Does intermarriage affect men and women differently?
Exogamy and earnings among Swedish immigrants 1990-2009

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Abstract

This paper analyzes the impact of intermarriage on the economic integration of immigrant men and women in Sweden, measured by annual earnings. We use longitudinal register data for the period 1990–2009 for the total population of immigrants born 1960–74. The results reveal large intermarriage premiums for men but much smaller premiums for women. Overall much of the intermarriage premiums result from selection effects as most are visible already at the time of marriage. Especially for immigrant men, the growth in the earnings premium of intermarriage continues also after marriage, pointing to possible causal effects as well. Moreover, for the most economically marginalized immigrants, men as well as women, there are even stronger indications of a causal effect as there seems to be no selection into intermarriage in terms of earnings but a strong intermarriage premium arising after union formation.

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Introduction

In recent years there has been growing attention to the role played by intermarriage for the life courses and careers of immigrants. While intermarriage frequently seems to be associated with higher divorce rates (Dribe and Lundh 2011; Eeckhaut et al. 2011; Feng et al. 2012; Milewski and Kulu 2014), there are also strong indications that it is positively associated with earnings of immigrant men (Meng and Gregory 2005; Meng and Meurs 2009), especially for those from more disadvantaged origins (Dribe and Nystedt 2014). This is also in line with older research stressing the positive role of intermarriage for immigrant integration into host societies (Alba and Golden 1986; Lieberson and Waters 1988; Pagnini and Morgan 1990; Alba and Nee 2003).

In a previous paper we studied the association between intermarriage and earnings among immigrant men in Sweden since 1990, and found a positive correlation (Dribe and Nystedt 2014). Intermarried immigrants earned more than endogamously-married immigrants, and both groups earned more than the never-married immigrants, when controlling for standard human capital characteristics, demographic factors and place of residence. Thus, we found both an overall marriage premium and an intermarriage premium among immigrant men in Sweden. The crucial issue in our research, as well as in other research in this area, is to what extent this premium can be explained by an impact of marriage on earnings through the transfer of human capital, improved access to social networks, and lower levels of discrimination, or to what extent it is a result of the self-selection of high-productivity individuals into intermarriage. While some previous studies have dealt with this problem using conventional fixed-effects models, which neglect any dynamic evolvement of earnings, or instrumental variables, we employed a distributed fixed-effects model yielding detailed earnings profiles in relation to the timing of marriage (see Dougherty 2006). For the immigrant group as a whole, much of the intermarriage premium seemed to be a result of selection effects, but immigrant men from the Middle East and North Africa had a large intermarriage premium of about 0.15-0.20 after five years of marriage, of which close to nothing was visible before marriage. This implies that intermarriage indeed appears to have affected earnings in this group. This is also one of the immigrant groups that has the greatest difficulties in integrating in the Swedish labor market, and has the most to gain from transfers of Sweden-specific human capital and networks and perhaps to reduced discrimination.

The aim of this paper is to extend our previous analysis by comparing the intermarriage premiums of immigrant men and women. It is well known from previous

literature that women's earnings are differently affected by marriage from those of men. Instead of a marriage premium there has often been observed a penalty connected to marriage and especially to motherhood (e.g. Budig and England 2001). In the present paper we compare intermarriage premiums in earnings for immigrant men and women in Sweden. We study overall patterns, distinguishing endogamously married from those intermarried with Swedish born spouses (with Swedish born parents), and we also distinguish between different sending regions as well as by age at migration. We focus on annual earnings, which are a function of both labor supply and wages. To look at earnings premiums for individuals who are established in the labor market (rather than focusing on employment) we limit the analysis to earnings above a low threshold corresponding to roughly half of a full time salary at the minimum wage.

Background

The marriage premium literature has generally found a positive correlation between marital status and earnings for men (Nakosteen and Zimmer 1987; Korenman and Neumark 1991). This correlation has been explained both in terms of self-selection in the marriage market and causal effects of marriage on individual productivity (see, e.g., Hill 1979; Nakosteen and Zimmer 2001; Dougherty 2006). The traditional division of labor within the household, which according to Becker (1981) could be attributed to comparative advantages for men working in the labor market, give married men greater opportunities to invest in human capital than single men, which makes married men more productive, and thereby able to earn more (Becker 1981, 1985; Kenny 1983). However, Benham (1974) found a positive influence of a wife's educational level on her husband's earnings (see also Welch, 1974). If there are spillover effects of human capital within marriage, it is probable that intermarriage with a native, via spousal influence and support, increases the human capital accumulation of the individual immigrant in terms of, for example, language skills, and knowledge about customs, regulations and laws. In turn this would improve the adaptation to the labor market and working life practice, and also give access to native networks, which are important for job searching. In both ways, intermarriage can be expected to improve the immigrant's position in the labor market.

It is well established that the degree of economic integration of immigrants in Sweden, as well as in other European countries, differs greatly across immigrant groups (see, e.g., Zimmermann 2005). Controlling for human capital and demographic characteristics,

immigrants from origins that are culturally more dissimilar compared to Sweden (in terms of language, religion, value systems, etc.) have lower employment rates and lower earnings than natives, or immigrants from Scandinavia and Western Europe (e.g. Bengtsson, Lundh and Scott 2005). These differences are at least partly connected to returns to Sweden-specific knowledge (e.g. language proficiency), but it is likely that both statistical and preferential discrimination also contribute to the poor performance of several immigrant groups in the labor market (Carlsson and Rooth 2007; Arai and Skogman Thoursie 2009; Nordin and Rooth 2009). Given that intermarriage improves both Swedish-specific skills (e.g. language and understanding of Swedish culture) and access to Swedish networks, the beneficial effects of intermarriage on economic integration can be expected to be greatest for immigrants coming from more dissimilar origins, in terms of language, religion and values. We have also found empirical support for such spillover for immigrant men in Sweden, especially for immigrants from the most disadvantaged contexts in terms of labor market integration (Dribe and Nystedt 2014).

For women, the association between marital status and earnings is weaker, and research is also more limited (Hill 1979; Korenman and Neumark 1992). Often women seem to experience a marriage penalty that is at least partly connected to the adverse effects that having children has on earnings (Budig and England 2001; Budig and Hodges 2010; Ginther and Sundström 2010; Hill 1979; Loughran and Zissimopoulos 2009; Staff and Mortimer 2012) or labor supply (Angrist and Evans1998). Of course, this does not mean that women are financially worse off married than single because they would also benefit from income pooling in the household (e.g., Light 2004). In a previous study we also found substantial differences in earnings development connected to educational assortative mating in Sweden (Dribe and Nystedt 2013). Overall, men and women in hypergamous unions (those who have a partner with higher education) had a higher union premium than those in homogamous unions, while hypogamy (those who have a partner with lower education) was associated with relatively lower earnings, especially for the highly educated (at least three years of university education). However, most of these differences were visible before union formation. Hence, the effects were seemingly due to selection of high-productivity individuals into hypergamous unions and low-productivity individuals into hypogamous unions, rather than a real impact of partner selection on earnings.

When it comes to the effect on earnings of intermarriage for immigrant women, we could partly expect to find the same pattern as for men. The same kind of spillover effects

should be important for women, as better language ability, access to native networks and lower levels of discrimination should have a beneficial effect on labor supply and wages for women as well. However, the motherhood penalty may affect intermarried and endogamous women differently, through different decisions about time allocation in the two groups. To the extent that endogamy is connected to a more traditional division of labor in the household women in such unions would have lower labor supply and thereby lower earnings. Patterns of gender-based division of labor can also be expected to differ across origin groups, with immigrants from the Nordic countries being rather similar to Swedes in attitudes to gender equality, while immigrants from, for example, the Middle East and North Africa could be expected to be most different from native Swedes in this regard (see Inglehart and Welzel 2005). On the other hand, the difference in relative productivity in market work and household work between spouses could be greater in immigrant-women/native-men couples, given immigrants' lower levels of nation-specific skills. This would imply that there is a stronger incentive in such unions to let the woman specialize in home production, while the man specializes in market work. At the same time earnings of immigrant women are probably less affected by intermarriage than earnings of immigrant men because of lower overall labor supply and less career orientation among women, which implies that even though we expect to find much the same pattern for men and women overall, the magnitudes of the intermarriage premiums should be quite different.

