattern (see Krapf & Wolf, 2015; Kulu & Hannemann, 2016; Andersson et al., 2017). 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. As was discussed in the previous subsection, there may also be reason to expect educational attainment to affect the majority population and disadvantaged minorities differently.

**Labor market status:** Earlier research has found 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 Bhrolchaín & 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. Similarly as with educational attainment, there may also be reason to expect labor market status to affect the majority population and disadvantaged minorities differently.

**Parity:** Balbo and Mills (2011) find that being at higher parities is associated with having lower intentions. It has also been shown that the childless and parents differ in how they form fertility intentions (Dommermuth et al., 2011).

**Number of siblings:** 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 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 immigrant descendants 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 (e.g. Milewski, 2007, 2010; Sobotka, 2008; Mussino & Strozza, 2012b; 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, 2012b; 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 (2012b) 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, the observation that migration is often interrelated with other important life course events, such as marriage and childbearing, can drive up period fertility in the years following migration (see Andersson, 2004; Milewski, 2007, 2010). Third, selection into
migration may have an either positive or negative effect on fertility (see Bagavos, Tsimbos & Verropoulou, 2008).

5. Research design

5.1. Data

In aiming to answer my two research questions, I use 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. The number of respondents in the Swedish GGS is 9,688, of which 4,697 are men and 4,991 are women, 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.

The final sample for the analysis of this thesis consists of 3,958 individuals. Out of the 4,060 respondents who answered the question on their short-term fertility intentions, 92 respondents who did not know about their intention or refused to provide a substantive response and 10 respondents with unclear migration histories were dropped from the further analysis.

5.2. Variables

5.2.1. Fertility intention

For both research questions of this thesis, the dependent variable is the intention to have a/another child within the next three years. In the Swedish GGS, this question was asked to women 18-45 years old, to men and women whose partner was a woman 18-45 years old, to

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4 information from the GGP website: www.ggp-i.org (accessed on May 11, 2017)
6 Hereafter referred to as “the final sample”.

16
single men, and to men with a male partner. 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 the question. 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 “definitely yes” the least common (see Tables 5.1 and 5.3 for further information on how individuals are distributed across the intention categories). I have chosen not to include the intention to adopt since the Swedish GGS data does not allow this to be separated from the intention to take a foster child.

5.2.2. Immigrant generation status

The first of two main explanatory variables is immigrant generation status. The five categories of the variable are presented below. See Table 5.1 for a cross-tabulation of the immigrant generation status and fertility intention variables.

- **No immigrant background**: The group consists of individuals who were born in Sweden and whose parents were also born in Sweden. Individuals who were born outside Sweden to two Swedish-born parents and who moved to Sweden prior to age 15 are also grouped into this category. The group makes up 74.7% (2,958 individuals) of the final sample. In this thesis, the group is referred to either as non-immigrants or as individuals without an immigrant background.

- **The second generation with two foreign-born parents**: This group consists of individuals who were born in Sweden and whose parents are both foreign-born. The group makes up 3.9% (156 individuals) of the final sample. It is meaningful to keep the two subgroups of the second generation separated. 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).

- **The second generation with one foreign-born parent**: This group consists of individuals who were born in Sweden and who have one foreign-born and one Swedish-born parent. 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. 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. The group makes up 8.9% (367 individuals) of the final sample.
• **First generation immigrants** (excluding the 1.5 generation): This group consists of individuals who were born outside Sweden, whose parents are also foreign-born, and who moved to Sweden at age 15 or later. The group makes up 8.1% (320 individuals) of the final sample. The group is referred to either as the first generation or as first generation immigrants.

• **The 1.5 generation**: This group consists of individuals who were born outside Sweden, whose parents are also foreign-born, and who moved to Sweden prior to age 15. The group makes up 4.0% (157 individuals) of the final sample. 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 thesis, 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). I have chosen 15 years as the limit 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 analyses.

