Kinship structure in Sweden 2041

Differences between Swedish born and Iranian born in the birth cohort of 1965-1975

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Abstract

The aim of this study is to micro-forecast kinship structure from 2017 to the first of January 2041 by using Statistic Sweden’s forecasted mortality rates. The subject of study is the Iranian population of the birth cohort 1965-1975 who have lived in Sweden 2017 and their kin and compare it with a Swedish background sample. The data has been taken from the Swedish population registry and the mortality rates have been taken from Statistic Sweden to forecast the future population.

The results show that there is a difference between the Iranian population and the Swedish background sample in regards to availability of kinship in Sweden. The kinship availability persists from ever registered in the administrative registry to the end of the microsimulation in the year 2041. Furthermore, the differences in the most vulnerable group who does not have any partner, children or siblings to rely on are larger in the Iranian population.

This is the first study to count kinship ties of a migrant group and compare it with a Swedish reference sample in the future by combining microsimulation modelling and the Swedish population registry.

Keywords
microsimulation, forecast, kinship, immigrants, Iranians, Sweden
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List of Abbreviations

ATP
Allmänna tjänstepensionen/
Occupational pension

NDC
Notional Defined Contribution

RTB
Total population register

SES
Socioeconomic status
1. Introduction

Kinship is a lifelong network that gives individuals access to economic, social and environmental resources. These resources can help an individual gain a buffer against disadvantages in society (Walsh 2003). Elderly’s kinship has always been significant for better-perceived health due to the kin acting as social supporters (Weiss 1969).

The latest demographic trends in Europe has been a decline in fertility and volatile relationships have led to cohorts after the 1950’s to have fewer kin ties of the same generation (cf. Lesthaeghe 1991). Moreover, as people grow older, families with more than two generations alive are more common today than they have been previously as the life expectancy has steadily increased (Connidis 2010: 25-26).

Even in welfare states, such as Sweden, kinship network plays a key role for a good quality of life for the elderly (cf. Albin, Siwertsson & Svensson, 2011). Having few kin has been associated with social isolation, loneliness and economic difficulty to name a few (cf. Strain & Chappell 1982)

Sweden has long been a well-known welfare state and has historically been associated with a strong security for weak groups such as the elderly get resources from the state. However, formal care and economic benefits such as the Allmäna tjänstepensionen/income pension (“ATP”) have since the late 20th century been reformed leading to elderly having fewer resources than previously if they only relay on governmental assistance to have a good quality of life. The reduction of assistance has created a shift from formal care to informal care (Christiansen 2006:11-27; Sundén 2006).

Furthermore, Sweden has seen a significant rise in migration from non-western countries since the late 20th century (Swedish Migration Agency 1999). This type of migration has led to many individuals’ moving from their country of origin to a new host country, leaving their kin behind. As the migrants often enter their adult life, they will have fewer years to acquire resources to offset the decline of reductions in the government-funded programs and will, therefore, be more dependent on their kinship network to help them with social and economic resources (Morissens & Sainsbury 2005).
Moreover, migrant groups have different fertility levels than natives and are more likely to be childless (Statistic Sweden 2014A), having only their partner to support them in the host country. Due to this fact, migrants have more possibility of having few kin in the host country. However, no studies have forecasted migrant kinship in Sweden and therefore there is a need for understanding how migrant’s kinship network are composed.

There are many different migrant groups with different fertility and kinship availabilities. The individuals who have the most difficult to have available kin in the host country are the non-European countries with low economic resources and who have difficulties obtaining visa to Europe, for example countries such as Iran, Somalia, Afghanistan and so forth.

This study will focus on micro-forecasting the Iranian minority population and a Swedish background sample from the birth cohort of 1965-1975 and their kin by using the Swedish administrative registries. The Iranian population has distinct features such as having a high instability of partnership, low fertility and are from a non-European country making it more difficult to be available to help the individuals in the hosting country. These types of migrants will be heavily dependent on kin’s as they are more likely to be economically vulnerable and socially isolated (cf. Morissens & Sainsbury 2005). The forecasting technique that will be used is microsimulation modelling that was created by Sabine Zinn (2016). The microsimulation will use mortality probability rates from Statistic Sweden’s (2018) population projections to forecast the Iranian population, the Swedish background sample and its kin to understand future kinship structures.
2. Research question

The aim of this study is to microsimulate kinship structure from 2017 to the first of January 2041 by using Statistic Sweden’s forecasted mortality rates. The population of study is the Iranian population of the birth cohort 1965-1975 who have lived in Sweden 2017 (“Iranian population”) and their kin. The data is taken from the “Aging Well”- project that has access to a collection of data from the Swedish registries. The Iranian population will be compared with a sample that is based on Swedish born individuals of the same birth cohort who lived in Sweden during 2017 and who have two Swedish born parents, henceforth referred to as (“Swedish background sample”). After the microsimulation has been done the study will compare the descriptive results of the two groups.

The choice to microsimulate to 2041 is due to that is that the whole Iranian population and Swedish background sample will have turned 65, which is the legal age of retirement in Sweden. The retirement age is chosen due to it being the start of an increase of dependency to kin.

Furthermore, this study will be using a novel approach combining administrative data, a population registry and a microsimulation technique based on Sabine Zinn’s (2016) microsimulation model for the purpose of investigating how future kinship structure will be composed. As this study is the first of its kind it will only investigate Iranian born individuals who lived in Sweden during 2017 of the birth cohort 1965-1975 and compare them with Swedish born individuals who have their previous generation born in Sweden and are born between 1965 and 1975 to see how their accessibility to kin are 2041 by using mortality rates.

The reason why this study is relevant is due to the increasing importance of accessibility to kin. Kin is the primary providers of informal care and resources to the elderly and is, therefore, one of the most important networks for the elderly and especially elderly migrants. A migration is, for the most part, an individual process that means that the migrant leaves their kin behind to migrate to the host country. The migration can create a deficit in kinship ties in the host country and are therefore an interesting topic to study as it has effects on the individual’s quality of life in elderly years.
Moreover, migrants most often do not have a multigenerational network in the host country. Migrants who are unable to access a kinship network creates a deficit of resources, especially for elderly who require help. However, most non-European groups have yet to reach elderly age. To understand how their kinship will be composed, this study will microsimulate one migrant group, Iranians, to understand how migrant’s accessibility to informal care could be in the future.

The following questions will be examined in this paper:

1. How many siblings does the Iranian population and Swedish background sample have in Sweden that (a) have been ever-registered, (b) were alive in 2017 and (c) will be alive in 2041?
2. How many children does the Iranian population and Swedish background sample have in Sweden that (a) have been ever-registered, (b) were alive in 2017 and (c) will be alive in 2041?
3. How many of the Iranian population and Swedish background sample had a partner (a) alive in 2017, and who are (b) alive in 2041?
4. How many among the Iranian population will not have access to a partner, children or siblings in 2041?
5. Are there any differences between (a) the Iranian population and the Swedish background sample (b) by gender?

The contribution of this study will be two-fold. Firstly, the study will use a novel approach to understand future kinship structure for migrants. To the Authors knowledge, none has used microsimulation and administrative data, to count a migrant populations kinship ties in the future. Secondly, the paper gives an insight into how a migrant group’s accessibility to kinship will be in 2041 which can have several consequences for policy making within the field. Because of its novelty this study will only use mortality rate to show the changes in kinship ties over time as mortality rate is one of the most important variables to understand future ageing.
3. Theory

3.1 Introduction

This chapter will discuss how the changes in policy have decreased social transfers and other resources which has affected the elderly’s well-being. The literature about the changes in formal- and informal care, how kinship is an important relationship type for informal care and in some cases supersedes the formal care and the underlying reasons for why the societies are ageing will be examined. Furthermore, the previous literature argues that the migrated minorities are more dependent on kin than natives and argue that migrants are more likely to have fewer kin. This chapter will go in-depth of the literature.

