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Can anyone be the one? Evidence on mate selection from speed dating

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Can Anyone Be "The" One? Evidence on Mate Selection from Speed Dating

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zur Zukunft der Arbeit
Institute for the Study
of Labor

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ABSTRACT

Can Anyone Be "The" One? Evidence on Mate Selection from Speed Dating*

Marriage data show a strong degree of positive assortative mating along a variety of attributes. But since marriage is an equilibrium outcome, it is unclear whether positive sorting is the result of preferences rather than opportunities. We assess the relative importance of preferences and opportunities in dating behaviour, using unique data from a large commercial speed dating agency. While the speed dating design gives us a direct observation of individual preferences, the random allocation of participants across events generates an exogenous source of variation in opportunities and allows us to identify the role of opportunities separately from that of preferences. We find that both women and men equally value physical attributes, such as age and weight, and that there is positive sorting along age, height, and education. The role of individual preferences, however, is outplayed by that of opportunities. Along some attributes (such as occupation, height and smoking) opportunities explain almost all the estimated variation in demand. Along other attributes (such as age), the role of preferences is more substantial, but never dominant. Despite this, preferences have a part when we observe a match, i.e., when two individuals propose to one another.

JEL Classification: D1, J1

Keywords: mate selection, assortative mating, marriage market, speed dating, randomized experiments

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1. Introduction

A long tradition of social research has documented the strong resemblance of traits and social status between husbands and wives.[1] This positive assortative mating is typically explained in term of the preferences of individuals who are choosing one another and of the opportunities people have to meet someone of the same status or with similar traits.[2] For example, individuals may have an intrinsic preference for partners with attributes similar to theirs, or, alternatively, they may meet and interact more often with people of similar status or with similar interests. Identifying the separate influence of preferences and opportunities is important because it provides us with clearer insights on mate selection and family formation and enhances our understanding of how assortative mating occurs. These, in turn, may give us a finer view of marriage and divorce.

Despite the vast research literature mentioned before, very few studies have been able to isolate the influence of individual preferences from that of market availability. This is because most of the empirical analysis has been performed on data that contain only final matches between females and males (i.e., marriages and cohabitations). But a final match is the equilibrium outcome of a process that entails meeting and screening a number of potential partners, choosing one of them and, crucially, being chosen in return. A final match, therefore, is shaped by the interaction between preferences of individuals on both sides of the market (demand) and the (un)availability of suitable partners (supply). All these aspects of the search process, however, are not collected by standard surveys, and the separate identification of the effects of preferences and opportunities is not straightforward.[3]

We overcome this shortcoming and analyze the distinct roles of mate demand and supply by studying data from a large speed dating agency based and operating in the United Kingdom. In this setting, subjects meet potential partners (roughly 23

[1] Early studies on assortative mating date back to Westermarck [1903] and Hamilton [1912]. The economics literature, which has grown out of Becker's [1973, 1974] seminal work, has produced models that can generate wide arrays of marital sorting [Lam 1988; Bergstrom and Bagnoli 1993; Burdett and Coles 1997; Shimer and Smith 2000; Smith 2006]. Kalmijn [1998], Cooper and Sheldon [2002] and Blossfeld and Timm [2003] provide broad surveys of studies by sociologists and psychologists.

[2] In explaining positive sorting, researchers have also stressed the involvement of third parties (such as parents and friends), especially along racial and religious lines [Gordon 1964; Kalmijn 1998; and Bisin, Topa, and Verdier 2004].

[3] At the cost of model-specific functional form identifying restrictions, this can be achieved with the estimation of structural parameters of marriage models as in Wong [2003], Bisin, Topa, and Verdier [2004], and Choo and Siow [2006].

individuals of the opposite sex) for three minutes each and indicate who they want to contact again.[4] Subjects' choices in these speed dating sessions constitute real behaviour with actual consequences: when two speed daters match, their details are given to one another, permitting the arrangement of more traditional dates. The speed dating setting offers some of the advantages of a field experiment: participants are randomly allocated to a session, have no prior information about the people they meet, and can select potential partners only after meeting them.[5] Importantly, this design gives us direct information on individual revealed preferences (i.e., whether or not subjects want to have a future meeting with their potential partners) as well as on the specific aspects of each dating session, which we call "market" (e.g., number of participants and their average characteristics).

A small number of recent studies have analyzed mate selection taking advantage of the random-experiment setting of speed dating. Kurzban and Weeden [2005] use data from HurryDate, a large dating company operating in major metropolitan areas in the United States, to investigate the choices that approximately 2600 subjects make in dating partners. Their main estimates show that female and male subjects are equally attracted by physically observable attributes like weight, height, and age, and much less so by other attributes such as education and religion. They also find small positive assortative patterns along race and height.

Fisman et al. [2006a] base their experimental design on the HurryDate format to analyze a sample of about 400 students at Columbia University, with the objective of identifying gender differences in dating preferences. Their results slightly differ from those found by Kurzban and Weeden [2005]: only men exhibit a preference for physical attractiveness while women respond more to intelligence and race. They too find some evidence of positive sorting, with male subjects valuing women's intelligence or ambition only if it does not exceed their own. They also document the importance of group size, whereby women (but not men) make significantly fewer proposals in larger meetings. In a companion paper using the same data, Fisman et al. [2006b] investigate racial preferences in dating and highlight the importance of the interplay between preferences and opportunities. Their finding that women have

[4] Throughout the paper, the individual who makes the decision is labelled as "subject" and the individual who is decided upon as "partner".

[5] In other forms of mediated dating (e.g., personal advertisements and online dating), part of the selection process occurs before the first actual (physical) meeting, and is usually based on self-reported and not fully verifiable information [Lynn and Shurgot 1984; Hitsch, Hortaçsu, and Ariely 2006].

stronger racial preferences than men is not consistent with the results reported in Kurzban and Weeden [2005].

Hitsch, Hortaçsu, and Ariely [2006] follow a different approach. They use data from a large sample of users of a major online dating service in Boston and San Diego to analyze how individual characteristics affect the likelihoods of having a personal profile browsed, being contacted, and exchanging contact information via e-mail. Although online daters do not physically meet, their study confirms some of the previous evidence. For example, in line with the results discussed in Fisman et al. [2006a], they find that women put more weight on a partner's income than men do; and, consistent with Fisman et al. [2006b], women have a more pronounced preference to form a match with men of their own ethnicity.

