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Opportunities and Constraints of the Partner Market and Educational Assortative Mating

Johannes Stauder[1] and Tom Kossow[1]

Abstract

This study aims to determine to what extent the opportunities and restrictions of the partner market influence educational assortative mating. It also analyzes the interplay between the opportunity structure and preferences. Matching district-based partner market indicators to heterosexual couples when they move in together based on the German Socio-Economic Panel, we find strong effects of the opportunity structure on educational homogamy. The results further imply that the density of the supply of potential partners is more important for educational assortative mating than imbalanced supply and competition. While the impact of partner market *imbalances* on assortative mating is a mere effect of the opportunity structure, the effects of the partner market *density* of relevant and available partners in space weakly imply that homophile and maximization preferences are simultaneously at work.

Keywords

partner market, assortative mating, education, partner choice, couple relationship, homogamy, GSOEP

[1]Heidelberg University, Heidelberg, Germany

Corresponding Author:
Johannes Stauder, Max-Weber-Institut für Soziologie, Heidelberg University, Bergheimer Str. 58, Heidelberg 69115, Germany.
Email: Johannes.Stauder@mwi.uni-heidelberg.de

Introduction

Status homogamy in marriage and couple relationships is a strong pattern in partner choice with important consequences for family formation, social mobility chances, the system of social inequality, and social closure (Lichter & Qian, 2019; Smits et al., 1998; Weber, 1972). Under a meritocratic regime, cultural capital—and therefore education—is one of the central attributes of status homogamy. Consequently, understanding the determinants of educational assortative mating is key to understanding the reproduction of social inequality in modern societies, and many scholars have undertaken research on this topic (see a review by Blossfeld, 2009).

There are at least two driving forces for assortative mating with respect to age, ethnicity, education, and many other attributes: (a) Individuals prefer partners with certain traits and (b) individuals are restricted in their opportunities to meet potential partners in their environment. These opportunities are shaped by the macrostructural distribution of preferred attributes (Blau, 1977b, 1977a), which is referred to as the partner market. Hence, to adequately describe the opportunities and restrictions to meet and mate with potential partners, researchers must construct reasonable bridging assumptions about preferences (Stauder, 2008, 2014). It is impossible to assess the impact of meeting opportunities independently of assumptions about individuals' partner preferences. For relevant attributes measured on a nominal scale, such as race or ethnicity, we can usually assume *homophily*; that is, individuals prefer partners who are similar to them in terms of such traits (Heider, 1977; McPherson et al., 2001). For attributes measured on an ordinal scale, that is, status attributes that constitute inequality (Blau, 1977a, 1977b), such as educational attainment, it may also be reasonable to assume a preference for *maximization*; that is, individuals prefer partners with the highest possible status (Klein, 2016; Klein & Rüffer, 2001).

The aim of the following article is (a) to determine whether and to what extent the opportunities and restrictions of the partner market actually influence educational assortative mating. As opportunities and restrictions on the one hand and preferences, on the other hand, are interrelated, we ask, (b) whether the pattern of partner market influences on educational homogamy is more congruent with assumptions about homophile preferences or with assumptions about maximization. From this analysis, we can derive clues as to whether educational homogamy is produced by homophily or by maximization. We further want to determine, and (c) if educational homogamy is more dependent on the interplay of supply and competition on the partner market—as most conventional indicators suggest; or whether aspects that influence search costs—which are accentuated by the density of supply in space or population—make the difference.

This article will contribute to the literature in several ways: We provide the first results for Germany on how partner market opportunities and restrictions influence educational homogamy. Most of the previous research has been confined to analyzing the impact of partner market *imbalances* (i.e., the ratio of supply and competition) on *marital* unions. We follow most of these prior studies by considering the effects of partner market imbalances. However, we also analyze constraints in partner market transparency, measured by variations in the *density of the supply* of relevant and available potential partners on educational homogamy (compare Lewis & Oppenheimer, 2000). Whereas prior research has used incidences or prevalences of marriage as their unit of analysis, we analyze the impact of the partner market at the moment *when couples move in together*, because we believe that this event is closer to the situation that actually framed partner choice and avoids endogenous processes. Although prior studies treated the partner market as a more or less time-constant macrovariable, we follow recent findings illustrating that *the partner market situation varies not only by region and cohort, but also over the life course* of men and women (Eckhard & Stauder, 2019)—with eventual changes in partner market situations between moving in together and marriage. Our measures vary over the life course, because they *accurately account for asymmetric age preferences of men and women that vary over the life course*, whereas prior studies used crude sex ratios within large age groups. In addition, prior research restricted the partner market to the unmarried. In contrast, we use measures that account for the *restricted availableness* of potential partners in marriages and unmarried couples (Eckhard & Stauder, 2019).

After reviewing the empirical results of the previous research (second section), we will discuss the possible theoretical mechanisms that lead to educational assortative mating, we provide a detailed explanation of the theoretical concept behind the opportunities and constraints of the partner market (third section), and construct our hypotheses (fourth section). Then, we will discuss our data and methods (fifth section) before presenting (sixth section) and discussing (seventh section) our findings.

Empirical Results on Assortative Mating

A vast number of studies show an increasing trend of educational assortative mating in the 20th and 21st centuries (Blossfeld & Timm, 2003; Cheng, 2014; Ganguli et al., 2014; Hou & Myles, 2008; Hu & Qian, 2016; Kalmijn, 1991a, 1991b; Mare, 1991; Qian & Preston, 1993; Rockwell, 1976; Schwartz & Mare, 2005; Wirth, 1996). However, there is also research that shows a decline in homogamous partnerships in Austria (Appelt & Reiterer, 2009), and according to Rosenfeld (2008), there is a relatively stable level of educational assortative mating in the United States. Eika et al. (2014) show that

while homogamy between persons with college degrees has decreased, the least educated show a trend toward more homogamous mating.

Many studies see a link between the opportunity structure of the marriage market and partner choices regarding education (Albrecht et al., 1997; Blossfeld & Timm, 2003; Çelikaksoy et al., 2010; Halpin & Chan, 2003; Hu & Qian, 2016; Kalmijn & Flap, 2001; Klein & Rüffer, 1999; Lewis & Oppenheimer, 2000; Lichter et al., 1995); however, there is also support for the significance of mate preferences (e.g., Albrecht et al., 1997; Lichter et al., 1995; Skopek et al., 2010).

While some studies focus on the macrostructural context of meetings, others focus on more immediate meeting opportunities. Kalmijn and Flap (2001) show that couples who share a social context, such as school, the workplace, or the neighborhood before dating, are more likely to be homogamous. Blossfeld and Timm (2003) show that the probability of an educationally homogamous marriage increases with the amount of time a person spends in educational institutions, which promotes educational homogamy among the highly educated (see also Mare, 1991).

Among those studies that focus on the macrostructural context of meetings, Albrecht et al. (1997) and Lichter et al. (1995) apply global or age-specific sex ratios on a regional level for the United States and find a positive effect of the regional sex ratio on the education level of spouses. Albrecht et al. (1997) conclude that women and men prefer a spouse whose education level is at least as high as their own. Lichter et al. (1995) find that women are not willing to marry men with a lower educational level than their own, even when the marriage market does not offer much opportunity. Both studies therefore imply that status maximization is women's dominant preference in mate selection. In contrast, Lewis and Oppenheimer (2000) find no effect of the sex ratio differentiated by educational groups on educational mate selection. However, when applying the proportion of potential mates with at least the same educational level among all potential mates as a marriage market measure, they find a significant positive correlation with educational homogamy and hypergamy for women.