3.2 Importance of kinship

Family ties have both in historical and modern times been an essential asset for health and well-being. Family ties or kinship is in the broad sense, based on genetics or customs and can vary across cultures concerning who is counted as kin (Connidis 2010:4). The availability of kinship varies across the life course. As family formation are more unstable, people enter new relationships throughout their whole life course which means that people can change how many kin they have depending on whom they are with at a given moment. This trend can have an effect on social support and informal care (Wachter 1997).

Family formation and family ties have been structured differently across time and space but have always been associated with a social capital that can be utilised for emotional, financial and material support. Walsh (2003) describes kin as a network that can help against unforeseen accidents for the individual because of the help he or she can get from her family members. This network creates a sort of resilience which makes individuals less likely to become vulnerable.

Some researchers argue that kinship is one of the fundamental social inequalities as it is for the most part inherent by birth and is an essential factor that influences the individual's opportunities along their life course (Ferraro, Shippee, Schafer 2009). Social inequality is, in this case, the availability of kin as supporters of financial, emotional and ecological variables.
Kinship can be seen as a give-and-take relationship that varies along the life course of the family (Evandrou et al. 2016). When the individual is a child, she is being taken care of by her parents, and when she grows older, she can get help from her parents to foster and care for her children. This phenomenon creates a dependency for the individual towards her parents. However, this changes as the parents get older and require different type of assistance and support.

3.2.1 Kinship and elderly

3.2.1.1 Importance of kin

Kinship is closely related to the elderly's quality of life and risk of mortality (Ferraro et al. 2009; Evandrou et al. 2016; Grimny & Wiklund, 1994). However, as the life expectancy increases more generations are alive at a given point of time. The ageing of people increases the vertical family structure, in research, often referred to as the beanpole family (Bengtson 2001).

For the most part, if the elderly is in a relationship, he or she will be given support by his or her partner (Depner & Ingersoll-Dayton 1985). However, as society is presently constructed women are often younger than their male counterparts in their relationship and also have a higher life expectancy than their male counterparts in heterosexual relationships (Stone, Cafferata & Sangl, 1987). This leads to many females being alone in their elderly years. Being married is correlated with a higher well-being which indicates a higher quality of life for the individual (Soons & Kalmijn 2009).

Presently, the second most crucial kin to support the individual elderly are their children (Connidis 2010; Van Dussen & Morgan 2009). In one study, Aldous (1994) found that a third of older persons receive help from their children. Similar studies have been made in Sweden and the studies concluded that informal care was an essential aspect of elderly care. The children were prone to give practical and emotional help. Moreover, within the child category many have found that there are gendered patterns concerning help depending on the child's gender. Daughters have been proven to help their parents more than sons (Van Dussen & Morgan 2009). Daughters tend to be more likely to provide the required assistance to the elderly and are more likely to give emotional support (Jegermalm 2006; Van Dussen & Morgan 2009). However, sons tend to be more likely to give physical support (Jegermalm 2006). Having one daughter was more important than having many children, as one daughter usually takes responsibility for the well-being of the parents (Grundy & Read 2012).
Furthermore, in a historical context demographic variable change fast and with the rapid changes in fertility and the instability in partnership formation, new dependencies can be created (Connidis 2010: 26). New types of dependencies could be gaining more supportive ties to their siblings as the kin reduces. Moreover, it could be argued that grandchildren will have a more active role in the caring of their grandparents in the future (Connidis 2010:202).

The availability of kin is a necessity to get support for the elderly. Many studies have shown that the kin’s geographical distance varies across the life cohort. The parental distance varies across life stages. When the child is young, it stays with its parents until mid-life. Thereafter, the geographical distance between the parents and the child increases. However, when the parents turn elderly, the distance minimises (Lin & Rogersson 1995). The same has been shown to be true for other types of kins as well (Kolk 2017).

### 3.3 Policy and kinship

In 1928 the prime minister of Sweden Per Albin Hansson coined the notion of the Swedish “people’s home” (“Folkhemmet”) which referred to the redistribution of society that changed Sweden from a pre-welfare regime to a “welfare regime” as defined by Gösta Esping-Andersen (1990). The welfare state in Sweden had its golden era in the 1950 to the 1980’s. During that time period the citizens received the most formal help through state-funded home caring, pensions and other welfare reforms were at its highest point (Christiansen 2006:11, 21-30).

Formal care and social transfers such as pensions are valuable resources for the elderly to have a high quality of life. However, since the 1980’s there have been reductions in governmental formal care and the pension system has been reformed for the elderly. Therefore, there is an increasing need for informal carers and kin network.

#### 3.3.1 Formal and informal care

##### 3.3.1.1 Formal care

The formal elderly care came into existence in 1950-1960 when Sweden implemented various collective reforms regarding elderly care. The central reforms that came into effect and became the core of Swedish elderly care were the rise of home care and institutionalisation for elderly who are grave or chronic ill (Blomberg & Petersson 2003).
Since the beginning of the 1980s, the formal elderly care in Sweden has been successively reduced. The most prominent case is the organisational reform in 1990 which reduced the resources per elderly (Olsson & Ingvad 2006). The reforms of 1990 were due to a liberalisation reform that enabled municipalities to have a more considerable degree of autonomy and choose how the elderly care should be structured. The reduction of elderly resources was perceived to be due to changes in saving obligations towards the municipalities. Moreover, the reforms of the 1990’s led to a decrease of time spent taking care of elderly in home care. Researchers have found that the decrease in time from the formal care has been absorbed by the elderly’s kin network (Sundström, Johansson & Hassing 2002).

3.3.1.2 Informal care
With the decline of formal care, the informal care has in most cases absorbed the decrease of resources. Informal care defines as non-paid person who helps an elderly in their lives. The informal care literature often examines who the carers are, whom they are caring for, what they are doing and why they are caring.

Weiss (1969) found five different types of functions that informal relationships give the elderly: Intimacy, social integration and sharing of concerns, opportunity of nurturant behaviour, reassurance of worth and assistance. Thus, the informal care contains more dimensions than what formal care does as formal care mostly take care of necessities while informal care takes the role of helping both mentally and with the daily needs.

The type of help that the informal carer give differs depending on what type of relationship the caregiver has with the person in need of care. Depending on the age difference and kin distance to the elderly the kin can have different specialised functions to the elderly. Kin types who are of the same age may give social integration and acceptance meanwhile the children may give help, intimacy and functional support. (ibid; Sundström, Johansson & Hassing 2002).

3.3.2 Changes in the pension system

3.3.2.1 The pension system from 1913 and onwards
In 1913 the Swedish government gave a low benefit to individuals who were of age 67 or older. In the 1960’s the ATP was introduced which gave individuals a payment based on their lifetime earnings. The ATP was based upon the 15 best earning years of an individual's work life. To be eligible for the earnings, an individual had to work 30 years in Sweden (Sundén
In 1976 the retirement age was lowered to 65 and benefits could be withdrawn from the age of 60 and onwards (ibid). After Sweden’s crisis in the early 1990’s the pension system underwent a huge reform to the Notional Defined Contribution (“NDC-plan”) (Palmer, 2000).