Table 5.1. Short-term fertility intentions by immigrant generation status

<table>
<thead>
<tr>
<th>Immigrant generation status</th>
<th>Definitely no</th>
<th>Probably no</th>
<th>Probably yes</th>
<th>Definitely yes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No immigrant background</td>
<td>1,356 (45.8%)</td>
<td>799 (27.0%)</td>
<td>462 (15.6%)</td>
<td>341 (11.5%)</td>
<td>2,958 (100%)</td>
</tr>
<tr>
<td>Second gen. with two foreign-born parents</td>
<td>77 (49.4%)</td>
<td>32 (20.5%)</td>
<td>31 (19.9%)</td>
<td>16 (10.3%)</td>
<td>156 (100%)</td>
</tr>
<tr>
<td>Second gen. with one foreign-born parent</td>
<td>161 (43.9%)</td>
<td>103 (28.1%)</td>
<td>50 (13.6%)</td>
<td>53 (14.4%)</td>
<td>367 (100%)</td>
</tr>
<tr>
<td>First gen. excl. 1.5 gen.</td>
<td>117 (36.6%)</td>
<td>81 (25.3%)</td>
<td>54 (16.9%)</td>
<td>68 (21.3%)</td>
<td>320 (100%)</td>
</tr>
<tr>
<td>1.5 gen.</td>
<td>71 (45.2%)</td>
<td>34 (21.7%)</td>
<td>28 (17.8%)</td>
<td>24 (15.3%)</td>
<td>157 (100%)</td>
</tr>
<tr>
<td>All groups</td>
<td>1,782 (45.0%)</td>
<td>1,049 (26.5%)</td>
<td>625 (15.8%)</td>
<td>502 (12.7%)</td>
<td>3,958 (100%)</td>
</tr>
</tbody>
</table>

Note: Percentages relate to the combined number of individuals for each immigrant generation status category, see the rightmost column.

5.2.3. Regional origin

The second main explanatory variable is the regional origin of immigrants or the parental regional origin for immigrant descendants. As has already been discussed, such origins are only registered at the regional level in the Swedish GGS, which makes it impossible to analyze specific national origins separately. The four regional origin categories
used here are merges from nine categories\textsuperscript{7} in the questionnaire. See section 3 for a discussion of the characteristics of the different categories. The regional origin of second generation individuals with one Swedish-born and one foreign-born parent is ascribed according to the origin of the foreign-born parent. Individuals with two foreign-born parents with different origins are categorized according to the origin of the mother. This classification system is similar to that used by both Scott and Stanfors (2011) and Andersson et al. (2017).

There is considerable variation among the regional origin groups regarding the distribution of generational categories (see Table 5.2 for a cross-tabulation of these two variables). While the second generation with one foreign-born parent constitute about two-thirds of the Western origin group, a similar proportion of the other three origin groups are made up of either first or 1.5 generation individuals. These differences reflect 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 probably also 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).

\textsuperscript{7}The category Western countries is a merge of the “Nordic countries (Finland, Norway, Denmark or Iceland)”, “Western Europe including Israel”, and “Oceania and Canada/USA” categories from the questionnaire. Eastern European countries is a merge of the “Eastern Europe EU27” and “Eastern Europe non-EU27 (including Soviet Union, but not Turkey)” categories. Middle Eastern/North African (MENA) countries is identical to the “North Africa and West Asia (including Turkey)” category. Other non-European countries is a merge of the “Sub-Saharan Africa”, “Rest of Asia”, and “Latin America and the Caribbean” categories. The stateless constitute a tenth origin category in the Swedish GGS questionnaire. Since this group only consists of one individual and since it is not possible to group him in any of the other categories with any reasonable degree of certainty, this individual has been dropped from the further analysis.
Table 5.2. Regional origins by immigrant generation status, for individuals with an immigrant background

