ORIGINAL ARTICLE   **Open Access**

Does intermarriage change migrants' preferences for the home country?

Rosa Weber

Correspondence: rosa.weber.09@
gmail.com
Department of Sociology, London
School of Economics, Houghton
Street, London WC2A 2AE, UK

Abstract

Motivations for migrants to return clearly change with integration, but the time-changing aspect of return migration has received little attention in the literature. This paper studies how migrants' preferences for the home country change with intermarriage, i.e., marriage to a spouse from the host country. Specifically, I analyse the association between intermarriage and three outcomes related to migrants' home country preference – intentions to return, remittances sent and actual return – using German panel data (SOEP) for the period 1984–2012. The results reveal a negative association between intermarriage and home country preference that is moreover stronger for female than for male migrants. However, some of the effect seems driven by selection since the relationship gets weaker once I control for person fixed effects.

JEL Codes: F22; J1

Keywords: Return migration; Intermarriage; Intentions to return; Remittances

1 Introduction

Non-random out-migration of immigrants has been widely studied in the empirical literature. These studies realise that neglecting return migration can generate a bias in cohort-based measurements of migrants' integration and that it may reveal indirect effects of migration[1]. However, the simple neoclassical static model, predicting that migrants return when wage differentials decline, is unable to explain much of the observed variation in return migration. For example, Dustmann (2003a) shows that a rising wage differential may actually lead to higher return rates. Dynamic models that take the endogeneity of the decision to return into account are better able to explain migrants' return decisions[2]. Dustmann (2001) suggests several motives that determine migrants' choice to return and finds that preference for the home country is an important factor in the choice process. However, in specifying the model, Dustmann follows the rest of the literature and assumes that home country preferences do not change over time.

This is a strong assumption, considering that many studies find a positive association between duration abroad and integration, which lends support to the premise that with time migrants integrate into host country society[3]. Changes in home country preference may be particularly relevant for migrants who initially have weaker social attachments to the home country, such as those who migrate when single and/or meet their spouse in the host country. In this paper, I use panel data covering a 28-year period

from the German Socio-Economic Panel (SOEP) and try to assess how migrants' home country preferences change over time. This data set provides unique background information of migrants and their spouses and allows me to study three types of outcome related to home country preference: intentions to return, remittances sent and return realisations. The goal of my paper is an empirical assessment of the research question: Is marriage to a German spouse related to any of the three outcomes? My hypothesis is that migrants' preferences change with intermarriage, i.e., marriage between a migrant and a host country national, and that intermarriage is negatively associated with home country preference[4]. But to infer an association between intermarriage and migrants' home country preference, it is empirically important to distinguish whether home country preference changes with intermarriage or whether the relationship is a spurious one and migrants who intermarry have lower preferences for the home country independent of their spouse.

On the one hand, marriage to a native may be a factor that potentially influences positive externalities in the host country[5]. On the other hand, intermarriage may result from lower preferences for the home country, rather than influencing it. The literature does not provide conclusive evidence as to whether intermarriage influences cultural and economic integration or whether more integrated migrants are more likely to intermarry[6]. My study contributes to this body of literature by analysing the effect of intermarriage on migrants' home country preference[7].

The empirical analysis focuses on linear regression and fixed-effects estimation to deal with unobserved heterogeneity in preferences for a spouse. If more integrated migrants are more likely to intermarry, endogeneity of intermarriage should also be taken into account, but as I do not have a suitable instrument to control for the concurrence of choice of spouse and home country preference, I do not control for endogeneity in this paper[8]. Instead, I control for individual-level confounding factors and selection on observables.

My main findings are that preferences for the home country differ between migrants who marry a German spouse, migrants who marry a non-German spouse and singles. However, much of the negative association between intermarriage and intended return observed in the OLS estimates goes away in the fixed effects model and thus seems to be the result of selection. In contrast, the negative association between remittances sent and intermarriage holds even when I control for unobserved variables, suggesting that migrants' remittance behaviour changes with intermarriage.

The paper is structured as follows: In the next section, the empirical models are outlined, followed by a discussion of the data and variables used in the analysis. Section 4 presents the empirical results. Section 5 provides some robustness checks, and Section 6 concludes.

2 Analysing intermarriage

2.1 Empirical models

I start with a simple linear model to describe the relationship between intermarriage and home country preference. The model is specified as follows:

$$\bar{Y}_i = a + b_1 M_{1i} + b_2 M_{2i} + b_3 M_{1i} * G_i + b_4 M_{2i} * G_i + \bar{X}_i c + v_i, \tag{1}$$

where $\bar{Y}$ denotes one of three outcomes related to home country preference – intentions to return, remittances sent and the propensity to return – for individual

i, averaged over the first five years in which i is interviewed (for details on how I construct the average, see the next section on data and variables). M_{1i} is a binary variable that is equal to one if the migrant married before migration and zero if not. M_{2i} denotes marriage in Germany before SOEP. The variable is equal to one if the migrant married after coming to Germany and zero if not. I exclude migrants who marry after entering SOEP when estimating this model, thus M_{1i} and M_{2i} are constant over time in the sample. A German spouse, denoted by G_i, is also a binary variable equal to one if the migrant's spouse is from Germany and zero if the spouse is of another nationality. Thus, the interaction terms, $M_{1i}*G_i$ and $M_{2i}*G_i$, identify whether the migrant married a German spouse before or after entering the country, respectively. By specifying the four dummy variables in equation (1), I cover all types of married individuals in the sample. The reference group are migrants who are recorded as single throughout the observation period. $\bar{X}_i$ is a vector of variables indicating the averages of both demographic and human capital variables such as age at immigration, duration of residence, years of education and country of birth over the first five years in which i is interviewed. The variable ν_i denotes the error term.

My second specification is based on a fixed effects model, which controls for unobserved (time-constant) variables affecting both preferences and marriage decisions by taking the difference of observations in time periods before and after marriage for the same individual. In the fixed effects framework, I can estimate the effect of intermarriage on intentions to return and remittance behaviour for individuals who marry in one of the years during which they are interviewed. I cannot estimate a fixed effects model for realised return because there is only one observation for the return period. I start with an equation similar to equation (1) but include the time dimension t denoting the years during which the individual participates in the survey. Specifically, the equation is:

$$\bar{Y}_{it} = \alpha + \beta_1 M_{it} + \beta_2 M_{it} * G_{it} + \bar{X}_{it}\gamma + \mu_i + \varepsilon_{it}. \tag{2}$$

I collapse t to two time periods, such that $t = 1$ denotes years before marriage and $t = 2$ years after marriage and again take averages of Y and X over the two sub-periods. Note that the sample used in the estimation is restricted to the sub-sample of migrants who marry after entering SOEP. M_{it} is equal to one if the migrant is married at time t and zero if he/she is single. Thus, by definition of t, M_{i1} is equal to zero for all observations, and M_{i2} is equal to one. Moreover, in equation (2), I separate the time constant unobserved variable (μ_i) from the time varying idiosyncratic error (ε_{it}). Taking the difference of the two equations estimated for $t = 1$ and $t = 2$ eliminates individual fixed effect μ_i, and we obtain the following equation:

$$\bar{Y}_{i2} - \bar{Y}_{i1} = \Delta\bar{Y}_i = \beta_1 + \beta_2 G_{it} + \Delta\bar{X}_i\gamma + \Delta\varepsilon_{it}, \tag{3}$$

where $\Delta\bar{Y}_i$ corresponds to the change in intentions to return or remittances sent from before to after marriage. The parameter β_1 is the constant in the first differenced equation and measures the effect of marriage. The main parameter of interest, β_2, measures the additional effect of being married to a German spouse compared to being married to a non-German spouse. γ captures the effect of time-changing observable variables on the outcome. The variable $\Delta\varepsilon_i$ is the error term.

Compared with the OLS model, the fixed effects model is less restrictive because estimates are not confounded by time-constant unobserved variables. If the association observed in the OLS estimates disappears in the fixed effects results, this is an indication that the association may be due to selection. However, if the fixed effects estimates are significant, this is evidence to suggest that there is a change in the outcome with intermarriage[9].