The difference between the ATP and the NDC is how the pension is tied to the contribution of taxes which means that the more an individual worked in Sweden, the more income would be contributed to their income (ibid). The NDC system was put forth due to four reasons; a fair contribution system, a transparent system, financial stability in the budget and financial saving (ibid).

As mentioned the previous contribution system in Sweden was based on the best working years which was not perceived as a fair system. Thus, the policymakers decided that the system should be based on the total life contribution of income to the country. Because of the simplicity of the model, the policymakers felt that it was a transparent way for individuals to understand how their earnings contributed to their pensions (Ibid).

However, the way the pension system was adjusted increased the differences between individuals who have a strong link to the labour market compared with migrants who have it difficult to enter the labour market. As pensions were more tied to contributions in the country, migrants who often migrate in their 20 to 30’s and came from non-EU and low/ mid-HDI countries were worse off due to their inability to enter the labour market, this is true for the Iranian cohort (cf. Bevelander, P., & Lundh 2007; Morissens & Sainsbury 2005).

The pension and other governmental transfers are often difficult to access for migrants and if they are accessed, they earn less from the social transfer programs than their native counterparts. This makes the Iranian elderly more dependent on private transfers from their kin network which means that the kin network for migrants becomes more important over the length of stay in the country (cf. Morissens & Sainsbury 2005).

Changes of the retirement system effects the well-being of the retiree. The well-being of the retirees is correlated to their pre-retirement social status and social network. Groups who have had a difficulty entering the labour market will have a worse well-being compared with groups who do not (Hyde et al 2004).
Furthermore, when individuals retire their consumption pattern change. Medical expenses increase as a household budget compared with non-retired households (McConnel, Deljavan 1983). Transitioning from the workforce to become a retiree has larger consumption restrictions if the person had a low connection to the labour force compared with having had a strong connection to the labour market (Mastrobouni & Weinberg 2009). The effects of this are that groups who have a weak connection to the labour market, migrant groups, will be more likely to need support from their kinship network.

### 3.4 Modern changes in family composition

As noted in the previous sections, kinship is an essential network of resources for an individual, especially for elderly’s informal care and their quality of life. In Sweden and all of the western countries, the family formation changed after the mid-20th century. Fewer individuals got married, more marriages dissolved and fertility declined (Surkyn & Lesthaeghe 2004).

With the fall of the stable family formations, various scholars have tried to explain the reason for this change. The changes in family formation have been perceived as being due to changes in values (Van de Kaa, 1986; Lesthaeghe 1991) or a change in gender perception (Goldscheider, Bernhardt & Lappegård 2015).

One of the most common explanations for the changes in the demographics of Sweden and Europe after 1950’s is the “The second demographic transition” by Lesthaeghe and Van de Kaa (1986) coined. The second demographic transition is both a framework trying to explain the changes in union instability and divorce due to consumption pattern but it also connects changes in consumption patterns to how it affects the culture of the society (Surkyn & Lesthaeghe 2004). The main reason according to the theory is that before the 1960’s the individuals highly viewed family and family life as important (Lesthaeghe 1991). After the 1960’s the changes in values led to a transition of discourse from being family-centric to oriented on the individual. The changes in divorce and partner instability affected kinship because of reduced fertility and half-siblings becoming a more common kinship type. This shift of discourse changed the demographics of the west and the birth cohort of 1965-1975 are among the first to be born in that change of discourse and who are turning elderly. (cf. Lesthaeghe 1991)
Sweden has been viewed by many researchers as a front-runner in the second demographic transition (See Oláh 2008; cf. Lesthaeghe 1991). The Nordic countries, for instance Sweden, were among the first countries that had a high level of cohabitation and a high divorce rate compared with other countries (Kalmijn 2007). Although the divorce rates have stagnated and are not decreasing, they are still at a higher level than before the second demographic transition occurred. In 2017, there were more divorced elderly (60+) than widowed individuals which are a unique historical shift (SVT 2017). Around 33% of all elderly (65+) are living alone (SCB 2014B).

The second demographic transition has been widely acclaimed and criticised. The proponent has said that it explains and reviews the structural and demographic changes in the society (Van de Kaa, 1987; Lesthaeghe 1991; Sobotka 2008). Meanwhile, the opponents have argued that it does not seem to hold for all countries and that the second demographic transition is not a theoretical frame word but instead a description of what happened in the latter 20th century (McDonald 2000, Mills & Blossfeld 2013).

The gender equity theory explains that the changes in the family formation are because of a change in perception among women. The perception of gender equality changed due to the participation of women in the labour market. Once women became participants in the labour market, the gender relationship shifted, making it costlier for women to have both a career and a family life due to having the two roles. However, the theory argues that when the household participation is redistributed so that men take more responsibility for the household labour fertility and relationship stability would return to previous states (Goldscheider, Bernhardt & Lappegård 2015; Mcdonald 2000).

Changes in union formation and fertility patterns affect kinship availability in the long run. If partnership is more instable more people will live alone in their elderly years. If an individual is living alone they lose one of the most important informal carer and supporters. Fewer children affects the kinship structure as children are also one important giver of care and resources for elderly. The birth cohorts in this study are among the first who will be born in the contemporary society of less stable relationships and, in some cases, lower fertility.
3.4.1 Mortality development in the 20-21\textsuperscript{th} century

For the last 250 years, Sweden’s life expectancy has increased by two months every year (Ahlbom, Drefahl & Lundström 2010). In Statistic Sweden latest forecast report, it is stated that half of the individuals born in 2018 are expected to reach past their 90th birthday (Statistic Sweden 2018A).

This trend has been seen all over Europe. Individuals are ageing as fertility declines. In every age group have the mortality rate been reduced and compromised to the older ages. This reduction of mortality creates an environment where a majority of individuals will be alive at a certain age. After that age, the deaths intensity increases exponentially. This pattern has been coined with the phrase “rectangularization of mortality” (Myers, G. C., & Manton, K. G. 1984).

In Sweden, the increase in life expectancy during the 20th century has been due to two reasons. In the first half of the century, most of the life expectancy increase was due to the decrease in child mortality. However, after the mid-century, the increase in life expectancy was mostly explained by decreases in mortality in the older ages (Drefahl, Ahlblom & Modig 2014). Thus, the decrease in mortality risk has led to an increase in life expectancy among elders which has led to an increase in the vertical family structure making it more likely to have previous generations alive.

3.5 Summary of the literature

As life expectancy increases in Sweden, more people will grow older. The ageing in Sweden has led to a change of policy regards to the elderly, which has led to a reduction of social transfers and formal care. This means that the elderly, in this case, defined as individuals who are pensioners, will have fewer resources than previously due to policy changes starting from the 1990’s.

Meanwhile, Europe and Sweden’s demographic has changed. Fertility has declined in most of Europe, union instability and migration have increased. There has been much research on the fertility decline in Europe and two of the most prominent theories are the second demographic transition and the gender equity.
The second demographic transition argues that the fertility rates and the union instability are due to changes in consumer behaviour that have changed the views on other modes of life. The gender equity argues that fertility decline and family formation instability is because there has been a shift in the perception of gender equity. This change is due to women wanting to have equality in the labour market.

Furthermore, in the demographical change migration has led to individuals creating a new life in Sweden in their adult ages. The migrant, however, has less access to formal transfers such as pension and unemployment benefits and is less likely to have kin in the host country.

