

Way out of town – are long-distance relationships a response to local partner scarcity?

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Introduction

Individuals tend to seek and find partners who are geographically close to themselves, a pattern often described as spatial homogamy (Bossard, 1932; Haandrikman, 2019; Haandrikman et al., 2008, 2011; Haandrikman & Hutter, 2012; Ouyang et al., 2009; Pullum & Peri, 1999). For Sweden and the Netherlands, findings suggest a median distance of only around 9km and 6km between both partners prior to cohabitation (Haandrikman, 2019; Haandrikman et al., 2008). Following the theory of social structure, partner markets and individuals' actual or perceived opportunities to form an intimate relationship are determined by the composition of the social structure that they are embedded in (Blau, 1977, 1994). Each social context or foci differ in their characteristics and availability of potential partners (Feld, 1981). While former partner markets were geographically restricted and people tended to marry locals, increases in social and spatial mobility, educational participation, travel abroad, and globalization led to a vision of space becoming less important where people are decoupled from place (Cairncross, 2001; Castells, 2009; Haandrikman, 2019). Especially, the rise in social media and the internet made contemporary partner markets complex and highly segmented (Sassler & Lichter, 2020). However, recent evidence reveals that individuals who search online for a new partner prefer to find a partner in spatial proximity (Bruch & Newman, 2019; Wei, 2019).

Individuals' partner choice generally relies on the two factors of preferences and opportunities (Kalmijn, 1998). Individuals differ in what they prefer in their romantic partners. Preferences are divided into necessities and luxuries (Li et al., 2002). A necessity is an essential consumption item that tends to be most important for individuals searching for a new partner. Previous findings suggest that social status and attractiveness are the essential preferences in partner choice (Bech-Sørensen & Pollet, 2016). Contrary, luxuries like creativity, friendliness, or nonwork talents become important if essential preferences are satisfied (Buss & Schmitt, 1993; Li et al., 2002). Focusing on geographic proximity as mate preference, results from

experimental data suggest that men and women value it as a luxury preference (Jonason et al., 2017). Furthermore, in a choice experiment, men and women decide more often to travel farther than to abstain or lower their standards when potential partners are scarce (Jonason et al., 2020). However, real-life behavioral data that investigates whether individuals adapt to local partner scarcity by searching for a new partner over longer distances is missing. The opportunity to meet potential partners is the essential precondition to form an intimate relationship. Gender-selective migration patterns have generated increasing imbalances in the local number of men and women at the main age stages of relationship and family formation throughout Europe (Klingholz & Kröhnert, 2007; Rauhut & Littke, 2016; Wiest et al., 2013). These imbalances result in partner market squeezes, local scarcities of potential opposite-gender partners relative to same-gender competitors (Akers, 1967; Goldman et al., 1984; Stauder & Jäger, 2019). Individuals faced with such local scarcities of potential partners struggle to find a partner from nearby and thus might fail to realize their spatially homogamous preferences. The demographic literature has long discussed the implications of local partner market squeezes for the pattern and timing of relationship formation and marriage (Akers, 1967; Arnocky et al., 2016b; Jonason et al., 2020; Lichter et al., 1995; Lloyd & South, 1996; Schoen, 1983; South & Lloyd, 1992). So far, the literature has mainly focused on analyses of the likelihood and timing of marriage. Studies found that local partner scarcities postpone the entry into marriage for women, while evidence is less clear for men (Cohen & Pepin, 2018; Schacht & Kramer, 2016; Ugglä & Mace, 2017; Warner et al., 2011). Moreover, recent analyses reveal that local partner market squeezes are a key factor for educational heterogamy (De Hauw et al., 2017; Stauder & Kossow, 2021). In this paper, we add a novel perspective by analyzing whether local partner scarcities predict the formation of long-distance relationships rather than short-distance relationships. Thus, we analyze whether individuals "cast a geographically wider net" when facing a relative scarcity of potential partners. Previous results with experimental data showed the sensitivity of individuals' mating tactics and behavior to the availability of potential partners (Arnocky et al., 2014, 2016; Taylor, 2013; Watkins et al., 2012). However, no study so far has analyzed the consequences of partner scarcity for levels of spatial heterogamy in relationship formation. Based on demographic and evolutionary theory assumptions, we apply a multidisciplinary perspective to analyze the consequences of partner scarcity on the probability of forming a long-distance intimate relationship. Demographic-opportunity theory emphasizes the relevance of population sex distribution at local levels for the availability of potential partners. Hence, a man's chance to meet a potential female partner or vice versa depends on the (relative) number of men and women on a contextual level (Blau, 1977; South et al., 2001; Trent & South, 2011).