2.2 Data and variables

I use the 1984 – 2012 annual waves of the German Socio-economic Panel (SOEP) collected by the Deutsches Institut für Wirtschaftsforschung (DIW). The SOEP is a nationally representative longitudinal survey that was launched in 1984 in the Federal Republic of Germany[10]. The survey includes migrants from former guest worker recruitment countries. They are oversampled, and I use a sub-sample of Greek, Italian, Spanish, Portuguese, Turkish and Ex-Yugoslav migrants. Guest workers provide a convenient sample to study return migration because they have higher return rates than some other migrant groups and all these migrants are free to decide when to return to their home countries[11]. Participants are interviewed annually, and in the first year, they are asked about retrospective information on their family as well as migration history. This allows me to recover their marital status, marriage and migration dates.

I generate a dataset that contains background information on the migrants from the overall database. Throughout the empirical analysis, I distinguish between males and females and link all individuals in the sample to their spouses. As my main objective concerns the difference in preferences for the home country between migrants who marry a native rather than a non-native spouse, individuals with a spouse in the home country are excluded. After these restrictions, the final sample includes 4,033 observations (2,119 men and 1,914 women). The sample is then broken down by marital status, differentiating between migrants who are married and migrants who are single[12]. I define marriage as a formal union and do not include individuals who report cohabitating with a partner in this category. About 80% of migrants in the sample report being married at one time between 1984 and 2012. All other migrants in the sample are defined as singles. The sub-sample of married migrants is further divided into three groups: migrants who marry before coming to Germany, those who marry after migration but before entering SOEP and those who marry after joining SOEP. The group of migrants who marry after joining the survey is the most interesting, because for these migrants, I can compare home country preference before and after marriage. This is the sample that I use for the fixed effects model estimated in equation (3). But considering that this is a very small sample, I also base my analysis in the OLS regressions on the other two groups. The distinction between migrants who marry before and after coming to Germany is imposed in order to compare and contrast intermarriage effects on home country preferences for these migrants, as it is likely that there are differences between these groups of migrants. Migrants who marry before entering Germany are, for example, more likely to be tied movers – that is, migrants who come to the host country to join earlier immigrated partners[13]. A total of 13% of migrants in the sample who are married report marrying in the same year as they join SOEP. This is an unexpectedly large number, and when I compare these migrants to migrants in the four sub-samples,

I find that they are most alike the group who married before migration, hence, I add them to this group. Separating migrants who marry in Germany before entering SOEP from those who marry after entering SOEP has the purpose of singling out migrants who marry at some point during the observation period. Overall, this leaves me with four sub-samples: migrants who marry before coming to Germany, migrants who marry after entering the country but before they join SOEP, migrants who marry after entering SOEP and singles.

In Table 1, I report some descriptive statistics of the variables I use in the analysis below. Although I use a maximum of 28 years of observations, I restrict observations of time-changing variables to the first five years after entry into SOEP and construct means. This ensures that the analysis is not biased towards respondents who stay in the survey for long periods of time and smoothes variation due to small sample sizes.

I construct three variables that capture migrants' preferences for the home country: intentions to return, remittances sent and actual return. The first variable is based on survey information about migrants' future intentions to return back home. In each survey year, migrants are asked whether they wish to remain permanently in the host country or whether they wish to return to their respective home country at some point in the future. This is a binary variable that is equal to one if the migrant has intentions to return and zero if he/she intends to stay in Germany forever. I assume that intentions are a close match to home country preference. Table 1 shows that more than half of the migrants in the sample intend to return (65% and 67% of male and female migrants, respectively).

My second variable measuring migrants' preferences for the home country is based on remittances sent to family in the home country. Migrants are asked every year whether they send money back home. A binary variable is constructed that is equal to one if the migrant reports sending remittances and zero if he/she does not. A variety of factors motivate migrants to remit, including altruism, insurance, exchange and repayment of loans (see Lucas and Stark 1985; Stark 2009; Foster and Rosenzweig 2001; Agarwal and Horowitz 2002). Rapoport and Docquier (2005), furthermore, note that the likelihood and size of remittances are likely to depend on whether and when the migrant intends to return. In this analysis, I focus on remittances as a proxy of social attachment to the home country and migrants' investment in a network. I assume that if the migrant remits, he/she is primarily invested in maintaining ties to the home country. On the other hand, if the migrant does not remit, this is a sign of a greater investment in building a new network in Germany. Preferences in the home country and changes therein are then likely to be reflected in remittance behaviour. Table 1 shows that, on average, 22% of male migrants in the sample remit, but only 9% of female migrants report doing so.

The third variable on preferences for the home country is an actual future return. I use panel attrition as a measure of return migration. SOEP includes reasons of panel attrition, one of which is *Moved Abroad*. This is most likely to correspond to return migration if the respondent is foreign born[14]. I follow migrants over the course of the panel and construct an indicator variable equal to one if the migrant returns home within the 27-year period. Of the sample population, about 25% returned home (see Table 1). A return to the home country reveals an ex post preference but is no perfect measure of home country preference. I mainly include actual return in the analysis to verify the correlation between a migrant's intentions and actual return.

Table 1 Summary statistics - Male/Female

Table 1a. Summary statistics - Male

Description	Married			Single	All
	Before moving to Germany	Before entering SOEP	After entering SOEP		
Average intentions	0.73	0.64	0.57	0.54	0.65
	(0.36)	(0.38)	(0.37)	(0.43)	(0.39)
Average remittances	0.29	0.28	0.10	0.06	0.22
	(0.30)	(0.30)	(0.17)	(0.17)	(0.28)
Return migrants	0.29	0.28	0.10	0.06	0.22
	(0.49)	(0.38)	(0.26)	(0.42)	(0.43)
German spouse	0.04	0.14	0.28	0	0.12
	(0.20)	(0.34)	(0.45)		(0.32)
Age at entry	31	19	10	10	20
	(6.93)	(6.36)	(6.20)	(8.46)	(10.92)
Year of immigration	1972	1972	1976	1970	1972
	(9.00)	(8.49)	(6.63)	(130.16)	(61.34)
Years of education	9	9	10	7	9
	(2.67)	(2.58)	(2.40)	(5.05)	(3.49)
German spoken	1.98	2.44	2.74	2.65	2.33
	(0.64)	(0.58)	(0.39)	(0.55)	(0.65)
Number of children	1	1	1	1	1
	(1.16)	(1.23)	(1.15)	(1.36)	(1.25)
Low income group	0.27	0.13	0.42	0.71	0.33
	(0.45)	(0.34)	(0.50)	(0.45)	(0.47)
Medium income group	0.38	0.34	0.41	0.20	0.33
	(0.49)	(0.48)	(0.49)	(0.40)	(0.47)
High income group	0.34	0.52	0.16	0.08	0.33
	(0.48)	(0.50)	(0.37)	(0.28)	(0.47)
Greek	0.14	0.12	0.06	0.13	0.13
	(0.35)	(0.33)	(0.25)	(0.34)	(0.33)
Italian	0.13	0.24	0.17	0.18	0.18
	(0.34)	(0.43)	(0.38)	(0.38)	(0.39)
Spanish	0.11	0.13	0.04	0.12	0.11
	(0.31)	(0.33)	(0.21)	(0.32)	(0.31)
Portuguese	0.00	0.01	0.01	0.00	0.00
	(0.05)	(0.07)	(0.10)	(0.07)	(0.07)
Turkish	0.39	0.33	0.57	0.37	0.38
	(0.49)	(0.47)	(0.50)	(0.48)	(0.49)
Ex-Yugoslav	0.22	0.18	0.13	0.20	0.19
	(0.42)	(0.38)	(0.34)	(0.40)	(0.40)
Number of observations	707	747	201	464	2,119