The following analysis will go beyond the previous literature in several ways:

1. We provide the first results on how local partner market opportunities and restrictions promote educational homogamy in Germany.
2. Even when the partner market imbalance is favorable because competition is low, it may be difficult to meet and identify a statisficing potential partner because potential partners are spread over a large spatial area (e.g., in rural regions) or because they comprise a small share of the population (low density of supply). Therefore, we do not restrict ourselves to the analysis of partner market imbalances

(Albrecht et al., 1997; Çelikaksoy et al., 2010; Lichter et al., 1995) but also apply measures of *partner market density* (PMD; compare Lewis & Oppenheimer, 2000).

3. Most of the previous research is confined to homogamy within marital unions (Albrecht et al., 1997; Lewis & Oppenheimer, 2000; Lichter et al., 1995). However, with the growing number of (temporarily or permanent) nonmarital unions in many industrialized countries, many partner choices do not happen at the moment of marriage but at earlier stages of a couple's life course. Therefore, and to avoid endogeneity biases, we will consider educational homogamy for *all newly established couples* at the moment when the couples move in together (marital and cohabiting unions).
4. Whereas prior studies used either global or crude age-specific sex ratios (Albrecht et al., 1997; Çelikaksoy et al., 2010; Lewis & Oppenheimer, 2000; Lichter et al., 1995), we apply measures that adequately account for *age-specific asymmetric age preferences* of men and women.
5. Furthermore, these studies restricted the partner market to the unmarried, whereas our analyses will account for the *restricted availableness* of all individuals who are committed in intimate relationships—irrespectively of being married or cohabiting—by assigning them a probability of being available despite having a partner. This probability in turn depends on being married, sharing or not sharing a dwelling with a partner, or being single.
6. Both accounting for age-specific asymmetric age preferences and for restricted availableness produce strong dynamics of the partner market situation over the life course (Eckhard & Stauder, 2019). Therefore, whereas prior research has treated the partner market as a more or less time-constant feature (data came from one or two U.S. census Public Use Microdata, Albrecht et al., 1997; Lewis & Oppenheimer, 2000; Lichter et al., 1995), we match the individual's partner choice with the individual's *partner market situation that actually framed this decision* (the year immediately before moving in together) by period, region, age, and education.

Theory and Concepts

Preferences in Partner Choices

A central pattern of partner choice is similarity in traits such as age (Hollingshead, 1950; Klein & Rapp, 2014), ethnicity (Alba & Golden, 1986; Hollingshead, 1950), and education (Klein & Rüffer, 1999; Mare, 1991;

Schwartz & Mare, 2005). This pattern may be the result of homophile preferences: Men and women who are similar in these attributes have similar needs and orientations. Since individuals seek cognitive consistency in their relationships (balance theory, Heider, 1977), they evaluate their interactions with others who share their values and orientations more highly and seek to maintain these interactions ("reinforcement model," Byrne, 1971). Educational attainment is highly associated with values, orientations (Wagner & Zick, 1995), and interests (Katz-Gerro, 1999); hence, there are good reasons to assume educational homophily. Empirical evidence in many studies highlights educational assortative mating and supports this idea (see the review in second section).

However, individuals may not prefer only partners with similar values and orientations as mediated by educational attainment. Partner's education is a social resource that gives access to income and status. According to Blau (1977b, p. 31), education can be interpreted as a gradual "parameter" that reflects social status. Hence, individuals may not seek a partner with similar needs and orientations (homophily) but instead seek to maximize their partner's status (Becker, 1973; Coleman, 1990; Klein & Rüffer, 2001; Klein, 2015; 2016, 157ff). In this case, however, if we assume perfect information, educational assortative mating is the result of the interdependent choices of all competitors on the partner market: The most qualified woman will choose the most qualified man (and vice versa), and the least qualified woman will have to choose the least qualified man (Klein, 2016, 157ff).

Moreover, in times of educational expansion, the structural chance for men to meet women with equal or higher qualifications has increased dramatically (OECD, 2013; for Germany, see Helbig, 2012). In Germany, today, more women than men attain the general maturity certificate ("Abitur") (Helbig, 2012). Additionally, men and women with equal educational attainment share educational meeting contexts for a longer period of time (Blossfeld, 2009). Hence, the pattern of educational assortative mating observed in many studies may be the result of homophile preferences, status-maximizing preferences, or homogeneous structural meeting chances on the macro and meso levels.

How Do We Search for a Partner with Preferred Traits?

Before we turn to a conceptualization of the opportunity structure to meet potential partners, we have to model the process of searching for a partner. This is a complicated process of decision-making under uncertainty. According to Blossfeld (2009, p. 520),

> "in this search process, (*a*) individuals encounter prospective partners in a temporal sequence, (*b*) who are appearing in random order and (*c*) are coming from a population with unknown parameters; (*d*) there are search costs and (*e*) time limits for partner decisions; (*f*) there is the difficulty of backtracking to previously rejected partners (because they may have found another partner in the meantime); and (*g*) there is temporal discounting."

In this situation, if one does not know which potential partners he or she will come across in the future, satisficing is characterized as a valuable method for choosing a partner from a set of potential partners one meets sequentially (Blossfeld, 2009; Simon, 1956, 1999). According to this rule of choice, a searcher sets an adjustable aspiration level and stops searching for further alternatives when he or she finds a potential partner who exceeds that level (Simon, 1956). Consequently, in contrast to the standard assumption of a perfect market as in economics (Becker, 1973, 1974, 1981), searchers will not continue to search until a perfect partner has been found (see also Oppenheimer, 1988). When search costs are high, searchers may either stay single or become forced to adjust their aspiration level and accept partners with a less valuable set of traits. One important aspect of search costs is the structural chances of meeting suitable potential partners: the partner market.

Structural Meeting Chances: The Partner Market

Theoretical considerations regarding the partner market. To search for and finally find a partner and form a union, individuals must meet suitable potential partners in their social environment. In this way, the partner market can be conceptualized as part of the social space (Blau, 1977a, 1977b) that constitutes the supply of and competition for suitable partners for a couple relationship. Search costs (see section "How Do We Search for a Partner with Preferred Traits?") will be higher when there are few suitable potential partners (low supply) or when there are (too) many competitors for these potential partners (competition). Hence, finding a suitable partner is restricted by the population's distribution of those traits that we find important in an intimate partner (our preferences, see section "Preferences in Partner Choices") such as his or her gender, age, education, and ethnicity (Blau, 1977a, 1977b; Blau et al., 1982). An adequate measure of individuals' opportunities and restrictions on the partner market must consider the following issues: (a) What are the preferred traits of potential relationship partners? According to these preferences, who is *relevant* for an individual's partner market? (b) Among the relevant potential partners, who may be *available* for a (new) couple relationship? (c) Who *competes* with the individual for these relevant

and available potential partners? (d) What are the adequate *spatial limits* of an individual's partner market?

