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## Analysing benefit recipiency among ancestral and immigrant mothers in Sweden

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### **Abstract**

Separation is often costly for mothers. That mothers are more likely to experience economic hardship after dissolution than fathers is thought to be partly due to gender dynamics in the household while the union is intact. Yet we know little of how economic consequences of separation play out for different groups of women, for instance by their partner age gap. Women who are younger than their male partner are often thought to have lesser agency, but evidence mostly comes from contexts where gender equality is low. Here we use register data from Sweden, to examine the role of partner age gaps for dissolution of childbearing unions, and the increase in benefit recipiency among women after dissolution. We ask whether women from man-older unions are at greater risk of economic disadvantage after separation, and whether these patterns vary for women with Swedish background and women with African or Middle Eastern background (among whom man-older unions are common). We find that man-older unions have higher dissolution risks among ancestral Swedish couples, whereas woman-older unions have higher risks among women of immigrant background. Benefit recipiency increases after separation, but we find no strong evidence of differences by age gaps for either ancestral Swedish or immigrant women.

**Keywords:** union dissolution, economic consequences, age gap, gender dynamics, immigration background, benefit recipiency

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## Introduction

Separation, i.e. the dissolution of a marital or cohabiting union, is costly. If the couple who part ways have children, social, emotional and economic costs can be substantial when one household becomes two. The evidence to date from high income countries has established that union dissolution incurs higher and more long-term economic costs for women than for men (Boertien and Lersch 2020; Leopold 2018; Raz-Yurovich 2013; Smock et al. 1999). Women have greater drops in earnings, larger decreases in personal wealth and are more likely to receive welfare benefits following separation than men (Bayaz-Ozturk et al. 2018). The explanation for women's relative disadvantage after union dissolution is likely related to gender division of labour among partners and women's higher engagement in childrearing as opposed to income generating activities. In most high income contexts - including gender egalitarian ones like Sweden, on which this study is based - women tend to take longer breaks from the labour market to care for children (Duvander and Viklund 2019) and once back at work, are more likely to work part time more than men (Halldén et al. 2012). In addition, women as a group tend to work in sectors and job types that are lower paying to begin with (Halldén and Härkönen 2015), and, even when highly educated, partner with men who out-earn them (Chudnovskaya and Kashyap 2020). These factors may be linked to lesser bargaining power, both on the labour market and within their union. Consequently, once the union dissolves and each partner has to live independently, the costs to women of such division of labour may become visible.

While much attention has been given to gender differences in the cost of separation, less focus has been placed on how such costs differ between women from different types of unions. In particular, little evidence exists on how costs of separation differ for women depending on the age gap between them and their (former) partner. This is an important omission because large partner age gaps in man-older unions, have been argued to be associated with lesser gender equality (Bozon 1991; Rothstein 2012), and to have adverse effects on women (Barbieri and Hertrich 2005; Holland Jones and Ferguson 2009). All else equal, man-older unions create incentives for a ("traditional") family model with gender division of labour (female childbearing vs. male labour market engagement). This is because seniority in terms of age provides a head-start on the labour market and higher opportunity costs of childrearing activities relative to a younger female partner (Rothstein 2012). It is also possible (albeit rarely tested) that there is selection into man-older unions of individuals who favour a more "traditional" family dynamic. In both cases, women from man-older unions may become more economically disadvantaged following separation, compared to women from age homogenous unions.

Conversely, the opposite prediction can also be formulated. Given that older men, all else equal, have a stronger attachment to the labour market, more resources and fewer reasons to compete with their partner, being younger than their male partner may enable women to complete higher education or pursue labour market activities of their own. If such assumptions

hold, women from man-older unions may be more financially independent and, as a result, less economically vulnerable if the relationship were to dissolve. However, positive impacts of man-older unions may only be seen in contexts where women are free to seek specialisation from wage labour to the same extent as men, parenthood and labour market activities can be combined, and where both parents are expected to contribute to childcare. All of these conditions are present in Sweden (Duvander and Viklund 2019) and therefore it is possible that man-older unions are not detrimental to women in this context.

The objective of this paper is to test whether the costs of separation are higher or lower for women from man-older childbearing unions. The effects of man-older unions on women and the economic costs of union dissolution are two interlinked research topics, which we here combine. To do so, we use register data from Sweden, a country with high gender equality, female labour force participation and relatively high uptake of paternity leave (Duvander et al. 2020). Our examination is twofold: first we explore the risk of separation from the first childbearing partner by partner age gap. Second, we examine the economic consequences (receipt of social and housing benefits and unemployment) after separation by partner age gap. However, recent research from Sweden has shown that age gaps between partners differ between individuals with immigrant backgrounds (Uggla and Wilson 2020). Specifically, individuals with African and Middle Eastern backgrounds have, on average, larger age partner age gaps as compared to those with Swedish backgrounds. Because partner age gaps have been argued to reflect gender inequality, it is worth exploring whether in the Swedish context —one of the most gender egalitarian countries in the world (Oláh and Bernhardt 2008) — different age gaps actually reflects different vulnerabilities to family dissolution, among ancestral and immigrant groups alike.

## **Background**

### *Economic consequences of separation*

Being in a stable partnership is associated with a number of economic advantages for individuals. At the most basic level, individuals benefit from the income of their partners since couples often partially pool their income (Heimdal and Houseknecht 2003). This not only gives each partner access to more resources, but also provides financial security. In addition, household costs per capita are lower as couples benefit from economies of scale as compared to single-person households (Browning et al. 2013). Therefore, the dissolution of a union implies a loss of such benefits and often represents a significant economic shock. These challenges are magnified for women, and even more so when children are involved (Leopold and Kalmijn 2016). Research on gender differences in the economic consequences of partnership dissolution consistently show that women experience income decline after separation, while evidence for men is inconsistent and even suggests that incomes may increase post-dissolution (Andreß et al. 2006; Bayaz-Ozturk et al. 2018). Women may rely more heavily

on spousal income and more likely to become the resident parent after separation, resulting in higher household costs and lower per capita income (Mortelmans 2020). Increases in employment and the receipt of child support payments often fails to compensate for the loss of spousal income (Hogendoorn et al. 2020). This results in women (and particularly mothers) being more likely to rely on welfare benefits or falling into income poverty after separation (Bradshaw et al. 2018; Hogendoorn et al. 2020; Hübgen 2018).

Part of the reason that mothers fare worse economically than fathers after separation is related to gender inequality in paid and unpaid labour that exists *prior to* the separation (Holden and Smock 1991). Women have been shown to be more likely to work part time after childbirth in order to focus on childrearing, and this division of labour reinforces and strengthens already existing gender inequalities in earnings (Kennerberg 2007; Nylín 2020). After the separation, return to full-time work is often not possible when mothers largely continue to shoulder a majority of parenting duties at least when the children are young (Mortelmans 2020). Taken together, union dissolution places disproportionate economic burden on mothers by decreasing household income and increasing their economic disadvantage.

However, there is variation across contexts in the consequence of separation. The welfare state can help to mitigate the severe economic burden placed on women and factors such as income-related welfare provisions, family policies and childcare provisions can help to relieve the economic consequences of separation. For example, the share of lone parents at-risk-of-poverty ranges from 15 percent in Sweden to nearly 50 to 60 percent in the United States (Casey and Maldonado 2012; Hübgen 2018). Notably, welfare benefits can amount to nearly 40% of household income of lone parents in countries with expansive welfare states (e.g. Sweden) (Bradshaw et al. 2018).