<table>
<thead>
<tr>
<th>Regional origins</th>
<th>Western countries</th>
<th>Eastern Eur. countries</th>
<th>MENA countries</th>
<th>Other non-Eur. countries</th>
<th>All groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second gen., two foreign-born parents</td>
<td>61 (15.1 %)</td>
<td>41 (18.1 %)</td>
<td>33 (16.3 %)</td>
<td>21 (12.6 %)</td>
<td>156 (15.6 %)</td>
</tr>
<tr>
<td>Second gen., one foreign-born parent</td>
<td>256 (63.2 %)</td>
<td>49 (21.7 %)</td>
<td>24 (11.9 %)</td>
<td>38 (22.8 %)</td>
<td>367 (36.7 %)</td>
</tr>
<tr>
<td>First gen. excl. 1.5 gen.</td>
<td>64 (15.8 %)</td>
<td>88 (38.9 %)</td>
<td>95 (47.0 %)</td>
<td>73 (43.7 %)</td>
<td>320 (32.0 %)</td>
</tr>
<tr>
<td>1.5 gen.</td>
<td>24 (5.9 %)</td>
<td>48 (21.2 %)</td>
<td>50 (24.8 %)</td>
<td>35 (21.0 %)</td>
<td>157 (15.7 %)</td>
</tr>
<tr>
<td>Total</td>
<td>405 (100 %)</td>
<td>226 (100 %)</td>
<td>202 (100 %)</td>
<td>167 (100 %)</td>
<td>1,000 (100 %)</td>
</tr>
</tbody>
</table>

Note: Percentages relate to the combined number of individuals for each regional origin group, see the bottom row. Respondents without an immigrant background are not included in the table.

Cross-tabulating all three of the main variables, i.e. fertility intentions, immigrant generation, and regional origin (see Table 5.3), shows that the pattern observed for the sample as a whole and for the different generational categories that most short-term fertility intentions are negative, and especially definitively negative, (see Table 5.1) is valid also for all immigrant generation and regional origin combinations. It is also clear from the cross-tabulation that some of the combinations of categories unfortunately have very few cases, which of course has a negative effect on the possibilities to obtain meaningful results for the analysis of some aspects of the second research question.
Table 5.3. Short-term fertility intentions by immigrant generation and regional origin, for individuals with an immigrant background

<table>
<thead>
<tr>
<th></th>
<th>Second gen. with two foreign-born parents</th>
<th>Second gen. with one foreign-born parent</th>
<th>First gen. excl. 1.5 gen.</th>
<th>1.5 generation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DN</td>
<td>PN</td>
<td>PY</td>
<td>DY</td>
<td>ST</td>
</tr>
<tr>
<td>Western countries</td>
<td>33</td>
<td>11</td>
<td>11</td>
<td>6</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>54.1%</td>
<td>18.0%</td>
<td>18.0%</td>
<td>9.8%</td>
<td>43.8%</td>
</tr>
<tr>
<td>Eastern European countries</td>
<td>19</td>
<td>11</td>
<td>7</td>
<td>4</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>46.3%</td>
<td>26.8%</td>
<td>17.1%</td>
<td>9.8%</td>
<td>51.0%</td>
</tr>
<tr>
<td>MENA countries</td>
<td>15</td>
<td>5</td>
<td>8</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>45.5%</td>
<td>15.2%</td>
<td>24.2%</td>
<td>15.2%</td>
<td>41.7%</td>
</tr>
<tr>
<td>Other non-European countries</td>
<td>10</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>47.6%</td>
<td>23.8%</td>
<td>23.8%</td>
<td>4.8%</td>
<td>36.8%</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>32</td>
<td>31</td>
<td>16</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>49.4%</td>
<td>20.5%</td>
<td>19.9%</td>
<td>10.3%</td>
<td>43.9%</td>
</tr>
</tbody>
</table>

Note: The two-letter abbreviations given in the second row of the table stand for the different types of fertility intentions: DN=definitely no, PN=probably no, PY=probably yes, and DY=definitely yes. The fifth abbreviation stands for ST=subgroup total and gives the total number of individuals in each combination of immigrant generation status and regional origin. Percentages relate to the subgroup total. Respondents without an immigrant background are not included in the table.
5.2.4. Control variables

Below is a list of the control variables included in the further analysis (see Table 5.4 for the possible categories and descriptive statistics and section 4 for a brief review of research on how they are each related to fertility intentions and behavior). Twelve individuals in the final sample have missing or unclear information for some of these control variables (2 for “educational attainment”, 9 for “labor market status”, and 1 for “number of siblings”). There are no indications that the tendency to have a missing value on any of the control variables is associated with any category or combination of categories of the two main explanatory variables or with any of the categories of the dependent variable.