1. To specify the *relevance* of other individuals as potential partners in a couple relationship, assumptions about the preferred traits of a potential partner must be formulated: Do we prefer partners with similar (homogamy), dissimilar (heterogamy), or better (maximization) traits? In terms of heterosexual intimate relationships, it is clear that only people of the opposite sex are relevant.[1] Men and women who are at a similar stage in their life course will have similar needs and orientations and therefore will evaluate their joint interactions more highly. Since young women enter adolescence and adulthood earlier than young men (e.g., Corijn & Klijzing, 2001), they have been found to prefer male partners who are, on average, some years older, and vice versa (Buunk et al., 2001; Kenrick & Keefe, 1992; for Germany, see Klein & Rapp, 2014). In the later life course, however, these differences will be less pronounced. Our partner market-concept will therefore account for varying age preferences over the life course of men and women. In section " Preferences in Partner Choices," we discussed homophile versus maximizing preferences relating to education. On the one hand, similarly educated partners share similar values and orientations (homophily). On the other hand, education can be interpreted, in Blau's terms (1977b: 31) as a gradual "parameter" that reflects social status. Hence, individuals may seek to maximize their partner's status (Becker, 1973; Coleman, 1990; Klein & Rüffer, 2001; Klein, 2015; 2016, 157ff). Moreover, individuals are not only interested in one trait—such as education or age—but in a complex set of suitable traits. Therefore, a favorable opportunity structure in the partner market according to age allows the searcher to set a higher aspiration level with respect to education.
2. As individuals form couple relationships, increasingly fewer opposite-sex singles remain available on the partner market. However, even people in a marital or nonmarital couple relationship belong to the partner market—they can separate and search for new partners—although they are less likely to be available than those without a partner (see Eckhard & Stauder, 2019; Stauder, 2006). Hence, our conceptualization of the partner market will take into account that individuals who are already in a couple relationship may still be *available* on the partner market but only to the extent that they are willing to change partners. While most prior research has simply reduced the partner market to the unmarried (Albrecht et al., 1997;

Crowder & Tolnay, 2000; Lewis & Oppenheimer, 2000; Lichter et al., 1995; Lloyd & South, 1996; Oropesa et al., 1994; South, 1995; South & Lloyd, 1992, 1995; Veevers, 1988), we will adequately account for the varying availableness of married or cohabiting people, of people with a partner not living in the same household and of singles. To this end, we attribute a probability of availableness to all individuals in the partner market depending on gender, age, and partnership status.

3. Actors on the partner market *compete* with other same-sex actors for individuals of the opposite sex who are relevant according to their age, education, and other traits. When there are more competitors than relevant and available opposite-sex individuals, actors face a shortage of supply (Goldman et al., 1984, p. 7). The supply of suitable and available potential partners and the number of relevant competitors may be structurally imbalanced, particularly due to oscillating birth numbers and asymmetric age preferences (Akers, 1967; for Germany, see Eckhard & Stauder, 2018).
4. Most of the previous research on the partner market has exclusively concentrated on the consequences of partner market imbalances, that is, the ratio of opposite-sex supply and same-sex competition (see Lewis & Oppenheimer, 2000 for the single exception). However, Stauder (2011) asserts that the density of supply in the population or in space may impact partner choices in yet other ways, independent of the number of competitors: When relevant and available potential partners represent a larger proportion of the population or when the average spatial distance between potential partners is lower, it is easier to meet and identify a satisficing potential partner—actors' partner market situation is more transparent and implies lower search costs. Hence, in measuring these structural aspects of a partner market, supply should be related not to competition (as in a usual sex ratio) but to population size or space. Eckhard and Stauder (2019) show that in finding a partner, the extent of same-sex competition is an issue only for German men who face a general shortage of female potential partners due to a natural sex ratio at birth of 105 boys per 100 girls and due to decreasing birth rates since the 1970s. In contrast, German women face a general surplus of eligible male potential partners; the main structural determinant for finding a partner for them is not the imbalance of supply and competition but the varying density of the supply of relevant and available potential partners. For these reasons, we will use both, measures of partner market imbalances and measures of PMD in our analyses.

5. The distribution of relevant traits within a population—and therefore the partner market—can be described only when the population is adequately defined within *spatial limits*.[2] Eckhard and Stauder (2018) discuss how districts (in Germany, "Landkreise") are the most appropriate spatial entities for analysis. In the days of virtual online partner markets, spatial limits may seem irrelevant for partner choice. However, even online daters may want to see their partner physically and therefore could prefer a partner who lives within a reasonably short distance. Additionally, online partner markets may even bypass the socially organized and very selective venues in which people meet (the foci of social activity, see Feld, 1981; Stauder, 2008, 2014). Hence, in the online era, spatially circumscribed partner markets may develop to be even more important than partner markets based on the foci of social activity (see Eckhard & Stauder, 2019).

Appropriate measures of the partner market.[3] As Eckhard and Stauder (2019) theoretically and empirically show, the availability ratio (AR) (Goldman et al., 1984) is the most appropriate way to validly measure mating opportunities on the partner market relative to competition because it adequately accounts for the asymmetric and age-dependent age preferences of opposite-sex supply and of same-sex competitors from other age groups. In addition, the concept is open to the incorporation of further dimensions of relevance (especially with respect to education) and availableness.

The original AR by Goldman et al. is computed as shown in Equation 1.

$$AR_i^F = \frac{\sum_j w_{ij} M_j}{\sum_j w_{ij} \cdot \sum_k w_{kj} F_k} \tag{1}$$

Equation 1 refers to *f*emales of a certain age *i*. The numerator represents the weighted sum of all male age groups. The weights w_{ij} for a male age group *j* reflect the probability of being chosen as a partner by members of the reference female age group *i* and can be deduced from a separate empirical analysis of age distances between men and women in newly established couple unions, dependent on women's age. The denominator of the AR in Equation 1 does not represent a female reference group of one single age. Instead, it represents the average number of women who may—according to their age—be suitable partners for the males in the numerator (weights w_{kj}). In turn, this average number is weighted by the degree of suitability of these males for women of age *i* (weights w_{ij}). The prior research, in contrast, has relied on a crude sex ratio within large age groups of "similar" ages.

In the following analysis, the empirical probabilities of choosing a partner of a particular age are interpreted as a revealed preference for a certain age. Doing so may be discussable, as the probability of choosing a partner of a particular age may also be a consequence of shortages on the partner market. We assume that this bias is weak only because age is a metric attribute. Individuals do not only accept partners of one single-year age group and refuse potential partners from neighboring age groups; instead, people may be quite indifferent as to whether a potential partner is one year older or younger. Hence, if searchers do not find a partner of their most preferred age, they will choose a partner who is one year older or younger. Members of such neighboring single-year age groups will only have slightly different probabilities of being chosen as partners and thus will have more or less similar weights (see Eckhard & Stauder, 2019). In contrast, with respect to nominal or ordinal traits, we cannot simply assume that the empirical probability of choosing a partner with a specific trait is a mere result of preferences. Shortages on the partner market will strongly bias this interpretation: In times when more men than women hold higher education certificates, there are not enough highly educated women for highly educated men. Hence, those men will marry women with low educational attainment even if they prefer women with high educational attainment. Therefore, with respect to qualitative traits such as education, people's partner choice will reflect both preferences and shortages on the partner market. However, in recent years, the heavy structural imbalance between the educational attainment of men and women has vanished or even reversed (Bavel, 2012; De Hauw et al., 2017; Esteve et al., 2016). Since educational homogamy may be heavily induced by structural (im-)balances of same-educated potential partners, we explore two versions of the AR: We analyze the AR overall educational levels on the one hand, and we use an AR that strictly assumes separate partner markets for men and women with high and low educational attainment on the other hand.[4] The education-specific AR depicts the supply and demand for people with a specific level of educational attainment and is therefore better crafted to describe the impact of existing structural (im-)balances regarding education.