To date, some scholars have considered the relative earnings of age (dis)similar partners when the family is still intact (Dribe and Nystedt 2017), however, here we study the effect of man-older unions after union dissolution. To examine the post-separation situation is important, as only then can we tell whether dynamics affect a woman's economic independence. Moreover, given that there is a large literature on women's income trajectories after separation (see Mortelmans 2020 for review), we instead target the reciprocity of welfare benefits (social and housing benefits). This decision is motivated by our interest in measures that clearly indicate that families need support from the state to meet a decent standard of living. In addition, we eschew issues related to voluntary low salaries, a common consequence of high rates of reduced working hours among women in Sweden after childbearing (Roeters and Craig 2014). Our two measures reflect a more comparable and objective assessment of whether women need economic assistance in order to support themselves and their children.

### *Age gap trends and detrimental effects for women*

Preferences among men (for younger women) and women (for relatively older men) are well-documented (Bhrolcháin and Sigle-Rushton 2002), and exist in many cultures (Buss 1989). Patterns of hypergamy (that women marry up in terms of social status) are also widespread across cultures. But throughout many European countries, mean age gaps have decreased during the 20th century (Esteve et al. 2009; van Poppel et al. 2001), and this has happened in tandem with increased gender equality, and a higher ability to enter marriage on similar grounds across the sexes (Dribe and Stanfors 2017). The simultaneous development of lower age gaps and women's agency in society and in couples, has led some to conclude that partner age gaps can be both a cause and a consequence of gender dynamics. Man-older relationships have been associated with lower gender equality both within and between countries (Atkinson and Glass 1985; Bozon 1991; Casterline et al. 1986; Van De Putte et al. 2009). In sub-Saharan Africa, women with higher age gaps have lower access to contraception, even after controlling for the woman's education (Barbieri and Hertrich 2005). In some historical studies, the age gap between spouses or partners has even been used as a direct proxy for a woman's agency in union, i.e. assuming that relatively younger women are less able to negotiate their position against their husband (Carmichael 2011; Roterling and Bras 2019). It is difficult to estimate how appropriate such general assumptions are. For instance, younger women may have more - not less - bargaining power in some instances due to their youth and higher reproductive value (Pawłowski and Dunbar 1999).

Moreover, it is not evident that any argument of lower agency of women in man-older unions is generalizable across contexts. To date, the majority of studies that have reported detrimental effects of man-older unions have come from societies that have low gender equality, and focused on certain types of outcomes. Studies from developing countries have often targeted health outcomes, and found that man-older relationships are associated with higher risks of intimate partner violence (Holland Jones and Ferguson 2009) and lesser agency for contraceptive use in less developing contexts (Barbieri and Hertrich 2005). Some of these studies suffered methodological limitations of cross-sectional designs, and lack adjustment for the mechanisms that may underlie assortative mating (i.e. that women with less authority end up with older partners). Interestingly, a recent study from Tanzania did not find any evidence that man-older unions incur costs (or advantages) to women's wellbeing (Lawson et al. 2020).

But even in gender egalitarian countries with a dual-earner model, man-older unions may be more likely to follow a traditional family model with specialisation where women carry out most household tasks and childrearing, whereas men further their standing on the labour market (Becker 1981). The reason for this is that even a small initial advantage on the labour market (through a small age gap) may lead to large incentives for a traditional family model (Rothstein 2012) and detrimental economic consequences for women if the union breaks down. This might be the case even if gender equality is widespread at the population level and economic independence of women is an objective for the couple. However, the previous work from the

Nordic context has demonstrated that the effect of age gap to male-partner on women's income is small by using data on Danish twins and their earning trajectories (Carollo et al. 2019). Similarly, in Sweden age homogamous partners earn more, but selection of high earners into age homogamous unions cannot be ruled out (Dribe and Nystedt 2017).

Some research has emphasised that man-older unions do not necessarily mean the woman has less agency in the relationship, but that the combination of age and other salient partner traits (e.g., education level, resources access and/or social class) might lead to male dominance (Pyke and Adams 2010). In reality, an age difference may often be paired with a difference in educational level or income. An exception might be women who have delayed family formation well into their thirties, and therefore are likely have completed higher education and made career progressions that may match those of men who are a couple of years their senior. These points illustrate that age at first birth is an important factor to consider and we do so by including it in our analyses, and by controlling for education at the timing of childbearing.

#### *Potential benefits of man-older unions*

While the detriments to women of man-older unions have been frequently highlighted, studies rarely point to the benefits older age in a partner might confer to women. The fact that man-older unions are so widespread - and persist despite considerable decline in the past century - begs the question what benefits individuals (women as well as men) might gain from such unions. Unless women are coerced into unions preferred by men, man-older unions may not universally have pernicious effects on women. First, all else equal, older men have more life experience and have more resources than younger peers. Consequently, an older partner who has established himself on the labour market and has more financial means might enable a female partner to focus on her employment, because both partners are not simultaneously having to make initial important investment in careers (Rothstein 2012). On a practical level, a higher level of income and education of older men may aid in outsourcing household tasks such as cleaning and childcare that otherwise disproportionately fall on women (Cornelisse-Vermaat et al. 2013). If so, one might expect both that man-older unions are more stable and that the economic consequences for women if dissolution occurs, should be less severe.

Second, another potential advantage of man-older unions from the vantage point of the woman is that an age gap provides more complete information about a prospective partner. Compared to choosing a similar aged partner, for example, at 27 years of age, partnering with a 35 year-old provides better indication of ambition, labour market position and desires at that point in time. Childbearing intentions might also more clearly formulated for a 35year-old as compared to a 27 year-old man (Rosina and Testa 2009). This might imply that childbearing intentions are more aligned for the partners if the man is older, but also that women who enter man-older unions gain more realistic expectations of their partner.

Third, there may be advantages associated with man-older unions if there are strong norms that prescribe this particular age gap in a given sub-group. Clearly, this is a different type of argument compared to the two above. The two previous arguments above are absolute or logical reasons why partner preferences may be met by older men, whereas this one is a norm-based, frequency-dependent argument, invoking third party influence (see Kalmijn 1998). Man-older unions may be the norm among groups where marriage is still somewhat instrumental and family structures are traditional, female age at childbearing preferably early, and the main earning responsibility lies on the man (Dribe and Stanfors 2017). If social sanctions, e.g. disapproving family or friends, are incurred if one diverts from a culturally prescribed pattern, then this in itself provides a benefit to man-older unions. Naturally, this mechanism may work in the reverse direction; there may also be cultural norms that prescribe age homogenous unions, and in that case we might expect individuals with Swedish backgrounds to be more likely to form age homogamous unions.

*Contextual background: partner age gaps and family formation in Sweden*

In Sweden, the partner age gap of first childbearing unions declined from approximately 3.5 years in the 1930 to around 2 years in the 1960s onwards. The fact that the mean age gap has been constant around 2 years (man-older) is helpful for our purposes as it indicates a stable age gap norm among Swedish-born individuals (Kolk 2015). Moreover, the trends are very similar for childbearing unions and for spouses. However, during the end of the 20th century, there was also an increase in the number of unions in which the woman is older than her male partner, implying that norms of hypergamy (women partnering up) have become less strict (Kolk 2015). Overall, age gaps are higher (more man-older) among individuals who have lower education, and have a foreign born partner (Gustafson and Fransson 2015). Mixed marriages (intermarriages) often have high (man-older) age gaps and marriage migration to Sweden is associated with high (man-older) age gaps (Niedomysl et al. 2010).

In this study, we focus on childbearing unions between ancestral Swedes, but we also examine immigrants from Africa and the Middle East (and their descendants) as a comparison group with a high average age gap. In Sweden, there is large variation in the mean age gaps of different immigrant groups and their descendants. Ugglå and Wilson (2020) show that among women from Africa and the Middle East, age gaps are notably higher than the Swedish norm, but over time there is considerable intergenerational adaptation in age gaps between partners among first and second generation immigrants. However, little is known about whether these age gaps are detrimental to women in Sweden, regardless of background. We ask, is there patterned variation by partner age gap for the durability of unions and the economic consequences of separation for women, and are any patterns uniform across background?