The kinship network is an essential resource for the individuals as it has embedded social, economic and environmental resources. Furthermore, kinship network is vital for elderly as they are essential caregivers of informal care. Partnership, children and siblings are most likely individuals who will give informal care to the elderly. Informal care is increasing its importance as formal care declines.

With that in mind, the literature has not examined how groups such as migrants will have accessibility to the kin network when they turn elderly in the future. The implications of these demographic trends have not been scrutinized in respect of how it will affect migrant groups in the future. The reason why it is important is because of the restrictions of social transfer programmes and declines of formal care which increases the importance of kinship and informal caretakers. As migrants have fewer kin ties due to migration there is a need to investigate further. Examining kin availability on a macro level will cover problems for groups with migration histories. Therefore, a microsimulation to understand these changes is of need. To be able to study what these effects will be in the future.
4. Iranians in Sweden

The Iranian community is somewhat a unique migration group in Sweden. Most of the Iranians migrated to Sweden in the middle of the 1980’s, mainly because of two reasons; the Iranian revolution in 1979 and the Iraq war that ended in 1989 (Belevander & Lundh 2007). What characterises the migrated Iranians are that they are highly educated, born in an urban environment and very young (Bäckman 1989).

The Iranian minority group have been chosen as the population of this study due to them being among the first non-European migrant groups that migrated to Sweden. The majority of migrants were young and differ in fertility, showing a low fertility behaviour, compared to the native population (Andersson 2004). Therefore, most individuals of the migrant group have yet to reach retirement age (65) in Sweden.

The Iranian diaspora started when Ayatollah Khomeini took over power after the Iranian revolution in 1979. With the new religious dictatorship, the Iranian diaspora started when young men and women felt that their country was dramatically changing. A year after, the Iran-Iraq war started which lead to further increase of the diaspora. The countries which received the most Iranian migrants where U.S., Canada, Germany, Sweden, Great Britain, France, Norway, Australia, Israel and Japan (Bozorgmehr 2017).

Most Iranians migrated to Sweden during 1984-1992 (Bevelander & Lundh 2007) and a “third wave” of migration in the form of family reunification occurred in late 1990 to early 2000 (Swedish Migration Agency 2017). The Swedish Iranians are characterised by being young and having high educational attainment. In a survey made by Svenska Irankommittén over 90% had passed higher secondary school or higher education. Over 30% had a tertiary degree (Bäckman 1989).

Even though Iranians are on average more educated than a native counterpart, the Iranian migrant have had a significantly lower employment rate in Sweden and they have received a lower wage for the same occupations compared with native-born (Bäckman & Lundh 2007). This fact will result in a lower pension compared with native-born.
Furthermore, there are more immigrant women who are childless in comparison with Swedish born women (Statistic Sweden 2014A). Moreover, several studies have shown that migrants have a higher divorce rate compared to natives (See Andersson, Obućina & Scott 2015; SCB 2003; Darvishpour 2002) and Iranians have the second highest divorce rate, just slightly after Chileans (Darvishpour 2002).

Although in the survey by Svenska Irankomittén, the Iranians stated that they would return to their home country, there is research that suggests otherwise. Instead, the researchers perceive that the Iranian migrants are one of the groups that are least likely to return-migrate to their country of origin. The low risk of return migrate has been theories to be due to economic and political reasons in Iran (See Klinthäll 2006; Klinthäll 2007; Lundholm 2012).

To conclude, Iranians are a unique group in Sweden as they live in diaspora and because of various reasons are not likely to migrate back to their country of origin. The Iranian migrants are seen as a highly educated and young cohort that mostly came to Sweden in the 1980’s due to the regime change during 1979 and the war in Iraq in the 1980’s. In Sweden, the Iranian population have the second highest divorce rates compared with other migrants and have a fertility rate that is lower than the Swedish population.
5. Data

5.1 Administrative register, a collection of data

The data used in this paper is acquired from “the Aging Well project”. The Ageing Well project is a collection of data on the various Swedish administrative registers. The Aging Well project’s collection contains data about every person who have lived and died in Sweden since 1961 when the records started. The registers have various information on individuals such as information from Longitudinell integrationsdatabas för sjukförsäkrings- och arbetsmarknadsstudier (“LISA”) who have records on various labour market variables such as income, earnings etc. “Dwelling register”, which gives information on the household of the individual. “The register of the total population” that has all the country of birth, gender and birthdates of every person that has lived in Sweden since 1960. Furthermore, the Aging Well project’s collection of data has the accessibility to the multigenerational register which connects families with each other making it possible to connect individuals with siblings, parents and children.

The primary population under consideration that will be used are individuals born in Iran during 1965-1975 and their kin. In total, the birth cohort is based on 13 998 individuals aged 42-52 and who were alive at the end of 2017 (the Aging Well project’s collection of data; Statistic Sweden 2017B) excluding the kin. They will be compared with a simple random sample of 86 223 individuals aged 42-52 who are born in Sweden and who have Swedish born parents (“Swedish background sample”) excluding the kin. The sample size was chosen due it being a sufficient size to discern patterns in the population of background sample and still retain feasibility of microsimulations. This sample will be a sample based on 9,11% of the native population in Sweden (Statistic Sweden 2017B).\(^1\)

It could be argued that because of the selectivity of migrants, the population of reference should also be selected based on the characteristics of the migrant group in order to compare evenly. As presented before, Iranians migrated with a relatively well-educated cohort and therefore it

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\(^1\) The first sample had 100 000 individuals. The used sample later filtered out individuals who did not have two Swedish born parents which reduced the sample size to 86 223.
could be argued that the simple random sample should be based on these characteristics. However, it is safe to say that the process of migration is the main contributor to family formation and kinship structure.

5.2 Outcome of interest

5.2.1 Outcome of interest

The primary focus of this study is to understand the kinship structure between Iranian born and Swedish native-born. Therefore, the primary outcome of interest is comparing siblings, spouse and children that will be alive in 2041. There will also be a brief review of gender differences in partnership status in 2017 and if there are any differences between Iranians and Swedish native-born. Previous studies have shown that the Iranian migrant has lower fertility compared with their native counterpart (See Andersson 2004).

5.2.2 Information using in simulation

To be included in the Aging Well project’s collection of data, the individual must have an intent to stay in Sweden. For non-Nordic citizens, it is acquired to have a permit of residence to be registered in the population registry (Statistic Sweden 2018B). This could lead to an undercoverage in the population, see section 5.3 for further discussion. The variables will be described further below.

Country of birth variable will be used to determine if the primary population is born in Iran or not. However, in the Swedish background sample both the individual and their parents must have been born in Sweden. Therefore, their parents will be crosschecked that they are born in Sweden. This information will be taken from the birth registry.

Birthdate is a variable that will be taken from the RTB. In the collection of data available in the Aging Well project, birthdate includes the year and the month of the individual. To get a complete birthdate this study will give a random birthday to every individual so that every individual has a complete birthdate including year, month and day.

The partnership variable will be taken from a combination of the Dwelling register, the total population register (“RTB”) and the birth register from 2017. A person will count as having a
partner if they are counted as married, in a registered partnership or cohabitant in the household register. The married individual will be counted in regardless of if they live together or apart.

Moreover, a person will count as a cohabitant if he or she either (1) live with another person, have the same household address and share a child together or (2) is living with another person of the opposite sex, are at most 15 years apart in age and whom the person does not have any kin relationship to.