Table 1 Summary statistics - Male/Female *(Continued)*

Table 1b. Summary statistics - Female

Description	Married Before moving to Germany	Married Before entering SOEP	Married After entering SOEP	Single	All
Average intentions	0.73	0.65	0.60	0.58	0.67
	(0.63)	(0.38)	(0.38)	(0.44)	(0.38)
Average remittances	0.11	0.10	0.05	0.03	0.09
	(0.20)	(0.18)	(0.14)	(0.11)	(0.18)
Return migrants	0.34	0.18	0.10	0.24	0.25
	(0.47)	(0.39)	(0.30)	(0.43)	(0.43)
German spouse	0.03	0.07	0.17	0	0.06
	(0.16)	(0.26)	(0.38)		(0.24)
Age at entry	30	17	9	11	21
	(9.09)	(6.23)	(6.04)	(9.86)	(11.69)
Year of immigration	1974	1974	1978	1973	1974
	(8.68)	(9.12)	(7.60)	(108.91)	(46.08)
Years of education	8	9	9	6	8
	(2.83)	(2.63)	(2.70)	(5.08)	(2.85)
German spoken	1.71	2.16	2.65	2.57	2.06
	(0.67)	(0.70)	(0.59)	(0.67)	(0.76)
Number of children	1	1	1	1	1
	(1.20)	(1.14)	(1.00)	(1.65)	(1.26)
Low income group	0.45	0.39	0.34	0.22	0.33
	(0.50)	(0.49)	(0.47)	(0.50)	(0.50)
Medium income group	0.21	0.23	0.33	0.23	0.23
	(0.41)	(0.42)	(0.47)	(0.42)	(0.42)
High income group	0.34	0.38	0.34	0.22	0.33
	(0.47)	(0.49)	(0.47)	(0.41)	(0.47)
Greek	0.13	0.14	0.08	0.10	0.12
	(0.34)	(0.35)	(0.27)	(0.30)	(0.33)
Italian	0.14	0.18	0.17	0.13	0.16
	(0.35)	(0.39)	(0.38)	(0.34)	(0.36)
Spanish	0.10	0.12	0.03	0.07	0.10
	(0.30)	(0.33)	(0.16)	(0.26)	(0.30)
Portuguese	0.01	0.01	0.01	0.01	0.01
	(0.09)	(0.07)	(0.11)	(0.08)	(0.08)
Turkish	0.38	0.37	0.54	0.43	0.40
	(0.49)	(0.48)	(0.50)	(0.50)	(0.49)
Ex-Yugoslav	0.24	0.18	0.17	0.26	0.22
	(0.43)	(0.38)	(0.38)	(0.44)	(0.41)
Number of observations	782	644	155	333	1,914

Note. The numbers indicate mean values, standard deviations are in parentheses. Observations with missing information on the nationality of the spouse are included. These are missing observations for the following variables: intentions to return, year of education, German spoken and number of children.

German spouse is a binary variable that is equal to one if the migrant's spouse is from Germany and zero if not. Pooling men and women, about 9% of migrants who are married have a German spouse. But twice as many men as women in the sample are married to a native spouse (12% versus 6%), and a much larger number of migrants who marry after joining SOEP have a German spouse than migrants who marry before this (see Table 1). The majority of married migrants in the sample have a spouse from the same country of birth (about 87%), and less than 4% have a spouse from some third country. Considering the small sample sizes, I do not differentiate between these two groups[15].

Table 2 presents the mean of intentions to return, remittances sent and realised returns for migrants who marry a German spouse and those who marry a non-German, as well as the difference of the means. It is clear from the numbers in the table that migrants who marry a non-native spouse, on average, have higher intentions to return, are more likely to send remittances and more likely to realise a return than their counterparts who marry a native. The two groups are especially easy to tell apart by their intentions to return, with the exception of migrants who marry after entry into SOEP. There is only a 3-percentage point difference in intentions to return among male migrants who marry after joining SOEP, suggesting that migrants in this sub-sample cannot necessarily be compared to migrants who

Table 2 Summary statistics by German spouse

a) Male

Married

	Before moving to Germ			Before entering SOEP			After entering SOEP		
	German spouse	Non-German spouse	Δ	German spouse	Non-German spouse	Δ	German spouse	Non-German spouse	Δ
Average intentions	0.56	0.73	0.17	0.47	0.67	0.21	0.54	0.56	0.03
	(0.41)	(0.36)		(0.41)	(0.36)		(0.36)	(0.37)	
Average remittances	0.19	0.28	0.09	0.19	0.29	0.09	0.05	0.12	0.07
	(0.23)	(0.30)		(0.27)	(0.29)		(0.12)	(0.18)	
Return migrants	0.29	0.39	0.10	0.06	0.18	0.12	0.04	0.07	0.03
	(0.46)	(0.49)		(0.24)	(0.39)		(0.19)	(0.25)	
Observations	28	617		98	619		54	138	

b) Female

Married

	Before moving to Germ			Before entering SOEP			After entering SOEP		
	German spouse	Non-German spouse	Δ	German spouse	Non-German spouse	Δ	German spouse	Non-German spouse	Δ
Average intentions	0.47	0.75	0.28	0.38	0.68	0.30	0.36	0.62	0.26
	(0.41)	(0.35)		(0.41)	(0.37)		(0.37)	(0.37)	
Average remittances	0.07	0.11	0.04	0.05	0.10	0.06	0.08	0.04	−0.04
	(0.14)	(0.19)		(0.10)	(0.18)		(0.23)	(0.11)	
Return migrants	0.11	0.36	0.25	0.09	0.19	0.10	0.04	0.10	0.06
	(0.32)	(0.48)		(0.29)	(0.40)		(0.20)	(0.30)	
Observations	19	692		44	562		25	119	

Note. The numbers indicate mean values, standard deviations are in parentheses. Differences are calculated by subtracting the mean value for migrants with a German spouse from that of migrants with non-German spouse. Observations with missing information on the nationality of the spouse are not included. There are also fewer observations for average intentions: for males the number of observations are 28, 612, 93, 612, 47, 130, respectively, and for females 19, 683, 40, 555, 22, 108. This is due to missing values in the variable.

marry before entering SOEP. The numbers in the second and third row indicate that the difference in the likelihood to remit and to return between migrants who marry a German and their counterparts who marry a non-German is somewhat smaller. However, also the overall sample means of these variables are lower (see Table 1). Differences in the sub-sample of migrants who marry after joining SOEP are again the smallest. Actually, slightly more intermarried females in this sub-sample report sending remittances. Otherwise, 4–6 percentage points fewer women who marry a German remit, on average, and 7–9 percentage points fewer men report doing so. The likelihood of returning is 10 or 12 percentage points lower for male migrants who marry a German rather than a non-German before entering the country or before entering SOEP, respectively, but there is no significant difference for those who marry after entry into SOEP. For women, there is a lot of variation in the likelihood to return across the different samples. Most likely to return are women who married a non-German spouse before moving to Germany (36% of whom return), and the least likely to return are women who marry a German spouse after entering SOEP (4% return).

Preferences for the home country and the likelihood of intermarrying are also likely to be contingent on basic demographic and human capital characteristics. Table 1 shows the mean values of the control variables included in the OLS model. On average, migrants in the sample were in their early 20s when they came to Germany. Most migrants came to Germany in the early to mid-1970s, and I only observe a lag of two year in average immigration year for women.

Years of education provide me with a general measure of human capital. Average years of education for men and women in the sample are 9 and 8, respectively. This means that most migrants have completed secondary school, which, as a reference, takes 9 years in Germany. Proficiency in the German language is a measure of host country-specific human capital (Dustmann 1999). This is a categorical variable that equals one if the respondent speaks German badly or not at all, two if he/she speaks it well enough and three if he/she speaks it well or very well.

The number of children in the household proxies household size, as actual household size is likely to confound changes in martial status and changes in household size.

I also control for personal monthly net income, measured in euros, and distinguish between three levels of income by delineating the group into terciles. Table 1 shows distinct differences in income between the sub-samples. At total of 52% of men who marry before entering SOEP are in the highest income group, while 83% of men who marry after entry into SOEP are in the two lower income groups. Yet more extreme, 71% of singles are in the lowest income group. For women, this pattern is not clearly discernible.