Taken together we expect earnings of immigrant men and women to be affected in basically the same way by intermarriage. Compared to endogamy we expect intermarried men and women from more distant origins to earn more while intermarriage have only a limited impact on earnings of immigrants from more close origins. We also expect intermarriage premiums to be greater for men than for women.

Methods

It is uncertain to what extent the higher earnings of married compared to unmarried can be attributed to selection processes, such as: more productive individuals are more likely to be married; or marriage is beneficial by facilitating accumulation of human capital, ability to work and/or their specialization on the labor market (see, e.g., Nakosteen and Zimmer 1987, 2001; Korenman and Neumark 1991; Loh 1996; Chun and Lee 2001; Dougherty 2006). Any underlying unobserved characteristics governing earnings as well as marital status yield an

endogeneity problem when estimating the effects of marriage on earnings directly via the standard earnings equation:

$$\ln Y_{i,t} = \sum_j \beta_j x_{j,i,t} + \gamma M_{i,t} + \alpha_i + \varepsilon_{i,t} \qquad (1)$$

where $Y_{i,t}$ is earnings, $x_{j,i,t}$, is the vector of observed covariates j for individual i at time t other than marital status, which in turn is given by the dummy indicator $M_{i,t}$. α_i is a factor picking up unobserved time invariant individual characteristics and $\varepsilon_{i,t}$ is the idiosyncratic error term.

The traditional approach to dealing with such unobserved characteristics is to use fixed-effects estimators, which may be a valid procedure for dealing with unobservable factors given that they are all truly fixed. However, while some personal traits may well be determined early in life and remain fixed, others can be expected to change during the course of life, as people develop from adolescence and early adulthood into mature adults at different paces. Both labor market and marriage market success may well be outcomes of these processes, thereby questioning the validity of traditional fixed-effects models in estimating the earnings equation and hereto related earnings premiums. Instead we include a set of dummy indicators, $M^p_{i,t}$, which capture time to, and since, marriage, where p represents years in marriage if positive, and years in advance of marriage if negative. $IM^p_{i,t}$, measures time to/since marriage for individuals intermarrying with Swedes. Given that the maximum years to/since marriage are s, the model may be written as:

$$\ln Y_{i,t} = \sum_j \beta_j x_{j,i,t} + \sum_{p=-s}^{s} \gamma_p M^p_{i,t} + \sum_{p=-s}^{s} \delta_p IM^p_{i,t} + \alpha_i + \varepsilon_{i,t} \qquad (2)$$

The model is estimated by fixed effects. In order to identify this model and obtain a relation to the reference of being single, it is assumed that within a certain time frame in advance of marriage, those who are to marry do not differ in maturity from individuals who never marry, implying that for large enough s, γ_{-s} is zero. Hence, the model is fitted dropping $M^{-s}_{i,t}$. The result yields a time profile of earnings in relation to the time of marriage. The earnings premium for endogamous marriages is given by the parameter vector γ, and the δ parameter vector, which is our main interest, captures the additional premium for intermarriage, denoted

intermarriage premium below. Hence the total premium for intermarried men in comparison with never-married men is given by $\gamma+\delta$.

Compared with a conventional fixed-effects model, the distributed fixed-effects model improves the analysis by yielding a more detailed time profile of earnings. This enables an assessment of not only the development of the earnings premium in advance of marriage, but also what happens after marriage. The traditional fixed-effects approach treats marriage and the effect of partner presence as a discrete event, with a discrete effect on earnings – either you are married earning the premium, or you are not. More complex patterns of development are neglected. However, it seems likely that any partner influence – positive or negative – is dynamic in nature, and that it may take some time for it to be manifested in terms of higher earnings. Moreover, it seems likely that the scope for such influence is greater the greater the dissimilarity between two marrying spouses. It should be emphasized that the distributed fixed effects is by no means equivalent to an experiment with well-defined identification mechanisms in which the treatment, in this case being married to a partner of a certain ethnicity, could be viewed as truly randomized. Nevertheless, the resulting earnings time profiles accurately depicts to what extent, and at which pace, any intermarriage premium emerges, not only within but also in advance of marriage. In turn these profiles can be used to assess the importance of selection effects.

Data

We use data from the Swedish population registers maintained by Statistics Sweden. From a dataset consisting of all individuals in the birth cohorts 1942-1989 who resided in Sweden at any time from 1961 onwards, we select immigrants (foreign-born) who were born 1960-1974 and came to Sweden after 1967. We follow the sample from age 20 onwards and study the period 1990–2009 for which we have full information on income, level of education, and place of residence, as well as basic demographic measures such as number and age of children. From 1990 onwards, the Swedish population registers record non-marital cohabitation in cases where the couple has common children (based on information about residence at the house-unit level; *fastighet*), and we define marriage as including both formal marriages and non-marital cohabitation with common children.

The main sample consists of male immigrants who came to Sweden in ages 15–29, with no registered wife, who were still single in 1990 or, if they immigrated 1990 or later, did not marry during the first two years in Sweden. This to avoid including people who already

had an unregistered partner when moving to Sweden. Observations are censored upon widowhood or divorce. Individuals who marry after immigration but are registered as previously married, are excluded. Only immigrants marrying before 2006 are included in the analysis in order to ensure a long enough follow-up period.

To estimate the distributed fixed-effects model with a maximum frame of ten years to/since marriage, observations relating to people married for more than ten years, or with more than ten years to marriage are excluded. As our main objective concerns the difference in the earnings premiums between intermarriage and endogamy, observations of people who marry exogamously to an immigrant from another country or to a second-generation immigrant (Swedish-born with at least one foreign-born parent) are excluded. Furthermore, observations related to students and people who were in partnerships already in 1990 are also excluded from the sample.

We define earnings as the annual pre-tax income from employment, self-employment, parental leave benefits, unemployment insurance, and sickness leave benefits. It should be stressed that the last three of these income sources are all taxable and based on current and/or previous work experience and income, and thus yield a measure of work-related income and hence a degree of labor market integration. Including these benefits also serves the purpose of smoothing temporary earnings shifts due to sickness, unemployment or parenthood.

In order to focus on immigrants who have already obtained at least a certain degree of integration into the Swedish labor market, we impose an annual earnings restriction on included observations of greater than 2 price base amounts (PBAs). The PBA is a measure commonly used in Swedish law to define benefits and public insurance terms. It strictly follows the consumer price index over time. In 1991, the PBA amounted to SEK 32,200 and in 2010, to SEK 42,400. Hence, the included observations, expressed in current (2010) values, exceed SEK 84,800 (or USD 11,780) in income. It should be noted that this is a very low annual income in Sweden, corresponding to working half time at the lowest wage paid in the Swedish labor market (see Dribe and Nystedt 2014). Taken together, this leaves 405,029 observations, based on the 53,019 immigrants included in the analyzed sample (64% men and 36% women).

Variables

The outcome variable of interest is individual annual earnings of immigrant men, as defined above. The explanatory variable of main interest is the type of marriage (endogamy or intermarriage). Marriage type is based on information about country of birth for 141 individual countries. A small number of immigrants belonging to seven residuary groups with less than 100 individuals from each country are excluded, because it is impossible to decide whether or not the union was endogamous (see Dribe and Lundh 2011 for details).

In the main regressions all immigrants are included. In addition, we also make separate analyses for a couple of larger immigrant aggregates, reflecting the degree of language and cultural dissimilarity in relation to Sweden (see Dribe and Lundh 2011):

1. Nordic countries (Denmark, Norway, Finland and Iceland).
2. Eastern Europe (Albania, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Macedonia, Moldavia, Poland, Romania, Russia, Serbia, Slovenia, Slovakia and Ukraine).
3. Middle East/North Africa (Algeria, Egypt, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Palestine, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, United Arab Emirates, Yemen).
4. Rest of Asia.

We expect the first group to be very close to Sweden in cultural terms, sharing a broad value system and often speaking languages easily understood by natives. Finland is partly an exception when it comes to language, but it shares a long common heritage with Sweden, and Swedish has also for a long time been an official language in Finland. Since the 1950s, the Swedish labor market has also been open to citizens from other Nordic countries. For this group, we expect very weak or no earnings premium of marrying a native compared to marrying endogamously.