The prior research has relied on the strong assumption that all and only the unmarried are available on the partner market. However, theories on divorce suggest that marital stability is determined by the attractivity of alternative partners (e.g., Becker et al., 1977). South and Lloyd (1995, p. 21) showed that a new partner of a husband or wife is among the most important reasons for couple separation. Marriages can be divorced, and an increasing number of couples are unmarried. Hence, even married persons belong to the partner market, but with a lower probability of availableness than those without a partner. The same is true for persons who live in a nonmarital relationship (with or without a shared household). Therefore, the following analyses use

an AR that additionally accounts for availableness, according to marital status, relying on a procedure developed by Stauder (Eckhard & Stauder, 2019; Eckhard et al., 2015, 2019; Stauder, 2006, 2011). The number of relevant (with respect to age, ethnicity, and education) and available men of age *j* in district *r* for women of age *i* and educational attainment e (M_{rie}^{AEAvj}) (i.e., the counter in Equation 1) can be determined by

$$M_{rie}^{AEAvj} = M_r^j . w_i^{A(M)j} . w_{er}^{E(M)j} . w_r^{Av(M)j} \tag{2}$$

where

- M_r^j denotes the number of German men of age *j* in region *r*,
- $w_i^{A(M)j}$ denotes the weight for the age relevance of men at age *j* for women at age *i* (with a range between 0 and 1),
- $w_{er}^{E(M)j}$ denotes the proportion of men at age *j* with the same educational attainment as the woman, and
- $w_r^{Av(M)j}$ denotes the availableness of these men of age *j* in district *r*.

In the same way, we can determine the number of relevant and available women for men of diverse ages *j* ($w_{kj}F_k$ in Equation 1) as F_{rje}^{AEAvk} .

To compute $w_i^{A(M)j}$ in this equation, we give each person a weight of availableness: Individuals without a partner are assumed to be completely available on the partner market; they are given a weight of 1. Those who are married or in a nonmarital relationship with or without a shared household are given weights lower than 1 (see fifth section for more details). For the version of the AR^F assuming strict educational homophily, we weight M_r^j in Equation 2 by the proportion of men at age *j* with the same educational attainment as the focal woman ($w_{er}^{E(M)j}$). Then, we compute AR^F separately for women with lower and higher educational attainment. In doing so, only men and women with the same level of educational attainment are considered potential partners or, respectively, as competitors. The AR^M for men is calculated in the same way.

The central advantage in analyzing imbalances with an AR is that it not only measures the opportunities and restrictions of the anchor respondent in an empirical analysis but also accounts for the partner market restrictions of *both* searchers who match in a couple by adequately measuring the balance of supply and competition.[5] However, as discussed earlier, there may be mechanisms whereby the opportunities and restrictions of the partner market

work independently of competition: It is easier to encounter a relevant and available potential partner by chance and to gather information about potential partners when the average spatial distance to meet potential partners is lower or when they comprise a larger proportion of the population (Eckhard et al., 2015, 2019; Eckhard and Stauder, 2019; Stauder, 2011). In the following analyses, we use two measures of partner market density: The social partner market density (PMD_{soc}) is defined as the number of relevant and available opposite-sex potential partners within a district (as given for women in Equation 2) in relation to the total population count within the respective district (Equation 3). The spatial partner market density (PMD_{space}) relates the number of potential and available partners within a district to the size of its residential area (Equation 4).

$$PMD^{F}_{rie(soc)} = \frac{M^{AEAvj}_{rie}}{population_{r}\left(absolute\,count\right)} \tag{3}$$

$$PMD^{F}_{rie(space)} = \frac{M^{AEAvj}_{rie}}{residential\,area\left(km^{2}\right)} \tag{4}$$

Similar to the AR, we use PMD versions that ignore educational preferences and PMD versions that strictly assume educational homophily.

In total, our conceptions of the partner market go beyond the existing research in appropriately accounting for age- and gender-specific preferences for partner's age, in adequately accounting for the reduced availableness of people committed in intimate relationships, and in differentiating between imbalances of supply of and competition about potential partners on the one hand and the density of supply in space and population on the other hand.

Hypotheses

In the first step, we assume that a searcher's choice regarding a partner's educational attainment is driven neither by preferences for similar partners nor by preferences for partners with maximal status. Under this assumption, we derive the following hypotheses about the opportunity structure[6]:

> O_1: The more the number of same-educated, age-relevant, and available potential partners (supply) exceeds the number of same-educated relevant competitors (AR), the higher the probability that individuals will choose a partner of the same educational level.

O_2: The larger the supply of same-educated age-relevant and available potential partners in relation to the total population (PMD_{soc}), the higher the probability that individuals will choose a partner of the same educational level.
O_3: The larger the supply of same-educated age-relevant and available potential partners in relation to the size of the residential area of a district (PMD_{space}), the higher the probability that individuals will choose a partner of the same educational level.

In the second step, we account for preferences. In general, we suppose that a favorable partner market makes it easier to find a partner who exceeds the aspiration level and meets the searcher's preferences regarding education and other traits. In a more restrictive situation on the partner market, which involves high costs for an enduring search under uncertainty, searchers may decide to adjust their aspiration level and choose a partner who does not meet their preferences for educational attainment; they "cast a wider net" (Lichter et al., 1995, p. 429). This should hold even when the partner market does not account for educational attainment: When the partner market is favorable in terms of age and ethnic relevance, it is easier not only to find a partner of a preferred age or ethnicity but also to set a higher aspiration level with respect to other traits, such as education, and to find a partner who meets these preferences. With this in mind, and assuming *homophile* preferences, we hypothesize the following:

H_1: The more the number of age-relevant and available potential partners exceeds the number of relevant competitors (AR, not accounting for educational preferences), the higher the probability that individuals will choose a partner of the same educational level (according to their homophile preference).

Even when competition from other same-sex searchers is not a problem because searchers face a general surplus of opposite-sex potential partners, it nevertheless may be hard to encounter such candidates. We therefore hypothesize the following:

H_2: The larger the supply of age-relevant and available potential partners in relation to the total population (PMD_{soc}, not accounting for educational preferences), the higher the probability that individuals will choose a partner of the same educational level.
H_3: The larger the supply of age-relevant and available potential partners in relation to the size of the residential area of a district (PMD_{space}, not

accounting for educational preferences), the higher the probability that individuals will choose a partner of the same educational level.

In short, under the homophily assumption, with a better partner market according to the three measures, the probability of educational homogamy should be larger. Note that H_1–H_3 are not completely congruent with O_1–O_3. Both sets of hypotheses are congruent insofar as they both imply that a partner market providing a positive balance of supply and competition (H_1, O_1) of *same-educated* searchers or a large number of *same-educated* potential partners (H_2, H_3, O_2, O_3) leads to a higher probability of homogamous choices. However, in contrast to O_1–O_3, H_1–H_3 should also hold when the partner market is measured by an (im-)balance or by the relative number of age-relevant potential partners (and competitors), *without additionally assuming education-specific partner markets*.

Under the homophily assumption, H_1–H_3 should hold for individuals with both high and low educational attainment. However, under the maximization principle, we expect different partner market effects for individuals with high and low educational attainment. For the highly educated, educational homogamy is equivalent to maximization; for the low educated, realizing maximization preferences results in educational heterogamy. Consequently, we assume the following:

M_1: The more the number of age-relevant and available potential partners exceeds the number of competitors (AR),
(M_{1a}) the *higher* the probability that *highly* educated individuals will choose a partner of the same educational level, and
(M_{1b}) the *lower* the probability that *low*-educated individuals will choose a partner of the same educational level.
M_2: The larger the supply of age-relevant and available potential partners in relation to the total population (PMD_{soc}, not accounting for educational preferences),
(M_{2a}) the *higher* the probability that *highly* educated individuals will choose a partner of the same educational level, and
(M_{2b}) the *lower* the probability that *low*-educated individuals will choose a partner of the same educational level.
M_3: The larger the supply of age-relevant and available potential partners in relation to the size of the residential area of a district (PMD_{space}, not accounting for educational preferences),
(M_{3a}) the *higher* the probability that *highly* educated individuals will choose a partner of the same educational level, and
(M_{3b}) the *lower* the probability that *low*-educated individuals will choose a partner of the same educational level.