Comparing women with Swedish to those with African or Middle Eastern background, we have to keep in mind that patterns of family formation, partner choice and separation sometimes

differ among immigrants and ancestral Swedes. Immigrants from Africa and the Middle East are a diverse group of people and here we only describe some general patterns at the aggregate level. We include immigrants from Somalia, Eritrea, Ethiopia, Egypt, North Africa (except Egypt), Lebanon, Syria, Iran, Iraq, and Turkey, other African and other Middle Eastern countries, according to the Statistics Sweden country classification. Compared to ancestral Swedes, immigrants from the Horn of Africa and North Africa, the Arab Middle East and Iran have rather high rates of entry into first marriage, divorce and remarriage (Andersson et al. 2015). However second generations do not differ much from their parents', indicating a socialization effect in family trajectories (Andersson et al. 2015). Separation among Swedish parents is common: approximately 30% of children by the age 15 experience a parental separation (Thomson & Eriksson 2013). Figures are similar among children with an Iranian-born mother, whereas children of Iraqi and Turkish mothers have lower separation risks, around 25 and 20% by age 15, respectively (Erman and Härkönen 2017). Among women with Swedish background, it is common that both parents share childcare responsibilities after separation - up to 40% of children alternative to live with their mother and their father (Fransson et al. 2018), with much lower frequencies among foreign born (Turunen et al. 2017).

Covering ethnically homogamous unions where the woman had her first birth in Sweden between 1997 and 2015, we aim to answer the following research questions:

- i) *Are man-older unions more or less stable than age homogamous unions?*
- ii) *Do women from man-older unions suffer worse short-term economic consequences (receipt of social and housing benefits) following union dissolution than women from more age homogamous unions?*
- iii) *Are dissolution risk and economic consequences of dissolution different among ancestral Swedish women and women with immigrant background from high age gap contexts?*

We expect that if women are largely unaffected by separation, their odds of social and housing benefit recipiency should not increase steeply following the year of separation. We compare this change after separation in receipt of benefits among women from unions with different partner age gaps.

## **Data and methods**

The data of this paper is based on a collection of data called Migrant Trajectories from Statistics Sweden (SCB). Data are accessed through SCB's micro-online access system, MONA. Individuals enter the registers when they are born (if Swedish-born), or when they obtain a resident permit or register their immigration (a requirement to live in Sweden). Swedish register data offers longitudinal data with complete birth and union events for parents, along with information on registered addresses of all parents. Children and parents can be linked through (anonymised) personal identification numbers (as long as they have lived in Sweden

at some point in time). This means that we can capture childbearing histories of all women living in Sweden, both those who immigrated and the second generation. Socioeconomic factors such as education and subsequent welfare benefits are also linkable through the personal identification number. The longitudinal nature of the data, and its breadth of indicators is key to our research questions which are essentially examining trajectories of different union types.

Swedish registers also have a large number of immigrants from diverse countries. Part of our objective is to compare trajectories of man-older unions between ancestral Swedes and immigrant women who are likely to have different social norms related to man-older unions. For this purpose, we have opted for immigrant women (and their children) from Africa and the Middle East, where we know that mean age gaps are high and man-older unions common in Sweden (Uggla and Wilson 2020) and in the origin countries (Ni Bhrolchain 2006). Our aim is not to carry out a comprehensive examination of the stability and consequences of man-older unions in all different immigrant groups, rather, we are interested in those that lie at opposite ends of the spectrum (cf. Uggla & Wilson 2020), and have may have “culturally distant values” (Dribe and Lundh 2012).

We include women who have their first birth between 1997 and 2015, in Sweden to a known partner who resided in Sweden at the time of birth or the year after. This is because we are interested in examining ever-cohabiting childbearing unions, and their risk of dissolution and economic consequences subsequently. We take the perspective of the women, because our aim is to compare women from different types of unions rather comparisons between the genders. 1997 is our start year because since that point, the requirements of the housing benefit has remained constant. We keep only individuals who have consecutive observation years to ensure we know their activity every year since childbearing.

#### *Definitions of unions and separations*

We focus on childbearing unions (as opposed to all married unions) because division of labour tied to childcare vs. labour market activities are at the core of our research question. Moreover, about half of childbearing unions are not marriages when the first child is born (Thomson and Bernhardt 2010). For the Swedish context, focusing on childbearing unions also has the advantage that we can detect whether partners are coresiding. Unions where the parents are not coresiding at the year of birth, nor in the subsequent year are excluded. The childbearing union has to be the first for the woman, but her male partner may have had other children previously. This is important to our research question, as excluding men who have had partners previously would exclude many potential partners and unions of interest. Lastly, because intermarriage increases risk of dissolution compared to ethnically endogamous unions (Dribe and Lundh 2012) we focus solely on childbearing unions between Swedish-born and other Swedish-born, and immigrants with other immigrants.

Given the relatively low number of separations/receipt of benefits among some sub-groups, we decided on broad age gap categories. Partner age gaps are based on male age-female age, in calendar years, and categorised into woman-older/0, man-older 1-4 years, or man-older 5 years or more. These categorisations capture a relatively large proportion in each, although the distribution differs between women of Swedish and African/Middle Eastern origin (see Table 1).

Separations are defined as not being registered at the same address (or partners address being missing). Individuals who are registered as moving in and out with their partner multiple times are dropped (approximately 3% of couples). While individuals might not be registered with their partner at every year even if the union is intact, we exclude these cases for a conservative and more reliable estimate of whether partners share resources and their union is intact.

#### *Ancestral Swedish and women with immigrant background*

We define women with immigrant background from the African or Middle East as those who were born in the African and Middle Eastern countries listed above, or Swedish-born women (second generation) whose both parents were born in any of those countries. Among first generation of immigrants, we include those who had their first child in Sweden and arrived before age 45). The so-called 2.5 generation, individuals with one Swedish-born and one foreign-born parent, are excluded to reduce uncertainty about what environments and norms they have been exposed to. We also exclude women who had less than 5 years between immigration and first child. This is to only include immigrants who have had a chance to establish themselves on the labour market, and for a more reliable estimate of benefit recipiency (immigrants who are newly arrived are overrepresented as receiving benefits) (Franzén 2001).

#### *Social and housing benefit*

Our two benefits outcomes are constructed as a binary measures, because we are interested in whether individuals receive “any” support of the kind during the calendar year. Social benefit (Försörjningsstöd, Ekonomiskt bistånd, formerly known as Socialbidrag) is the more restrictive of the two, and can be attained only if the individual has no other valuable assets. The Swedish welfare state has other types of benefits these are typically predicated on past employment, but among individuals who have no or little previous work, social benefit has been deemed the last income safety net (Gustafsson 2013). To receive social benefit an application has to be made to a social welfare office, and an appointment with a social worker is sometimes part of the procedure. All individuals residing in Sweden are eligible, but immigrants who recently arrived (excluded in our data, see above) are instead entitled to an introductory compensation (Introduktionsersättning), nearly identical to social benefit. The family unit has to have a low total income and be unable to earn an income through other means. Thus, any valuable assets such as a car have to be sold to be eligible. The actual value is calculated by a norm for living expenses that varies across the country depending on regional living costs. Single parents are

overrepresented as recipients (3 to 4 times higher than cohabiting parents) and foreign citizens are approximately 6 times more likely to receive social benefits than Swedish born (Halleröd 2003).