The second group includes immigrants from Eastern Europe, most of whom share a common communist heritage since WWII, and a transition to a more market-based economy after about 1990. In many ways, they are more dissimilar to Swedes in terms of language, culture and economic integration than immigrants from Western Europe (Bengtsson, Lundh and Scott, 2005; Inglehart and Welzel 2005), and we expect them to gain somewhat more from intermarriage. Immigrants from the Middle East and North Africa often experience great difficulties in economic and societal integration in Sweden as well as in many other European countries (Zimmermann 2005). At least to some extent, the situation is similar for many

immigrants from the rest of Asia as well. It is in these two groups, especially the former, that we expect to find the most pronounced earnings premiums of marrying a native Swede, because they have the most to gain from a transfer of Sweden-specific knowledge (e.g. language proficiency) and networks.

In addition, we also control for basic demographic and human capital characteristics: level of education, age, age squared, presence of children of different ages and type of municipality. Educational level is a time-varying measure of the highest education attained, as recorded in the education register. This variable has been categorized from basic-level education of less than nine years to having a post-graduate degree. The categorization of Swedish municipalities comes from the Swedish Association of Local Authorities and Regions (SKL) and is commonly used in regional analyses. It captures both population density and the character of the municipality. Descriptive statistics on the main variables, subdivided according to country group and marital status (endogamy, intermarriage or never partnered), are given in Table 1.

Table 1 here

We find the highest proportions of intermarried immigrants among Nordic immigrants, and the lowest proportions among immigrants from the Middle East and North Africa, which is in line with previous research that has stressed the importance of cultural dissimilarity for the likelihood of intermarriage in Sweden (Dribe and Lundh 2011). It is also clear from looking at the mean annual earnings that intermarried immigrants seem to earn more than endogamously married. The only exception to this pattern is intermarried men from Nordic countries, who earn somewhat less than endogamous men.

Results

If we start by looking at the overall associations, Table 2 shows the OLS estimates of annual earnings from a model including controls for age, age squared, presence of children in different ages, type of municipality, level of education, and year dummies. For men (panel A) there is a marriage premium associated with endogamy of 0.05 (roughly 5%), while there is a much stronger premium for the intermarried (0.22), and the coefficient for intermarriage is also statistically different from the one for endogamy. For Nordic immigrants the marriage premiums are of a similar magnitude for both endogamy and intermarriage, while for the other origin groups intermarriage is associated with a greater marriage premium than

endogamy. For women (in panel B) the marriage premiums are much lower than for men. For endogamous women there is no marriage premium at all when looking at all immigrants, while there is a total marriage premium for intermarriage of about 0.06 (roughly 6%). Immigrant women from the Nordic countries and from the Middle East and North Africa earn an intermarriage premium, which is quite sizeable for those from the latter origin. However, looking at the fixed-effects estimates none of these associations remain. For immigrant women there is no association between neither endogamy nor intermarriage and earnings when individual unobserved heterogeneity is controlled for. Also for men the fixed-effects estimates are lower than the OLS estimates, but there are still considerable marriage premiums pointing to some real differences in earnings between intermarried and endogamously married immigrants.

Table 2 here

Thus far we have seen considerable associations between intermarriage and earnings for both immigrant men and immigrant women, but most of the associations, especially for women, appear to be explained by unobserved individual-specific factors. Next we turn to the distributed fixed-effects estimates, which accounts also for time-varying individual-specific heterogeneity, and shows the development of earnings before and after marriage compared to the situation 10 years before marriage (see Table 3 for full estimates). The patterns for all immigrants are displayed in Figures 1-3. Looking first at immigrants arriving in Sweden as adults (Figure 1A), men show a quite powerful intermarriage premium (i.e. additional earnings premium from being intermarried to a native compared to the marriage premium for an endogamously married immigrant of the same background, δ from Eq. 2 above). For women the pattern is quite different. Migrants arriving as adults gain nothing at all from marrying a native, indicating a completely different role for transfers of country-specific assets, perhaps as a result of a much lower labor supply.

Figure 1B shows the intermarriage premiums for immigrants arriving in Sweden as children, and the patterns are clearly very different from those of immigrants arriving as adults. Women have a much greater intermarriage premium than men in this group, but most of it seems related to selection of women with high earnings potentials into intermarriage, rather than a causal effect of the marriage as such. For men the marriage premium is smaller in this group than among those who came as adults, just as could be expected as these

immigrants would most likely benefit less from transfer of native-specific assets such as language and networks. For men, there is also considerable selection of high earners into intermarriage, but the positive development continues also after marriage.

Table 3 and Figure 1 here

Figures 2 and 3 show the marriage premiums separately for endogamous and intermarried individuals, compared to single individuals (i.e. the γ and $\gamma+\delta$, respectively). For men who came as adults (Figure 2A) the pattern is quite straightforward. There is a strong marriage premium both for the endogamous and for the intermarried. For immigrant men arriving as children (Figure 2B) there are similar marriage premiums for endogamous and intermarried, but somewhat of a divergence 5-10 years after marriage which accounts for the intermarriage premium we saw earlier. The intermarriage and marriage premiums for men increase more or less linearly from well before marriage to 10 years after marriage. This indicates that a considerable part of the premium is explained by men with high earnings potentials being selected into marriage and also into intermarriage. The increasing premiums within marriage, however, are consistent with causal effects of marriage on earnings.

Figure 2 and 3 here

For women arriving in adult ages (Figure 3A) there is a marriage premium of about the same magnitude for endogamously married and for intermarried, and there is also clear evidence of a motherhood penalty as earnings decline in the period immediately following marriage and do not reach the pre-marital level until after five years of marriage or more. For women arriving as children (Figure 3B) there is no marriage premium associated with endogamy, but a final premium of about 0.1 associated with intermarriage. Most of this premium, however, is visible already before marriage indicating that selection effects are driving most of the results.

Taken together, these results suggest quite different patterns for men and women. For men there are more consistent marriage premiums and also more consistent premiums of intermarriage. Overall it seems as if men gain from marrying native spouses in addition to the gains from marriage in general. For women there are much less to indicate that they gain from marriage in general or from marrying a native spouse in relation to marrying endogamously.

We now turn to a closer look at the patterns specific by country group of origin, focusing on immigrants who came to Sweden as adults (aged 15-29). Figure 4 shows the intermarriage premiums for men and women separately. Among men, immigrants from Middle East and North Africa stand out with high intermarriage premiums emerging within marriage. There is virtually no change in the earnings in the years leading up to marriage, but around the time of the marriage earnings increase markedly, pointing to, if not proving, a causal effect linking intermarriage to higher earnings. For the other groups there is either no change in earnings in relation to intermarriage, as in the case of immigrants from Eastern Europe or the Nordic countries, or a more or less constant improvement in earnings leading up to, and after marriage, as in the case of Asian immigrants.

Figure 4 here

Looking at women in Figure 4B, the pattern is somewhat different. First of all final premiums are much lower than for men pointing to a weaker association between intermarriage and earnings for women, which we also saw previously. In terms of origin-specific patterns immigrant women from Eastern Europe and the Nordic countries are similar in the sense that they show some intermarriage premiums, but they emerge well before marriage, which points to selection rather than causal mechanisms; in other words that women from these origins who intermarry with natives are positively selected in terms of earnings or earnings-related abilities. Asian women show no intermarriage premiums at all, as a result of endogamous women having better earnings growth in relation to the timing of marriage than the intermarried (see Table 3B). Female immigrants from the Middle East and North Africa show improved earnings around the time of marriage in a similar way as did men from the same origin (we had to limit the years of observation due to small number of women from this origin observed more than six years before marriage). In contrast with the men from the same origin, however, there is not much of a continuous growth in earnings within marriage, but more of a threshold change at the time of marriage.

To look a bit more closely at this immigrant group, Figure 5 shows the marriage premiums for endogamy and intermarriage separately (the intermarriage premium in the previous figure is the difference between the two). For men there is a growth in earnings for both marriage types, but it accelerates stronger for intermarried men, which accounts for the intermarriage premium we looked at previously. For women there is not much of a premium

at all for endogamous women, but a clear jump in earnings in the period immediately preceding marriage for the intermarried, which points to some kind of direct influence from their spouses on their earnings potentials, whether related to hours worked or wages.