Our work makes two substantive contributions. First, we study a larger sample of speed daters who have a more diverse set of attributes than those analyzed by Fisman et al. [2006a] and make decisions in a real-life environment (and in a different country). As advocated by Fisman et al. [2006a, p. 695], this allows us to better examine the extent to which women and men differ in their dating preferences.[6]

Second, because we have information not only on many speed daters but also on a large number of speed dating sessions, we analyze the relative importance of individual preferences and market opportunities in explaining the observed patterns of mate selection. Knowing this is crucial if we try to unpack why people are more likely to form unions within their group (endogamy) or with partners close in status (homogamy). For example, our view of the openness of the marriage market and its workings would be strikingly different if we knew that the observed patterns of positive assortative mating were driven by segregation rather than by individual preferences. If endogamy is the result of (missing) opportunities, then residential mobility programs like the Gautreaux program in Chicago [Keels et al. 2005], universities' efforts to mix students with different background in classes and dorms [Marmaros and Sacerdote 2006], and immigrant dispersion programs such as the Swedish refugee placement policy [Edin, Fredriksson, Åslund 2003] may offer individuals the possibility to meet (and eventually match with) potential partners from

[6] Since our data set does not contain information on ethnicity, we, unfortunately, cannot draw comparisons of results with existing studies along this dimension.

diverse groups and with different attributes.[7] If, instead, endogamy is the result of preferences, policy makers will have less room for redressing the segregation issues that arise from mate selection.

We emphasize four aspects of our estimation results. First, we find that some attributes are valued by everyone. Both women and men put comparable weights on easily observable physical attributes: women prefer men who are young and tall, while men are more attracted to women who are young and thin.[8] In the short span of time of a speed dating meeting, physical attributes are arguably easier to assess than other attributes, such as education or occupation. In line with the insights developed by Hoppe, Moldovanu, and Sela [2006], socioeconomic characteristics may be more costly (or less reliable) signals to use in formulating a proposal. Interestingly, however, age, height, and weight are systematically correlated to education and occupation, while other physical traits that are not – such as eye colour and hair colour – are also not relevant to subjects' dating decisions. Therefore, when proposing to a potential partner, female and male subjects use only partners' physical attributes that are good signals of socioeconomic position. Second, there is positive sorting in dating preferences along a number of characteristics. Women and men prefer partners of similar age, height, and education [DiMaggio and Mohr 1985; Kurzban and Weeden 2005], while the evidence that people prefer partners of higher status [Mare 1991] is very weak. We also find evidence of substantial heterogeneity in proposal behaviour across subjects' and partners' age, education, and occupation.

Third, the impact of individual dating preferences is dwarfed by the part played by market opportunities that speed daters face. Of the *estimated* variation in attribute demand, preferences can explain as little as one percent along occupation, height, and smoking, and up to 30-40 percent along age and weight for male subjects and 45 percent along age among female subjects. The rest is explained by opportunities. This result emphasizes the notion that mating requires meeting: the pool of potential partners shapes the type of people to whom subjects propose and,

[7] Indeed, there is evidence that opportunities shape people's life chances and decisions quite considerably. For instance, Keels et al. [2005] find that low-income black families who were moved into more affluent neighbourhoods are more likely to reside in high-income low-crime neighbourhoods even after 20 years since their initial placement. Similarly, the results in Marmaros and Sacerdote [2006] show that, although two white students interact three times more frequently than one white and one black student, placing white and black students in the same dorm increases their chances of interaction by a factor of three.

[8] These findings are largely consistent with those emerged in the HurryDate study by Kurzban and Weeden [2005].

ultimately, with whom they form long-term relationships [Kalmijn and Flap 2001].[9] Fourth, despite their lesser role, preferences do have a part when we observe a match, i.e., when two individuals propose to each other. On both sides of the market, we find evidence of a preference for partners with similar attributes, which magnifies the positive sorting emerged in dating demand and leads to greater levels of endogamy. But, differently from the way in which subjects express their dating demand with strong preferences for physical attributes, matches are predominantly driven by more pronounced preferences for socioeconomic similarity along attributes like age, education, and occupation.

2. The Speed Dating Protocol

Speed dating offers single individuals the opportunity to meet a large number of potential mates over a short pre-determined period of time. It has become very popular among dating intermediaries, with several commercial agencies organizing events in countries like the United States, Canada, Australia, Germany, France, and the United Kingdom.[10]

We use data from one of the biggest UK private agencies that operates in small and large cities across the country. Participants register for an individual event that takes place in a specific location during the evening in a bar or club. Participants pay a fixed fee, which varies with location and occasional discounts. They also receive a "guarantee" that allows them to go back for free in case they did not propose to anyone.[11] There is no specified maximum number of women and men who can participate in each session, although there are rarely more than 30 women and 30 men. Events are stratified by age (23-35 and 35-50 are typical age ranges) so that individuals of roughly the same ages participate in the same session.[12]

Bookings are made on the Internet or, less frequently, by phone. Individuals can book for an event as long as there are enough places available. The agency does not screen participants, nor does it intervene in the allocation of participants across

[9] Of course, preferences for attributes which we cannot observe (e.g., ambition and intelligence) may still play a substantial role.
[10] An updated list of agencies is available at ⟨http://dmoz.org/Society/Relationships/Dating/Speed_Dating⟩.
[11] Clearly, those who propose but do not get a match lose their guarantee.
[12] The suggested age range is only a guideline and it is not binding; anyone is free to participate, even outside her/his age range. Events with asymmetric age ranges (e.g., women 27-40, men 28-42) are also run occasionally. They represent, however, a small proportion of the sessions contained in our dataset.

events. Hence, both composition and size of any given session are random in terms of participants' attributes, conditional to the population of speed daters.

Since sessions are run by local hosts, there might be some small variation in the protocol. In general, participants arrive for the event and, at registration, are given a starting table number, a label tag with a chosen film star alias, a pen and a card for indicating the alias of the people they wish to meet again (we shall refer to this choice as a *proposal*). Half an hour after registration, the host explains how the evening works, and then the session begins. People sit at the assigned table, with women usually staying seated at the same table and men moving around. Each date lasts for three minutes. After a date, men have about 30 seconds to move to the next table, and a new date begins. After eight individual dates the session stops, and participants can move around and get a quick drink from the bar before another round of eight three-minute dates starts. A typical evening consists of three such rounds, after which participants can stay in the bar to chat to others or leave.