Housing benefit is a means-tested welfare benefit that can be applied for by families with children and eligibility depends on income level, cost of housing and the number of children. It is more common than social benefit: in 2002, 60% of single parents, and 15% of all households in Sweden received housing benefit (Chen 2006). The objective is to support households during periods of difficulty. In addition to households with dependent children, housing benefit can also be granted to individuals 29 or younger, and regardless of whether the housing is rented or owned.

### *Modelling*

#### *Separation risk*

We run Kaplan-Meier plots and unadjusted and adjusted Cox models to compare the risk of separation by partner age gap. We include couples where mothers had their first birth between 1997 and 2015, and followed them until 2016. Covariates for Cox models include the woman's age at first birth (categorical), highest educational level at childbearing birth (primary, secondary, tertiary), marital status at childbearing (married/unmarried) and number of children (time-varying). (For more details, see Appendix Table 1).

#### *Benefit recipiency*

Our second aim is to test whether the receipt of benefits after separation varies by age gap of the former union. Therefore, we construct a variable for timing of separation. For this variable, -2 denotes 2 years prior to separation, -1 one year prior, 0 is the separation year (when parents are no longer registered at the same address), and +1, and +2 the subsequent years. Our choice of time frame was chosen to capture a short time before and after, and thereby including as many unions as possible. We adjust for the same variables as above for separation risk (see above) and in addition duration of union/age of oldest child (which is by default included in the Cox model). Data on benefits are available until 2016. We perform logistic regressions separately for each age gap group and compare relative odds ratios (see Figure 2abcd).

All models consider two groups: ancestral Swedish women and immigrant women from African and Middle East and their descendants. This is because it is not evident that, even within Sweden, partner age gaps will have the same impact on relationship stability or consequences after dissolution among groups where man-older unions are common and groups where they are rare.

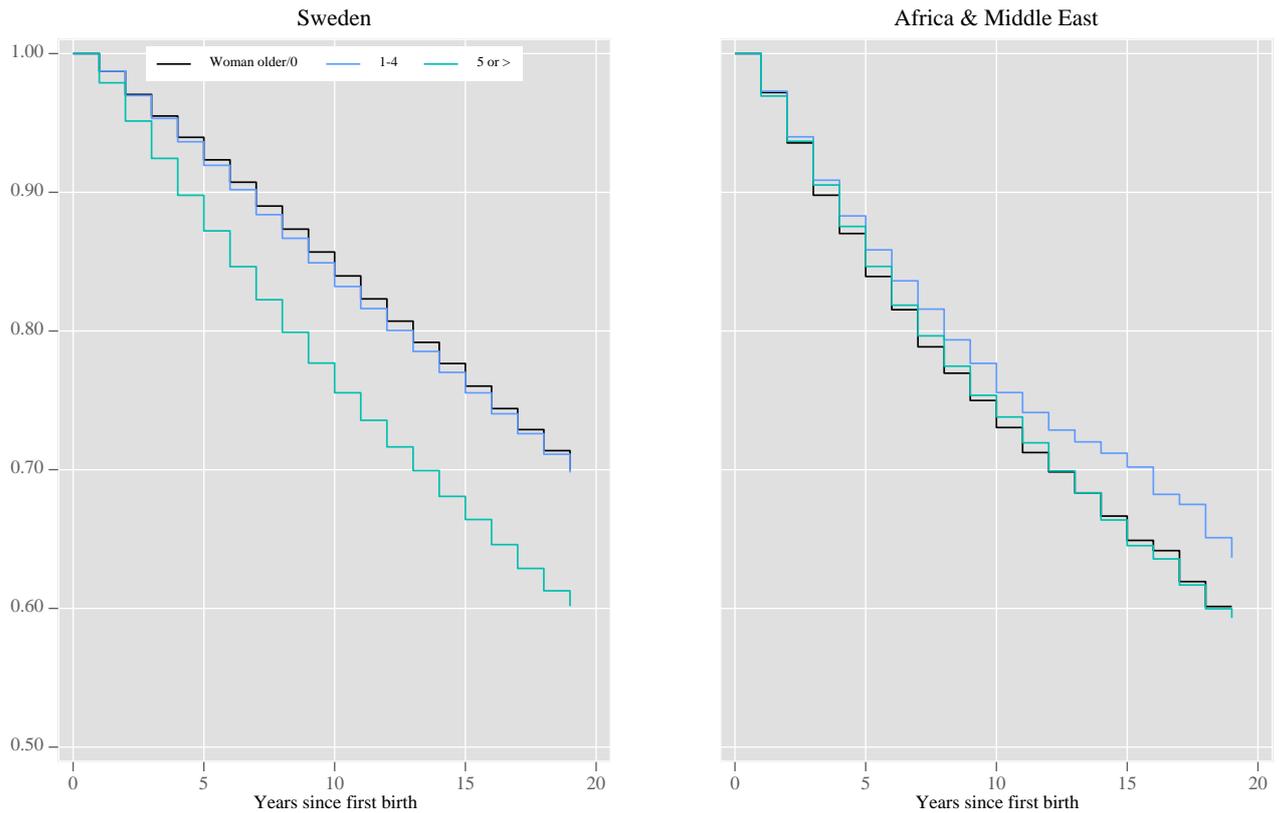
## Results

Table 1 shows that women in man-older unions (5 years or more) have lower age at first birth, lower education at childbearing, and are more likely to receive both types of benefits (when the child is one year old). This is the case both among women with Swedish background and immigrants from Africa and the Middle East, yet the gradient by age gap category is somewhat more apparent among women with immigrant background. This implies that for intact unions, economic hardship is higher among couples where the man is older than the woman (at least by 5 years or more).

	Partner age gap (yrs)		Age at first birth (yrs)	Education (yrs)	Social benefit	Housing benefit
<b>Swedish background</b> (n=473,731)	Woman-older/0	32.0%	30.6	13.5	1.1%	3.2%
	Man-older 1-4	45.0%	28.6	13.4	1.3%	3.0%
	Man-older 5 or >	23.0%	28.2	13.0	2.1%	3.8%
<b>African/ Middle Eastern background</b> (n=14,643)	Woman-older/0	22.0%	30.1	12.4	18.1%	29.5%
	Man-older 1-4	39.2%	27.2	12.3	18.4%	30.1%
	Man-older 5 or >	38.8%	26.5	11.8	23.8%	35.0%

**Table 1. Demographic characteristics (at woman's first birth) and social and housing benefit reciprocity (when first child is 1 year), by partner age gap.** Yrs- mean number of years. Social and housing benefits are the proportion receiving any benefit during the year the first child turns 1 year old. This is to capture families who are coresiding (some are not registered at the same address during the year of the first birth). *n* - denotes number of women/unions (only the woman's first childbearing union is included). Education is the woman's number of years of education at the year before her first birth.

Figure 1 shows the risk of separation since year of the couple's first child. Among women with Swedish background, separation risks are largest among man-older couples of 5 years or more. These differences are apparent compared to women older or age similar couples and man-older (1-4 years) from a few years after their first birth. However, among women of African or Middle Eastern background, the differences between age gap categories are smaller. Only after approximately 10 years since birth of the first child, do unions in which the man is 1-4 years older have lower separation risks (although not significantly). Woman-older/ 0 or man-older 5 or more have the same risk.



**Figure 1. Kaplan-Meier plot for proportion of intact unions, by age gap category (woman-older/ 0 years, 1-4 years man-older, or 5 or more years man-older, and woman’s background. Note: includes only ancestral-ancestral Swedish (left) or immigrant-immigrant (right) childbearing couples.**

In adjusted Cox-models (Table 2), women of Swedish origin face the highest separation risks if in a man-older union (decreases after adjustment for covariates but still notably higher), whereas among women of African/ME origin, separation risks are higher among woman-older/0 unions, compared to those that are man-older by 1-4 years. Thus, among both ancestral Swedish women and women of African and Middle Eastern origin, 1-4 man-older unions have the lowest separation risks. (For full models with covariates, see Table A1, Appendix).