Figure 5 here

Conclusions

This paper deals with the association between intermarriage of immigrants and their earnings, and whether or not men and women are similarly affected by intermarriage. Overall, intermarriage is clearly associated with higher earnings for both men and women, with the possible exception of immigrant men from Nordic origins. However, much of the crude differences observed are accounted for by observed individual characteristics related to experience, human capital, family situation and time spent in Sweden, and by individual-specific unobserved heterogeneity. Moreover, most of the intermarriage premium that remains after controlling for these individual-specific factors is explained by positive selection into intermarriage and not by a causal impact of marriage as such. Immigrants from the Middle East and North Africa are a notable exception to this. For both men and women from this origin earnings are clearly, and positively, affected by intermarriage. While their earnings do not progress much in the years leading up to marriage, they increase substantially at the time around marriage and, for men the positive development continues also within marriage. The magnitude of the effect is also greater for men than for women.

These findings support the hypothesis that men and women are similarly affected by spousal influence in terms of language, access to networks, or perhaps lower levels of discrimination. Even though the size of the effects differ both men and women from disadvantaged origins in terms of labor market integration, benefit considerably from marrying natives, at least if measured by earnings.

In this paper we have focused completely on immigrants with at least some connection to the labor market. Further research is needed to assess the impact of intermarriage on the chances of immigrant employment, and the extent to which it differs for men and women.

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Table 1. Descriptive statistics (based on number of observations).

A. Men.

	All Immigrants	Nordic	Eastern Europe	Middle East	Asia
Marital status (%)					
Never partnered	*44*	*56*	*40*	*31*	*41*
Ever partnered	*56*	*44*	*60*	*69*	*59*
Endogamy	*32*	*12*	*47*	*57*	*45*
Intermarriage	*24*	*31*	*14*	*12*	*14*
Mean earnings					
All	5.79	6.40	5.83	4.73	5.34
Never partnered	5.45	5.77	5.55	4.65	4.92
Ever partnered	6.07	7.21	6.02	4.76	5.64
Endogamy	5.50	7.32	5.97	4.64	5.51
Intermarriage	6.83	7.17	6.21	5.37	6.06
Mean age					
All	32.87	31.94	32.69	33.31	34.02
Never partnered	33.05	31.90	33.33	34.07	34.58
Ever partnered	32.72	31.99	32.27	32.97	33.64
Endogamy	32.81	32.03	32.34	33.02	33.56
Intermarriage	32.60	31.98	32.03	32.76	33.88
Mean time spent in Sweden					
All	9.85	8.97	9.80	10.26	11.58
Never partnered	10.02	8.89	10.21	11.16	11.24
Ever partnered	9.72	9.06	9.53	9.86	10.01
Endogamy	9.95	8.98	9.35	9.84	10.11
Intermarriage	9.40	9.09	10.12	9.93	9.63
Mean age at migration					
All	23.02	22.98	22.89	23.05	22.44
Never partnered	23.04	23.01	23.12	22.90	21.77
Ever partnered	23.00	22.93	22.74	23.12	22.33
Endogamy	22.86	23.05	22.99	23.18	22.15
Intermarriage	23.20	22.89	21.91	22.82	23.00
Mean age at marriage					
Ever partnered	30.75	30.58	29.96	30.24	31.70
Endogamy	30.54	30.64	29.85	30.02	31.52
Intermarriage	31.03	30.55	30.36	31.31	32.27
Mean time spent in Sweden before marriage					
Ever partnered	7.75	7.64	7.22	7.12	9.22
Endogamy	7.68	7.59	6.86	6.84	8.90
Intermarriage	7.84	7.67	8.45	8.49	10.29
Proportions with children					
Aged 0–2	0.22	0.16	0.23	0.31	0.20
Aged 3–6	0.20	0.14	0.22	0.28	0.18
Aged 7–15	0.10	0.08	0.10	0.13	0.09
Observations	256759	58556	38966	43540	48759
Individuals	33931	9606	4323	5160	5728

B. Women.

	All Immigrants	Nordic	Eastern Europe	Middle East	Asia
Marital status (%)					
Never partnered	*43*	*45*	*44*	*38*	*36*
Ever partnered	*57*	*55*	*56*	*62*	*64*
Endogamy	*21*	*12*	*33*	*50*	*30*
Intermarriage	*36*	*43*	*24*	*12*	*34*
Mean earnings					
All	5.15	5.28	5.20	4.21	4.91
Never partnered	5.25	5.31	5.31	4.25	5.11
Ever partnered	5.07	5.25	5.11	4.18	4.79
Endogamy	4.66	4.81	4.88	3.89	4.78
Intermarriage	5.32	5.38	5.43	5.33	4.81
Mean age					
All	32.64	32.30	32.89	32.78	33.30
Never partnered	33.45	32.90	33.90	35.01	34.72
Ever partnered	32.02	31.82	32.10	31.42	32.49
Endogamy	31.66	31.61	31.95	31.09	32.15
Intermarriage	32.24	31.88	32.31	32.75	32.79
Mean time spent in Sweden					
All	10.11	10.09	9.89	11.33	10.88
Never partnered	10.73	10.82	10.41	13.10	11.73
Ever partnered	9.64	9.50	9.48	10.26	10.40
Endogamy	9.99	9.71	9.28	10.19	11.16
Intermarriage	9.43	9.43	9.77	10.53	9.72
Mean age at migration					
All	22.53	22.21	23.00	21.44	22.42
Never partnered	22.72	22.08	23.50	21.91	23.00
Ever partnered	22.39	22.32	22.62	21.16	22.09
Endogamy	21.67	21.90	22.67	20.90	20.99
Intermarriage	22.81	22.45	22.54	22.22	23.07
Mean age at marriage					
Ever partnered	29.83	29.53	28.61	26.71	28.54
Endogamy	29.09	30.28	28.60	27.22	29.20
Intermarriage	30.28	30.11	30.03	30.19	30.69
Mean time spent in Sweden before marriage					
Ever partnered	7.45	7.82	6.58	6.72	7.90
Endogamy	7.42	8.38	5.93	6.32	8.22
Intermarriage	7.46	7.66	7.48	8.50	7.63
Proportions with children					
Aged 0–2	0.21	0.21	0.22	0.26	0.21
Aged 3–6	0.20	0.18	0.22	0.26	0.21
Aged 7–15	0.12	0.12	0.13	0.14	0.11
Observations	148270	57665	23148	7815	22990
Individuals	19088	7605	2762	1026	2768

Table 2. Regression estimates of the marriage premium.

A. Men.

	All immigrants		Nordic		Eastern Europe		Middle East		Asia	
	Endogamy	Inter-marriage	Endogamy	Inter-marriage	Endogamy	Inter-marriage	Endogamy	Inter-marriage	Endogamy	Inter-marriage
OLS	0.053	0.218***	0.174	0.161	0.116	0.165**	0.047	0.201***	0.119	0.175**
Robust s.e.	0.005	0.006	0.018	0.014	0.011	0.016	0.010	0.017	0.010	0.016
R-squared	0.25		0.28		0.27		0.21		0.31	
Fixed Effects (FE)	0.022	0.079***	0.074	0.063	0.065	0.071	-0.016	0.085***	0.026	0.067*
Robust s.e	0.005	0.005	0.015	0.010	0.010	0.016	0.009	0.018	0.010	0.015
R-squared	0.28, 0.11, 0.17		0.28, 0.19, 0.21		0.34, 0.11, 0.12		0.21, 0.10, 0.13		0.26, 0.18, 0.23	
Individuals	33931		9606		4323		5160		5728	
Observations	256759		58556		38966		43540		48759	

Note: All presented parameter estimates are significant at the 0.001 level except the fixed effects estimate of Endogamy in the Middle East group which is insignificant (p-value 0.072). Models control for age, age squared, presence of children (aged 0-2, 3-6, 7-15), type of municipality, level of education (and year dummies in the OLS). *, ** and *** indicate that the intermarriage premium is significant at the 5, 1 and 0.1 percent level respectively (i.e. that the marriage premium for intermarried differ from the corresponding endogamy premium). R-squared for the fixed effects model denote, in order: within, between and overall values.