Table 5.4. Descriptive statistics for the control variables

<table>
<thead>
<tr>
<th></th>
<th>mean</th>
<th>standard deviation</th>
<th>range</th>
<th>Q1/Q2/Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>age at interview&lt;sup&gt;8&lt;/sup&gt;</td>
<td>32.2</td>
<td>9.4</td>
<td>18-70</td>
<td>24/32/40</td>
</tr>
<tr>
<td>educational attainment</td>
<td>no univ. education</td>
<td>2,645 (66.9 %)</td>
<td>1,310 (33.1 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>university education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>labor market status</td>
<td>full-time employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>part-time employed</td>
<td>622 (15.8 %)</td>
<td>218 (5.5 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>unemployed</td>
<td>218 (5.5 %)</td>
<td>741 (18.8 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>student</td>
<td>741 (18.8 %)</td>
<td>246 (6.2 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>other&lt;sup&gt;9&lt;/sup&gt;</td>
<td>246 (6.2 %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>parity</td>
<td>childless</td>
<td>2,085 (52.7 %)</td>
<td>474 (12.0 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 child</td>
<td>474 (12.0 %)</td>
<td>930 (23.5 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 children</td>
<td>930 (23.5 %)</td>
<td>276 (7.0 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 children</td>
<td>276 (7.0 %)</td>
<td>192 (4.9 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 or more children</td>
<td>192 (4.9 %)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>no. of siblings</td>
<td>0</td>
<td>206 (5.2 %)</td>
<td>1,410 (35.6 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1,410 (35.6 %)</td>
<td>1,231 (31.1 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1,231 (31.1 %)</td>
<td>523 (13.2 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>523 (13.2 %)</td>
<td>586 (14.8 %)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 or more</td>
<td>586 (14.8 %)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Unfortunately, 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. Since some of the combinations of the two main explanatory variables already had relatively few respondents in the full final sample, the possibilities of obtaining meaningful results from analyses on a much smaller subsample would be considerably reduced.

<sup>8</sup> Age at interview squared is included as an additional control variable.

<sup>9</sup> e.g. homemakers, the retired, etc.
5.3. Method

The research questions are analyzed by means of ordinal logistic regression. An alternative approach would have been to use linear regression (see Billingsley & Ferrarini, 2014: 434). It is not clear, however, to what extent the continuous approximation of the four-category intention variable is appropriate (see Thomson & Brandreth, 1995). A second alternative 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 have been 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). Since uncertainty is not evenly distributed in the population (e.g. regarding age and labor market status: Berrington & Pattaro, 2014), disregarding this type of response is especially problematic when the purpose is to make intergroup comparisons.

The analytical method of this thesis is the partial proportional odds model. This model can be an alternative to the proportional (or cumulative) odds model, which is the most frequently used model for logistic regression analyses with ordinal dependent variables (O’Connell, 2006). The idea of the proportional odds model is to conduct a series of binary logistic regressions by cumulatively combining the categories of the ordinal dependent variable. For the dependent variable of this thesis, 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. Due to the assumption of the model that the odds for each included variable are proportional across all the separate binary logistic regressions, this series of regressions are then summarized into only one set of results.

Of course, this proportional odds assumption does not always hold. Disregarding this and continuing the analyses with a proportional odds model where the proportional odds

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10 According to O’Connell (2006), there are at least two alternative models for how to combine categories other than the approach of the proportional odds model: The continuation ratio model first compares category one with all higher categories combined, then compares category two with all higher categories, and so on. The adjacent categories model first compares category one and category two, then compares category two and three, and so on.
assumption is violated may produce “incorrect, incomplete, or misleading results” (Williams, 2006: 62). An alternative is to instead use the partial proportional odds model. This model is similar to the proportional odds model for those variables that do not violate the proportional odds assumption, but allow 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 thesis, 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. Since the partial proportional odds model is less restrictive than the proportional odds model but 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), this led me to conclude that the partial proportional odds model is better suited for describing the data I was working with.