	Swedish background		African/Middle Eastern background	
	Hazard ratio (p-value)		Hazard ratio (p-value)	
	Unadjusted	Adjusted	Unadjusted	Adjusted
Woman-older/0 yrs	0.96(0.202)	<b>1.09(0.000)</b>	<b>1.14(0.013)</b>	<b>1.18(0.002)</b>
Man-older 1-4 yrs	1	1	1	1
Man-older 5 or > yrs	<b>1.50(0.000)</b>	<b>1.29(0.000)</b>	<b>1.12(0.007)</b>	1.06(0.170)
Years at risk	3,906,547		89,802	
No of separations	77,569		2,610	

**Table 2. Cox models for risk of separation by age gap of union, unadjusted and adjusted hazard ratios with p-values in parenthesis.** Adjusted for years of education at first birth, age at first birth (categorical), married/unmarried at first birth, and number of kids (time-varying). Significant hazard ratios in bold.

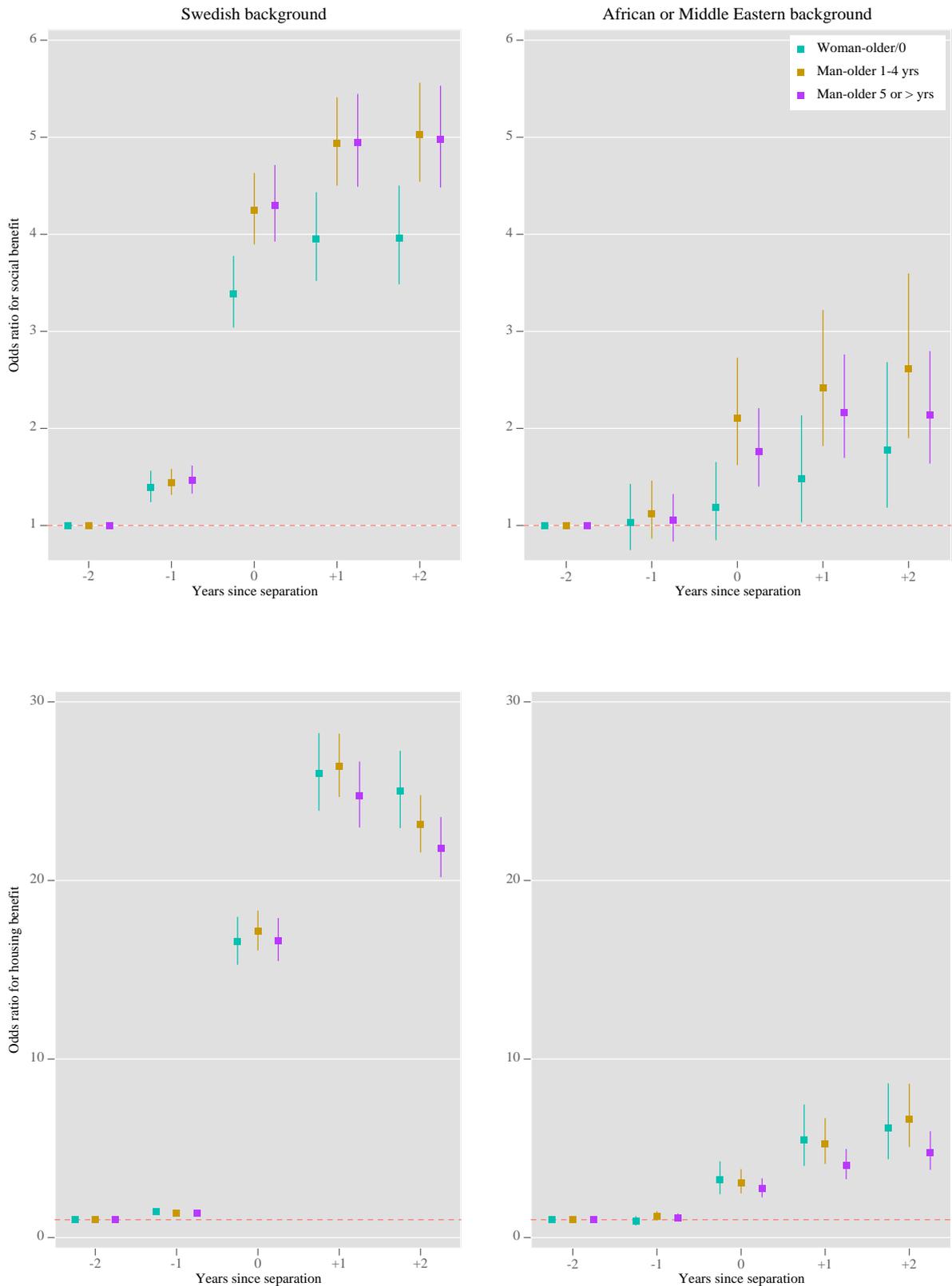
### Cost of separation

Separation year	Swedish background				African/Middle Eastern background			
	Social benefit		Housing benefit		Social benefit		Housing benefit	
	-1yr	+1 yr	-1yr	+1yr	-1yr	+1yr	-1yr	+1yr
Woman-older/0 yrs	3.9%	6.4%	5.9%	36.4%	22.2%	21.9%	27.1%	60.0%
Man-older 1-4 yrs	4.4%	7.7%	5.9%	38.1%	20.7%	25.3%	31.4%	58.7%
Man-older 5 or > yrs	5.1%	9.4%	6.3%	40.5%	21.3%	26.8%	33.3%	57.2%
Total	4.5%	7.9%	6.0%	38.4%	21.3%	25.3%	31.3%	58.3%

**Table 3. Percentage of women receiving any social and housing benefits, by age gap category, in the year preceding separation, and the year following separation. Note: this includes only individuals who will eventually separate.**

Table 3 shows the percentages of individuals receiving social and housing benefit, one year prior to, and one year following separation, by age gap category. (Note that we cover also -2 to +2 years in the models, but not all 5 years are shown here to allow for easier comparison). There are large differences in the increases after separation as opposed to prior. But baseline level differences based on age gap categories are relatively small. Results also show that immigrants or descendants of immigrants from Africa/Middle East have higher rates of benefit reciprocity than ancestral Swedes, in line with prior research (Franzén 2001).

In Figure 2abcd, among all women the likelihood of receiving economic benefits increases after separation, and in some cases remains high. However, the data do not suggest any large differences by age gap of the dissolved union. The only exception is social benefits among Swedish women, where women from women-older/0-unions had somewhat lesser increase in benefit reciprocity after separation. (For full models, see appendix Tables A2-A5).



**Figure 2abcd. Benefit reciprocity by separation timing, receipt of any social benefit (top panel) and housing benefit (bottom panel), by Swedish background (left panel) and African or Middle Eastern background (right panel). Results are shown as odds ratios with 95% confidence intervals.**

## Discussion

Whether the cost of separation varies as a function of the age gap of the dissolved union is largely unexplored. Man-older unions have been argued to be both a consequence and a cause of gender inequality during the relationship. Our study is the first to examine patterned differences by partner age gap, on risk of separation and mothers' reliance on economic benefits after dissolution. We do so while comparing groups that, at the aggregate level, have different partner age gaps (namely ancestral Swedes and African and Middle Eastern immigrant women), but are subject to the same country context and policy environment. Sweden is one of few contexts where this type of analysis can be conducted, with longitudinal data that covers broad and diverse immigration and linked welfare benefit data for the entire population.