In 2041, partnership will be defined as the surviving partners where the ego has survived as well. The partnership outcome does not take dissolution or entering in a new partnership into account. That is because there are currently no methods to create a marriage market available. Therefore the assumption will be made that the relationships in 2017 will not dissolve in the microsimulation. Although, in the real life these individuals of the Iranian population and Swedish background sample will end and enter new partnerships in the future.

**Siblings/Children** variable will be taken from the “multigenerational register” which has connected the ego with their siblings and children. In this paper a person will count as a sibling if he or she is an adopted sibling, halvesibling or biological sibling. Likewise, a person will be counted as a child if they are either adopted by the parent or biologically. However, for Iranians this is for the most part not equivalent to the real number of siblings or children. As the registries only register individuals who have been in Sweden with a residence permit, there will be an undercoverage for the real number of siblings. However, as we are interested in the siblings and children living in Sweden, this will not affect the validity of this study.

**Mortality rates** are gender-based mortality rates that are taken from Statistic Sweden’s projection of most likely mortality rate in Sweden 2017-2070 (Statistic Sweden 2018A). The rates are created by using an edited version of the Lee-Carter model and is based on the period of 2000-2017 (Statistic Sweden 2018A: 70). The rates do not account for social economic status(“SES”) or ethnic-specific attributes however the mortality rates are gender specific. Therefore, one assumption in the model will be that the mortality is the same for the Iranian population as for the Swedish background sample. For a more detailed discussion about the implications of this read section 6.2 about using population-based mortality rates.
5.3 Quality of dataset

As noted in the previous discussion, the Ageing Well project’s collection of data is based on the total population. For the most part, the data has a good quality because of the extensive quality checks that different agencies ensure (Statistic Sweden 2018B). However, the registry has its internal validity problems that must be taken into consideration. For people who are in the risk set to migrate there is always a risk of emigration. If an emigrant does not report their migration to the authorities, they are counted as still living in their home country which will lead to an overestimation of the population in 2017 (ibid). The overestimation has been approximated to be up to 10% of the total size of the immigrants. However, as discussed, the Iranian group is unique in the way that they are not prone to return migrate which would lower the risk of an overestimation of the group.

Moreover, individuals who are here illegally are not included in the dataset, for migrant groups they might have more siblings in Sweden than registered in the registries. This flaw would result in an underestimation of available kin in the subjected country (ibid). The underestimation is approximated to be between 0.5-0.9 percentage of the annual immigration every year (ibid).

For the Iranians, the sibling number can be misrepresenting the actual number of siblings as the multigenerational register only connects children with parents who live in Sweden (Flergenerationsregistret 2010). As a result, there is a possibility of under-registration of siblings as not all Iranians have a parent living in Sweden. There are no studies that have examined how big this underestimation is.

Furthermore, some individuals have changed their sex in the registry and are as a result counted for instance as mothers in the registry and vice versa. They are excluded from the set, due to being a specific type of individual that needs to have a robust theoretical framework to use.

Moreover, one flaw of using migrants’ birthdate from the collection of data is that they may not represent their actual birthdate. In some cases, the tax authorities have changed the individual's actual birth date in the registries. This has been done when the actual birth is not known for the individual or when there are too many individuals who have the same birth date (Omni 2016). Furthermore, the birthdates that are given in the collection of data have removed the day of
birth. Therefore, the day of birth on every individual in the study will be given a day of birth based on a uniform distribution.
6. Method

6.1 Microsimulation model

This study will use a novel approach to understanding future kinship structure by combining high qualitative registries with a microsimulation model. Forecasting is a wide field within demography and is used to understand the future demographic patterns and how it affects various sectors within a country.

The study will use three different time periods to see how the kin ties change. The first time period is called “ever-registered” which in this paper refers to every kin who has ever been registered in the collection of data. This means that the first period will have the maximum individuals who would be available to the individuals among the Iranian population and the Swedish background reference sample that have lived in Sweden. The second time period will examine the availability of kin at the end of 2017 which is also the start date of the simulation. Lastly, the third time period will analyse the result of the microsimulation in year 2041 and count the total availability of kin ties in the future.

The differences between the ever-registered and 2017 could be due to two reasons; either the Individual died or they migrated. The last part will be to use the Iranian population, Swedish background sample and their kinship ties in 2017 and forecast them to 2041. The forecasting method that is used was created by Sabine Zinn (2016). Microsimulations are the most common way to understand complex demographical outcomes such as kinship (Van Imhoff & Post, 1998).

Microsimulations are based on a Markov chain process using Monte Carlo technique. Microsimulations in demography are most commonly used with virtual populations that are based on real population’s characteristics (Wolf 1994; Zagheni 2015). These types of studies usually use virtual individuals with demographic variables such as birth, education, sex and partnership. These variables are often discrete with transitional outcomes. For example, education can be a transition from higher secondary to tertiary education. The transition between different states is based on mathematical techniques called Monte Carlo methods. Monte Carlo methods usually assume independence of events. For every state there is a stochastic process that acquires rates or probabilities of the discrete event and is situated in
time. These probabilities may be used in a microsimulation: mortality rates, birth rates and marriage rates (Wolf, 1994). The microsimulation is based on a time frame, from year X to year Y.

Microsimulations are the best method to forecast complex populations because of its ability to retain information on an individual level. Compared to macrosimulations, the researcher gets the information on a micro level. The two methods are based on two different approaches to the law of large numbers. Macrosimulations are based on the fact that if the sample is large the forecast will result in a “mean population” meanwhile the microsimulation is based on the principle of many tries, generating a probability on every individual, it will lead to a mean population. Thus, both approaches are using the same principle but by different means (Van Imhoff & Post, 1998).

Review of previous literature that have used microsimulations has based it on a theoretical population that is supposed to be based on the population characteristics. Some examples are Murphy (2011) who made a paper about kinship patterns in United Kingdom by using a theoretical population from 1751 to forecast to 2010 and Himes (1992) who used a projection method by using life tables to forecast caregivers in the United States using life tables and finding out how many individuals are alive with children. However, none of these authors was able to use the rich information of the administrative registry to get in-depth information about every living individual. To this author's knowledge the only researchers that have combined registry data and microsimulations are ones using the Norwegian MOSART microsimulation model and the Danish institution DREAM that uses the microsimulation SMILE model that does microsimulations based on the Danish administrative registries. However, neither literature based on SMILE nor MOSART have used microsimulation to understand kinship structure or informal care (Dream 2008; Fredriksen 1998).

The uniqueness of this study compared with previous literature (Murphy 2011, Himes 1992; Reeves 1982; Wachter 1998) is that the microsimulation model is using the real population of 2017 instead of a population that is either forecasted or using various assumptions. All of the relationships in the model will reflect the real relationships that the individuals had in Sweden during 2017. Therefore, it will be more accurate compared to Murphy (2011) who used microsimulations of a cohort from 1751 to understand kin relationships in 2010. Moreover, by using the registry data, we do not need to have any assumptions on the distribution of age,
kinship composition or gender ratio that will affect the model due to the excellent quality of the data.

This study uses the micro simulated model based on Sabine Zinn’s (2016) “MicSim” model and the study will only use mortality probabilities from Statistics Sweden. Mortality rates will only be used due to two reasons. Firstly, the population of interest are old, some will have already completed their fertility process and those who are still in their fertility process are at the end of it. Therefore, there is little information to be acquired by adding fertility. However, education and health are interrelated with one another but due to Statistic Sweden not having these types of rates this study cannot construct the population based on it. A further discussion of using population-based probabilities will follow under section 6.2.