About 40% of migrants in the sample were born in Turkey, while 20% are Ex-Yugoslav, and roughly 10% are Greek, Italian and Spanish, respectively[16]. Very few migrants in the sample are from Portugal (only about 1%). Greece and Italy became EU member states before 1984, while Spain and Portugal joined the EU in 1986. Migrants from these countries face no legal restrictions when moving between Germany and their home country. This is in contrast to Turkish and Ex-Yugoslav migrants for whom re-entry into Germany may be difficult.

However, it is likely that these variables capture only some of the difference between migrants who marry a native and those who marry a non-native spouse. A more thorough assessment of the relationship between intermarriage and migrants' home country
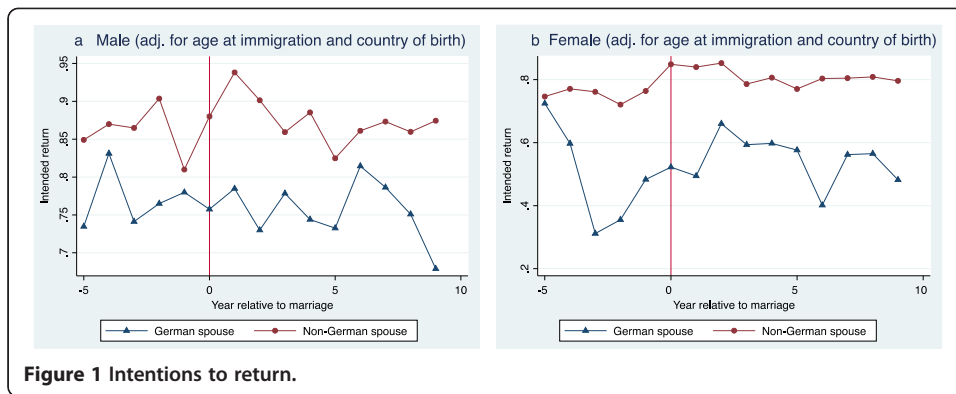
Figure 1 Intentions to return.

preference is an analysis of the change in preferences with intermarriage. The graphs in Figures 1 and 2 depict the variation in the proportion of migrants who intend to return and send remittances by German or non-German spouse over a 15-year period. In the graphs, the year of marriage is defined as year zero and marked by the vertical line. Years before marriage are indicated by negative values, hence –5 means five years before marriage. Years after marriage are denoted by positive values. Observations go up to 10 years after marriage. The graphs are adjusted for age at immigration and country of birth due to substantial differences among migrants by these two characteristics. The fact that the lines do not show a persistent trend is partly the result of small sample sizes.

Figure 1 shows that migrants who marry a German have lower intensions to return both before and after marriage than their counterparts who marry a non-German spouse. Among women who marry a German spouse, we actually observe a drop in intentions to return a few years before marriage. For women who marry a non-German spouse, intentions to return slightly increase for a few years subsequent to marriage. We see a similar increase in intentions to return in the years around marriage for male migrants who marry a non-German, and their intentions to return remain high (about 87% intend to return). In comparison, far fewer men who marry a German spouse intend to return throughout the 15-year period (roughly 77%).

By contrast, Figure 2 depicts a much smaller difference in the proportion of migrants who send remittances and marry a German spouse rather than a non-German. Figure 2,
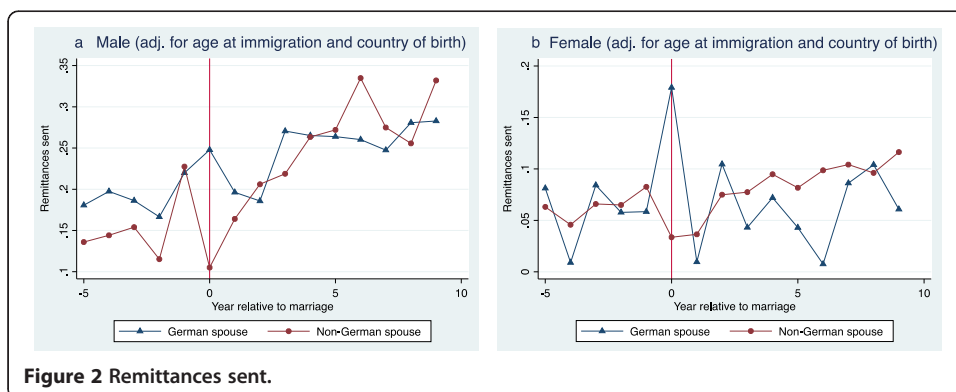

Figure 2 Remittances sent.

panel *a* depicts an upward shift in the number of men who send remittances after marriage. The shift is especially large for men who marry a non-German spouse, among whom, few report sending remittances before marriage. Interestingly, more men who marry a German spouse remit before marriage than their counterparts who marry a non-German. But after marriage slightly more male migrants who marry a non-German remit. The number of women who remit is much more constant around marriage. Similar proportions of women who marry a German and a non-German spouse send remittances until about three years after marriage, then many women who married a German spouse stop remitting. Observations for the year of marriage seem to be extremely noisy and are thus excluded from the analysis.

3 Empirical results

3.1 Ordinary least squares estimation

Table 3 reports the results of the OLS estimates of equation (1). The main parameters of interest are b_3 and b_4, as they provide the expected difference in the three outcomes related to home country preference – intentions to return, remittances sent and a realised return – between migrants with a German spouse and those with a non-German spouse. Parameters b_1 and b_2 furthermore provide an estimate of the difference in one of the outcomes between married migrants and singles. My hypothesis is that migrants with a German spouse are associated with lower outcomes than migrants who marry a non-German spouse and singles.

Ceteris paribus, married migrants have higher intensions to return than those who are single (Columns 1 and 4). There is an expected difference of about 10-percentage points between married and single migrants for males and females. All estimates are economically and statistically significant. But among married migrants, intermarried migrants are associated with lower intentions to return. Male migrants who marry a German rather than a non-German spouse before migration have an expected 14 percentage point lower intention to return, all else equal (or 20% lower intentions)[17]. Similarly, the difference between the two groups is 18-percentage points for males who marry after migration (or 29%). This means that among male migrants who marry a native, intentions to return are roughly a fourth lower than among their counterparts who marry a non-native. Among female migrants, the effect of intermarriage is stronger with 26-percentage points. That is, among women who marry a German spouse, intentions to return are an expected 38% or, roughly speaking, a third lower than for women who marry a non-German. All differences are statistically significant.

While intentions to return are generally higher among married migrants than singles, migrants who marry a native spouse not only are less likely to intend to return than those who marry a non-native, but also less likely than singles. Male migrants who marry a native before migration have *(0.098 − 0.143)* = − *0.045* or 5 percentage points lower expected intentions to return than singles (or 6%). The difference is, however, not significant at the 10% level. Males who marry after migration have *(0.103 − 0.183)* = − *0.08* or about 8 percentage points lower intentions to return (or 13%). This difference is significant at the 10% level. For female migrants, the difference in intentions to return is 15 and 18 percentage points, respectively. The results suggest that migrants who marry a native have lower intentions to return than those