Overall, these data do not lend support to the idea that man-older unions are detrimental to women's economic independence after separation. But across the board, union dissolution incurred increased risk for women of not being able to support herself and her children on earnings only; odds of receiving both types of benefits increased after separation for both women of Swedish and African/Middle Eastern background. This is in line with the large body of previous evidence that has mapped poverty risk and income loss in women following union dissolution (Mortelmans 2020). The only potential age gap differences in benefit reciprocity after separation is slightly lower increases in social benefits among Swedish women from woman-older/age homogamous unions, compared to women from man-older unions. But this is likely driven partly by the fact that women from woman-older unions had higher baseline rates of social benefit reciprocity. This goes counter to the idea that man-older unions would be better off due to the man's higher age, and higher attachment to the labour market, but in line with earlier research showing highest incomes among age homogamous couples (Dribe and Nystedt 2017).

Perhaps surprisingly, these results point to larger relative economic disadvantage following union dissolution for Swedish women than women of immigrant origin. Again, these results are likely driven by considerably higher baseline levels of benefit reciprocity among immigrant women, but were nonetheless unexpected. Thus, concluding that women of Swedish origin experience a starker shock of separation may be correct given their relative increase after dissolution, but overall, immigrant women in our data are more disadvantaged economically to begin with, when unions are intact. Thus, we caution against simplistic interpretations and believe the development of trajectories have to be seen in conjunction with their relative starting point. Moreover, although data showed that separation risks are higher for more man-older unions (5 years or more) among women with Swedish background, among women of African or Middle Eastern origin, dissolution risks are higher among woman-older unions. Differences in selection into age heterogamous unions may play a part here, although we controlled for education, age at first birth and other important characteristics. Some previous studies have found that the economic consequences of separation vary by union type. A study from Canada found that the effect of separation on women's income was less negative among

cohabiting, as opposed to married couples (Le Bourdais et al. 2016). This might be interpreted as more traditional unions lead women to bear a larger economic cost afterwards.

Immigrant women as a group have a double disadvantage on the labour market (Le and Miller 2010; Rebhun 2008), that might be even stronger in families where the husband is her senior. However, the fact that we did not find stronger disadvantages among the immigrant women in our data may also suggest that age at first birth and women education might account for most of the potential effects of traditional family norms. Also, some countries of origin included here, e.g. Iranians have relatively low average age gaps to begin with (Uggla and Wilson 2020). An important point is that many of the women with immigrant background included here were child migrants (62%) and second generation migrants (15%), with long exposure to Swedish society. It is possible that costs of man-older unions would be appear if the selection and characteristics of our immigrant sample had been different. From previous research we know that second generation migrants, have very similar marriage and divorce rates (Andersson et al. 2015), and age gaps as ancestral Swedes (Uggla and Wilson 2020).

The economic disadvantage examined herein is economic dependency on sources other than earnings after union dissolution. We believe that our two measures, one more restrictive (social benefit) and one fairly common (housing benefit) capture any disadvantages faced by women after separation. While individuals might choose professions with lower incomes, and have low incomes especially during the time periods examined here starting from the birth of the first child, our measures of benefit reciprocity capture individuals who are living on such low incomes that the state deems it below the necessary standard of living. It is possible that other patterns would become visible with a longer perspective, but we considered a relatively narrow time frame (from two years preceding to two years after separation) in order to keep constant different types of living arrangements and family events that might come about with a longer time frame after separation. We believe that our five-year snap shot provides insight into critical time points before and after a union dissolution and in part controlling for reverse causality. Specifically, our analysis allows us to disentangle the effects of separation on economic outcomes by conditioning on the economic position of individuals prior to the separation. This is important because economic hardships may actually lead to separation and cause us to overestimate the economic effects of separation.

Our data are drawn from national registers and addresses of individual's residency. Thus, it is possible that the year of separation is not the actual year when two partners part ways. However, previous research indicate this as reliable measures of who is actually living with whom (Thomson and Eriksson 2013). Our research design compares the economic predicament of women before and after separation on a household level. This means that, while we do not control for husbands income, it is both partners' incomes combined that determine whether benefits are received prior to separation. After separation it is based on women's new household (her own income or any other co-resident adults). The benefit reciprocity of women who move in with relatives or a new partner will be affected by income of other adults in the households. We cannot rule out the possibility that there are patterned differences in living

arrangements (i.e. if women from man-older unions are more likely to rely on family support or a new partner) conceal differences economic disadvantage following separation, even with our short time frame. Therefore, these results can be interpreted as the post-separation trajectories of women from different age gap unions - and whether they find themselves in circumstances that require them to rely on support of the state. We encourage future studies to examine the more precise mechanisms that may underpin these patterns.

These results indicate that the age of the partner is linked to different trajectories in terms of separation risk, although with more marked differences among ancestral Swedish women than women of immigrant background. For all women, economic disadvantage following union break down was high, but we found limited support that it differs by age gap of the union. While most previous studies on the effects of high age gaps come from low or middle income countries that often have lower female autonomy, a crucial contribution of our study is that it targets dynamics of partner age gaps on women in highly gender egalitarian context. More work from different contexts, and where possible, different groups within countries will help to elucidate further the impact of separation on women's economic independence.

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## Appendix Tables

		Swedish background	African/ Middle Eastern background
Partner age gap (ref: Man-older 1-4 yrs)	Woman-older/0	1.095*** (1.076 - 1.114)	1.181*** (1.061 - 1.315)
	Man-older (5 yrs or >)	1.300*** (1.278 - 1.322)	1.063 (0.974 - 1.161)
Yrs of education at first birth (ref: 13-19 yrs)	6-9	2.302*** (2.239 - 2.368)	1.430*** (1.277 - 1.601)
	10-12	1.295*** (1.275 - 1.316)	1.113** (1.014 - 1.222)
	Missing	2.898*** (2.432 - 3.454)	1.214 (0.747 - 1.972)
Age at first birth (ref: 25-29 yrs)	14-19	3.205*** (3.062 - 3.356)	1.438*** (1.184 - 1.746)
	20-24	1.824*** (1.790 - 1.859)	1.072 (0.973 - 1.181)
	30-34	0.819*** (0.804 - 0.834)	0.957 (0.857 - 1.068)
	35 and >	0.684*** (0.666 - 0.703)	0.905 (0.784 - 1.045)
Number of children (time-varying, ref: 2)	1	2.355*** (2.313 - 2.397)	1.750*** (1.592 - 1.923)
	3	0.728*** (0.709 - 0.748)	0.775*** (0.673 - 0.893)
	4	0.677*** (0.629 - 0.729)	0.750** (0.570 - 0.986)
	5	0.505*** (0.406 - 0.629)	1.054 (0.606 - 1.835)
	6 or >	0.634*** (0.463 - 0.869)	0.599 (0.192 - 1.873)
Married at first child	Married	0.757*** (0.744 - 0.770)	0.443*** (0.406 - 0.484)
N years at risk		3,906,547	89,802