6. Results

6.1. The effect of immigrant generation status on fertility intentions

The first research question concerns to what extent the short-term fertility intentions of the children of immigrants differ from those of first generation immigrants and those of individuals without an immigrant background. More precisely, the analysis centers on intergroup differences in the propensity to have a more positive fertility intention, among the four categories discussed in section 5, with results expressed as odds ratios where non-immigrants function as the reference category. The first 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 and 5 included.

Starting without the control variables (see Table 6.1), results show that only first generation immigrants are significantly more likely than non-immigrants to have a more positive fertility intention, with the odds being almost two-thirds higher. For all groups of immigrant descendants, differences relative to non-immigrants are relatively small and not statistically significant. The odds are proportional across all three combinations of the intention categories. The pseudo-$R^2$ is very low at 0.002, which clearly indicates that immigrant generation status is far from the most important variable in explaining individual fertility intentions.
Table 6.1. Propensity to have a more positive short-term fertility intention, expressed as odds ratios, by immigrant generation status

<table>
<thead>
<tr>
<th>Immigrant generation status</th>
<th>Proportional odds across all intention combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>No immigrant background</td>
<td>reference category</td>
</tr>
<tr>
<td>Second gen. with two foreign-born parents</td>
<td>0.94</td>
</tr>
<tr>
<td>Second gen. with one foreign-born parent</td>
<td>1.09</td>
</tr>
<tr>
<td>First generation excl. the 1.5 generation</td>
<td>1.62***</td>
</tr>
<tr>
<td>1.5 generation</td>
<td>1.15</td>
</tr>
</tbody>
</table>

Note: * indicates that the result is statistically significant at the 10 % level, ** indicates that the result is statistically significant at the 5 % level, *** indicates that the result is statistically significant at the 1 % level.

When the demographic and socioeconomic control variables are added to the analysis (see Table 6.2), 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 short-term fertility intention about 2.3 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. For the former group, it seems that it is the higher odds of having positive as compared to negative intentions that most contribute to the violation of the proportional odds assumption, though the differences compared to non-immigrants do not reach statistical significance. For the 1.5 generation, the odds of being in the higher intention category are elevated for both the second and the third split but not for the first. Only the second split, i.e. the higher propensity to have (both types of) positive intentions as compared to (both types of) negative intentions, is statistically significant, and only weakly.

The effects of the demographic and socioeconomic control variables are all significant. Older individuals are more likely to have a more positive intention and there is also support for the U-shaped effect of age found in earlier research. The positive effect of age is most pronounced when the “definitely yes” category is compared to all other categories of intentions, probably reflecting that uncertainty is a less viable approach at older ages. Both having university education and having a higher number of siblings are associated with a more positive fertility intention, though the effects are relatively modest. Being at a higher parity reduces the odds of having a more positive intention by about half. Employment status matters for the formation of fertility intentions in the following way: The odds are relatively similar for the full-time employed, part-time employed, and the unemployed, while students are much less likely to have a more positive intention. Individuals within the “other” category are much more likely than the full-time employed to have a more positive intention, probably reflecting that homemakers (which are an important part of this group) constitute a select
group in Swedish society that is likely to be particularly pronatalist. The pseudo-$R^2$ is now much higher at 0.104, which indicates that the control variables jointly contribute considerably in explaining individual fertility intentions.

Table 6.2. Propensity to have a more positive short-term fertility intention, expressed as odds ratios, by immigrant generation status, including control variables