Participants communicate their proposals to the agency right after the event. There is no limit to the number of proposals subjects can make from the pool of participants. In fact, each individual can be matched more than once. The agency collects all these proposals and exchanges contact details only between participants who have a *match*, i.e., those who propose to each other. In this environment, the cost of being rejected is arguably lower than in the standard day-to-day dating world. Proposals should therefore reflect true preferences.[13]

Participants are recommended to create a personal profile on the agency's website reporting information on age, education, occupation, basic physical characteristics (weight, height, eye colour, and hair colour), interests (hobbies and activities outside work), smoking habits, and family situation (presence of children). This information is self-reported and is not verified by the agency in any formal way. Profiles are accessible by all participants *after* the event only, and can be consulted before communicating the proposals. Some characteristics in the profile are presumably easier to verify than others. Because participants have personally met, they are likely to have a good idea of each other's physical attributes. Thus, differently from other forms of mediated dating – such as small ads or on-line dating –

[13] Despite this, the interpretation of our estimates must rely on "straightforward" behaviour (as pointed out in Fisman et al. [2006a]). That is, we ought to assume that if a subject proposes to partner *i* and not to partner *j*, then the valuation that the subject has for *i* must be greater than her/his valuation for *j*.

the incentives to lie about characteristics that are easily verifiable are perhaps reduced. Conversely, other attributes – such as occupation and family circumstances – can be more easily disguised, and therefore information on them could be perceived as less reliable.

3. Data Description

We have data on approximately 1800 women and 1800 men who participated to 84 speed dating events (or markets) organised between January 2004 and October 2005. Table 1 presents the summary statistics of these events. On average, an event gathers 22.3 men and 22.3 women. Most events do not have exactly equal numbers of women and men, but the difference in numbers rarely goes beyond three.

The participation fee across all markets is just below £20 per session (the median is £20), and ranges from £10 to £25. As mentioned earlier, participants who did not make any proposal are entitled to go back to a subsequent event for free. Indeed, 38 percent of men and 46 percent of women do not choose anyone, and three-quarters of the non-proposing men and almost half of the non-proposing women in the sample go back another time.[14]

Striking gender differentials in proposal behaviour are observed in the data. As emerged in many previous psychological studies [Trivers 1972], women are much choosier than men. On average, women choose 2.6 men and see 45 percent of their proposals matched, while men propose to 5 women and their proposals are matched in only 20 percent of the cases. About 36 percent of men and 11 percent of women do not get any proposal. Overall, we observe an average of 22 matches per event.

To have a better understanding of speed daters' characteristics, we compare them to a representative sample of singles taken from the British Household Panel Survey (BHPS).[15] For this comparison, we use information from the fourteenth wave (2004) of the BHPS, and restrict the BHPS sample to individuals aged between 20 and

[14] In the analysis below, participants who speed date more than once are not treated differently from the others, apart from estimating subject specific fixed-effects models. In future work, we plan to look at the subgroups of those who go back and of non-proposing subjects more closely.

[15] Since 1991, the BHPS has annually interviewed a representative sample of about 5500 households covering more than 10000 individuals. All adults and children in the first wave are designated as original sample members. On-going representativeness of the non-immigrant population has been maintained by using a 'following rule' typical of household panel surveys. At the second and subsequent waves (at approximately one-year intervals), all original sample members are followed and interviewed. There are interviews also with all the other adult members of the households containing either an original sample member or an individual born to an original sample member (whether or not they were members of the original sample).

50. The summary statistics by sample are reported in Table 2. The differences across samples are notable. Speed dating participants are more educated on average (about two thirds of men and women have at least a university degree, against 20 percent of singles in the BHPS), and are more concentrated in relatively high-skilled occupations (83 percent of men and 76 percent of women are in 'skilled non-manual' and 'professional and managerial' jobs, as opposed to 40 percent in the BHPS). Our sample therefore fits the popular view about speed dating markets, according to which they seem to attract a disproportionate fraction of "career" people [Kurzban and Weeden 2005].

Speed daters are also older than their BHPS counterparts (especially men, who are 5 years older on average). But if we restrict the BHPS sample to individuals with at least a university degree, the age differentials are reversed: male and female speed daters are 1 to 4 years *younger*, respectively. The average height is similar in both samples, slightly below 180 centimetres for men and around 165 centimetres for women.[16] The average weight is comparable among men in the two samples, but it is much lower for female speed daters, and this difference does not disappear even if the BHPS sample is restricted to highly educated women. Dividing weight (measured in kilograms) by height squared (measured in metres), we obtain the Body Mass Index (BMI), which we include in our empirical analysis. General health guidelines associate 'normal' weight with a BMI between 18.5 and 25, and define 'underweight' when BMI is below 18.5 and 'overweight' when BMI is above 25. The shares of overweight men and, in particular, women are substantially larger in the BHPS sample than in the speed dating sample. The two sets of figures do not get closer even when the BHPS sample is restricted to more educated respondents.

It is worthwhile noting that in the speed dating sample there are substantially fewer women reporting weight information than men. Our analysis will try to minimise the resulting loss in sample size by assigning participants with missing weight information to the (base) normal weight category and identifying them with a missing weight dummy variable. We shall proceed in a similar fashion for all the variables with missing information (except age, because we restrict the sample to

[16] In some of the analysis presented in Section 4, we use differences in age and height between men and women. For example, we distinguish pairs in which the man is 7 centimetres taller from other pairs. Although this cutoff is arbitrary, 7 centimetres correspond to one standard deviation in the height distribution of married men and women aged 20-50 in the 2004 BHPS. Seven centimetres are also about half of the gender height difference among married couples. Similar considerations apply to the case of age, for which we distinguish men who are 5 or more years older than women.

individuals with valid age information). Alternative assignment rules (e.g., substituting missing values with market mean or modal values computed on valid cases) have delivered exactly identical results to those discussed below and are, therefore, not reported. However, we will discuss the estimates for the dummy variables that record missing information.

Finally, smoking is more prevalent among BHPS respondents, with 36 percent of men and 38 women of women smoking against 9 and 13 percent respectively in the speed dating sample. Limiting this sample to highly educated participants does not eliminate the differences but reduces them by more than half. Speed daters may believe that smoking reduces their overall desirability and, consequently, are more likely to misreport this information. However, as it was also the case for other attributes, many of the observed differences with respect to the general BHPS population of singles seem to be driven by the fact that speed daters are relatively older, more educated, and employed in better jobs.