In this study, the input variables for the microsimulations are the gender of the ego, the age of the ego and the date. These variables decide the mortality probability that Statistic Sweden has projected. A change in any of the variables will affect the mortality probability. The outcome of the microsimulation is the death date of the ego, if the ego died under the microsimulation. The mortality rate could be described as:

\[ \text{Mortality rate}_i = \text{Age}_i + \text{Sex}_i \]

Only using mortality probability have some flaws. Regarding the partnership the assumption is that individual’s partnership status is stable and that it is impossible to re-cohabitate or remarry after their partner has died. Therefore, the study will microsimulate the individual’s partner survivability in Sweden year 2041 for the microsimulated groups.

### 6.2 Using population mortality rates

Researching sub populations, such as Iranians living in Sweden which is the population of this study, can have its complications. In this paper one assumption is that the Iranian population has the same mortality rate as the total populations. This presumption may have flaws. Vaupel and Yashin (1985) illustrated in their paper that looking at a population on the aggregate level can be misleading. In their article, they gave an example of a theoretical population, when looking at an aggregated hazard rate, it could have one property that does not show in any subpopulation and is thus misleading (ibid).
It is hard to know if there is a case of this type of population bias in the Swedish literature as there have been proof of both a lower and higher mortality rate. Albin et al. (2006) used Swedish data to see how mortality rates vary between Swedish residences by country of birth. In the study, they compared Danish, Finnish, Norwegian, Yugoslavian, Polish, German, Stateless, other European and non-European born individuals that died during 1970-1999. What they concluded was that there were differences in life expectancy between people born in Sweden and people born outside of Sweden. The discrepancies between the foreign-born and the Swedish-born was at the most approximately six years. The life expectancy was never higher for foreign-born in that time period.

However, there are other studies that have suggested another view regarding perceived health. In Wiking, Johansson and Sundquist’s (2004) study they found no significant difference between Iranian, Turkish and Polish-born of perceived health when controlling for SES and Swedish knowledge.

Other studies that have tried to prove or disqualify the healthy migrant or salmon effect is a Swedish paper by Andersson and Drefahl (2017) where they tested internal migration and its effects. They found that there was no healthy migrant effect of the inward migrants in Sweden. Meanwhile, the salmon effect is a term to describe how individuals that move back to their home country have a higher mortality rate compared with the ones that did not move. What they found was that when they incorporated SES variables there was no statistical significance of a “healthy migrant” effect. The migrants even had a small but insignificant higher mortality risk compared with the ones that did not move. What they did find was a salmon effect.

As the mortality rates will be used on a well-adapted minority group, Iranians, and they have lived a prolonged period in the host country, I believe it is reasonable to assume similar mortality rates as the rest of the population.
7. Results

7.1 General statistics

7.1.1 Overview of statistics
This study has used the Swedish administrative registry to microsimulate the Iranian population and the Swedish background sample including their kin (siblings, children and partner). The data that will be used in the results have been collected from three time periods: the “ever-registered” (see definition under section 6.1), who were alive in 2017 and ones who will be alive in 2041. The ever-registered and the ones alive in 2017 have been taken from the administrative registries. The microsimulated Iranian population and Swedish background sample is based on the 2017 population registry that have been micro-forecasted using the Statistic Sweden’s projected mortality rates to 2041.

In 2017, the Iranian population aged 42-52 consisted of 13988 individuals excluding their kin. The Swedish background sample aged 42-52 consisted of 86 223 individuals excluding kin. In 2041, the Iranian population aged 65-75 will decrease by 11469 individuals who will have survived, which is approximately a decrease of 18%. The Swedish background sample aged 65-75 will be reduced from 86223 to 70364 who will survive until 2041, which is approximately 18% as well.

![Figure 1: The average kin type "sibling", "children" and "partner" per individual among the Iranian Population ("Iranian") and the Swedish background sample ("Swedish sample") by time periods: ever-registered, 2017 and 2041.](image-url)
In figure 1, the average number of every kin type per person is described and are shown for the three time periods; ever-registered in the Swedish registries, availability in 2017 and survivors in 2041. One has to note that this model has only included mortality rates and as a result the total amount of kin cannot increase. In later sections an in-depth described of every kinship type will be analysed.

### 7.1.2 Descriptive of gender

The gender distribution among the Iranian population in 2017 is 6525 male and 7473 women; the distribution is 47% male and 53% women in the Iranian population. In 2041, the gender distribution has turn to 45% male and 55% women.

For the Swedish background sample, the gender distribution is in total 43966 (51%) male and 42257(49%) women in 2017. In 2041, the gender ratio changed to 49% male and 50% women. This change in gender distribution is due to men have a higher mortality rate than women when comparing in the same age, making it more likely for women to survive.

### 7.1.3 Partners

![Gendered partnership 2017 Iran](image)

*Figure 2: The proportion of partnership types “married”, “cohabitating” and “without partner” in 2017 of individuals that are in a relationship by gender for the Iranian population and the Swedish background sample of birth cohort 1965-1975 who lived in Sweden during 2017.*

In figure 1, in the column group Iranian partner and Sample partner show the total partnership in 2017 of the Iranians and the Swedish background sample and the ratio of surviving partners in 2041. Approximately two-fifth (40%) of the Iranian population are not cohabitating or married to a partner which means that 40% of all Iranians do not have the most important kin who gives informal care in 2017. The Iranian population decreased from 60% being in a
partnership to 53% having a partner in 2041. Approximately 47% of the population did not have a partner in 2017 or their partner did not survive to the end of the microsimulation in 2041. This means that either individuals whom had partners in 2017 died or that the partners in 2017 died in the model.

In figure 2, the percentage of individuals who were married, cohabitating or who lived alone in 2017 by gender is shown. For the Iranian population half of the individuals were married and lived with a partner (50%). The second most common living arrangement for the Iranians was to live alone (40%) and very few individuals lived in a cohabitating relationship (10%). However, there are some differences by partnership between the men and women among both the Iranian population and the Swedish background sample. There are more women who are married compared to their male counterparts. More men are often living without a partner in their life (40% compared with 39%) and are more likely to be in cohabitation with their partner compared with the women (11% compared with 10%).

In figure 3, the gendered distribution of the different relationship categories is shown. It can be seen that, albeit a small difference, Iranian women were less likely to be without a partner in 2017 compared to their male counterpart. Comparing with the Swedish background sample in figure 3 it can be seen that is the same. More women are married and fewer women were single compared with their male counterpart. In this sense, the Swedish background sample gives the same picture; men are more likely to not have a co-dependency in their not yet very elderly ages.

![Figure 3: The proportion of individuals that has a co-residential relationship in 2017 and will still have a relationship in 2041 categorized by gender among Iranian population and the Swedish background sample (“Swedish sample”) of birth cohort 1965-1975.](image)
In 2041, the distribution of partnership will decrease from 60 for the Iranian population to 52% while the Swedish background sample will reduce their partnership from 71 to 64%. The total reduction was eight percentage points of the relationships in 2017 for the Iranian population meanwhile the Swedish background sample had a reduction of seven percentage points. The difference between percentage points is most likely due to the differences in the variance of age between the spouses. Moreover, as shown in figure 3 the women of both groups will have fewer partner alive in 2041 compared to their male counterparts. The reason for this is due to men being older than their female counterpart. Furthermore, males have a higher mortality rate compared with females which makes it more likely for a higher reduction of partnership among the women than the male.