B. Women.

	All immigrants		Nordic		Eastern Europe		Middle East		Asia	
	Endogamy	Inter-marriage	Endogamy	Inter-marriage	Endogamy	Inter-marriage	Endogamy	Inter-marriage	Endogamy	Inter-marriage
OLS	0.008	0.062***	0.024	0.054*	0.073	0.089	0.053	0.182***	0.031	0.014
Robust s.e.	0.006	0.006	0.013	0.010	0.014	0.017	0.019	0.038	0.007	0.013
R-squared	0.278				0.315				0.357	
Fixed Effects (FE)	0.006	0.004	-0.024	0.000*	0.034	0.002	0.002	0.053	0.003	-0.011
Robust s.e	0.006	0.005	0.010	0.008	0.015	0.016	0.020	0.042	0.015	0.013
R-squared	0.29, 0.17, 0.20		0.30, 0.24, 0.23		0.34, 0.12, 0.18		0.23, 0.14, 0.15		0.32, 0.16, 0.21	
Individuals	19088		7605		2762		1026		2768	
Observations	148270		57665		23148		7815		22990	

Note: Models control for age, age squared, presence of children (aged 0-2, 3-6, 7-15), type of municipality, level of education (and year dummies in the OLS). *, ** and *** indicate that the intermarriage premium is significant at the 5, 1 and 0.1 percent level respectively (i.e. that the marriage premium for intermarried differ from the corresponding endogamy premium). R-squared for the fixed effects model denote, in order: within, between and overall values.

Table 3. DFE Regression estimates of the marriage premium in relation to time to/since union formation.
A. Men.

Model	**All immigrants**			**Nordic**			**Eastern Europe**			**Middle East/North Africa**			**Asia**		
	Endo	IM	Premium	Endo	IM	Premium	Endo	IM	Premium	Endo	IM	Premium	Endo	IM	Premium
Years since marriage															
-9	-0.011	0.001	0.012	0.007	0.010	0.003	-0.002	-0.021	-0.019	-0.082	-0.050	0.032	0.024	0.050	0.026
-8	-0.009	0.002	0.011	-0.027	-0.016	0.012	0.012	-0.034	-0.045	-0.079	-0.037	0.042	0.026	0.048	0.022
-7	-0.008	0.014	0.021	-0.051	0.020	0.071	-0.003	-0.016	-0.013	-0.053	-0.047	0.006	0.014	0.039	0.025
-6	-0.023	0.022	0.045	-0.020	0.019	0.039	-0.016	0.000	0.016	-0.057	-0.029	0.028	-0.008	0.064	0.072
-5	-0.004	0.018	0.022	-0.011	-0.002	0.009	-0.004	0.006	0.010	-0.036	-0.032	0.004	0.018	0.072	0.053
-4	0.015	0.050[b]	0.035	0.007	0.026	0.019	0.034	0.051	0.016	-0.023	-0.001	0.022	0.036	0.086	0.051
-3	0.028	0.070[c]	0.042	0.022	0.043	0.021	0.048	0.049	0.002	-0.002	-0.004	-0.003	0.036	0.133[b]	0.096
-2	0.042[a]	0.083[c]	0.041	0.051	0.045	-0.006	0.079	0.090	0.011	-0.008	0.026	0.034	0.056	0.143[b]	0.087
-1	0.066[b]	0.112[c]	0.047	0.111	0.077[a]	-0.034	0.089	0.116[a]	0.027	0.015	0.047	0.032	0.071[a]	0.177[c]	0.106
0 (marriage)	0.054[b]	0.121[c]	0.067*	0.082	0.080[a]	-0.001	0.108[a]	0.119[a]	0.011	-0.007	0.069	0.076	0.064	0.176[c]	0.113*
1	0.067[b]	0.140[c]	0.074**	0.145[a]	0.091[b]	-0.054	0.128[b]	0.145[a]	0.017	-0.021	0.075	0.095	0.079[a]	0.201[c]	0.122*
2	0.075[c]	0.160[c]	0.085**	0.154[b]	0.113[b]	-0.041	0.146[b]	0.152[a]	0.006	-0.014	0.075	0.089	0.082[a]	0.208[c]	0.126*
3	0.083[c]	0.184[c]	0.101***	0.146[a]	0.125[c]	-0.021	0.156[b]	0.177[b]	0.021	-0.006	0.114	0.121	0.096[b]	0.231[c]	0.135
4	0.100[c]	0.201[c]	0.102***	0.171[b]	0.156[c]	-0.015	0.171[b]	0.179[b]	0.008	0.013	0.137	0.124	0.120[b]	0.237[c]	0.117*
5	0.111[c]	0.218[c]	0.108***	0.192[b]	0.176[c]	-0.016	0.178[c]	0.191[b]	0.013	0.023	0.193[a]	0.170*	0.136[c]	0.263[c]	0.127
6	0.125[c]	0.239[c]	0.114***	0.192[b]	0.192[c]	0.000	0.183[c]	0.203[b]	0.021	0.039	0.212[b]	0.173*	0.161[c]	0.295[c]	0.134*
7	0.144[c]	0.274[c]	0.129***	0.228[c]	0.218[c]	-0.010	0.197[c]	0.225[c]	0.027	0.055	0.246[b]	0.191	0.188[c]	0.346[c]	0.158**
8	0.159[c]	0.287[c]	0.128***	0.244[c]	0.216[c]	-0.028	0.194[c]	0.210[b]	0.016	0.081	0.254[b]	0.174*	0.214[c]	0.370[c]	0.156**
9	0.177[c]	0.295[c]	0.118***	0.229[b]	0.224[c]	-0.005	0.204[c]	0.243[c]	0.040	0.102	0.276[b]	0.174*	0.242[c]	0.360[c]	0.118*
10	0.185[c]	0.315[c]	0.130***	0.235[c]	0.243[c]	0.008	0.210[c]	0.290[c]	0.080	0.119[a]	0.271[b]	0.152	0.237[c]	0.435[c]	0.198*
Estimation	DFE			DFE			DFE			DFE			DFE		
Age at migration	14-29			14-29			14-29			14-29			14-29		
Individuals	33931			9606			4323			5160			5728		
Observations	256759			58556			38966			43540			48759		
R-squared	0.28, 0.12, 0.18			0.28, 0.20, 0.23			0.34, 0.13, 0.18			0.21, 0.10 0.14			0.27, 0.19, 0.25		