Table 3 OLS regressions

	Male						Female					
	Intentions		Remittances		Return		Intentions		Remittances		Return	
	Coeff.	SE.	Coeff.	SE.	Coeff.	SE.	Coeff.	SE.	Coeff.	SE.	Coeff.	SE.
Married before migration	0.098***	0.037	−0.024*	0.023	0.033*	0.019	0.127***	0.036	0.038**	0.016	−0.045**	0.022
Married in Germany before SOEP	0.103***	0.031	0.030	0.019	−0.026	0.016	0.074**	0.031	0.045***	0.014	−0.072***	0.019
Married before migration * German spouse	−0.143***	0.072	−0.023	0.0445	−0.085**	0.039	−0.273***	0.083	−0.036	0.038	−0.095*	0.053
Married in Germany * German spouse	−0.183	0.041	−0.078***	0.025	−0.039*	0.022	−0.253***	0.058	−0.058**	0.025	−0.058	0.035
Single reference group												
Entry before 16	−0.045	0.031	−0.037*	0.019	−0.030*	0.016	−0.005	0.029	−0.016	0.013	−0.031*	0.018
16 ≤ Age at entry > 22 Reference group												
22 ≤ Age at entry > 29	0.039	0.028	0.010***	0.018	−0.016	0.015	−0.009	0.028	0.009	0.013	−0.007	0.018
29 ≤ Age at entry	0.069*	0.036	0.091***	0.023	−0.006	0.019	−0.024	0.031	0.014	0.014	0.026	0.020
Years since migration (first tercile) Reference group												
Years since migration (second tercile)	0.029	0.036	0.179***	0.022	−0.170***	0.018	−0.088	0.056	0.052**	0.023	−0.165***	0.032
Years since migration (third tercile)	−0.045	0.091	0.235***	0.052	−0.464***	0.044	−0.156**	0.068	0.070**	0.029	−0.165***	0.032
Years of education	0.004*	0.002	0.003**	0.001	0.007***	0.001	0.000	0.002	0.003***	0.001	0.008***	0.001
German spoken	−0.063***	0.023	−0.025*	0.015	0.003	0.012	−0.114***	0.022	0.008	0.010	0.016	0.014
Children in household	−0.010	0.008	0.009*	0.005	−0.002	0.004	−0.005	0.008	−0.006*	0.003	−0.006	0.005
Personal monthly income (lowest group) Reference group												
Personal monthly income (lowest)	0.050**	0.024	0.141***	0.015	−0.015	0.013	0.002	0.023	0.021**	0.010	−0.067***	0.015
Personal monthly income (highest)	0.005	0.026	0.263***	0.016	−0.031**	0.013	0.088***	0.023	0.123***	0.010	−0.055***	0.015
Greek Reference group												
Italian	−0.126***	0.032	−0.125***	0.020	0.067***	0.017	−0.125***	0.034	−0.018	0.015	0.030	0.021
Spanish	−0.034	0.035	−0.072***	0.022	0.100***	0.018	0.011	0.037	−0.023	0.017	0.064***	0.23
Portuguese	−0.279**	0.141	−0.221***	0.083	0.011	0.070	−0.144	0.120	−0.065	0.055	−0.042	0.076
Turkish	−0.134***	0.030	−0.013	0.018	0.013	0.015	−0.117***	0.031	0.006	0.014	−0.002	0.019
Ex-Yugoslav	−0.302***	0.032	0.023	0.019	0.004	0.017	−0.270***	0.032	0.033**	0.014	−0.018	0.020
Years before SOEP (first tercile) Reference group												
Years before SOEP (second tercile)	−0.030	0.035	−0.103***	0.021	0.110***	0.018	0.126**	0.055	−0.032	0.023	0.168***	0.032
Years before SOEP (third tercile)	−0.036	0.088	−0.222***	0.051	0.395***	0.043	0.016	0.069	−0.059**	0.030	0.216***	0.041
Constant	0.732***	0.047	0.059**	0.029	0.064***	0.024	0.810***	0.048	−0.018	0.021	0.118***	0.029
Observations	1682		1824		1824		1534		1649		1649	
R²	0.136		0.356		0.144		0.160		0.184		0.088	

Note. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1 % level.

who marry a non-native and singles. Moreover, the effect of intermarriage is stronger for female than for male migrants.

The coefficients in Columns 2 and 5 indicate that married female migrants are more likely to send remittances than singles (by 4 percentage points or about 40%), but among male migrants, marriage has no clear effect. While there is no statistically significant difference in remittances sent between those who marry after coming to Germany and singles, significantly fewer males who marry before migration send remittances than singles (2 percentage points fewer). Comparing migrants who marry a German and a non-German, I find that the likelihood of sending remittances is significantly lower for those who intermarry among both male and female migrants. The effect is economically and statistically insignificant for male migrants who intermarry before entering the country, but male migrants who marry a German rather than a non-German spouse after migration are associated with a 8 percentage point lower likelihood of sending remittances (or 28%), ceteris paribus. For female migrants, the effect of intermarriage is stronger with 5 percentage points, which corresponds to a 45% lower probability of sending remittances. This suggests that while for male migrants who marry a German spouse the propensity to send remittances is roughly a fourth lower, it is almost halved for women. This implies that the magnitudes of the effect of intermarriage on remittances is comparable to that of intentions to return or even higher.

The OLS estimates also suggest a negative association between marriage and the propensity to return to the home country (Columns 3 and 6). Men who marry after migration have a 3 percentage point lower propensity to return, all else equal. For females, the effect of marriage is strong and negative, with the likelihood of realising a return being 6 percentage points lower for married women than singles. The effect of intermarriage on return is also clearly negative for both males and females. Male migrants who intermarry before and after migration are associated with an 9 and 4 percentage point lower propensity to return, which corresponds to 21% or 23%, respectively. This means that among male migrants married to a German, about a fifth fewer return than among their counterparts who marry another migrant. For women, the effect of intermarriage is even stronger with 10 and 6 percentage points, respectively (30%). Therefore, among female migrants married to a German, about a third fewer return than among their counterparts who are married to a non-German. We can also see that singles are the least likely to return[18].

For both male and female migrants, the effect of intermarriage is similar for the three outcomes. Among men who marry a German, a fifth realise a return, and roughly a quarter less intend to return or remit than among their counterparts who marry a non-German. For female migrants, about a third fewer intend to return, and only half as many report sending remittances among women who marry a native, while about a third fewer who marry a native return to the home country. This suggests that an intended return and remittance behaviour are good predictors of an actual return to the home country. Moreover, I find that the effect of intermarriage is stronger for women on all three indicators of home country preference.

Summarizing the OLS estimates, I find a negative association between the three outcomes measuring home country preference and marriage to a native rather than to a non-native or being single. The results broadly support my expectations that strong social attachments in the host country are associated with lower preferences for the home country and, moreover, that social attachments to natives rather than non-natives in the host country are associated

with weaker home country preference. Overall, I observe a stronger association between intermarriage and preference for women than for men.

Variables measuring differences in demographic and human capital characteristics between migrants in the sample indicate that those who come to Germany at a young age and have spent some time in the host country, endowed with little human capital but relatively more host country-specific human capital and who, moreover, have no children in the household, are in the middle income group and are from Turkey or the Ex-Yugoslavia tend to have considerably lower preferences for the host country than other migrants.

Above all, these results indicate that intermarriage explains some of the heterogeneity in return. However, it is possible that the observed differences are not directly related to intermarriage, as they are, for example, a result of higher levels of integration among migrants who intermarry. By estimating a fixed effects model in the next part of the paper, I explore whether intermarriage itself or other personal characteristics by which migrants who intermarry are selected describe the heterogeneity in return.

3.2 Fixed effects

An analysis of the change in home country preference with marriage should provide a less biased measure of the relationship between intermarriage and home country preference. To estimate the fixed effects model, I construct the means of the observations for the two outcome variables – intentions to return and remittances sent – over a five-year period before marriage and for a five-year period after marriage. Because I only have observations from before marriage for migrants who marry after entering SOEP, I rely on this sub-sample to estimate equation (3). The sub-sample is very small, and taking the average of the observations in periods before and after marriage has the purpose of minimising variation due to these small sample sizes. The year of marriage is excluded from the analysis, as it acts as a confounder. The constant term, labelled married in the table, can be interpreted as the effect of marriage on home country preferences. The coefficient of the variable *German spouse* provides an estimate of the difference in mean intentions to return or remittances sent before and after marriage of migrants who marry a German and those who marry a non-German spouse. Estimation results are reported in Table 4. Columns 1 and 2 describe the estimates of the effect of intermarriage on intentions to return for male and female migrants, respectively, and columns 3 and 4 provide the coefficients for remittances sent for men and women.