Despite this sample selection issue,[17] our analysis does not suffer from the "articulation effect" mentioned in Fisman et al. [2006a]. This emerges when subjects are asked to rate their partners on particular attributes at the same time as they propose to them. In such cases, it is possible that the proposal decision is affected by the reasoning on which the rating itself is determined. Because in our dataset subjects do not have to articulate reasons for a specific decision and are never asked to rate partners (other than choosing them), the results below should not be driven by reason-based choice.

4. The Role of Preferences

4.1 Attribute Demands

Our basic regression specification is of the form

(1) $$d_{ijm} = \alpha + \mathbf{X}'_{jm}\beta + \varepsilon_{ijm},$$

where d_{ijm} is the proposal decision that subject *i* takes with respect to partner *j* in market *m*. This is equal to one if *i* proposes to *j*, and zero otherwise. The vector $\mathbf{X}_{jm}$ contains socio-demographic characteristics of potential partners in market *m*, and ε_{ijm} is an idiosyncratic shock. For ease of interpretation, we use a linear probability model

[17] Concerns of sample selection also apply to all the other existing studies of speed dating experiments.

and, because our observations are at the subject-partner pair level in each market, we also account for the potential correlation of observations within markets. Similar results were obtained with a probit model.[18]

The results, by gender, are shown in Table 3, columns (1) and (2).[19] Men are more likely to receive proposals if they are young and tall, and women receive more proposals if they are young and slim. For example, an additional year of age reduces female desirability to men by 1 percentage point (which represents a 5 percent reduction in the male proposal rate, see column (2)) and male desirability to women by 0.4 percentage points (or 4 percent reduction in the female proposal rate, column (1)). On average, five extra centimetres (nearly one standard deviation increase in men's height) will increase female proposals by almost 1 percentage point (a 9 percent increase in female proposal rates). An overweight woman, instead, will see her chance to get a proposal reduced by about 16 percentage points (a 70 percent reduction). If a woman smokes, her likelihood of receiving a proposal is reduced by almost 5 percentage points. This holds for men too, although the effect is weaker and significant only at the 10 percent level. To the extent that smoking captures health-related traits, these results therefore indicate that physically observable attributes tend to dominate the desirability of both men and women.

Partner's education and occupation play a minor direct role in shaping mate selection in this speed dating setting. Nonetheless, more educated women are almost 10 percent more likely to receive a proposal than less educated women, although this effect is significant only at the 10 percent level. There is no evidence of a similar pattern on the other side of the market (i.e., in the case of women's demand).[20]

Although subjects' demand is driven by partners' physical attributes and not by their socioeconomic position directly, socioeconomic position may be correlated with physical attributes. For female subjects, we find that height and weight are

[18] We also experimented with variants of equation (1) that account for subject fixed effects. The results obtained from these fixed-effects regressions were qualitatively identical to those discussed below and, thus, are not reported.

[19] In the regression analysis below, we enter age (in years) and height (in centimetres) linearly, distinguish individuals with degree or higher qualifications, have three occupational dummies, and separate overweight people from the others. We have tried a number of other specifications (e.g., polynomials in age and height, and more dummies for occupation and BMI), but all our main results were unchanged.

[20] As shown by the *p*-value of the 'joint significance' tests in Table 3, none of the indicators of missing information on partner's traits is significant in the female proposal regressions. The likelihood of male proposals is only reduced by women not reporting information on their weight. Women who do not report their weight may be less desirable because they might be overweight.

correlated with neither own education nor occupation, and age is negatively related only to higher educational attainment. For male subjects, instead, education is strongly positively correlated with both age and height. Regardless of gender, smoking is negatively associated with both education and occupation. When formulating their proposals, therefore, individuals (especially women) may be using partners' desirable physical attributes, such as height, as strong signals of their socioeconomic position (see Steckel [1995] for a review of the literature on the connection between height and standard of living).

Physical attributes may also be correlated with other traits, e.g., attractiveness and personality, which are not observed by us but can be seen by all participants and may drive the estimated pattern of proposals. To gauge these traits, we use the proposals to partner *j* made by all subjects other than *i* in any given market *m* averaged over all subjects in that meeting. We denote this by $\bar{d}_{-ijm}$, which can be seen as a measure of partner's *collective* desirability or popularity. We then repeat the analysis after including $\bar{d}_{-ijm}$ in our regressions. The results, reported in columns (3) and (4) of Table 3, are similar to those found earlier. Thus, partners' physical attributes still increase partners' desirability, albeit to a lesser extent than before. But $\bar{d}_{-ijm}$ is a powerful predictor of demand. A one percent increase in this measure increases the likelihoods of female and male proposals by about 8 percentage points, which represent 70 and 35 percent increases in women's and men's proposal rates, respectively.

We next consider the influence of subjects' own characteristics on their demand for partners. Specifically, we examine whether subjects are more likely to select partners assortatively or choose partners with different attributes. The estimates on partners' attributes, obtained from regressions that also controlled for popularity, are in columns (5) and (6) of Table 3, while the estimates on attribute differences or similarities are reported in Table 4. In Table 3, partner's age and popularity are still strong predictors of female and male proposals, but the other characteristics have lost their direct influence on subject's demand.[21]

[21] We also looked at the direct effect of subject's own attributes on proposal behaviour. Both women and men are choosier (i.e., are less likely to propose) if they are older and more educated. We do not find any significant effect for the other attributes.

The results in Table 4 offer evidence of positive assortative matching, whether popularity is controlled for or not. As before, physical attributes are important. Women are less likely to propose to men who are shorter and to men who are either younger or more than 5 years older. Men too prefer women who are younger by no more than 5 years and shorter by no more than 7 centimetres, and they are less likely to propose if their potential partner is taller. Men who smoke prefer smokers, even though smoking is not seen as a desirable attribute by men. Partner's desirability is now also determined by educational similarity. All subjects prefer partners with their own level of education to partners who are *less* educated than they are. In addition, both men and women tend to propose more to partners who are more educated, but this tendency is never statistically significant. When collective desirability is included (columns (3) and (4) of Table 4), we find that a woman is less likely to choose a man if he is *more* popular than she is, while a man is less likely to propose to a woman if she is *less* popular than he is. We should keep in mind that women are more attractive than men on average (because men choose more women), so it is maybe not the most appropriate thing to do to compare "absolute" attractiveness (i.e. comparing the attractiveness of men and women). Despite this gender asymmetry, there is strong evidence of positive sorting, with women only slightly disliking men who are less popular and men only slightly disliking women who are more popular.

As emphasized in Section 2, speed dating proposals are not likely to be driven by strategic considerations (e.g., fear of rejection) because the speed dating protocol guarantees no direct personal feedback. We checked the robustness of our estimates to strategic concerns by re-estimating our regressions after including the partner's decision as an additional control. The results of Tables 3 and 4 were unaffected by this inclusion.