Table A1. Hazard ratios for union dissolution from Cox models, for couples with Swedish background and African/Middle Eastern background with 95% CI in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Social benefit reciency		Partner age gap		
		Woman-older/0	Man-older 1-4 yrs	Man-older 5 yrs & >
Timing (ref: separation year -2)	-1	1.393*** (1.240 - 1.564)	1.443*** (1.316 - 1.583)	1.466*** (1.328 - 1.618)
	0 (separation)	3.388*** (3.040 - 3.776)	4.248*** (3.896 - 4.631)	4.301*** (3.925 - 4.713)
	+1	3.950*** (3.520 - 4.434)	4.936*** (4.502 - 5.412)	4.945*** (4.490 - 5.446)
	+2	3.961*** (3.485 - 4.502)	5.025*** (4.541 - 5.561)	4.979*** (4.482 - 5.531)
Yrs of education at first birth (ref 13-19)	6-9	10.955*** (9.758 - 12.299)	10.248*** (9.288 - 11.307)	9.542*** (8.632 - 10.548)
	10-12	3.313*** (2.990 - 3.670)	3.037*** (2.774 - 3.325)	2.955*** (2.694 - 3.242)
	Missing	14.947*** (9.849 - 22.683)	9.424*** (6.922 - 12.830)	10.678*** (7.960 - 14.323)
Age at first birth (ref: 25-29 yrs)	14-19	5.498*** (4.708 - 6.420)	6.178*** (5.657 - 6.746)	5.124*** (4.665 - 5.629)
	20-24	2.580*** (2.387 - 2.788)	2.404*** (2.253 - 2.564)	2.134*** (1.999 - 2.277)
	30-34	0.697*** (0.633 - 0.768)	0.712*** (0.639 - 0.793)	0.778*** (0.701 - 0.863)
	35 and >	0.714*** (0.631 - 0.807)	0.749*** (0.635 - 0.885)	0.756*** (0.642 - 0.890)
		1.165*** (1.071 - 1.268)	1.156*** (1.082 - 1.234)	1.161*** (1.086 - 1.241)
Number of children (time-varying, ref: 2)	1	1.582*** (1.371 - 1.824)	1.330*** (1.185 - 1.493)	1.447*** (1.290 - 1.622)
	3	1.984*** (1.437 - 2.740)	2.810*** (2.240 - 3.525)	2.517*** (1.983 - 3.194)
	4	1.915* (0.889 - 4.125)	4.253*** (2.506 - 7.219)	1.383 (0.621 - 3.083)
	5	26.900*** (11.417 - 63.381)	14.159*** (7.514 - 26.680)	1.237 (0.432 - 3.541)
	6 or >	4.263*** (3.690 - 4.925)	5.188*** (4.612 - 5.836)	3.984*** (3.557 - 4.463)
		2.001*** (1.751 - 2.287)	2.441*** (2.192 - 2.719)	2.021*** (1.822 - 2.241)
Time since first birth in yrs (ref 7-8)	0-2	1.343*** (1.167 - 1.546)	1.485*** (1.327 - 1.662)	1.284*** (1.151 - 1.431)
	3-4	0.783*** (0.656 - 0.936)	0.817*** (0.707 - 0.944)	0.761*** (0.661 - 0.877)
	5-6	0.607*** (0.492 - 0.748)	0.663*** (0.559 - 0.787)	0.587*** (0.493 - 0.698)
	9-10	0.652*** (0.517 - 0.822)	0.593*** (0.485 - 0.727)	0.555*** (0.450 - 0.684)
	11-12	0.560*** (0.418 - 0.751)	0.450*** (0.344 - 0.589)	0.349*** (0.259 - 0.471)
	13-14	0.327*** (0.204 - 0.524)	0.505*** (0.366 - 0.696)	0.232*** (0.146 - 0.370)
	15-16	0.904** (0.818 - 0.999)	0.846*** (0.777 - 0.921)	1.030 (0.955 - 1.111)
	17-19	0.003*** (0.003 - 0.004)	0.002*** (0.002 - 0.002)	0.003*** (0.002 - 0.003)
		N	98,590	146,657

Table A2. Odds ratios of social benefit reciency among women with Swedish background, with 95% CI in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Social benefit reciency		Partner age gap		
		Woman-older/0	Man-older 1-4 yrs	Man-older 5 yrs & >
Timing (ref: separation year -2)	-1	1.032 (0.745 - 1.429)	1.124 (0.865 - 1.462)	1.051 (0.835 - 1.324)
	0 (separation)	1.185 (0.849 - 1.653)	2.104*** (1.622 - 2.728)	1.759*** (1.401 - 2.208)
	+1	1.484** (1.032 - 2.134)	2.420*** (1.819 - 3.219)	2.165*** (1.696 - 2.762)
	+2	1.781*** (1.183 - 2.682)	2.614*** (1.899 - 3.597)	2.140*** (1.637 - 2.796)
Yrs of education at first birth (ref 13-19)	6-9	6.873*** (4.881 - 9.679)	7.503*** (5.597 - 10.059)	4.770*** (3.772 - 6.031)
	10-12	3.351*** (2.438 - 4.605)	3.357*** (2.550 - 4.417)	2.041*** (1.642 - 2.536)
	Missing	12.899*** (3.713 - 44.808)	6.664*** (2.996 - 14.824)	6.262*** (3.123 - 12.555)
Age at first birth (ref: 25-29 yrs)	14-19	4.194*** (1.566 - 11.233)	2.864*** (1.980 - 4.143)	3.509*** (2.660 - 4.630)
	20-24	2.175*** (1.624 - 2.912)	2.009*** (1.647 - 2.450)	2.112*** (1.761 - 2.534)
	30-34	0.817 (0.607 - 1.098)	0.812 (0.615 - 1.072)	0.959 (0.745 - 1.235)
	35 and >	0.934 (0.680 - 1.285)	1.061 (0.714 - 1.576)	0.874 (0.609 - 1.255)
Number of children (time-varying, ref: 2)	1	1.192 (0.914 - 1.553)	1.113 (0.902 - 1.372)	1.043 (0.874 - 1.246)
	3	1.077 (0.664 - 1.748)	2.627*** (1.882 - 3.667)	0.903 (0.677 - 1.204)
	4	8.445*** (3.255 - 21.913)	2.246** (1.147 - 4.396)	1.177 (0.692 - 2.001)
	5	10.357*** (2.354 - 45.564)	5.693*** (2.090 - 15.508)	2.459 (0.733 - 8.250)
	6 or >	-	-	-
Time since first birth in yrs (ref 7-8)	0-2	4.564*** (2.764 - 7.538)	6.178*** (4.215 - 9.055)	3.802*** (2.787 - 5.186)
	3-4	2.795*** (1.747 - 4.470)	2.845*** (1.986 - 4.077)	2.117*** (1.588 - 2.822)
	5-6	1.383 (0.839 - 2.282)	1.901*** (1.312 - 2.753)	1.542*** (1.144 - 2.078)
	9-10	0.365** (0.160 - 0.830)	0.676 (0.408 - 1.122)	1.038 (0.709 - 1.520)
	11-12	0.294** (0.103 - 0.839)	0.481** (0.249 - 0.929)	0.966 (0.616 - 1.516)
	13-14	0.204** (0.051 - 0.811)	0.143*** (0.034 - 0.612)	0.540* (0.286 - 1.018)
	15-16	0.271 (0.057 - 1.294)	0.316** (0.103 - 0.974)	0.180*** (0.063 - 0.516)
	17-19		0.213** (0.056 - 0.811)	0.415* (0.153 - 1.123)
Married at first child	Married	0.734** (0.574 - 0.938)	1.325*** (1.091 - 1.608)	1.401*** (1.188 - 1.653)
	Constant	0.031*** (0.017 - 0.059)	0.010*** (0.006 - 0.017)	0.024*** (0.016 - 0.036)
	N	2,387	3,927	4,914