B. Women

Model	All immigrants			Nordic			Eastern Europe			Middle East/North Africa			Asia		
	Endo	IM	Premium	Endo	IM	Premium	Endo	IM	Premium	Endo	IM	Premium	Endo	IM	Premium
Years since marriage															
-9	0.018	-0.032	-0.050	0.021	-0.037	-0.058	0.008	-0.078	-0.085				0.068	0.001	-0.067
-8	-0.025	-0.018	0.007	-0.048	-0.042	0.005	-0.109	-0.093	0.016				0.053	0.032	-0.021
-7	0.000	-0.004	-0.003	-0.021	-0.011	0.010	-0.146	-0.032	0.115		NA		0.116	0.019	-0.096
-6	0.005	0.006	0.002	-0.023	0.009	0.032	-0.115	-0.073	0.042				0.130	0.040	-0.089
-5	0.003	0.004	0.001	-0.016	-0.005	0.011	-0.130	-0.089	0.041				0.121	0.086[a]	-0.035
-4	0.011	0.011	0.000	-0.056	0.009	0.064	-0.130	-0.049	0.081	0.036	0.029	-0.007	0.169	0.059	-0.109
-3	0.009	0.021	0.012	-0.036	0.016	0.051	-0.130	-0.038	0.092	0.022	-0.011	-0.034	0.139	0.075	-0.064
-2	0.021	0.030	0.009	-0.022	0.023	0.045	-0.130	-0.061	0.069	0.029	0.054	0.025	0.123	0.086[a]	-0.037
-1	0.033	0.058	0.025	0.005	0.066[a]	0.062	-0.105	-0.045	0.060	0.015	0.132	0.117	0.122	0.086[a]	-0.035
0 (marriage)	0.053	0.059	0.005	0.015	0.048	0.033	-0.054	-0.013	0.041	0.028	0.126	0.099	0.146	0.079	-0.067
1	0.005	-0.002	-0.008	-0.072	-0.021	0.051	-0.116	-0.103	0.013	0.021	0.070	0.049	0.137	0.034	-0.103
2	0.024	0.037	0.013	-0.040	0.024	0.063	-0.088	-0.041	0.048	-0.003	0.081	0.085	0.133	0.069	-0.064
3	0.027	0.032	0.004	-0.053	0.024	0.077	-0.069	-0.059	0.010	0.018	0.091	0.073	0.124	0.073	-0.051
4	0.031	0.035	0.004	-0.041	0.034	0.075	-0.092	-0.059	0.034	0.003	0.088	0.085	0.137	0.082	-0.055
5	0.032	0.046[a]	0.015	-0.043	0.049	0.092*	-0.100	-0.070	0.030	0.018	0.099	0.081	0.146	0.085	-0.060
6	0.041	0.056[a]	0.015	-0.039	0.061[a]	0.100*	-0.077	-0.044	0.034	0.018	0.129	0.111	0.135	0.080	-0.055
7	0.062	0.080[c]	0.018	-0.001	0.087[b]	0.089*	-0.065	-0.020	0.046	0.040	0.124	0.084	0.169	0.116[a]	-0.053
8	0.076[a]	0.087[c]	0.011	0.020	0.101[b]	0.081	-0.061	0.004	0.065	0.036	0.142	0.106	0.187	0.107[a]	-0.080
9	0.078[a]	0.092[c]	0.014	0.001	0.103[b]	0.102*	-0.055	-0.005	0.050	0.046	0.167	0.122	0.186	0.108[a]	-0.079
10	0.078[a]	0.088[c]	0.010	0.017	0.097[b]	0.080	-0.047	-0.014	0.033	0.024	0.130	0.106	0.203	0.108[a]	-0.095
Estimation	DFE			DFE			DFE			DFE			DFE		
Age at migration	14-29			14-29			14-29			14-29			14-29		
Individuals	19088			7605			2762			1026			2768		
Observations	148270			57665			23148			7673			22990		
R-squared	0.30, 0.17, 0.21			0.31, 0.25, 0.24			0.34, 0.10, 0.17			0.22, 0.17, 0.18			0.32, 0.16, 0.22		

Note: Models control for age, age squared, presence of children (aged 0-2, 3-6, 7-15), type of municipality, level of education (and year dummies in the OLS[). a, b, c] indicate that the marriage earnings premiums for the intermarried and endogamously married are different from zero at the 5, 1 and 0.1 percent levels. *, ** and *** indicate that the intermarriage premium parameter is significant at the 5, 1 and 0.1 percent level, respectively. R-squared for the fixed effects model denote, in order: within, between and overall values.

Figure 1. Intermarriage premiums for immigrants in Sweden by time to/since marriage.