<table>
<thead>
<tr>
<th>No immigrant background</th>
<th>Proportional odds across all intention combinations</th>
<th>All other categories vs. definitely no</th>
<th>Yes vs. no</th>
<th>Definitely yes vs. all other categories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>reference category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Second gen. with two foreign-born parents</td>
<td>0.85</td>
<td>1.27</td>
<td>1.01</td>
<td></td>
</tr>
<tr>
<td>Second gen. with one foreign-born parent</td>
<td>1.11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First gen. – 1.5 gen.</td>
<td>2.31***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5 generation</td>
<td>0.93</td>
<td>1.43*</td>
<td>1.41</td>
<td></td>
</tr>
<tr>
<td>Age at interview</td>
<td>1.63***</td>
<td>1.89***</td>
<td>2.04***</td>
<td></td>
</tr>
<tr>
<td>Age at interview squared</td>
<td>0.99***</td>
<td>0.99***</td>
<td>0.99***</td>
<td></td>
</tr>
<tr>
<td>Having university education</td>
<td>1.18**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being full-time employed</td>
<td>reference category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being part-time employed</td>
<td>0.89</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being unemployed</td>
<td>0.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Being a student</td>
<td>0.46***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Having other employment status</td>
<td>2.01***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parity</td>
<td>0.54***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of siblings</td>
<td>1.09***</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * indicates that the result is statistically significant at the 10 % level, ** indicates that the result is statistically significant at the 5 % level, *** indicates that the result is statistically significant at the 1 % level.

6.2. The effect of parental regional origin on the fertility intentions of the children of immigrants

The second research question concerns whether short-term fertility intentions differ among parental origin groups of the children of immigrants. Again, the analysis tests the
propensity to have a more positive short-term fertility intention and results are expressed as odds ratios with non-immigrants as the reference category. For the analysis of this research question, the final sample is divided into four subsamples which all include non-immigrants but only individuals from one of the four categories of immigrant generation status. This allows for a direct and easily interpretable comparison of each combination of immigrant generation status and regional origin with the non-immigrant population. The four subsamples are first modeled with only the dependent variable and the regional origin variable and then with the same set of demographic and socioeconomic control variables that were used in the analysis of the first research question.

Interestingly, results (see Table 6.3) 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. 1.5 generation individuals with an Eastern European origin are significantly more likely than non-immigrants to have a more positive fertility intention. However, this weak significance disappears when the demographic and socioeconomic controls are introduced. For the 1.5 generation of Middle Eastern/North African origin, the proportional odds assumption is violated so that individuals from this group are significantly more likely than non-immigrants to have a positive intention (of both degrees of certainty) and even more likely to have a definitively positive intention. Differences again become insignificant when controls are introduced. Neither the 1.5 generation of Western nor of other non-European origin differ significantly from non-immigrants, either with or without controls.

Since non-immigrants dominate in the four subsamples even more than in the final sample as a whole, the results for the control variables mostly refer to their respective effects on this group. Accordingly, the results for the control variables are very similar to those already presented in Table 7.2 and are therefore omitted from Table 7.3.\(^\text{11}\)

\(^{11}\) The full results, including the control variables are presented in Appendix 1.
Table 6.3. Propensity to have a more positive short-term fertility intention, expressed as odds ratios, by regional origin, for different categories of immigrant generation status

<table>
<thead>
<tr>
<th>Fertility intention split</th>
<th>With/without control variables</th>
<th>Without controls</th>
<th>With controls</th>
<th>Without controls</th>
<th>With controls</th>
<th>Without controls</th>
<th>With controls</th>
<th>Without controls</th>
<th>With controls</th>
<th>Without controls</th>
<th>With controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>No immigrant background</td>
<td>ref. cat.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western countries</td>
<td>0.80</td>
<td>0.81</td>
<td>1.14</td>
<td>1.17</td>
<td>1.38</td>
<td>1.78 **</td>
<td></td>
<td></td>
<td></td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>Eastern European countries</td>
<td>0.97</td>
<td>1.01</td>
<td>0.74</td>
<td>0.88</td>
<td>1.60 **</td>
<td>2.46 ***</td>
<td></td>
<td></td>
<td></td>
<td>1.60 *</td>
<td></td>
</tr>
<tr>
<td>MENA countries</td>
<td>1.27</td>
<td>1.31</td>
<td>1.15</td>
<td>1.16</td>
<td>1.48 **</td>
<td>2.58 ***</td>
<td></td>
<td></td>
<td></td>
<td>1.08 **</td>
<td>1.78 **</td>
</tr>
<tr>
<td>Other non-European countries</td>
<td>0.92</td>
<td>0.85</td>
<td>1.28</td>
<td>1.03</td>
<td>2.20 **</td>
<td>2.56 ***</td>
<td></td>
<td></td>
<td></td>
<td>0.70</td>
<td></td>
</tr>
</tbody>
</table>