To attend a speed dating session, individuals must be single, but they may have children. Individuals with children may have worse dating opportunities than those without children. But the inclusion of a dummy variable, indicating whether a potential partner has one or more children, did not change any of our previous estimates. Furthermore, having a child does not affect female desirability to men, while it mildly increases male desirability to women.

We also have information on individuals' interest in seven activities (film and music, sports, arts, travelling, restaurants and bars, outdoor recreation, and other activities) with binary responses. For each activity, we constructed an indicator

variable that took value one if both subject and partner shared interest in that activity. We then summed these seven indicators up into one 'common interests' variable and used this in our regression analysis. We found that the common interests variable was never correlated with women's proposals, but positively correlated with men's proposals even after including female and male attributes. Such a correlation, however, disappears if we control for women's collective desirability. The reason seems to be that shared interests (especially in sports and restaurants and bars) are strongly correlated with women's popularity.

Our data set contains information on other physical traits (such as eye and hair colour), which have not been used in our analysis so far. When we include partner's eye and hair colour indicators in our regressions, the estimates in Tables 3 and 4 remain broadly unchanged. However, for both men and women, these additional physical attributes are correlated neither with education nor with occupation. These findings tie in well with the notion that, when formulating their proposals, subjects use partners' physical attributes as signals of socioeconomic position: physical traits that are *not* economically salient will not be used in subjects' dating decision.

4.2 Heterogeneous Responses

It is possible that mate selection varies according to subjects' observable characteristics. To some extent, these have been already accounted for in columns (5) and (6) of Table 3 and in Table 4. But to allow for this variation more fully, we look for heterogeneity in proposal behaviour by estimating models that distinguish subjects by age, education, and occupation.[22] The results from these regressions are reported in Table 5.

There is evidence of substantial heterogeneity. Younger female subjects prefer men who are younger, have higher educational qualifications, and are in non-manual jobs. Older women tend to choose men who are older, taller, have lower educational qualifications, and do not smoke. The preference for men with greater popularity observed in Table 3 is concentrated amongst younger women: for them, a one percent increase in males' collective desirability nearly doubles their demand. For male subjects, the differences by age are comparable. Younger men are more likely to choose younger and more educated women, whereas older men prefer older, taller and

[22] Subjects are defined to be 'younger' if they have 35 or fewer years of age, and 'more educated' if they have university or higher educational qualifications.

normal-weight partners. As in the case of women, younger men put a greater weight on women's popularity than older men do.

More educated male and female subjects have broadly similar proposal behaviours and prefer younger and more educated partners. In addition, more educated men prefer women who do not smoke, while more educated women prefer taller men. At the other end of the distribution, less educated men prefer partners who are not in manual (and other) occupations – one of the few indications of possible negative sorting – and who are not overweight, whereas less educated women are generally less picky over men's attributes. More educated subjects are more sensitive to partners' collective desirability than their less educated counterparts.

Women in managerial and professional occupations are less likely to propose to men in manual occupations, while women in non-manual, manual and other occupations prefer men who are younger and men in manual (and other) occupations. Younger women are more likely to receive proposals by all men irrespective of their occupational position, whereas men in lower level occupations show a preference also for slim women, and men at the upper end of the occupational ladder are more likely to propose to non-smoking and more educated women. Regardless of gender, subjects in managerial and professional jobs put more weight on partner's collective desirability than subjects in other occupations.

A good deal of heterogeneity emerges also in subjects' actual choices by age, education, and occupation. Younger and more educated men who are in managerial and professional occupations are 38 to 65 percent more likely to propose than their older, less educated, and in lower-level occupations counterparts. Similar differentials emerge among female subjects too. These differences, however, may arise not only because, say, less educated subjects are more selective, but also because the available pool of potential partners does not fit their preferences.[23]

5. The Role of Opportunities

5.1 Market Size

[23] We also considered price and location of speed dating meetings as two additional sources of heterogeneity in subjects' proposal behaviour. The results from this analysis (not shown for convenience) reveal that differences in price and location have little overall effect on subjects's demand. That is, subjects' behaviour in larger cities is not significantly different from the behaviour of subjects in smaller cities; likewise, the proposal patterns in more expensive markets mirror the patterns in cheaper markets.

The size of the group may affect both the number of proposals made by subjects and the degree of positive sorting. For example, women could be choosier in larger markets [Fisman et al. 2006a]. Alternatively, women in smaller and more homogeneous markets could choose partners with characteristics similar to theirs simply because they are exposed to very few partners with different attributes.

To check whether group size has a direct impact on mate selection, we take advantage of the random variation in group size in the sample, in which the number of participants per meeting varies between 15 and 31 on each side.[24] We begin by estimating simple variants of regression (1), which include only the number of male and female participants in each session as regressors. Irrespective of the sex of the subjects, the likelihood of proposing is unaffected by the number of participants on either side of the market (i.e., partners or subjects) and by the total market size. The inclusion of market averages of other attributes (e.g., age, education, occupation, and height) does not alter this finding. Finally, we estimate the market-level effect of changing the number of participants (partners or subjects) on the share of proposals made by subjects in each market. We find a small effect on males' behaviour: if the number of potential partners increases from ten to twenty, the fraction of proposals made by men increases by about 4 percent (*p*-value=0.113). Differently from the results shown in Fisman et al. [2006a], we find no impact on females' proposals. Similarly, we find no effect of subjects' group size on selectivity. Taken together, therefore, there is little evidence of any market size effect in our sample.

5.2 The Composition of Partners' and Subjects' Characteristics

The analysis in Section 4 has shown that individuals do have some intrinsic preferences for partners with specific attributes. Hence, the observed positive assortative mating may be partly explained by preferences. But to what extent does meeting potential partners with certain characteristics rather than others matter in dating behaviour? And are market opportunities more or less relevant than preferences in shaping demand?