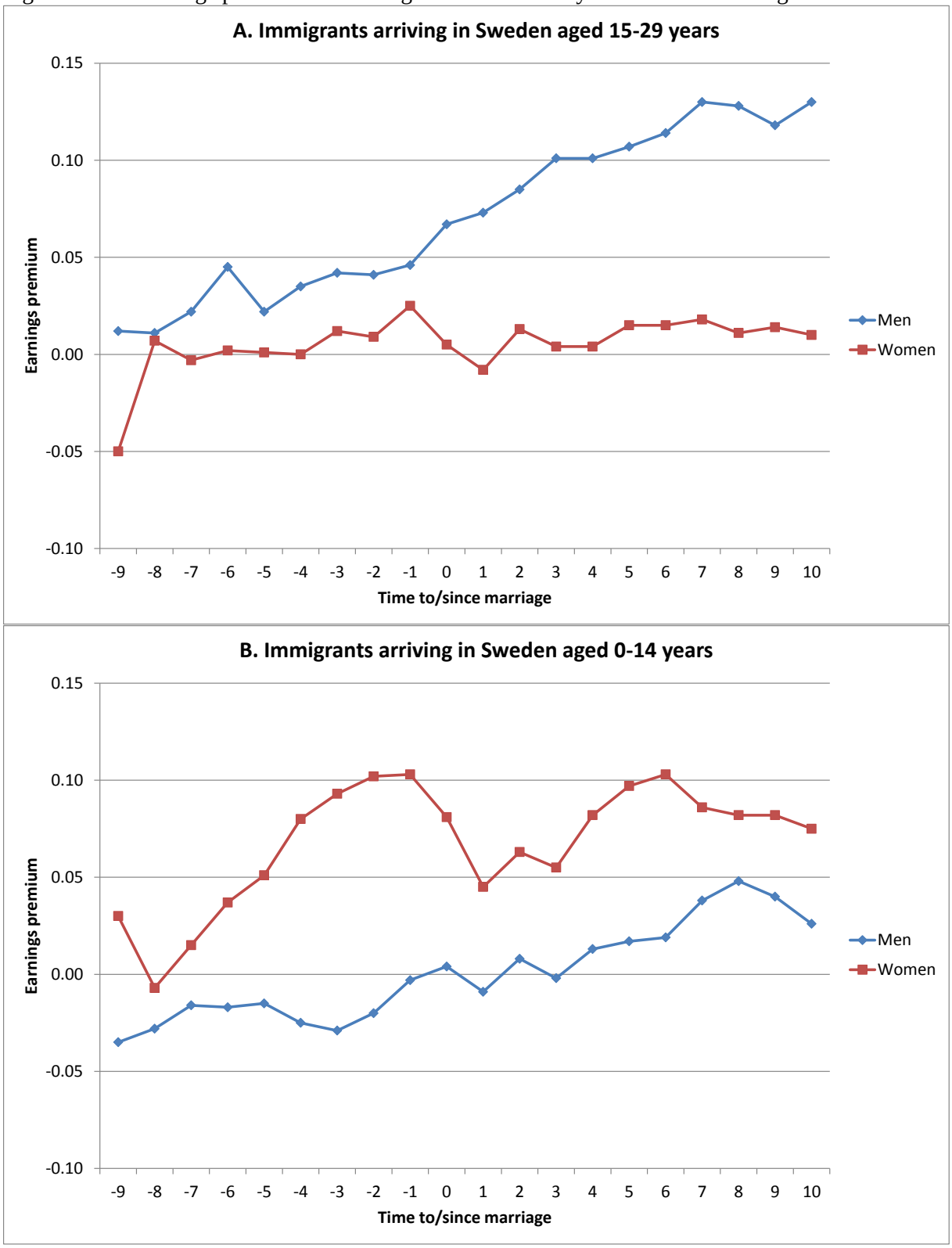
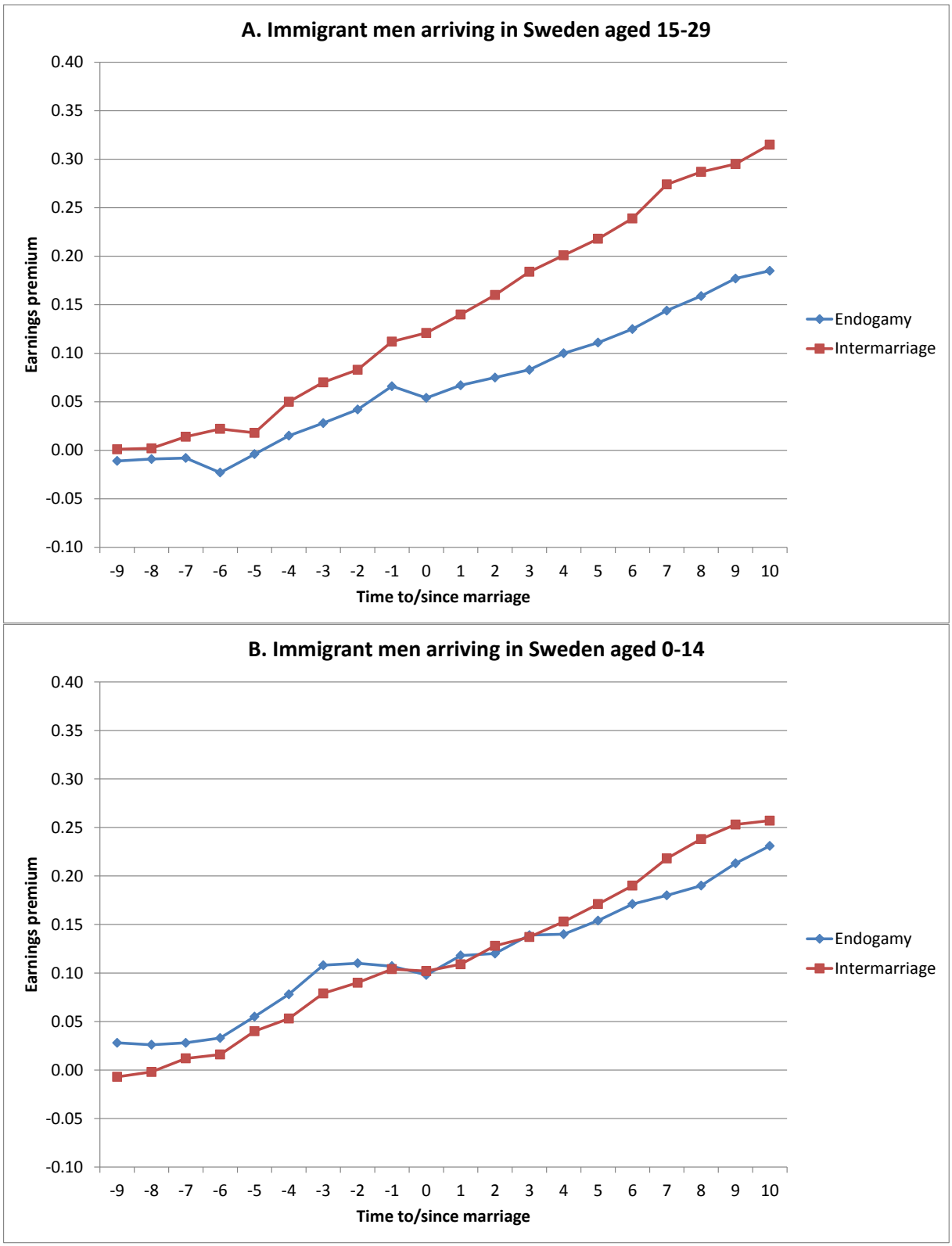
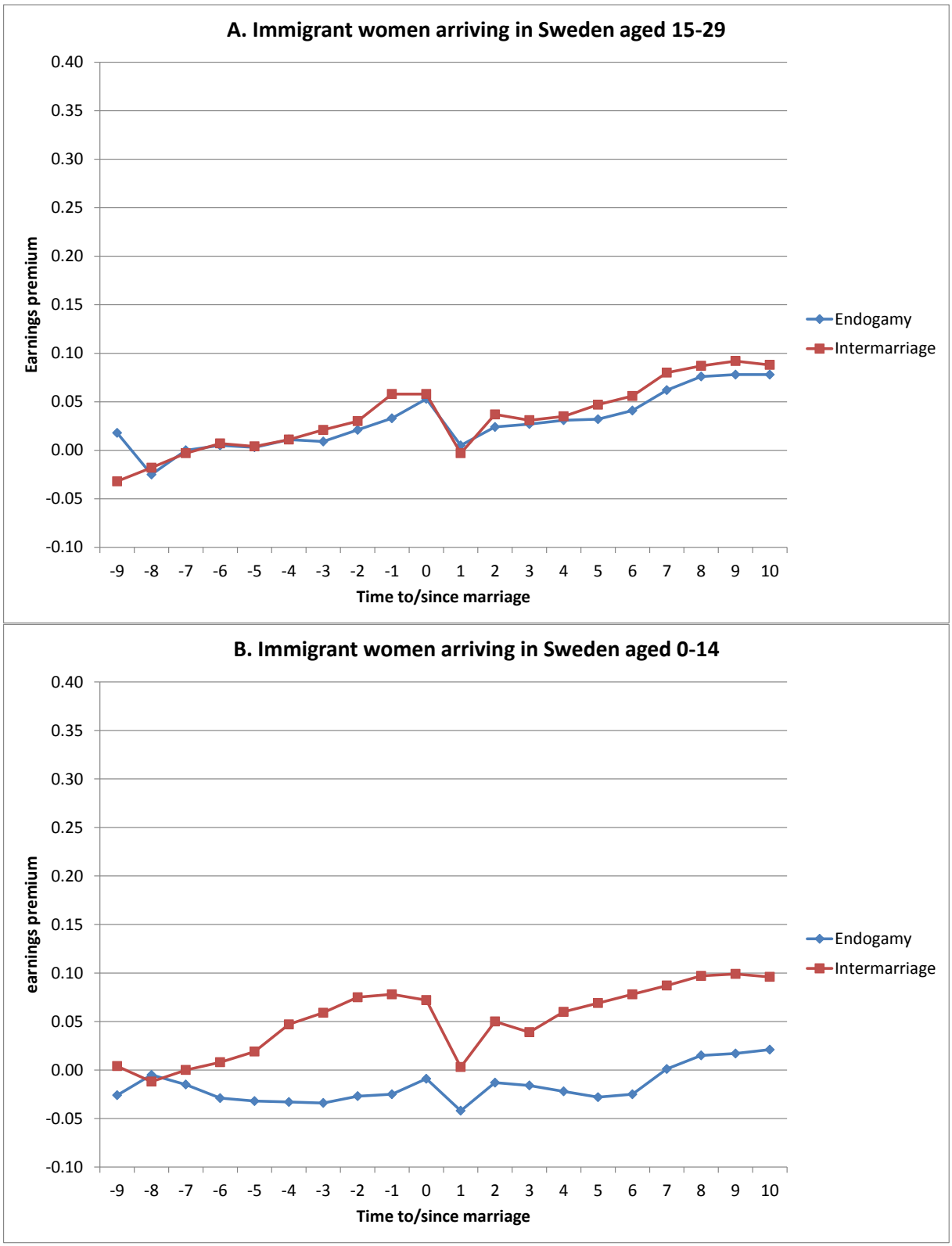


Figure 2. Marriage premiums for immigrant men in Sweden by time to/since marriage.



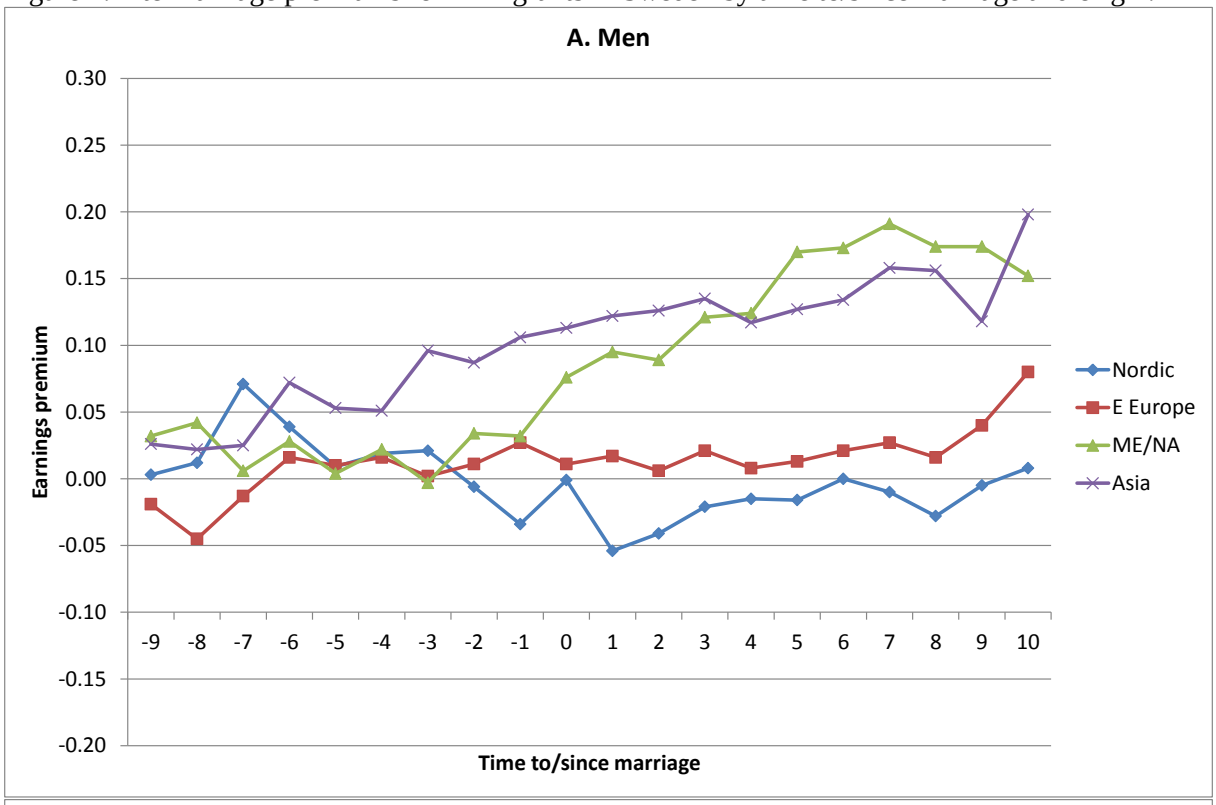
Note: Total premium for intermarriage is the endogamy premium plus the intermarriage premium (i.e. $\gamma+\delta$ in Eq. 2).