Data and Methods

Data Sources of Partner Market Measures

We calculated the AR and the PMD measures based on German population data for both sexes in single-year age groups, for the years 1985–2013 and for every administrative district (NUTS-3-regions) in Germany.[7] The official regional population statistics provide the number of males and females of German nationality in every district by age (Eckhard et al., 2019; Eckhard & Stauder, 2019).[8] For the Western part of Germany, it includes the years from 1985 to 2013; for the Eastern part, it is limited to the years since 1992.

The AR and PMD measures require weights reflecting the suitability of male and female age groups for each other. These weights were specified by computing the probabilities of age constellations in newly formed couple relationships using several German surveys (see Eckhard & Stauder, 2019; and in full detail Eckhard et al., 2019). As discussed earlier, we interpret these probabilities as indicators of age-specific preferences about the age of a potential partner.

To account for the varying availableness of individuals in couple relationships, we use weights that reflect the degree of availableness. We define single persons as 100% available for the partner market, whereas we define persons in marital and nonmarital unions as available to a certain degree. The respective weights in Equation 2 are derived from additional empirical analyses: We calculated the probability of availableness from event history analyses on the risk of separating from a partner and immediately forming a couple relationship with a new partner depending on partnership status (see Eckhard & Stauder, 2019 for a thorough discussion; also see Eckhard et al., 2019; Stauder, 2006). Married persons are less likely to start an immediate follow-up relationship than persons in nonmarital cohabiting relationships. Those in a relationship without a shared dwelling have the highest probability of an immediate follow-up relationship after separation. We augmented the official population data with these probabilities and with the distribution of partnership status in the districts taken from the German Microcensus (1985–2013).

To account for educational attainment, the gender- and age-specific percentages of persons with an advanced technical certificate (called "Fachabitur" in Germany) or a general maturity certificate ("Abitur") in the districts. ($w_{er}^{E(M)j}$ in Equation 2) were taken from the German Microcensus (1985–2013). To obtain the respective numbers of persons with and without these educational degrees, the percentage was multiplied by the districts' age- and gender-specific relevant and available population (according to Equation 2).

Based on this, education-specific versions of the AR and PMD were computed. To account for the asymmetrical value ranges of a shortage ($0 < = AR < 1$) and a surplus ($1 < AR < +\infty$), we used the natural logarithm of the AR measures (Fossett & Kiecolt, 1991). Because we are mainly interested in comparing the effect sizes of different partner market indicators, we used z-standardized values of AR, PMD_{soc}, and PMD_{space}.

Individual-level Data: The German Socio-Economic Panel

For our analyses, we merged the partner market measures with individual-level data provided by the German Socio-Economic Panel (GSOEP). The GSOEP is a representative longitudinal study of German households that have sampled approximately 30,000 persons every year since 1984. The longitudinal data structure allows for the reconstruction of relationship biographies including information about the time and place of residence at the time of relationship formation. Typically, only one of the partners in a new couple relationship was a GSOEP respondent before the couple moved in together. However, as a part of the GSOEP sampling concept, all people who join an original GSOEP household become new members of the sample. Consequently, only those couples who share a dwelling provide the needed information for both partners (both partners are respondents in the GSOEP household sample). Therefore, we are limited to analyzing cohabiting and married couples. We identified every couple that moved in together for the first time between 1985 and 2014. Then, we merged the gender-, age- and education-specific values of AR, PMD_{soc}, and PMD_{space} in the district where the original GSOEP respondent lived in the year prior to the event to model his or her partner market opportunities. Only for this original member of the GSOEP sample do we have information about the place of residence one year before the couple moved in together, which is essential for appropriately matching the partner market indicators with the GSOEP data. Consequently, although homogamy is a couple trait, our analyses are confined to the individual level. As discussed earlier, the AR accounts for the partner market restrictions of *both* searchers who match in a couple; however, only an average of all potential partners is considered for the potential partner of the anchor respondent. Due to data restrictions, the partner market indicators used were crafted on the assumption of heterosexual preferences. Therefore, we had to exclude same-sex couples from our analysis.

The advantage of analyzing the partner market's impact on *newly established* cohabiting or married couples one year later is that the social *action*, moving in with a partner of the same or different educational attainment, is appropriately linked to a measure of the macrosocial *situation* at the start of

this period. This is particularly important because the partner market situation varies over the life course (due to gender- and age-specific preferences about partner's age and due to the restricted availableness of potential partners already committed in intimate relationships. Furthermore, a mere correlation of the partner market measures and the homogamy rate at the macro level could be biased by endogenous processes because the regional rate of homogamy might also impact the situation on the partner market. Matching the partner market situation at the moment when the two people jointly define themselves as a couple—without necessarily sharing a dwelling—would have met these requirements even more precisely. However, the GSOEP data provide information only about partners who live in the same household.

To assess the educational homogamy of the couples, we compare the educational attainment of the two partners as measured by the CASMIN classification. We dichotomize educational attainment into low and high education. High education includes at least a vocational or general maturity certificate (the German "Fachabitur" and "Abitur"). To be homogamous, both partners must have either a low or a high educational level.

Sample Description

Table 1 describes our initial total sample of all couples that moved in together and the finally analyzed sample, corrected for item-nonresponse. We were able to identify 7,422 cases between 1985 and 2014, for which we could reliably determine that an individual moved in with a particular partner for the first time.[9] Partner information is highly prone to missing values because partners are new to the GSOEP sample and may not be willing to participate (see Siegers et al., 2019, p. 69). Other observations were deleted because the used partner market indicators are designed for heterosexual couples only and for missing information for the original GSOEP respondent. In the end, 3,533 of these cases provided all the necessary information for our multivariate analyses. Nevertheless, Table 1 shows that our final sample more or less represents the initial sample. Compared to the initial sample, there is no bias with respect to education, age at moving in together, settlement pattern, and residence in East versus West Germany in the final sample. We find women and those born between 1961 and 1970 to be slightly overrepresented, whereas men and those born after 1980 are underrepresented accordingly. The final sample also represents the German population quite well (Statistisches Bundesamt, 2018, 2019): We find a slightly higher number of men than women, one-third of our sample population has a higher educational qualification, approximately 19% of the sample lives in East Germany, and approximately 66% of the sample lives in urban regions. In addition, the distribution of ages at moving in together seems plausible (see Table 1).

Table 1. Description of Brutto Sample (All Couples Moved Together) and Analyzed Sample (Corrected for Item-nonresponse) (Characteristics of the Original GSOEP Respondent).

	Total Sample		Analyzed Sample	
	N	Share in %	*N*	Share in %
In total	7 422		3 533	
Sex				
Women	3 325	44.8	1 747	49.5
Men	4 097	55.2	1 786	50.6
Educational qualification				
Lower	4 515	65.5	2 389	67.6
Higher	2 378	34.5	1 144	32.4
Age at moving in together				
≤25	2 450	33.1	1 175	33.3
26 to 50	4 428	59.7	2 124	60.1
>50	544	7.3	234	6.6
Birth cohort				
Born before 1951	6572	7.4	278	7.9
Born 1951 to 1960	850	11.5	407	11.5
Born 1961 to 1970	2 356	31.7	1 277	36.1
Born 1971 to 1980	2 200	29.6	1 058	30.0
Born after 1980	1 466	19.8	513	14.5
Settlement pattern				
Urban	4 686	67.1	2 335	66.1
Rural	2 295	32.9	1 198	33.9
Residence in former East/West Germany				
East	1 487	21.3	663	18.8
West	5 496	78.7	2 870	81.2

Source: GSOEP (1985–2014), own calculation.
Note. Due to item-nonresponse, absolute frequencies in the total sample need not to sum up to the total number (7,422).