Table 4 Fixed effects

	Intentions to return		Remittances sent	
	Male	**Female**	**Male**	**Female**
German spouse	0.012	−0.039	−0.094**	−0.046
	(0.071)	(0.101)	(0.044)	(0.042)
Married	−0.099***	−0.072*	0.116***	0.050***
	(0.036)	(0.042)	(0.023)	(0.017)
Observations	181	129	191	144
R2	0.000	0.001	0.023	0.008

Note. Standard errors are in parentheses. * Significant at the 10% level. ** Significant at the 5% level. ***Significant at the 1 % level. I use observations up to and marriage, including 5 years before and after but exclude the year of marriage.

The coefficient of the variable *German spouse* in column 2 shows that when comparing intentions before and after marriage, there is a 4 percentage point larger decrease in intentions to return among females who marry a native spouse than among those who marry a non-native. The effect is of the expected sign but relatively weak and not statistically significant. The negative coefficient for *Married* indicates that female migrants have lower intentions to return when married than when single. Specifically, with marriage, female migrants experience a drop of 7 percentage points in intentions to return. This effect is significant. For male migrants, the coefficient on intentions to return indicates that men who marry a German spouse experience a 1 percentage point smaller decrease in intentions to return after marriage than their counterparts who marry a non-German spouse. The coefficient is very small and insignificant (t = 0.169). Moreover, coefficients are imprecisely estimated due to small sample sizes. Therefore, it seems inadequate to attribute too much weight to this estimate. Table 4, furthermore, shows that the effect of marriage is strong and negative for male migrants. That is, intentions to return decrease by 10 percentage points with marriage. This suggests that the fixed cost of return migration increases with marriage because of the increased household size.

It is clear that neither of the estimates holds up to the large difference in intentions to return between intermarried migrants and those married to another migrant predicted by the OLS model. For the sub-sample of migrants who marry after entering Germany, the OLS results indicate a difference of 18 percentage points in intentions to return between male migrants who marry a German and their counterparts who marry a non-German, while the fixed effects model estimates a difference of only 1 percentage point[19]. For women, the expected difference between the two groups is as large as 25 percentage points according to the OLS estimates, versus the small difference of 4 percentage points provided by the fixed effects estimates. The effect of intermarriage obviously disappears when I control for unobserved variables. This suggests that much of the difference in intentions to return between the two groups is due to selection, and the relationship between intentions to return and intermarriage is spurious. This conclusion is also in line with the pattern observed in Figure 1. While migrants who marry a German spouse have much lower intentions to return than their counterparts who marry a non-German, the gap between the two groups is, roughly speaking, the same before and after marriage. In other words, there is no change in intentions to return with intermarriage.

Columns 3 and 4 report the difference in remittances behaviour before and after marriage comparing migrants who marry a German and a non-German spouse for males and females, respectively. Both coefficients are negative and thus indicate that there is a larger difference between the two groups after marriage than before the event, judging by the probability of sending remittances. Male migrants have a reduced likelihood of 9.4 percentage points in sending remittances after marriage than before if they marry a German rather than a non-German spouse. The coefficient is economically big and statistically significant at the 5% level. For females, the effect of intermarriage is smaller and statistically insignificant with 4.6 percentage points[20]. The estimate for *Married* indicates a positive and significant association between marriage and remittances sent. Male migrants have a 12 percentage point lower likelihood of sending remittances after marriage than before the event. For female migrants, the effect of marriage is 5 percentage points, meaning that women are 5 percentage points less likely to remit when they are married than when single. This difference is significant at all levels.

Taking the OLS estimates as a baseline, we can see that the magnitude of the coefficients estimated by the two models is very similar. The OLS model predicts a difference of 8 percentage points in the likelihood of sending remittances for men who marry a German rather than a non-German spouse and a difference of 6 percentage points for female migrants. This suggests that differences are not driven by selection and that there is an association between remittance behaviour and intermarriage even after controlling for unobserved variables. These results are also consistent with changes in remittance behaviour around marriage observed in Figure 2, which indicates an upward shift in remittances sent after marriage among both male migrants who marry a German and those who marry a non-German spouse. For men who marry a German spouse, it is, however, less extreme, partly because they remit more before marriage. Figure 2 panel *b* shows that among female migrants, a difference only becomes apparent about three years after marriage when many women who marry a native stop sending remittances. Overall, the evidence indicates a negative and significant association between sending remittance and intermarriage.

In summary, the fixed effects estimates show that the negative relationship between intermarriage and intentions to return is spurious. Much of the difference in intentions to return between migrants who marry a German and those who marry a non-German spouse is explained by selection into the respective marriage type. This is evidence against my hypothesis that intermarriage is associated with intentions to return. Still, it does not in-and-of-itself refute that interactions with a spouse-to-be influencing intentions to return, as many partners meet prior to marriage. Native spouses may therefore already have an effect on migrants' intentions to return during the courting stage or in the period of cohabitation[21]. Indeed, Figure 2 panel *b* shows a drop in intended return prior to marriage among women who marry a German spouse.

In contrast, the association between sending remittances and intermarriage persists even when I control for unobserved variables, indicating that remittance behaviour changes with intermarriage. In other words, if conditional on education, age at migration, and so on, the person who someone falls in love with has a random element, then it might be that migrants who randomly fall in love with a native are less likely to send remittances. This is evidence in support of my hypothesis. A possible explanation for why marriage to a native results in lower remittances is that with intermarriage, migrants become more invested in forming network ties in the host country than maintaining those at home, or perhaps intermarried migrants are able to facilitate reunification with family members at the destination. A number of studies show that migrants are much more likely to remit to close relatives than to friends. For example, in their experimental paper, De Arcangelis et al. (2015) find that additional remitting due to education labels largely occurs within the most closely connected household in the Philippines. If remittances are primarily sent to parents or siblings, why do they decrease post-marriage to a native? There are a number of additional characteristics of the migrants and their families that are likely to influence migrants' remittance behaviour, for example, whether the migrant's immediate family lives in the country of origin, the income of migrants and recipients, income volatility and current and expected levels of unemployment at home and destination. It is beyond the scope of the paper to provide conclusive remarks on this issue, as I lack systematic information on these characteristics.

Overall, I find both a direct effect of intermarriage on migrants' preferences for the home country and evidence of the importance of selection. On the one hand, a change in

remittance behaviour takes place with intermarriage. This result suggests a change in motivations to return over time, captured by variation in marital status. On the other hand, migrants who intermarry have lower intensions to return already before marriage. If migrants are indeed selected into marriage type by their intentions to return, this could mean that an intended return influences cultural integration and explains disparate integration patterns among migrants. Overall, the difference of the effect of intermarriage in the two outcomes highlights the importance of using multiple variables to proxy for migrants' home country preference.

4 Robustness checks

In order to check the robustness of the OLS and fixed effects estimates, I run several additional regressions. The main purpose of the control variables in the OLS model is to pick up differences between migrants that influence both home country preference and the likelihood to intermarry. In my first set of robustness checks, I, therefore, include dummies identifying region of residence. These provide basic proxies for the size of the minority group, the availability of prospective partners and the degree of racial, socio-economic and residential heterogeneity that are likely to influence intermarriage rates as well as controlling for region-specific externalities in the host country that influence home country preference (Blau et al. 1982; Blau et al. 1984; South and Messner 1986). The main result is unchanged, but estimates are less precise. I also control only for personal income due to a high degree of multicollinearity between this variable and employment status and household income.

Second, I estimate the fixed effects model, adding time-changing covariates, such as income and labour force status. The estimates for the effect of intermarriage are similar, and I choose the simplest model for the analysis because more variables are likely to make the estimates more imprecise due to the high persistency in income and labour force status over time. I also estimate the model with an interaction term *German spouse* Turkish* because Turkish migrants are the largest migrant group in the sample, but estimates of the coefficients do not change much. Though the model seems robust, it is clear that estimates are imprecise due to small sample size; it would be of interest to explore the issue in a larger sample. In general, the fixed effects estimates are likely to be a lower bound because individuals in my sample of migrants who marry while in SOEP are very young at immigration (10 is the average age of entry for men and 9 for women). I expect that the effect of intermarriage is smaller for migrants who enter the country at an early age, because they are likely to be already better integrated before marriage than those who spend less time in the host country before marriage (Dribe and Lundh 2008; Nekby 2010).