Table A3. Odds ratios of social benefit reciency among women with African/Middle Eastern background, with 95% CI in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Housing benefit reciency		Partner age gap		
		Woman-older/0	Man-older 1-4 yrs	Man-older 5 yrs & >
Timing (ref: separation year -2)	-1	1.447*** (1.319 - 1.587)	1.375*** (1.276 - 1.481)	1.381*** (1.270 - 1.501)
	0 (separation)	16.569*** (15.282 - 17.964)	17.159*** (16.084 - 18.307)	16.647*** (15.487 - 17.893)
	+1	25.993*** (23.911 - 28.256)	26.390*** (24.679 - 28.219)	24.744*** (22.966 - 26.660)
	+2	25.006*** (22.937 - 27.261)	23.121*** (21.572 - 24.781)	21.805*** (20.187 - 23.553)
Yrs of education at first birth (ref 13-19)	6-9	3.809*** (3.553 - 4.083)	2.919*** (2.764 - 3.083)	2.754*** (2.600 - 2.918)
	10-12	2.205*** (2.119 - 2.294)	1.877*** (1.815 - 1.942)	1.754*** (1.688 - 1.822)
	Missing	5.826*** (3.667 - 9.257)	4.777*** (3.452 - 6.610)	3.269*** (2.418 - 4.420)
Age at first birth (ref: 25-29 yrs)	14-19	5.034*** (4.259 - 5.950)	3.436*** (3.182 - 3.710)	2.505*** (2.303 - 2.725)
	20-24	1.761*** (1.672 - 1.855)	1.693*** (1.635 - 1.753)	1.594*** (1.534 - 1.656)
	30-34	0.676*** (0.647 - 0.706)	0.695*** (0.666 - 0.726)	0.750*** (0.714 - 0.787)
	35 and >	0.654*** (0.618 - 0.693)	0.600*** (0.558 - 0.644)	0.680*** (0.630 - 0.735)
Number of children (time-varying, ref: 2)	1	0.800*** (0.764 - 0.838)	0.833*** (0.802 - 0.866)	0.769*** (0.738 - 0.801)
	3	1.473*** (1.376 - 1.577)	1.507*** (1.429 - 1.588)	1.415*** (1.329 - 1.505)
	4	1.992*** (1.667 - 2.382)	2.369*** (2.079 - 2.701)	2.048*** (1.769 - 2.371)
	5	2.189*** (1.249 - 3.837)	3.618*** (2.547 - 5.140)	2.372*** (1.558 - 3.611)
	6 or >	10.679*** (4.737 - 24.074)	2.901*** (1.576 - 5.339)	7.406*** (4.249 - 12.909)
Time since first birth in yrs (ref 7-8)	0-2	2.771*** (2.584 - 2.971)	2.584*** (2.439 - 2.738)	2.520*** (2.369 - 2.680)
	3-4	1.427*** (1.346 - 1.513)	1.460*** (1.392 - 1.530)	1.487*** (1.414 - 1.564)
	5-6	0.779*** (0.731 - 0.830)	0.768*** (0.730 - 0.808)	0.787*** (0.744 - 0.833)
	9-10	0.587*** (0.547 - 0.629)	0.586*** (0.554 - 0.621)	0.561*** (0.526 - 0.598)
	11-12	0.487*** (0.451 - 0.527)	0.424*** (0.397 - 0.453)	0.446*** (0.414 - 0.481)
	13-14	0.427*** (0.390 - 0.468)	0.391*** (0.362 - 0.421)	0.380*** (0.347 - 0.417)
	15-16	0.405*** (0.363 - 0.451)	0.357*** (0.325 - 0.391)	0.366*** (0.328 - 0.409)
	17-19	0.307*** (0.266 - 0.354)	0.281*** (0.250 - 0.317)	0.280*** (0.242 - 0.324)
Married at first child	Married	0.768*** (0.732 - 0.805)	0.698*** (0.670 - 0.726)	0.838*** (0.803 - 0.874)
	Constant	0.033*** (0.029 - 0.036)	0.030*** (0.028 - 0.032)	0.032*** (0.029 - 0.034)
	N	98,590	146,657	109,057

Table A4. Odds ratios of housing benefit reciency among women with Swedish background, with 95% CI in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Housing benefit reciency		Partner age gap		
		Woman-older/0	Man-older 1-4 yrs	Man-older 5 yrs & >
Timing (ref: separation year -2)	-1	0.903 (0.678 - 1.203)	1.180 (0.947 - 1.470)	1.114 (0.917 - 1.353)
	0 (separation)	3.223*** (2.434 - 4.270)	3.080*** (2.473 - 3.835)	2.737*** (2.254 - 3.322)
	+1	5.471*** (4.018 - 7.450)	5.253*** (4.124 - 6.691)	4.029*** (3.269 - 4.965)
	+2	6.158*** (4.391 - 8.637)	6.614*** (5.078 - 8.614)	4.755*** (3.795 - 5.959)
Yrs of education at first birth (ref 13-19)	6-9	3.913*** (3.006 - 5.094)	4.286*** (3.455 - 5.318)	3.418*** (2.826 - 4.134)
	10-12	2.604*** (2.093 - 3.240)	2.487*** (2.082 - 2.970)	2.093*** (1.791 - 2.446)
	Missing	2.178 (0.664 - 7.145)	0.959 (0.421 - 2.182)	4.620*** (2.277 - 9.373)
Age at first birth (ref: 25-29 yrs)	14-19	0.395* (0.152 - 1.026)	1.892*** (1.304 - 2.745)	2.165*** (1.661 - 2.823)
	20-24	2.321*** (1.770 - 3.045)	1.470*** (1.240 - 1.741)	1.909*** (1.641 - 2.220)
	30-34	0.997 (0.788 - 1.261)	0.906 (0.739 - 1.110)	1.029 (0.849 - 1.248)
	35 and >	1.166 (0.903 - 1.506)	0.972 (0.710 - 1.330)	1.007 (0.776 - 1.308)
Number of children (time-varying, ref: 2)	1	0.856 (0.688 - 1.065)	1.002 (0.843 - 1.191)	0.797*** (0.683 - 0.929)
	3	0.986 (0.699 - 1.392)	2.280*** (1.749 - 2.972)	1.085 (0.868 - 1.357)
	4	1.113 (0.463 - 2.675)	2.511*** (1.466 - 4.302)	1.378 (0.919 - 2.066)
	5	26.358*** (2.762 - 251.493)	13.835*** (4.561 - 41.964)	0.715 (0.249 - 2.054)
	6 or >	-	0.757 (0.081 - 7.102)	-
Time since first birth in yrs (ref 7-8)	0-2	1.837*** (1.346 - 2.507)	1.835*** (1.443 - 2.334)	1.510*** (1.221 - 1.867)
	3-4	1.214 (0.914 - 1.613)	1.308** (1.047 - 1.635)	1.262** (1.038 - 1.534)
	5-6	0.826 (0.581 - 1.173)	0.796 (0.605 - 1.047)	0.744** (0.591 - 0.938)
	9-10	0.555*** (0.368 - 0.838)	0.527*** (0.381 - 0.729)	0.576*** (0.438 - 0.758)
	11-12	0.459*** (0.276 - 0.761)	0.592** (0.398 - 0.883)	0.515*** (0.374 - 0.710)
	13-14	0.376*** (0.193 - 0.732)	0.346*** (0.203 - 0.591)	0.446*** (0.304 - 0.656)
	15-16	0.206*** (0.077 - 0.555)	0.258*** (0.130 - 0.509)	0.294*** (0.184 - 0.470)
	17-19	-	0.092*** (0.037 - 0.227)	0.402*** (0.226 - 0.717)
Married at first child	Married	0.898 (0.724 - 1.114)	1.358*** (1.151 - 1.603)	1.185** (1.029 - 1.364)
	Constant	0.139*** (0.091 - 0.211)	0.082*** (0.058 - 0.115)	0.140*** (0.105 - 0.187)
	N	2,387	3,933	4,914

Table A5. Odds ratios of housing benefit reciency among women with African/ Middle Eastern background, with 95% CI in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

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