We address these questions taking advantage of the several speed dating sessions available in our data. Each session involves two pools of potential partners, all of whom are allocated randomly to that particular event. If market opportunities play a crucial role in dating, then there should be a close mapping between the

[24] Group size varies not only across locations but also across events in the same location.

characteristics of all potential partners and the characteristics of the partners who receive a proposal. Suppose, for example, that subjects have no intrinsic preference for specific attributes, so that dating is entirely driven by meeting. In this case, the pattern of proposals should be determined by the pool of potential partners: for example, the share of proposals received by highly educated people in a given speed dating session should be equal to the share of highly educated people in that session. More formally, we contrast the observed mean (or share) of a given attribute (e.g., age) computed over all partners in a given meeting *m*, $\overline{X}_{jm}$, with the average age of the partners who have been chosen, $\overline{X}_{jm}^{(c)}$. If subjects do not have a systematic preference for, say, younger partners but choose at random, this conditional mean should be identical to the overall market mean, i.e., $\overline{X}_{jm}^{(c)} = \overline{X}_{jm}$. We therefore can infer how opportunities and preferences interact from market-level regressions of the form:

(2) $$\overline{X}_{jm}^{(c)} = \alpha_0 + \alpha_1 \overline{X}_{jm} + \varepsilon_m ,$$

where α_0 measures the extent to which partners with a particular attribute attract a disproportionate share of proposals from subjects in all markets, and α_1 measures the sensitivity of proposals to a change in the share of partners with a specific attribute. If $\alpha_0 = 0$ and $\alpha_1 = 1$ for a given X, preferences do not matter in the sense that subjects do not put weight on X and its market distribution is fully reflected in subjects' proposals. If $\alpha_0 \neq 0$ and/or $\alpha_1 \neq 1$, then both preferences and markets matter.[25] A value of α_0 other than zero reflects the systematic preference of subjects in all meetings for a specific trait. Even if $\alpha_0 = 0$, there is a role for preferences: estimates of $\alpha_1 > 1$ (or $0 < \alpha_1 < 1$) indicate that as the share of partners with a given attribute increases in the market, the share of partners who receive a proposal increases more (or less) than proportionally.

For each of the attributes used so far, the results by subject's gender from regressions (2) are reported in Table 6, panel A.[26] To ease interpretation, these are complemented by Figures 1 and 2. As our earlier analysis shows, women and men in

[25] In this formulation, markets do not matter only in the limit case of α_1=0.
[26] In order to limit the influence of missing data, shares or means in equation (2) were computed only on partners for whom we have valid information on each specific attribute.

all markets prefer younger partners on average $(\alpha_0 < 0,$ column (1)), although this preference becomes weaker as we move to markets in which partner's average age increases (this is because α_1 is always significantly greater than 1). Other characteristics along which both preferences and markets have an influence on dating decisions are smoking in the case of female proposals and education and weight in the case of male proposals. More educated female partners are more desirable on average $(\alpha_0 > 0),$ but tend to attract fewer proposals in markets where more of them are available $(\alpha_1 < 1)$. Similarly, a greater availability of overweight women does not sway male preferences towards them. These findings confirm the estimates discussed in Section 4 and also allow us to give them a deeper interpretation.

There are also attributes for which the observed individual decisions seem to be driven mainly by market conditions. These are occupation and height both for women and men, weight and education in the case of female proposals, and smoking in the case of male proposals. In such instances, the intercept is always equal to zero, and the slope parameter is never statistically different from 1. Thus, for example, subjects tend to select more professional partners if they are in markets with a greater share of professionals, while they propose more to low-level occupation partners in meetings where the share of professionals is small. Interestingly, some of these attributes – such as occupation, weight, and education for female subjects – have little direct effect on individual demands (see the results of Section 4). These estimates indicate that opportunities may play a key part in shaping mate selection in our sample: in this sense, therefore, anyone can be "the" one.

Of course, proposals are likely to be affected not only by the distribution of partners' characteristics but also by market conditions on the subjects' side. For example, highly educated partners may receive a larger share of proposals in markets with a greater concentration of highly educated subjects; and, conversely, they may receive a smaller share of proposals when the pool of subjects is relatively less educated. To explore this possibility, we analyze a relationship similar to equation (2), in which, on the right-hand side, we replace $\overline{X}_{jm}$ with $\overline{X}_{im}$, the observed mean (or share) of a given attribute computed over all subjects (and not partners) in a given meeting *m*. That is,

(3) $$\overline{X}_{jm}^{(c)} = \beta_0 + \beta_1 \overline{X}_{im} + \eta_m .$$

The parameter of interest here is β_1.[27] If $\beta_1 = 0$, then the distribution of subjects along one specific attribute and the distribution of selected partners along the same attribute in a given meeting are unrelated. In other words, subjects' proposal behaviour is independent of subjects' characteristics and is shaped largely by market conditions.

The results are in Table 6, panel B. Except in the cases of age and smoking,[28] the distribution of subjects' attributes turns out to be independent of subjects' demands. Thus, subjects do not become more or less selective as the distributions of their attributes vary; they propose to whoever happens to be on the other side of the market. As an additional check, we also estimated regressions in which the specification of the right-hand side is the same as that of equation (2) but the dependent variable is the mean (or share) of a given attribute computed over *subjects* (rather than partners). The results of these regressions (not shown for brevity) are qualitatively identical to those of panel B in Table 6.

5.3 Opportunities or Preferences?

The estimates presented in the previous section and in this so far show that both preferences and opportunities affect the observed patterns of choice. One way to gauge the relative importance of these two factors is to extend the analysis performed in subsection 5.2 to the subject (rather than the market) level. In particular, employing the notation used in equation (2), we examine whether there is a systematic relationship between $\overline{X}_{jm}$ and the attribute mean (or share) computed over the partners that subject *i* has proposed to, $\overline{X}_{ijm}^{(c)}$. We also try to capture the importance of sorting – one channel through which preferences seem to play a part in the analysis shown in Section 4 – by including the subject's attribute, X_{im}. Thus, for each subject in our sample, we estimate

(4) $$\overline{X}_{ijm}^{(c)} = \gamma_0 + \gamma_1 \overline{X}_{jm} + \gamma_2 X_{im} + u_i .$$

The estimates of (4) – like those of equations (2) and (3) – will reflect both preferences and opportunities. But, if $\gamma_0 = \gamma_2 = 0$ and $\gamma_1 = 1$, then subjects' proposals

[27] Clearly β_0 reflects subjects' intrinsic preferences for a specific attribute. Because this issue has been addressed in Section 4, however, the estimates of β_0 are not presented.

[28] The age result – i.e., the fact that subjects' average age is higher in relatively older markets – is not surprising given that meetings are stratified by age.

primarily reflect partners' availability. We therefore determine the role of opportunities (net of preferences) by decomposing the total R^2 of model (4) into two components: the first comes from the constrained model that sets γ_0 and γ_2 to zero and γ_1 to 1, and captures the role of opportunities; while the second is just the residual part which can be attributed to preferences. For the sake of brevity, the estimates of such regressions are not presented, but they confirm our previous main findings.