Methods

We conducted logistic regressions, linear probability models, and average marginal effects (AME) computations at the individual level. Despite a growing body of literature on the difficulty of comparing the coefficients of logistic regressions (Best & Wolf, 2012; Karlson et al., 2012), we found no substantial differences between the respective results. In the Appendix, we present a selection of the full models for all three specifications while in the

next section, we concentrate on a reduced set of the relevant AME estimators. In some cases, people moved in with a new partner more than once between 1985 and 2014. Therefore, all models were computed with robust standard errors. In addition to our main sample, we conducted analyses with subsamples for the population with lower and higher educational qualifications. Fossett and Kiecolt (1991, p. 945) point out that it is appropriate to use the natural logarithm of the AR to achieve symmetric value ranges for situations where supply exceeds the number of competitors (surplus) and where the number of competitors exceeds the supply (shortage). Therefore, we use the natural logarithm of the AR throughout this article. Since we are interested in comparing the strength of the effect of the various partner market indicators, we use z-standardized measures. In our analyses, we control for certain individual-level characteristics of the original GSOEP respondent (sex, educational attainment, the age at moving in together, and the birth cohort). In addition, we control for characteristics of the district where the original GSOEP respondent lived in the year prior to moving in (residence in rural versus urban region[10] and former West versus East Germany). It is necessary to control for birth cohort, age at moving in together, and regional characteristics because, on one hand, the macrostructural partner market indicators systematically vary according to these aspects, and, on the other hand, we must control for time trends in educational homogamy. To test differences in effect sizes across models, we use the overlap of 5%-confidence intervals of the OR-effects displayed in Tables A1–A3 (the confidence intervals themselves are not displayed in the Tables).

Findings

To systematically test our hypotheses, we regressed the logit of educational homogamy on the various partner market indicators (AR, PMD_{soc}, and PMD_{space}) with and without strictly assuming separate partner markets for the populations with low and high educational attainment. We analyzed the models for the total sample and for the subsamples of high and low educational attainment. Table 2 documents the AME of the respective partner market measures for the specific subsample controlling for sex, education,[11] age, cohort, urbanity, and residence in former West or East Germany.

We begin with a discussion of the results for the total sample in the first line of Table 2: All partner market measures that assume separate partner markets by educational level (AR(edu.), PMD_{soc}(edu.) and PMD_{space}(edu.)) show a positive AME on the probability of educational homophily. For example, when the logged ratio of the number of available, same-educated and opposite-sex potential partners of appropriate ages to the number of available,

Table 2. The Effect of Partner Market Indicators on Educational Homogamy (When Moving in Together) by Partner Market Indicator and Educational Level (Average Marginal Effects with Robust Standard Errors).

	Partner Market Indicator					
	Assuming . . .			Not Assuming . . .		
	Separate Partner Markets for the Educational Levels[a]					
	log AR $_{(edu)}$	$PMD_{soc\ (edu)}$	$PMD_{space\ (edu)}$	log AR	PMD_{soc}	PMD_{space}
Subsample	1	2	3	4	5	6
Total (N = 3,533)	0.03***	0.07***	0.06***	0.00	0.04**	0.04***
Higher educational level (N = 1,144)	0.07***	0.12**	0.10***	0.00	0.01	0.06**
Lower educational level (N = 2,389)	0.01	0.04**	0.02*	0.01	0.04*	0.01

Source: GSOEP (1985–2014), partner market indicators (1985–2013), own calculation.
Notes. *$p < .05$, **$p < .01$, ***$p < .001$.
[a]For further explanation see Equation 2.
All models control for sex, education, age, cohort, urbanity, and residence in former West or East Germany.

same-educated, same-sex potential competitors of relevant ages (log AR(edu.)) is one standard-deviation higher, the average probability of moving in with a same-educated partner instead of with a partner of a different educational level is three percentage points higher (first row, first column of Table 2). Hence, we find support for our hypothesis O_1 regarding the opportunity structure: The more the number of same-educated, age-relevant, and available opposite-sex persons exceeds the number of relevant competitors, the higher the probability that individuals will choose partners with similar educational attainment. In the same way, we find support for O_2 and O_3: The higher the share of same-educated and age-relevant opposite-sex persons among the population (O_2), and the higher their spatial concentration within a district (O_3), the higher the probability that individuals will choose partners with similar educational attainment (first row, Columns 2 and 3). In addition, we find that the densities of potential partners within the population (PMD_{soc}(edu.)) or in space (PMD_{space}(edu.)) have stronger AMEs (seven and six percentage points, respectively) on educational homogamy than on the (im-)balance of supply and competition (AR (edu.) (three percentage points)). The difference in effect size for $PMD_{soc(edu)}$ versus log $AR_{(edu)}$ is significant ($p < .05$), and the difference for $PMD_{space(edu)}$ versus log $AR_{(edu)}$ misses the 5 percent significance level only marginally (information not available in Table 2).

The findings discussed thus far also support the idea that a favorable opportunity structure helps promote homophile preferences (H_1–H_3). However, in contrast to the opportunity hypotheses O_1–O_3, H_1–H_3 should also hold when the partner market measure does not assume separate partner markets by educational level (first row, Columns 4–6) because a favorable partner market according to age allows the searcher to realize a higher aspiration level with respect to education. In contrast to the effect of AR(edu.) on educational homogamy, the AR not accounting for educational preferences (Column 4) has no significant impact on educational homogamy. We conclude that the entire effect of AR(edu.) is probably attributable to the opportunity structure promoting homogamy regardless of preferences for a similarly educated partner (O_1).

Although the respective effects of PMD_{soc} (Column 5) and PMD_{space} (Column 6) are lower than those that additionally account for educational attainment, they clearly support H_2 and H_3: The larger the share of available age-relevant potential partners in the population of a district (PMD_{soc}), the higher the probability of educational homogamy. In addition, the higher the spatial concentration of age-relevant and available potential partners in a certain district (PMD_{space}) the higher the probability of educational homogamy. Differences in effect sizes of PMD_{soc} versus AR and PMD_{space} versus AR are significant ($p < .05$) for the total sample (Line 1).

The assumption that those who search for a partner try to *maximize* their partner's status implies a positive effect of the partner market measures on educational homophily only for the highly educated (M_{1a}, M_{2a}, and M_{3a}, second row in Table 2), whereas for those with low educational attainment, negative effects are expected (M_{1b}, M_{2b}, M_{3b}, third row in Table 2). In contrast to our assumption, we find no negative effects for the low educated in any model. When we assume strictly separate partner markets for the high and the low educated, we find that the positive partner market effects are stronger for the highly educated than for the low educated (Columns 1–3). However, none of these differences is significant at $p < .05$. The partner market effect may be slightly stronger for the highly educated for two reasons: On the one hand, for them, a homogamous partner choice is in line with both homophily and maximization, and hence, the two preferences may be at work simultaneously. On the other hand, the stronger effect for the highly educated may not result from either maximizing or homophile preferences; it may simply result from a stronger effect of the opportunity structure (O_1–O_3). To discriminate between these two explanations, we consider the effects of partner market measures that do not assume strictly separate partner markets by educational level because these are less likely to result from mere effects of the opportunity structure (Columns 4–6). When we consider these measures, the results are somewhat ambiguous: M_{1a} and M_{1b} are not supported because there is no effect of the AR for the highly educated or for the low educated. With respect to M_{2a} and M_{2b}, there is neither a negative effect of PMD_{soc} among the low educated nor is the positive effect lower than the effect for the highly educated. In contrast, M_{3a} and M_{3b} are indirectly supported by our findings: Although the effect of PMD_{space} on the probability of educational homogamy is not negative for the low educated, it is at least smaller than that for the highly educated. Even though these effect sizes are not significantly different for the highly educated and low educated ($p > .05$), we find clues that with respect to PMD_{space}, both the homophily *and* maximization preference patterns may be at work. These patterns strongly interplay with the mere effects of the opportunity structure.