Fewer potential partners may increase the probability of long-distance relationships because men and women cast a wider net to find a partner. Theories combining social exchange and evolutionary perspectives, however, come to gender-specific hypotheses. Due to different levels of parental investment, men and women differ in their relationship preferences. Previous results show that women favor committed and stable unions more often while men prefer more sexually permissive uncommitted relationships (Pedersen, 1991; Trivers, 1972). For women, parental investment is higher than for men, resulting in being more willing to travel farther for a suitable partner. Thus, women may form more often a long-distance relationship when partners are scarce than men.

Data and Methods

Our study uses data from waves 1 – 11 (2007-2018) of the German Family Panel (pairfam). The pairfam data allow us to analyze the level of spatial heterogamy at the start of a relationship. Thus, we are able to move beyond existing analyses of future partners' last place of residence before entering cohabitation, a stage in relationships where partners might already have moved closer to one another without yet moving in together. In total, our analytical sample includes 4,485 persons with 15,653 person-years. Overall, 2,548 partnerships were formed by adult respondents (aged 18 or older) during the observation period. We categorize these relationships as short-distance if participants report that their residence is less than a one-hour drive away from their partner's place per way. Relationships between partners who live further apart are classified as long-distance. We link the pairfam relationship data with administrative population data to obtain a measure of local partner availability based on age-specific sex ratios on the county-level (*Kreise und kreisfreie Städte* – NUTS-3). Age-specific sex ratios reflect the share of men in cohorts aged two years older and younger than the focal individual age and are age-shifted by two years to incorporate conventional patterns of age hypergamy. A recent analysis reveals that age-specific and particularly age-shifted sex ratios better approximate individual partner market experiences than adult sex ratios for large age brackets, such as 18-49 (Filser & Preetz, 2021).

Our analysis follows a two-step approach. First, we start with a competing-risk framework where singles can remain single, enter a short-distance or long-distance relationship. Then, we use logistic regression models to investigate if individuals are more likely to enter a long-distance rather than a short-distance relationship in the face of an unfavorable local partner market, i.e., sex ratio skews towards one's own gender. Models adjusted for age and age squared, education, labor force status, parental status, and the population size of the residential

municipality. We fit separate models for men and women. Table 1 shows the descriptives for our sample.

Table 1: Descriptive

Variables	
Sex Ratio	51.90
Age	27.8
<i>Birth cohort</i>	
1991-1993	46.37%
1981-1983	30.27%
1971-1973	23.36%
<i>Children</i>	
Yes	12.53%
<i>Employment</i>	
In education	24.64%
Vocational training	10.27%
Part-time	12.24%
Full-time	37.84%
Other	15.01%
<i>Education</i>	
Currently enrolled	34.48%
Low	14.87%
Middle	38.50%
High	12.15%
<i>Size municipality</i>	
<5000	14.81%
5000-20k	28.45%
20k-50k	17.29%
50k-100k	8.53%
100k-500k	15.52%
>500k	15.39%
Number of persons	4,485
Number of person-years	15,653
Number of short-distance partnerships	1,807
Number of long-distance partnerships	741

Results

Table 2 shows the result of the multinomial event-history analysis with the reference group of forming a short-distance relationship. Results show significant positive effects for men. A higher value in men's sex ratio increases the probability of remaining single compared to

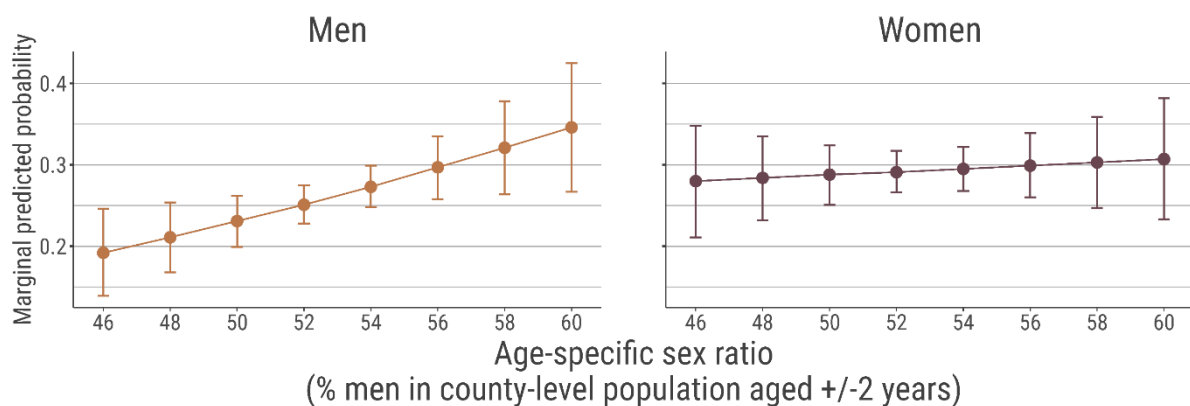
forming a short-distance relationship. A high number of sex ratios indicate a surplus of men. Thus, if women are scarce, men tend to remain single. For the probability of starting a long-distance relationship, we find a significant positive effect too. If the sex ratio is high and women are scarce, men tend to travel farther to find a new partner. For women, we do not find any significant effects for remaining single or forming a long-distance relationship. Figure 1 illustrates the results from the logistic regression model graphically and shows predictive probabilities. The sex ratio is displayed as the share of the male population with 50% means a balanced sex ratio with equal numbers of men and women. Values higher than 50% suggest a surplus of men and values below 50% a surplus of women. For men, the probability of forming a long-distance relationship compared to a short-distance relationship increases if men's share increases. There is no effect for women.