Table 7 reports the fractions of R^2 that can be separately attributed to preferences and opportunities as well as the total R^2 obtained from estimating (4) for each of the usual characteristics. These results are quite striking. Male preferences over occupation, height, and smoking play hardly any part in determining men's demand for partners, explaining less than 1 percent of the observed variation in their choice patterns. Women's preferences over occupation are equally inconsequential, while female preferences for non smokers, more educated, non-overweight, and taller men account for 2 to 6 percent of the explained variation in demand. The most substantial influence of female preferences emerges along the age attribute, where the preference for a younger partner can account for about 46 percent of the R^2. Male preferences for better educated partners can explain only 6 percent of the estimated variation in demand, with the remaining 94 percent being driven by market conditions. Preferences for younger and normal-weight women affect mate selection more significantly, by explaining demand patters between 30 and 40 percent. Along all attributes, therefore, the role of opportunities in shaping mate selection is considerable.

These findings are largely consistent with the results on preferences discussed in Section 4 as well as with the results on market availability and characteristics discussed in the previous part of this section. They provide strong evidence of the importance of the environment in which individuals meet and choose each other. Thus, over and above the effect of individual preferences, highly homogenous markets will tend to generate more endogamous couples and an overall greater extent of segregation along all observed attributes, while heterogeneous markets will produce more heterogamous couples. Of course, our interpretation should also take account of the unusual composition of the sample. As already mentioned, the relatively muted impact of preferences could be due to the fact that speed daters may have no intrinsic preferences for specific attributes. Our sample, indeed, may be

unusual, in the sense that speed daters are older, more educated, in higher-level occupations, and less likely to smoke than their general population counterparts. These features combined with the fact that speed daters are not (or should not be) in a long-term relationship indicate that subjects in our sample may be less likely to search for partners who have attributes identical to theirs or could have no strong preferences at all.

In any case, despite the huge effect of market conditions, preferences could reinforce or undo the outcome produced by opportunities alone depending on whether individuals match assortatively or not. As shown in Section 4, people do match positively on a number of attributes, whereby greater levels of endogamy and segregation are expected to emerge among matched pairs. This is the issue to which we now turn more closely.

5.4 Sorting and Matching

Do preferences play a role when we observe a match (that is, when two people propose to each other)? Might they magnify or offset the influence of market opportunities? We analyze these questions by computing separate odds ratios for all the female-male pairs in our sample and for those for whom we observe a match.[29] The analysis in Section 4 reveals that there is some positive sorting in attribute demand. Thus, if preferences are at work, we expect the odds ratios of matched pairs to be greater than the odds ratios of all (matched and unmatched) pairs, suggesting that a preference for partners with similar attributes will lead to greater levels of endogamy.

The results in Table 8 substantiate our expectation. The odds ratios for matched pairs (column (1)) are larger than the odds ratios for all pairs (column (2)) along all attributes, except in the case of overweight.[30] Evidence of such increases is strongest along education, occupation, smoking and, especially, age. This finding is interesting: the estimates in Section 4 reveal that dating proposals are predominantly determined by physical attributes, although these turn out to be correlated to

[29] Odds ratios are an appealing measure of endogamy because they provide a simple reference point: odds ratios greater than unity indicate that there is more endogamy than one would expect if individuals matched at random. Moreover, odds ratios allow us to compare endogamy across attributes or groups because they are independent of the relative size of the groups under considerations. For a more detailed description, see Goodman [1979].

[30] It is worth noting that, albeit significantly different from one along most attributes, the odds ratios in column (1) are just above unity, confirming that the distributions of characteristics among subjects and partners in the sample are fairly random.

socioeconomic characteristics; matches, instead, are driven by more pronounced preferences for socioeconomic similarity. Despite the fact that the odds ratios in column (2) are much lower than those generally found for individuals in final matches (e.g., Kalmijn [1994] and Pencavel [1998]), they reveal how preferences operate, and are also quite remarkable given that speed daters have just three minutes in which to make their judgements.

6. Conclusions

Our paper analyzes mate selection using data from a large UK speed dating agency. We take advantage of the experimental design of the data that allow us to observe the behaviour of large numbers of women and men in several speed dating meetings. Both women and men put comparable weights on observable physical attributes: women prefer men who are young and tall, while men are more attracted to women who are young and thin. Interestingly, age, height, and weight are correlated to education and occupation, while other physical traits that are not – such as eye colour and hair colour – are also not relevant to subjects' dating decisions. Therefore, when proposing to a potential partner, female and male subjects only use partners' physical attributes that are good predictors of socioeconomic status. We also find evidence of positive sorting along a number of characteristics (with both women and men preferring partners of similar age, height, and education) and substantial heterogeneity in behaviour across subjects' and partners' age, education, and occupation. But the role of individual preferences is overshadowed by that of market opportunities. Of the estimated variation in attribute demand, preferences can explain as little as one percent along occupation, height, and smoking, and up to 30-40 percent along age and weight for male subjects and 45 percent along age among female subjects. The rest is explained by opportunities. But despite this, preferences have a part when we observe a match, i.e., when two individuals propose to one another. Matches are driven by more pronounced preferences for socioeconomic similarity along attributes like age, education, and occupation.

This work contributes to the growing literature in economics that emphasizes the importance of studying mate selection and estimating preferences over partner attributes. A number of extensions and improvements would be desirable. First, incorporating how speed daters learn about their potential partners' characteristics (either during the meeting or browsing their profiles) would give us a deeper

understanding of dating preferences, which may also have ramifications for theory. Second, a similar methodology could be used to analyze different substantive issues (such as the extent to which dating preferences differ by ethnicity), different rules of the game (e.g., allowing participants to interact for more than three minutes or eliminating the guarantee when they do not propose to anyone), different agencies that target diverse populations (in terms of age, occupation, race, or religion) and speed daters in different countries. Finally, an ambitious extension is to follow speed daters over time and observe how their matches evolve: this will allow us to have a better view on how they screen potential partners and eventually form durable long-term relationships.