Discussion

In this study, we (1) determined whether and to what extent the opportunities and restrictions of the partner market influence educational assortative mating. When assuming strictly separate partner markets for the low and highly educated, we found strong AMEs of moving in with a same-educated partner instead of a partner with a different educational attainment in the German partner market. In line with earlier research (Albrecht et al., 1997; Blossfeld

& Timm, 2003; Çelikaksoy et al., 2010; Halpin & Chan, 2003; Kalmijn & Flap, 2001; Klein & Rüffer, 1999; Lewis & Oppenheimer, 2000; Lichter et al., 1995), the results strongly support the idea that the opportunities and restrictions of the German partner market influence educational mating. Adding to the literature substantially, the results further imply that the densities of the supply of age-relevant, available potential partners in the population and in space are more important for educational assortative mating than the imbalance of supply and competition.

Additionally, we (2) analyzed the interplay of the opportunity structure with preferences. We asked whether the patterns of partner market influences on educational homogamy are more congruent with assumptions about homophile preferences or with assumptions about maximization. Our results show that the impact of partner market *imbalances* on educational assortative mating seems to be independent of preferences. In contrast, the effects of partner market *densities* with respect to *space* on educational assortative mating are congruent with both the assumption of homophile preferences and the assumption of maximization preferences.

Partner market imbalances within educational levels seem to be valid descriptions of the opportunity structure, which indeed impacts choices of same-educated partners (in line with Blau's macrostructural theory (Blau, 1977a, 1977b). In addition, it seems that the search process is more strongly shaped by the *density* of the supply of age-relevant opposite-sex potential partners. If the chance to meet potential partners is high, individuals will have a higher chance of finding a partner with preferred traits such as similar or higher educational attainment.

Why are partner market densities more important for assortative mating in general and more congruent with homophile and maximization preferences than the AR? Partner market densities focus on the visibility of potential partners for the actor (transparency of the partner market situation). With a higher PMD, actors will find it easier to identify potential partners and compare their traits with their own preferences at lower search costs. In contrast, the AR relates supply and competition, where competitors are those same-sex individuals who are preferred by opposite-sex potential partners. It may be impossible to consciously include these constraints in individual actions for two reasons: First, competitors must be visible only to potential partners, but they need not be visible to the actor. Second, who is a competitor and who is not depend not on the actor's own preferences but on the preferences of potential partners and of competitors. Hence, although the balance of supply and competitors may result in constraints on the partner market and make up the opportunity structure, actors will primarily base their individual partner

choices only on information about supply. With this finding in mind, we recommend that researchers should always validate the found impacts (and, eventually, missing impacts) of the partner market based on a sex ratio or an AR by a measure of the density of supply of potential partners.

Why do we find (statistically weak) clues for maximization only for PMD in relation to space and not for PMD in relation to the total population? PMD in relation to the population accentuates that age-relevant and available potential partners are more or less visible among the total population. Hence, it measures a structural aspect of partner market transparency. For highly educated individuals, their individual social environment is already highly selected to same-educated potential partners of an adequate age (Blossfeld, 2009; Stauder, 2015), and potential partners with preferred traits are more easily identified within the social environment. Hence, for highly educated individuals, the PMD in relation to the population has no effect on their choice of same-educated partners. However, even the highly educated may seek partners with whom they can interact at reasonable costs, that is, partners who live within a short distance, which is better reflected by the PMD in relation to space than by the PMD in relation to the total population. As we have built this argument on insignificant differences in effect sizes, further research (with larger samples) is needed to obtain confirmation.

More generally, this study contributes to the previous research on the impact of opportunity structures on assortative educational mating in the following ways: (a) It systematically links assumptions about the opportunity structure with assumptions about preferences (Albrecht et al., 1997; Lichter et al., 1995; Skopek et al., 2010), (b) It covers both married *and unmarried cohabiting couples* at the moment they move in together, (c) It shows the different impacts of measures for partner market imbalances and for partner market densities, (d) It is the first study in the field to apply partner market measures on a small regional scale in Germany. It adequately accounts for (e) age relevance and (f) for the restricted availableness of individuals living with a partner.

The conclusions from our analysis of preferences are limited because we did not measure homophile or maximizing preferences. Instead, we applied simple assumptions of how individuals choose a partner when the opportunity structure is more favorable. We used differences in the strength of the effects of partner market indicators accounting and not accounting for educational preferences and suggested that partner market effects within educational levels are mere effects of the opportunity structure, whereas the effects of indicators that do not separate educational levels are driven more by preferences. In doing so, we may have underestimated the effects of preferences

because the partner market effects within educational levels might also be driven by preferences. For this reason, we cannot conclude that individuals follow exclusively homophile preferences or that only maximizing patterns are ruling. However, we found evidence that (a) there is a direct impact of opportunity structures on moving in with a partner with the same educational level and that (b) PMD additionally shapes the choices of partners of a certain educational level. Future studies on educational assortative mating should first and foremost devote effort to actually measuring preferences to further disentangle the effects of opportunity structure, homophily, and maximization.

The used partner market indicators were crafted based on the assumption that individuals prefer partners of the same ethnicity. Accordingly, our analysis is further limited to German citizens within Germany. As aforementioned, this study adds to the literature by analyzing married and unmarried cohabiting heterosexual couples at the moment they move in together. However, the study is still limited because it could not measure the very beginning of these couple relationships when they did not share a dwelling. In addition, the study does not cover same-sex couples. Further, due to the data structure, we had to focus on the opportunity structure in the partner market for that partner in the couple who originally participated in the GSOEP. Therefore, we were restricted to testing hypotheses about partner choice from the individual perspective, thus neglecting the fact that finding a partner is the result of mutual choices. We suggest that this could have biased our results only weakly because the AR accounts for competition and, hence, for the average partner market situation of potential partners. However, measuring the opportunity structure in the partner market of both partners and testing hypotheses from a two-sex perspective remain goals for future research on assortative mating.

Despite these limitations, our findings have a clear message: Partner choices cannot be seen as a mere result of individual preferences. If no suitable partner can be found, there are only two options left: staying single or adjusting aspiration levels. However, partner choices are not the direct outcome of sociostructural distributions that inexorably penetrate the realm of interpersonal relations. Instead, they are the product of the interplay between individual preferences and structural opportunities, and these structural opportunities themselves are shaped by the preferences of all same- and opposite-sex participants in the partner market. To understand partner choices, we must account for both preferences and structural opportunities as well as their interplay.

Appendix

Table A1. The Effect of Availability Ratio Accounting for Education (AR(edu.)), Availability Ratio Not Accounting for Education (AR), and Other Covariates on Educational Homogamy (When Moving in Together) (Average Marginal Effects, Odds Ratio-estimators, and Linear Probability Models).