Figure 3. Marriage premiums for immigrant women in Sweden by time to/since marriage.



Note: See Figure 2.

Figure 4. Intermarriage premiums for immigrants in Sweden by time to/since marriage and origin.



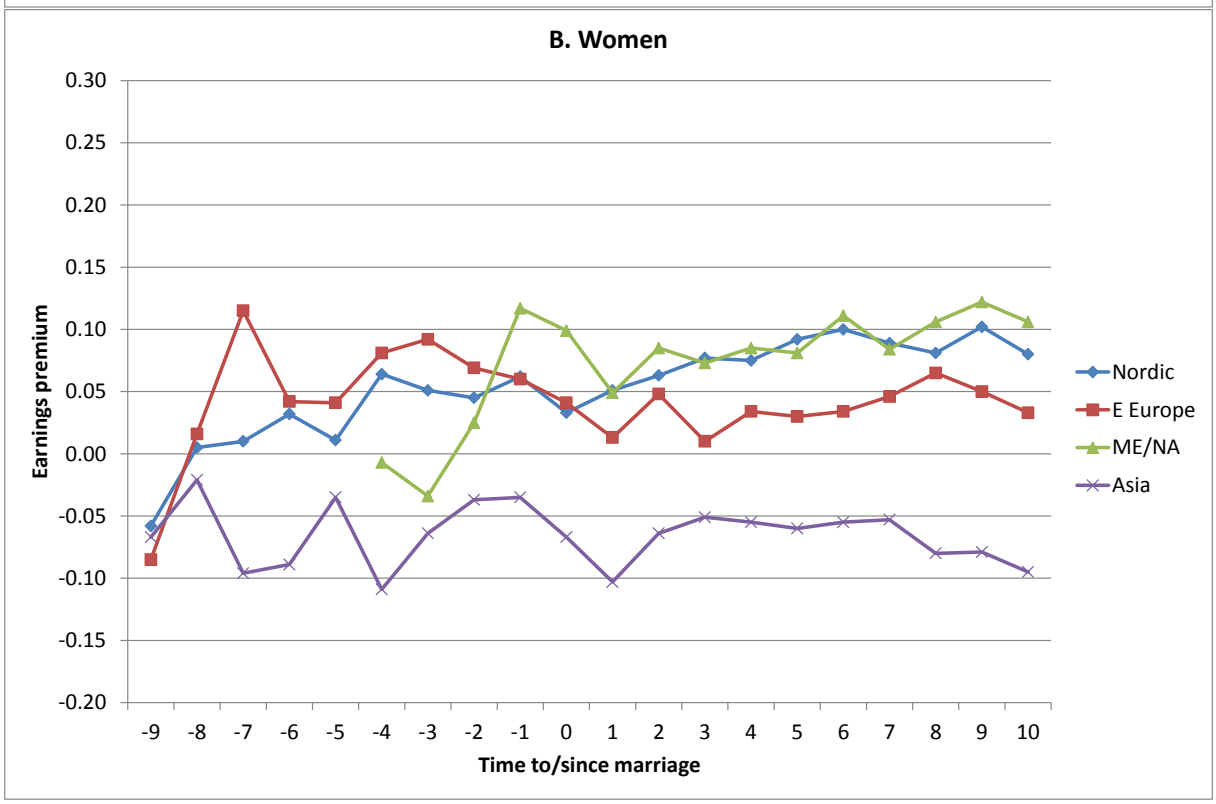
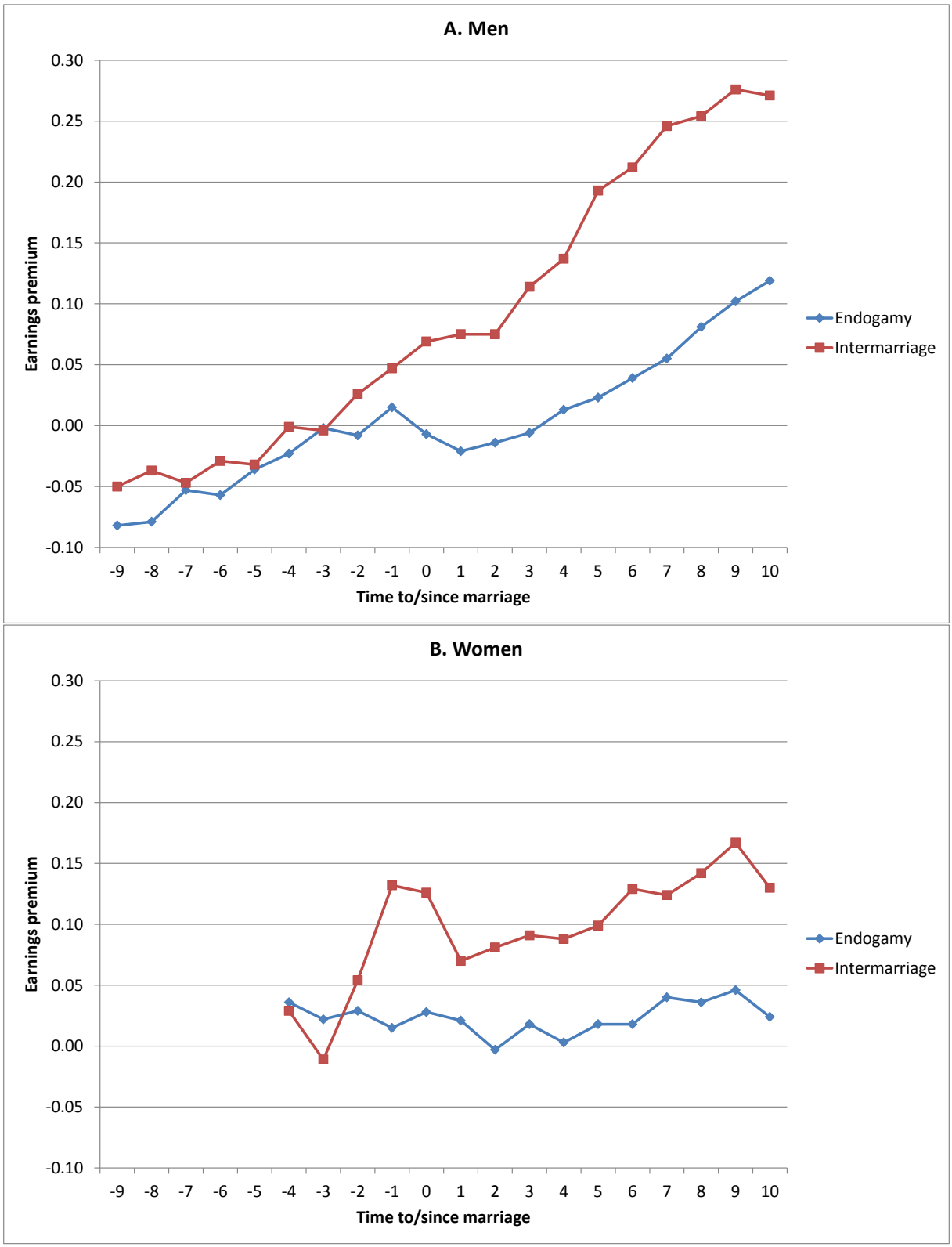


Figure 5. Marriage premiums by type of marriage and time to/since marriage. Immigrants from Middle East and North Africa.



Note: See Figure 2.