Note: * indicates that the result is statistically significant at the 10 % level, ** indicates that the result is statistically significant at the 5 % level, *** indicates that the result is statistically significant at the 1 % level.
7. Summary and conclusions

The results of this thesis can be summarized as follows. Neither of the two second generation groups, i.e. those with one and those with two foreign-born parents, is significantly more or less likely than non-immigrants to have a more positive short-term fertility intention, which holds both when different regional origins are aggregated and for all the different origin groups once they are disaggregated. When regional origins are aggregated, the 1.5 generation is weakly significantly more likely than non-immigrants to have a positive intention (of any degree of certainty) once demographic and socioeconomic control variables are included in the analysis. When origins are disaggregated, results are only significant for the 1.5 generation of Eastern European and Middle Eastern/North African parental origin and only when controls are not included. The results for all groups of immigrant descendants sharply contrast to those obtained for the first generation, for which the higher likelihood of having a more positive short-term fertility intention than non-immigrants is almost always strongly significant both with and without control variables.

Given these results, the answer to the first research question would be that the short-term fertility intentions of the children of immigrants are considerably less positive when compared to the first generation but that differences in relation to non-immigrants are mostly not significant. Especially the second generation is very similar to non-immigrants. As regards the second research question, the results do not indicate that there are clear differences in short-term fertility intentions among parental origin groups of children of immigrants. The differences that do exist can be explained by controlling for demographic and socioeconomic factors.

The finding of elevated fertility intentions among the first generation is in line with earlier research, which finds that first generation fertility is often high due to factors such as the interrelation of demographic events and, for some groups, socialization into a high-fertility culture in the country of origin. The reduced differences in relation to non-immigrants among the 1.5 generation and the non-significant differences among the second generation may be interpreted as indicative of substantial and relatively quick ideational adaptation to destination country patterns working across the immigrant generations. The results thus do not support the notion sometimes propagated in public discourse that immigrant descendants of certain origins tend to essentially retain the cultural patterns of their parents, leading to the formation of ideologically segregated, stably high-fertility, ethnic minorities within destination country societies.
It is important to note that the findings of this thesis on group-level differences in fertility intentions among immigrants and their children should not be interpreted so that similar differences necessarily hold also for behavior. Research has shown that realization of fertility intentions varies according to a large set of factors (e.g. Schoen et al., 1999; Régnier-Loilier & Vignoli, 2011; Kuhnt & Trappe, 2016). It might be assumed that immigrants and immigrant descendants could be more likely to misjudge the realism in a fertility intention due to their relative unfamiliarity with the institutional setting in destination countries. However, Hartnett’s (2014) finding that Hispanic Americans have, at the aggregate-level, both higher desired fertility and realization rates compared to White Americans would seem to contradict this hypothesis.

The finding of Scott and Stanfors (2011) 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 is not reflected in their short-term fertility intentions, which are not statistically significantly different from those of non-immigrants. For the 1.5 generation of Eastern European origin, there is even a tendency to have higher intentions than non-immigrants. A possible explanation for this pattern is offered by Goldscheider’s and Uhlenberg’s (1969) minority group status hypothesis. If immigrant descendants of Eastern European origin do limit their childbearing in order to concentrate resources on the achievement of upward social mobility, this might have a more pronounced impact on actual fertility than on intentions.

There are some important limitations to the analysis of this thesis. First, the sample size was not optimal. Since immigrants and immigrant descendants were not over-sampled in the Swedish GGS, some of the categories and combinations of categories had relatively few respondents, which of course affected the reliability of parts of the results negatively and reduced the possibilities of attaining statistically significant results. The odds ratios attained from the data analysis on several occasions deviate considerably from 1 in the expected directions without reaching statistical significance, which could 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, an important limitation to the analysis of the second research question is that the parental origin could only be included at regional level. Although there are important commonalities to the different regional origin categories, there is also considerable
variation within the groups. This is likely to hide many interesting patterns as low- and high-fertility subgroups probably even each other out when aggregated. Yet, an analysis at the national level would have similar problems since the impact of socialization on the formation of fertility intentions could be assumed to work primarily at the level of ethnicity. For example, several of Sweden’s most important immigrant communities (e.g. Kurds, Assyrians/Syriacs, and Bosnians) constitute minorities or pluralities in their respective origin countries, with fertility patterns that may differ distinctly from national averages.