	Availability Ratio (AR)					
	Assuming . . .			Not Assuming . . .		
	Separate Partner Markets for the Educational Levels[a]					
	AME	OR	Linear Probability Model	AME	OR	Linear Probability Model
Variable	1	2	3	4	5	6
Log AR	0.029***	1.18***	0.026***	0.005	1.03	0.004
Female (*ref. male*)	−0.036*	0.81*	−0.036*	−0.022	0.88	−0.021
Higher education (Abitur) (*ref. lower education*)	−0.204***	0.30***	−0.231***	−0.209***	0.30***	−0.236***
Age at moving in together (*ref. 26–50 years*)						
Lower than 25 years	0.019	1.12	0.020	0.029+	1.19+	0.029+
More than 50 years	0.027	1.17	0.018	0.038	1.25	0.036
Birth cohort (*ref. born before 1951*)						
Born between 1951 and 1960	0.022	1.14	0.027	0.030	1.19	0.029
Born between 1961 and 1970	−0.006	0.96	−0.001	0.012	1.07	0.011
Born between 1971 and 1980	−0.016	0.91	−0.012	0.003	1.02	0.002
Born after 1980	0.014	1.09	0.019	0.036	1.24	0.035
Rural area (*ref. urban area*)	−0.027+	0.85+	−0.027+	−0.028+	0.85+	−0.028+
East Germany (*ref. West Germany*)	−0.037*	0.80*	−0.039*	−0.041*	0.79*	−0.043*
Pseudo-R^2 (McFadden)		0.065			0.062	
R^2			0.074			0.071
N	3,533	3,533	3,533	3,533	3,533	3,533

Source: GSOEP (1985–2014), partner market indicators (1985–2013), own calculation.
Notes. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.
[a]For further explanation see Equation 2.

Table A2. The Effect of Social Partner Market Density Accounting for Education (PMD_{soc}(edu.)), Social Partner Market Density Not Accounting for Education (PMD_{soc}), and Other Covariates on Educational Homogamy (When Moving in Together) (Average Marginal Effects, Odds Ratio-estimators, and Linear Probability Models).

	Social Partner Market Density					
	Assuming . . .			Not Assuming . . .		
	Separate Partner Markets for the Educational Levels[a]					
	AME	OR	Linear Probability Model	AME	OR	Linear Probability Model
Variable	1	2	3	4	5	6
Social partner market density PMD_{soc}	0.074***	1.55***	0.061***	0.036**	1.24**	0.033**
Female (*ref. male*)	−0.011	0.94	−0.015	−0.014	0.92	−0.014
Higher education (Abitur) (*ref. lower education*)	−0.169***	0.37***	−0.203***	−0.207***	0.30***	−0.234***
Age at moving in together (*ref. 26–50 years*)						
Lower than 25 years	−0.055*	0.72*	−0.051*	−0.019	0.89	−0.018
More than 50 years	0.051	1.35	0.049	0.048	1.32	0.045
Birth cohort (*ref. born before 1951*)						
Born between 1951 and 1960	0.007	1.04	0.010	0.018	1.11	0.018
Born between 1961 and 1970	−0.032	0.83	−0.028	−0.010	0.95	−0.009
Born between 1971 and 1980	−0.041	0.78	−0.029	−0.020	0.89	−0.018
Born after 1980	−0.018	0.90	−0.001	0.004	1.02	0.008
Rural area (*ref. urban area*)	−0.032*	0.83*	−0.036*	−0.030+	0.84+	−0.030+
East Germany (*ref. West Germany*)	−0.040*	0.79*	−0.042*	−0.042*	0.78*	−0.044*
Pseudo-R^2 (McFadden)		0.071			0.064	
R^2			0.079			0.073
N	3,525	3,525	3,525	3,525	3,525	

Source: GSOEP (1985–2014), partner market indicators (1985–2013), own calculation.
Notes. $+p < .10$, $*p < .05$, $**p < .01$, $***p < .001$.
[a]For further explanation see Equation 2.

Table A3. The Effect of Spatial Partner Market Density Accounting for Education (PMD_{space}(edu.)), Spatial Partner Market Density Not Accounting for Education (PMD_{space}), and Other Covariates on Educational Homogamy (When Moving in Together) (Average Marginal Effects, Odds Ratio-estimators, and Linear Probability Models).

	Special Partner Market Density					
	Assuming . . .			Not Assuming . . .		
	Separate Partner Markets for the Educational Levels[a]					
	AME	OR	Linear Probability Model	AME	OR	Linear Probability Model
Variable	1	2	3	4	5	6
Spatial partner market density PMD_{space}	0.061***	1.43***	0.050***	0.037***	1.25***	0.035***
Female (*ref. male*)	−0.013	0.93	−0.016	−0.015	0.92	−0.015
Higher education (Abitur) (*ref. lower education*)	−0.191***	0.33***	−0.221***	−0.212***	0.29***	−0.239***
Age at moving in together (*ref. 26–50 years*)						
Lower than 25 years	−0.026	0.86	−0.024	−0.009	0.95	−0.009
More than 50 years	0.047	1.32	0.044	0.046	1.31	0.043
Birth cohort (*ref. born before 1951*)						
Born between 1951 and 1960	0.016	1.10	0.017	0.021	1.13	0.021
Born between 1961 and 1970	−0.020	0.89	−0.018	−0.007	0.96	−0.008
Born between 1971 and 1980	−0.028	0.85	−0.020	−0.015	0.91	−0.015
Born after 1980	0.005	1.03	0.017	0.016	1.10	0.018
Rural area (*ref. urban area*)	0.010	1.06	0.004	−0.001	0.99	−0.002
East Germany (*ref. West Germany*)	−0.045*	0.77*	−0.049*	−0.046*	0.77*	−0.048*
Pseudo-R^2 (McFadden)		0.070			0.065	
R^2			0.079			0.074
N	3,533	3,533	3,533	3,533	3,533	3,533

Source: GSOEP (1985–2014), partner market indicators (1985–2013), own calculation.

Notes. *$p < .05$, **$p < .01$, ***$p < .001$.

[a]For further explanation see Equation 2.

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ORCID iD


Johannes Stauder https://orcid.org/0000-0003-1914-9297

Notes

1. One central assumption about relevance in the following analyses is that individuals seek heterosexual intimate relationships rather than same-sex partners, as there is currently no way to reliably identify respondents with homosexual preferences in the data we used to compute partner market indicators. In addition, the number of analyzable cases would be too low, especially for indicators measured at the district level. For Germany, the Federal Statistical Office counted 78 000 same-sex couples in 2013, constituting only 0.3% of all 25 million couples (Statistisches Bundesamt, 2014, Table 3.1, page 69f, own calculation).
2. Mates are chosen within a social space not on the macro level but within the social contexts that constitute an individual's social environment (Feld, 1981; Stauder, 2008, 2014). It is already difficult to collect respective cross-sectional data (Häring et al., 2014), and it is even more complicated to do so for longitudinal data. Hence, we must find spatial entities that provide the macrostructural framework from which an individual's social environment is selected with satisfactory access to relevant data.
3. For a more detailed description of the partner market measures, see Eckhard and Stauder (2019), Häring et al., 2014) and Eckhard et al. (2019).
4. To compute the different versions, we used the appropriate sets of weights as described in Equation 2.
5. Naturally, the opportunities of a potential partner of the anchor respondent to find a new partner are measured not for the actual matched partner, but only on average over all potential partners.
6. Although both partners do the selection in partner choice, we derive our hypotheses from a mere individual perspective because, due to data restrictions, we can only measure the opportunity structure of the partner market for one of the partners (see further).
7. For descriptive information about the distribution of the AR and PMD by sex and birth cohort, see Eckhard et al. (2015) and Eckhard and Stauder (2018, 2019).

8. As discussed earlier, and given that interethnic couples are still a minority and that official statistics can only differentiate Germans and non-Germans, we assume a preference for a partner with the same nationality. Thus, our partner market measures use only the German population.
9. We do not analyze couples who already shared a household at the time of their first survey because we cannot reliably determine the time and place at which they first moved in together.
10. According to the definition by the German Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).
11. Education is naturally not controlled for in models that refer to an education-specific subsample.

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