Finally, there are a number of additional sample problems that I do not explicitly address in this paper. The first problem relates to the variables that define singles and measure return. These variables are censored, meaning that they do not pick up migrants who marry after leaving SOEP, and migrants who return at some later point may be erroneously coded as stayers. However, because I look at a 28 year period, it is likely that most who intended to marry and return did so within this time period. Even migrants who entered the country when they were still young reach marriageable age while in the survey. I therefore assume that the observation period covers most marriages and returns.

A second problem is that the sample is choice based. Migrants who have a higher propensity to stay in Germany are also more likely to be observed in the panel because many

migrants with a high propensity to return already did so in the time between immigration and the survey year. To solve this problem requires modelling the process of choice based sampling. This is beyond the scope of the present paper. Rather, I address the issue by controlling for the time elapsed between immigration and joining SOEP. That is, I control for differences between migrants who have been in Germany for a long time before entering SOEP and those who have not. The coefficients are significant in the OLS regressions, especially so in the model estimating the propensity to return, which indicates that I control for some of the differences between the migrants sampled and the actual immigrant stock.

5 Conclusion

In this paper, I argue that motivations to return are likely to change with time in the host country as migrants integrate, establish a social network, form ties with natives or even marry a spouse from the host country. I analyse the association between intermarriage and migrants' preferences for the home country using German panel data on migrants' return intentions, remittances and return realisations. I establish a negative relationship between the indicator variables and intermarriage, conditional on a set of variables that capture differences in other determinants of home country preference. I also find that the effect of intermarriage on home country preference is stronger for female than for male migrants. However, this simple association may confound the effect of a German spouse on preference and the effect of preferences on choice of spouse. If the latter is the sole cause for the coefficient estimates, then I should not observe an association between intermarriage and home country preference when I estimate a fixed effects model. However, if the former is the cause, this is an indication of a change in preference with intermarriage and an association between preference and intermarriage even when controlling for selection. My results indicate that both selection and direct effects of intermarriage on home country preferences are important. First, I find that the relationship between intentions to return and intermarriage goes away when I control for unobserved variables, which is evidence to suggest that the association is due to selection. Second, the relationship between intermarriage and remittances sent holds in the fixed effects model, and the estimated coefficients are of the same magnitude as the OLS effects. This leads me to conclude that remittance behaviour changes with marriage and differently so for migrants who marry a spouse from the host country than migrants who marry another migrant. These results support the conjecture that migrants' home country preferences change with intermarriage but that it is also important to take potential confounders due to selection into account. From the empirical perspective, it turns out to be valuable to have more than one proxy variable for home country preferences.

As an immediate consequence, my findings provide a better understanding of the relationship between integration and preferences for the home country as well as changes in the latter over the duration of stay in the host country. This is important for interpreting observed integration patterns and for predicting how migrants might respond to policies that aim at integrating migrants into the host country society.

Endnotes

[1]See Chiswick (1978), Jasso and Rosenzweig (1982), Borjas (1989), Ramos (1992), Dustmann (1993), Duleep (1994), Lindstrom and Massey (1994), Borjas and Bratsberg

(1996), Borjas (2000), Dustmann (2000), Edin et al. (2000), Longva (2001), Nekby (2002), Bellemare (2007), Lubotsky (2007), Rooth and Saarela (2007), Dustmann et al. (2011), and the references therein.

[2]See Djajic and Milbourne (1988), Dustmann (2001), Dustmann and Kirchkamp (2002) for such models.

[3]See for example Dustmann (1996).

[4]Dustmann's (1996, pp. 232) finding that migrants who are married to a native have lower intentions to return than migrants married to a non-native spouse is line with my hypothesis.

[5]See Schultz (1961) and Becker (1964).

[6]While Meng and Gregory (2005), Meng and Meurs (2006), Celikaksoy (2007), Gevrek (2009), Furtado and Theodoropoulos (2010) and Dribe and Nystedt (2014) show that the intermarriage premium persists even after controlling for endogeneity, Kantarevic (2004), Nekby (2010), Nottmeyer (2014) and Belevander and Irastorza (2014) find evidence that the positive effect of intermarriage on economic integration disappears once they control for selection. Also see my Master's dissertation for a more thorough review of the literature (Weber 2014).

[7]See also Klinthäll (2004), who finds that marital status reveals some of the heterogeneity in return migration. He furthermore suspects that differing marital choices – marriage to a spouse from the host country or another migrant – are a likely explanation behind this result, but he does not test the hypothesis as his database lacks systematic information on spouses.

[8]Meng and Gregory (2005), Gevrek (2009), Kantarevic (2004) rely on the two instruments of group size and sex ratios; however, it is unclear how effective they are and are therefore not used in this study.

[9]The fixed effects model 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 randomised. Nevertheless, the resulting estimates on home country preference depict whether migrants' preference changes with intermarriage.

[10]See Haisken-DeNew and Frick (2005), Wagner et al. (2007) and Wagner et al. (2008) for a more detailed description of the German Socio-Economic Panel.

[11]For a discussion on the guest worker migration to Germany, see Chin (2007) and Castles and Kosack (1985); See also Münz and Ulrich (1997) and Bauer et al. (2005) for an overview on migration in Germany.

[12]I disregard information on divorce and second marriage in this analysis, although provided by SOEP, because only few migrants in the sample report divorcing or marrying a second time. Also, considering the small sample sizes, dividing the sample into too many groups is likely to reduce the reliability of the results.

[13]Many studies exclude this group from their analysis (Meng and Gregory 2005; Dribe and Lundh 2008; Gevrek 2009; Nekby 2010), but Nottmeyer (2014), for example, also keeps it in the sample.

[14]Dustmann (2003b) also constructs his analysis on this argument.

[15]Previous work has found little difference between migrants who marry a migrant from the same country of birth and those who marry a migrant from another country of birth (see, Dribe and Lundh 2008; Nekby 2010).

[16]I include respondents who report coming from one of the successor states of Yugoslavia in the category Ex-Yugoslavia, as migrants may have changed the information during or after the war. Nottmeyer (2014) and Kuhlenkasper and Steinhardt (2012) also do this.

[17]The percentage difference is calculated as follows: $b_3/(average\ value)$ from Table 1. For example, $(-\ 0.143/0.73) = -\ 0.196$ or rounded to - 20%.

[18]As intentions and remittances are obviously good predictors of actual return, I also ran the OLS regression of realised return on these two variables in addition to the rest of the demographic and human capital variables. The effect of intermarriage and marriage is similar to the one presented in the specification above. Furthermore, I find that intentions to return are strongly and positively associated with return, but remittances are strongly and negatively associated with return. The association between sending remittances and return seems to be confounded with income, as the two variables are highly correlated. I do not include the results in the paper because of problems with endogeneity that I do not have valid instruments to control for. However, the results are available from the author on request.

[19]I refer the sub-sample of migrants who marry after coming to Germany but before entry into SOEP, as it is more similar to the sub-sample of migrants who marry after entering SOEP than that of migrants who marry before coming to Germany.

[20]It may be that the coefficient for female migrants is insignificant because few women in the sample report sending remittances, which possibly indicates a downward bias in my results.

[21]Nekby (2010) and Dribe and Nystedt (2014) find that most of the intermarriage premium is already visible at the time of marriage, indicating that the courting stage or period of cohabitation may have a non-trivial effect.