7.1.4 Children

Children are the second most important kin type to take care of individuals who are becoming older. The children are important as they can both give economic and social help to their respective elder.

The results will include every child of the ego that have lived in Sweden. This means that the ego can have children from multiple relationships. This phenomenon is more common among the Swedish background sample than the Iranian sample.

Figure 1 shows how many children the Iranian population and Swedish reference sample have on average in Sweden for the time periods; ever-registered, 2017 and 2041. The ever-registered children of the Iranian population were on average 1.52 children who are to say fewer than that of the Swedish background sample who had on average 1.84 children. In 2017, the Iranian population’s children got reduced from 1.52 to 1.51 children and the Swedish reference sample was reduced from 1.83 to 1.81 children per individual. This indicates that the Swedish background sample individual had on average 1.21 times more children than an individual from the Iranian population.
Figure 4 reveals the distribution of how many children respective group have. The total availability of children is based on the total amount of children that have been registered in Sweden in 2017. It is to be noted that the total kin availability could be larger as the administrative registry only register individuals who have lived in Sweden. The Iranian population are weighted heavy on having between zero to two children. 22.5% of the Iranians did not have a child in Sweden. Therefore, 77.5% of the Iranian population had at least one child. Within the 77.5% approximately, 24.6% had one child and 38.8% had two children who account for 63.4%.

In figure 4, the Swedish background sample 16.3% did not have a child in Sweden in 2017 and 45.8% had two children. 69.5% had two or more children compared with the Iranian sample which 52.9% of the sample had two or more children. Most common number of children was two children for both groups which seems to indicate a similar distribution where two children are the most common and that the rest of the percentages are either of having one or two children. However, the Swedish background sample distribution is more like a bell curve compared with the Iranian sample where it is as a left fat tail.

As shown in figure 1, the average child rate per individual cannot increase due to the assumption of no fertility in the model although it can decrease. Concerning the child variable the most important indicator is the rate of childlessness as these individuals do not have a child that can
be an informal caretaker. In 2041, the individuals who will not have access to a child will increase for both groups. The Iranian population will increase 22.5 to 23.2% and the Swedish background sample will increase their childlessness from 16.3 to 16.5% in 2041. The slight decrease in child availability is due to the low mortality of young people in Sweden.

The consequence of this will be the same as in the case of Iranian partnership, the proportion of vulnerable individuals who do not have children is higher in the Iranian group and this state persists in 2041. 23.2% of the Iranian population will not have any children to rely on while one-sixth of the Swedish background sample will not have the ability to acquire help from their children.

7.1.5 Siblings in Sweden
In this section the development of siblings living in Sweden will be presented. One has to note that the Swedish sibling availability is based on siblings that have lived in Sweden during 2017 which means that the model does not take into account every living sibling especially for the Iranian population. However, to give informal care you must be geographically available and siblings that are not living in Europe most likely have it difficult to stay longer periods.

One thing to note is that the sibling variable counts every type of sibling in Sweden that is connected in the multigenerational register. This can mean that there are underestimations of the total amount of kin in the Iranian population. Furthermore, the sibling variable include half-siblings which increases Swedish background sample’s sibling count with 0.4 per individual.

Figure 1 shows the sibling development over time among Iranian born individuals and the Swedish background sample. Most Iranians did not have any siblings in Sweden as the Iranian population have on average 0.35 primary siblings in Sweden, meaning one-third of every Iranian have on average one sibling available in Sweden.
The composition of siblings among the Iranian population in figure 5, shows that most individuals do not have a sibling that has been registered in Sweden. 86.2% do not have a sibling registered in Sweden. A reminder is that the sibling availability does not equate to the number of siblings that the individual has as it only refers to the siblings who were alive and in Sweden 2017. Moreover, if they have siblings they have at most one or two of them. The Swedish reference has more siblings than the Iranian population in every sibling category except having no siblings. Only 5.5% of the Swedish background sample had no siblings. 39.7% had one sibling and over half of the sample (54.8%) had two siblings or more.

It is evident that from a historical standpoint the availability differs undoubtedly between the Iranians and the Swedish background sample. The Swedish background sample have a possibility to acquire help from one or several siblings meanwhile 86.2% of the Iranians do not have any possibility to get help from in Sweden. Moreover, this deficit of sibling relations does not just affect the possibility of acquiring resources in the elder years but also to acquire resources during their whole life span in Sweden.

From a gender perspective, Iranian men have more siblings who have been in Sweden compared to their female counterpart. Nevertheless, it should be stated again that this does not signify that
Iranian men have more siblings, only that this birth cohort that migrated to Sweden have this type of relationship.

In 2041, the available siblings for the Iranian population will decrease from 0.32 to 0.30%. The group of Iranians who had no children will not increase in this simulation but will be reduced by 0.4 percentage points. However, the Swedish background sample will reduce their sibling size on average from 2 to 1.8. Those who do not have siblings increased by 1.7 percentage points from 5.5 to 7.2%.

What can be said regarding the availability of siblings by comparing the Iranian and the Swedish background sample in 2041 is that the Swedish background sample persists on having a higher availability to at least one sibling in Sweden. 92.8% of the Swedish background sample will have a sibling available to them compared with 13.8% of Iranians who will have at least one sibling alive in Sweden during 2041. This means that the vast majority of the Iranian population will not be able to get support from their sibling in 2041. As a result, the Iranians are more at risk of being socially isolated due to not having any kin to get social support from.

However, siblings are often not the primary caretakers of the elderly as has been noted in the theory chapter. Yet they have an affect, especially for men in need, as a caretaking supporter if the individual does not have any children or partner.

### 7.2 Individuals with no living partner, children and/or siblings in 2041

A vulnerable individual, in this case, is an individual who does not have one of the kin types that has been described in the earlier sections. In this section we will examine how many persons who are vulnerable based on the importance from an informal care perspective. Firstly, if the individual does not have a partner whom he or she can rely on from 2017. Secondly, if the individual does not have a partner whom they can rely on and neither children who can be carers in 2041. Thirdly, if the individual does not have a partner, children or siblings whom he or she can rely on from 2017. Figure 6 is a boxplot that shows the different types of vulnerable groups based on the Iranian population and the Swedish background sample and the changes from 2017 to 2041.
7.2.1 No partnership

The most common dependency an elderly has is to his or her partner, whom they often share their household with. For the Iranian population in the year 2041, figure 6 shows that over 48.4% of the population will not have any partner, either by having no partner in 2017 or that their partner died in the microsimulation. The result can be compared with the Swedish background sample column in figure 6 where 35.4% of the individuals will not have a partner or that their partner died in the microsimulations. Moreover, comparing the reference population with the Iranians it can be states that Iranians will have ten percentage points more individuals who will not have a partner alive from 2017.

7.2.2 No partnership and no children

The primary informal care that the elderly get is from their partners, if their partners are not available due to their detrimental health or are not available to give support because of other reasons than the child often takes the supportive role as a caretaker. As mentioned previously in section 2.2.1.1, children have multiple roles when it comes to the caregiving of their parents, in some cases more so than the elderly’s partner. The children give social, economic and observational support to their parents, helping the parents to have a better life.
19.0% of the Iranian population will neither be able to get help from a child or a partner from 2041. Meanwhile, 11.9% of the Swedish background sample will be in the same situation. The “no partner” column shows that there were a 13.3 percentage points between the Iranian population and the Swedish background sample. However, the “no partner or child” column shows that the differences decreases to 7.1 percentage points. This indicates that although the difference is big, when taking into account the two foremost informal carers, the differences have decreased compared to when only taking the partnership into account.