Table 2: Multinomial time-discrete event history analysis for singles (ref.: short-distance)

	Men		Women	
	(1) Single	(2) Long-distance	(3) Single	(4) Long-distance
Sex Ratio	0.0455* (0.0191)	0.0655* (0.0249)	-0.00998 (0.0178)	0.0115 (0.0287)
Age	0.0467 (0.0576)	0.403* (0.125)	0.205* (0.0588)	0.315* (0.0908)
Age ²	0.000552 (0.000950)	-0.00628* (0.00216)	-0.00193* (0.000978)	-0.00404* (0.00154)
Ref. 1991-93				
1981-83	-0.127 (0.162)	-0.358 (0.289)	-0.429* (0.181)	-0.771* (0.263)
1971-73	-0.575+ (0.308)	-0.0712 (0.555)	-0.423 (0.311)	-1.106* (0.497)
Ref.: No children				
Children	-0.838* (0.216)	-0.479 (0.413)	-0.611* (0.136)	-0.564* (0.203)
Ref.: Enrolled				
Low	0.578* (0.174)	-0.360 (0.363)	0.262 (0.173)	-0.0875 (0.306)
Middle	0.166	-0.232	0.106	-0.217

	(0.150)	(0.284)	(0.149)	(0.236)
High	0.0696	0.398	0.106	0.0834
	(0.164)	(0.287)	(0.179)	(0.282)
Ref.: Full-time				
In education	0.503*	0.603*	0.593*	0.502 ⁺
	(0.150)	(0.286)	(0.162)	(0.267)
Vocational	0.335 ⁺	-0.103	0.123	-0.180
	(0.175)	(0.338)	(0.164)	(0.318)
Part-time	0.436*	0.184	0.113	0.283
	(0.153)	(0.294)	(0.112)	(0.231)
Other	0.720*	0.626*	0.337*	0.476*
	(0.126)	(0.216)	(0.128)	(0.216)
Ref.: <5k				
5k-20k	-0.0925	-0.103	-0.212 ⁺	-0.460*
	(0.126)	(0.254)	(0.129)	(0.219)
20k-50k	-0.143	0.0908	-0.150	-0.222
	(0.139)	(0.277)	(0.129)	(0.223)
50k-100k	-0.197	0.300	-0.134	-0.0380
	(0.198)	(0.287)	(0.193)	(0.259)
100k-500k	-0.110	0.289	-0.185	-0.326
	(0.156)	(0.282)	(0.128)	(0.202)
>500k	-0.0761	0.300	0.133	0.109
	(0.142)	(0.271)	(0.139)	(0.214)
Constant	-2.270 ⁺	-10.57*	-1.701	-6.218*
	(1.248)	(2.305)	(1.262)	(2.006)
N _{Persons}	2454	2454	2031	2031
N _{Person-years}	8943	8943	6710	6710

Figure 1: Predicted probabilities for starting a long-distance relationship by the sex ratio



Pairfam, 2007-2018

Discussion

The aim of our study was to investigate the influence of partner scarcity on singles' relationship formation behavior. Specifically, we uncovered if individuals adapt their mating behavior to partner market conditions and cast a geographically wider net if potential partners are scarce. We combined large-scale panel survey data with administrative data and calculated age-specific sex ratios separately for men and women. Our results suggest that men expand their partner market and search for a new partner far away from their local partner market. When the number of competitors is high and women are scarce, their probability of forming a long-distance relationship increase. For women, we do not find any effects.

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