References
Agarwal R, Horwitz A (2002) Are International Remittances Altruism or Insurance? Evidence from Guyana Using Multiple-Migrant Households. World Dev 30:2033–44
Bauer T, Dietz B, Zimmermann KF, Zwintz E (2005) German migration: Development, assimilation and labour market effects. In: Zimmermann KF (ed) European migration. Oxford University Press, Oxford, pp 361–77
Becker GS (1964) Human Capital. Columbia University Press, New York
Belevander, P, Irastorza, N (2014) Economic Integration of Intermarried Labour Migrants, Refugees and Family Migrants to Sweden: Premiums or Selection? IZA Discussion Paper No. 80965
Bellemare C (2007) A life-cycle model of outmigration and economic assimilation of immigrants in Germany. Eur Econ Rev 51:553–76
Blau P, Blum T, Schwartz J (1982) Heterogeneity and Intermarriage. Am Sociol Rev 47:45–62
Blau P, Beeker C, Fitzpatrick K (1984) Intersecting Social Affiliations and Intermarriage. Soc Forces 62:585–606
Borjas GJ (1989) Immigrant and emigrant earnings: a longitudinal study. Econ Inq 27:21–37
Borjas GJ, Bratsberg B (1996) Who Leaves? The Outmigration of the Foreign-Born. Rev Econ Stat 78:165–76
Borjas GJ, (2000) The economic progress of immigrants. In: Borjas GJ (ed) Issues in the economics of immigration. University of Chicago, Chicago
Castles S, Kosack G (1985) Immigrant Workers and Class Structure in Western Europe. Oxford University Press, New York
Celikaksoy A (2007) A Wage Premium or Penalty: An Analysis of Endogamous Marriage Effects among the Children of Immigrants? Danish Journal of Economics 145:288–311
Chin R (2007) The Guest Worker Question in Postwar Germany. Cambridge University Press, Cambridge
Chiswick BR (1978) The Effect of Americanization on the Earnings of Foreign-born Men. J Polit Econ 86:897–921

De Arcangelis G, Joxhe M, McKenzie M, Tiongson E, Yang D (2015) Directing Remittances to Education with Soft and Hard Commitments: Evidence from a Lab-in-the-field Experiment and new Product Take-up among Filipino Migrants in Rome. NBER Working Paper No. 20839

Djajic S, Milbourne R (1988) A General Equilibrium Model of Guest Worker Migration: The Source-Country Perspective. J Int Econ 25:335–51

Dribe M, Lundh C (2008) Intermarriage and Immigrant Integration in Sweden. Acta Sociologica 51:329–54

Dribe M, Nystedt P (2014) Is there an Intermarriage Premium for Male Immigrants? Exogamy and Earnings in Sweden 1990–2009. Int Migr Rev 48:1–33

Duleep, HO (1994) Social Security and the Emigration of Immigrants. ORS Working Paper Series No. 60

Dustmann C (1993) Earnings adjustment of temporary migrants. J Popul Econ 6:153–68

Dustmann C (1996) Return Migration: The European Experience. Econ Policy 11:213–50

Dustmann C (1999) Temporary Migration, Human Capital, and Language Fluency of Migrants. Scand J Econ 101:297–314

Dustmann, C (2000) Temporary migration and economic assimilation. IZA Discussion Papers No. 186

Dustmann C (2001) Why Go Back? Return Motives of Migrant Workers. In: Djajic S (ed) International Migration: Trends, Policy and Economic Impact. Routledge, Abingdon, pp 233–52

Dustmann C, Kirchkamp O (2002) The optimal migration duration and activity choice after re-migration. J Dev Econ 67:351–72

Dustmann C, (2003a) Return migration, wage differentials, and the optimal migration duration. Eur Econ Rev 47:353–69

Dustmann C, (2003b) Children and return migration. J Popul Econ 16:815–30

Dustmann C, Faldon I, Weiss Y (2011) Return migration, human capital accumulation and the brain drain. J Dev Econ 95:58–67

Edin P, Lalonde RJ, Åslund O (2000) Emigration of Immigrants and Measures of Immigrant Assimilation: Evidence from Sweden. Swedish Economic Policy Review 7:163–204

Foster AD, Rosenzweig MR (2001) Imperfect Commitment, Altruism and the Family: Evidence from Transfer Behavior in Low-Income Rural Areas. Rev Econ Stat 83:389–407

Furtado, D, Theodoropoulos, N (2010) Why does intermarriage increase immigrant employment? The role of networks. IZA Discussion Paper No. 5080

Gevrek, E (2009) Interethnic Marriage and the Labour Market Integration of Immigrants in the Netherlands. Department of Economics, University of Arizona, Tuscon

Haisken-denew, JP and Frick, JR (2005) Desktop companion to the German socio-economic panel (SOEP). http://www.diw.de/documents/documentenarchiv/17/diw_01.c.38951.de/dtc.409713.pdf. Viewed 24 August 2014

Jasso G, Rosenzweig MR (1982) Estimating the emigration rates of legal immigrants using administrative and survey data: the 1971 cohort of immigrants to the United States. Demography 19:279–90

Kantarevic, J (2004) Interethnic Marriage and Economic Assimilation of Immigrants. IZA Discussion Paper No. 1142

Klinthäll M (2004) Return Migration at the End of Working Life. Department of Economic History, Lund University

Kuhlenkasper, T, Steinhardt, MF (2012) Who Leaves and When? – Selective Outmigration of Immigrants from Germany. SOEP Papers No. 490

Lindstrom DP, Massey DS (1994) Selective emigration, cohort quality and models of immigrant assimilation. Soc Sci Res 23:315–49

Longva P (2001) Out-migration of immigrants: implications for assimilation analysis. Department of Economics, University of Oslo

Lubotsky D (2007) Chutes or Ladders? A Longitudinal Analysis of Immigrant Earnings. J Polit Econ 117:820–76

Lucas R, Stark O (1985) Motivations to Remit. J Polit Econ 93:901–18

Meng X, Gregory RG (2005) Intermarriage and the Economic Assimilation of Immigrants. J Labor Econ 23:135–74

Meng X, Meurs D (2006) Intermarriage, Language, and Economic Assimilation Process: A Case Study of France. IZA Discussion Paper No. 2461

Münz R, Ulrich R (1997) Changing Patterns of Immigration to Germany, 1945–1995. In: Bade K, Weiner M (eds) Migration Past, Migration Future: Germany and the United States. Berghahn Books, New York, pp 65–119

Nekby L (2002) The emigration of immigrants, return vs onward migration: evidence from Sweden. J Popul Econ 19:197–226

Nekby L (2010) Inter- and Intra-Marriage Premiums Revisited: It's Probably Who You Are, Not Who You Marry! IZA Discussion Paper No. 5317

Nottmeyer O (2014) Relative labor supply in intermarriage. IZA Journal of Migration, 3:3

Ramos FA (1992) Out-Migration and Return Migration of Puerto Ricans. In: Borjas G, Freeman G (eds) Immigration and the work force: economic consequences for the United States and source areas. University Chicago Press, Chicago

Rapoport H, Docquier F (2005) The Economics of Remittances. IZA Discussion Paper No. 1531

Rooth D, Saarela J (2007) Selection in migration and return migration: Evidence from micro data. Econ Lett 94:90–5

Schultz T (1961) Investment in Human Capital. Am Econ Rev 51:1–17

South SJ, Messner SF (1986) Structural Determinants of Intergroup Association: Interracial Marriage and Crime. Am J Sociol 91:1409–30

Stark, O (2009) Reasons for Remitting. ZEF Discussion Paper No. 134

Wagner G, Frick J, Schnupp J (2007) The German Socio-Economic Panel Study (SOEP) – Scope, Evolution and Enhancements. Schmollers Jahr 127:140–69

Wagner G, Göbel J, Krause P, Pischner R, Sieber R (2008) Das Sozio-ökonomische Panel (SOEP): Multidisziplinäres Haushaltspanel und Kohortenstudie für Deutschland – Eine Einführung (für neue Datennützer) mit einem Ausblick (für erfahrene Anwender). AStA Wirtschafts- und Sozialstatistisches Archiv 2:301–28

Weber, R (2014) Does intermarriage change migrants' preferences for the home country? LSE Master's Dissertation Department of Sociology, London School of Economics, London