7.2.3 No partnership, children and siblings
The most vulnerable group is individuals who have neither a child, relationship nor siblings in Sweden. The previous cases have described the separate kin components by themselves highlighting the difference between the Iranian population and the reference group on how the composition of kin types they have on average.

In figure 6, the column “no partner, children and sibling” shows in 2017 that 11.6% of the Iranian population and 0.9% for the Swedish background sample belongs to the most vulnerable group that does not have any kin to support them. The Iranian population is 12.9 times larger than the Swedish background sample. Furthermore, in the surviving population of 2041, the Iranian population’s most vulnerable group has increased from 11.6% to 15.8%. That is 4.2 percentage points difference between 2017 most vulnerable group and 2041. Meanwhile, the Swedish background sample has increased to 1% that indicates a 0.1-percentage points difference between 2017 and 2041. The difference between the groups is due to a large share of siblings in the Swedish group who do not share the migration history as the Iranian population does. Moreover, the difference between the groups has increased from 12.9 times in 2017 to 15.8 times in 2041.

The consequence of the result above could be serious as the Iranian population is a migrant group who have historically had it easier to feel socially isolated and are at risk of mental health issues (Rechel, Mladovsky, Ingleby & Mackenbach 2013). Moreover, with the decrease in pension reform and formal care for the elderly the Iranian population will be particularly vulnerable as they have no kin network to rely on.
8. Concluding remarks

This study has aimed to explore the kin structure of the Iranian population of birth cohort 1965-1975 and to compare it with a Swedish background sample of the same birth cohort by using Swedish population data from 2017. The purpose has been to understand if there are any differences in availability to kin in Sweden year 2041 between the groups and if so, how it takes form for the individuals. Kin in this paper has been defined as the primary kin group, the individual has either a co-residential relationship with partner, adoptive children and so forth or a biological relationship with siblings or children.

By using statistics from the administrative registry of 2017 and using microsimulation modelling to forecast the Iranian population, Swedish background sample and their kin in 2041, the reader gets an insight into a likely scenario of how kin relationships will look like in 2041.

What can be concluded by the data over the kin composition of the Iranian population compared with the Swedish background sample is that Iranians have fewer kinship ties available throughout their whole lifetime even when the microsimulation has ended in 2041 when they are between 65-75 years of age. Few kinship ties, in this case, would mean that the individual would have fewer kinship ties to rely on which can indicate a loss of possible carers and resources. Moreover, the low availability of kin network historically shows that Iranians are more vulnerable to policy changes that will create dependencies to a kin network.

Furthermore, the Iranian population seem to have a lower decline of siblings compared with the Swedish background sample when comparing the column of the “ever-registered” with the 2017 column. It is mostly due to the distribution of the siblings where not many of the Iranians are older than the birth cohort of 1965-1975. The decrease among the Swedish background sample, which is still small, is due to the more substantial variance of ages above and below the ego. One has to note that the actual number of siblings among the Iranian population is possibly underestimated due to the multigenerational register only connecting children with a parent who lives in Sweden.
Moreover, as this thesis only uses partnership data from 2017, one can conclude that close to a majority of the Iranian population will not have a partner in 2041, either because they did not have a partner in 2017 or because their partner died in the microsimulation.

However, albeit a slight difference, individuals who are in a relationship are the Iranian population are more likely to be married compared with the Swedish background sample which this model does not take into account. Marriage is a more stable relationship form and it could indicate that this model overestimates the stability of the Swedish background samples partnership in 2041.

At the end of the microsimulation, the egos are between 65-75 years of age. Due to the rectangularization of mortality only around a fifth of the individuals have died. The death numbers were more or less the same for both the Iranian population and the Swedish background sample. One interesting finding in this study was that the availability of kin differences persists and is very similar to their availability in 2017. Thus, it means that the Iranians have over their whole lifespan and even when they are pensioners fewer kin’s available to help them economically, socially and to take care of them. The Iranians will be more vulnerable towards changes in policies that require caring from kin.

However, the most vulnerable group are individuals who do not have any kin in the form of a no partner, child or sibling and are therefore more vulnerable to changes in policies that shift the resources from formal care to informal care. In 2017, the vulnerable group were 12.89 times larger for the Iranian population compared to the Swedish background sample. In 2041, the vulnerable group will be 15.8 times larger in the Iranian population to the Swedish background sample. Due to their migration history, Iranians who have migrated to Sweden have no or few siblings in Sweden. Furthermore, the partnership whom they migrated to Sweden with has a higher risk of divorce (Andersson, Obućina, & Scott 2015; Darvishpour 2002), which could delay family formation and fertility. Nearly one-sixth of every Iranian within the population will be in a vulnerable state, having no kin to rely on in Sweden compared with one in a hundred for the Swedish background sample.

What one can take from this study is that the kinship pattern persists even when the person retirement due to the steady decrease of mortality risk. Thus, kinship is a resource that persists even in retirement age and years after that. Therefore, migrants who have migrated individually
and not with their other kin will have fewer kin to rely on compared with groups that have roots in the country.

Furthermore, particularly migrant groups such as Iranians whom are well educated and are highly participating in the labour market compared with other minorities, will have less access to informal care compare with individuals of Swedish background. The consequence of fewer kinship ties to rely on is that they will be more dependent on formal care which is decreasing in Sweden. Therefore, it can be concluded that Iranians will have a few kinship ties to rely on meanwhile they will have less economical resources to attain through the retirement and other transfers which will affect their well-being.

Policies that are based on macro decisions will miss the complexities of availability of informal resources by migration histories. The migrants with few kinship ties will have it more difficult in their elderly ages if the welfare system decreases its resources to elderly compared with a native sample. Therefore, future policies need to include complexities such as kinship availability when they draft new proposals.

To conclude, this study is among the first of its kind to the author’s knowledge in demographic research to combine microsimulation technique with a rich source of data from the administrative registries and to use the dwelling register to forecast kinship and informal care availability. Furthermore, it is first of its kind to forecast minorities to understand their kin availability in the host country and to examine how the trend of increased demand of informal care will affect migrants who do not have a multigenerational history in the host country.

However, further research is needed to confirm the finding using more variables to understand the complexity of informal care and kin availability. Future research could use migration, fertility, socioeconomic based mortality rates and create a partnership market where individuals can enter and dissolve relationships. Adding this type of information in the microsimulation would give a more realistic and detailed understanding of how individuals will have accessibility to kin. Moreover, future research could examine and compare how other large migrant groups’ accessibility to kinship will be such as migrant groups from the former Yugoslavia, Somalia and Chile whom migrated during the same time-period as Iranians and were most of the migrants will also turn elderly within the next 20 years. Furthermore, future studies can microsimulate further into the future to understand the kin relationship in older ages.
where the informal care need is even more prominent. Moreover, future research could use multiple mortality scenarios to understand the sensitivity of the future projections as slight changes in life expectancy assumptions leads to major changes in the forecasted population.

A limitation of this study is that it has not considered the dissolution and individuals entering new partnerships. Therefore, the study has only used the partnership status of 2017 and forecasted their partners into the future. The limitation of this was due to the microsimulation model that could not create a marriage market and that the analysis did not use the full population in Sweden in 2017. This means that the partnership status in 2041 is most likely underestimated in this study.
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