In spite of these limitations, it is my belief that this thesis does contribute to a more comprehensive understanding of the fertility patterns of immigrant descendants, as was the aim stated in the introduction. The idea behind this thesis is that extending the focus from fertility behavior to intentions gives a better insight into the degree of ideational adaptation to destination country patterns. 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 both demography and other fields of social science.

**Acknowledgements**
I would like to thank my supervisor Eleonora Mussino. Her suggestions and comments have been invaluable.
References


Appendix: Full results for the analysis of section 6.2 and Table 6.3

Propensity to have a more positive short-term fertility intention, expressed as odds ratios, by regional origin, for different categories of immigrant generation status

<table>
<thead>
<tr>
<th></th>
<th>Second gen. with two foreign-born parents</th>
<th>Second gen. with one foreign-born parent</th>
<th>First gen. excl. 1.5 gen.</th>
<th>1.5 generation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prop. odds across all int. comb.</td>
<td>All other cat. vs. def. no</td>
<td>Yes vs. no</td>
<td>Def. yes vs. all other cat.</td>
</tr>
<tr>
<td>No imm. backgr. ref. cat.</td>
<td>0.81</td>
<td>1.17</td>
<td>1.78**</td>
<td>1.43</td>
</tr>
<tr>
<td>Western countries</td>
<td>1.10</td>
<td>0.88</td>
<td>2.46***</td>
<td>1.42</td>
</tr>
<tr>
<td>Eastern Eur. countries</td>
<td>1.31</td>
<td>1.68</td>
<td>1.96***</td>
<td>1.97***</td>
</tr>
<tr>
<td>MENA countries</td>
<td>0.85</td>
<td>1.62</td>
<td>1.85***</td>
<td>1.1***</td>
</tr>
<tr>
<td>Other non-Eur. countries</td>
<td>1.24</td>
<td>1.68</td>
<td>1.96***</td>
<td>1.97***</td>
</tr>
<tr>
<td>Age at interview</td>
<td>1.24</td>
<td>1.68</td>
<td>1.96***</td>
<td>1.97***</td>
</tr>
<tr>
<td>Age at interview squared</td>
<td>1.26</td>
<td>2.08</td>
<td>2.13***</td>
<td>2.02***</td>
</tr>
<tr>
<td>Having university educ.</td>
<td>0.93</td>
<td>0.83*</td>
<td>1.08</td>
<td>0.96</td>
</tr>
<tr>
<td>Being full-time employed</td>
<td>0.90</td>
<td>1.00</td>
<td>0.92</td>
<td>0.95</td>
</tr>
<tr>
<td>Being unemployed</td>
<td>0.42</td>
<td>0.45</td>
<td>0.44***</td>
<td>0.44***</td>
</tr>
<tr>
<td>Being a student</td>
<td>2.10</td>
<td>2.09</td>
<td>2.12***</td>
<td>2.20***</td>
</tr>
<tr>
<td>Having other employment status</td>
<td>0.53</td>
<td>0.52</td>
<td>0.53***</td>
<td>0.52***</td>
</tr>
<tr>
<td>Parity</td>
<td>1.08**</td>
<td>1.08</td>
<td>1.08***</td>
<td>1.08***</td>
</tr>
<tr>
<td>Number of siblings</td>
<td>0.83*</td>
<td>1.08</td>
<td>0.96</td>
<td>0.94</td>
</tr>
</tbody>
</table>

Note: * indicates that the result is statistically significant at the 10% level, ** indicates that the result is statistically significant at the 5% level, *** indicates that the result is statistically significant at the 1% level.