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Table 1
Sample Characteristics of Speed Dating Events

	Mean	Std. dev.	Min	Max
Number of female subjects (N_m = 84)	22.3	3.9	15	31
Number of male subjects (N_m = 84)	22.3	3.9	15	30
Number of proposals made per meeting by:				
Female subjects (N_i = 1868)	2.6	3.1	0	30
Male subjects (N_i = 1870)	5.0	5.8	0	29
Number of proposals received per meeting by:				
Male partners (N_j = 1870)	2.6	3.1	0	18
Female partners (N_j = 1868)	5.0	4.4	0	22
Number of matches per meeting	22	20	2	117
Share of proposals matched (as a fraction of all proposals) for:				
Female subjects (Obs = 4530)	0.45			
Male subjects (Obs = 10107)	0.20			

N_m is the number of events (or markets), N_i is the number of subjects, N_j is the number of partners, and 'Obs' refers to the number of subject-partner pairs in which the subject has made a proposal.

Table 2
Summary Statistics of Subjects' Attributes

	Men		Women	
	Speed dating	BHPS	Speed dating	BHPS
Age (years)	35.8 (6.9)	30.5 (9.1)	34.5 (7.5)	32.7 (9.4)
	[1,828]	[1,200]	[1,776]	[1,351]
University degree or more	0.65	0.20	0.66	0.20
	[1071]	[1053]	[974]	[1248]
Occupation				
Professional and managerial	0.43	0.24	0.36	0.33
Skilled non manual	0.40	0.16	0.50	0.19
Other occupations[a]	0.17	0.60	0.14	0.48
	[1105]	[905]	[1008]	[862]
Height (cm)	179.1 (6.9)	178.4 (7.4)	165.4 (6.7)	163.8 (6.4)
	[1134]	[1095]	[1008]	[1270]
Weight (kg)	77.6 (10.0)	79.9 (15.5)	57.8 (5.9)	66.4 (14.0)
	[783]	[1067]	[334]	[1192]
Share underweight[b]	0.00	0.02	0.05	0.04
Share overweight[c]	0.30	0.45	0.05	0.38
Smoking	0.09	0.36	0.13	0.38
	[1059]	[1101]	[844]	[1278]

Standard deviations in parentheses, and number of subjects in square brackets.
[a] Includes workers in manual occupations, self-employed, full-time students, and individuals in other jobs.
[b] If BMI<18.5.
[c] If BMI>25.

Table 3
Demand for Partner's Attributes

	(1)	(2)	(3)	(4)	(5)	(6)
Age (years)	-0.004**	-0.010**	-0.001**	-0.002**	-0.0012**	-0.005**
	(0.0009)	(0.001)	(0.0002)	(0.0004)	(0.0005)	(0.001)
University degree or more	0.003	0.021	0.001	0.005	-0.022	-0.031
	(0.010)	(0.012)	(0.003)	(0.003)	(0.012)	(0.018)
Skilled non-manual	0.011	-0.002	0.003	-0.0002	0.007	-0.0004
	(0.008)	(0.012)	(0.002)	(0.003)	(0.007)	(0.008)
Other occupations	0.005	-0.014	0.001	-0.003	-0.002	-0.009
	(0.016)	(0.018)	(0.004)	(0.005)	(0.005)	(0.008)
Height (cm)	0.002**	0.001	0.00036*	0.0002	-0.0001	0.0003
	(0.0006)	(0.001)	(0.00015)	(0.0002)	(0.0003)	(0.004)
Overweight	0.0001	-0.155**	-0.0002	-0.039**	0.002	-0.013
	(0.009)	(0.028)	(0.002)	(0.007)	(0.003)	(0.011)
Smoking	-0.019	-0.047**	-0.005	-0.012**	-0.007	-0.048
	(0.012)	(0.014)	(0.003)	(0.004)	(0.022)	(0.038)
Collective desirability			0.799**	0.777**	0.887**	0.777**
			(0.025)	(0.025)	(0.033)	(0.026)
Joint significance of missing partner's information (*p*-value)	0.082	0.090	0.159	0.114	0.143	0.126
Joint significance of missing subject's information (*p*-value)					0.085	0.113
Joint significance of all missing information variables (p-value)					0.091	0.097
R^2	0.017	0.042	0.111	0.125	0.138	0.181
Mean dependent variable	0.113	0.222	0.113	0.222	0.113	0.222
Observations	41782	40544	41782	40544	41782	40544
Subject's gender	Female	Male	Female	Male	Female	Male

Linear probability model; robust standard errors in parentheses, clustered by market. The level of observation is a male-female meeting. Other variables included in all regressions are dummy variables recording missing partner's information on education, occupation, height, weight, and smoking. In addition, the regressions reported in columns (5) and (6) contain the missing information dummy variables for the subject.
* significant at 5 percent; ** significant at 1 percent.

Table 4
Effect of Partner-Subject Similarity on Proposal Behaviour

	(1)	(2)	(3)	(4)
Man is 5+ years older	-0.048**	-0.117**	-0.034**	-0.105**
	(0.011)	(0.015)	(0.006)	(0.011)
Woman is older	-0.058**	-0.049*	-0.040**	-0.023*
	(0.013)	(0.020)	(0.011)	(0.011)
Man is more educated	0.010	-0.064**	0.012	-0.057**
	(0.015)	(0.018)	(0.014)	(0.017)
Woman is more educated	-0.041**	0.023	-0.039**	0.024
	(0.012)	(0.020)	(0.011)	(0.019)
Both are in professional/ managerial occupations	0.008	0.001	0.011	0.0003
	(0.019)	(0.019)	(0.017)	(0.018)
Both are in skilled non-manual occupations	-0.013	-0.005	-0.010	-0.007
	(0.014)	(0.015)	(0.014)	(0.015)
Both are in other occupations	0.052	0.046	0.037	0.027
	(0.036)	(0.032)	(0.030)	(0.030)
Man is 7+ cm taller	0.021	-0.035*	0.016	-0.036*
	(0.011)	(0.017)	(0.010)	(0.016)
Woman is taller	-0.043**	-0.086**	-0.026**	-0.070**
	(0.013)	(0.020)	(0.009)	(0.013)
Both are overweight	0.093	-0.099**	0.103	-0.077*
	(0.081)	(0.029)	(0.073)	(0.038)
Both smoke	0.027	0.118*	0.012	0.117*
	(0.033)	(0.050)	(0.035)	(0.047)
Both are not smoking	-0.0004	-0.034	0.001	-0.033
	(0.023)	(0.038)	(0.022)	(0.038)
Man is more popular			-0.053**	-0.029**
			(0.010)	(0.010)
Woman is more popular			-0.012	-0.013
			(0.007)	(0.009)
R^2	0.041	0.096	0.138	0.181
Observations	41782	40544	41782	40544
Subject's gender	Female	Male	Female	Male

Linear probability model; robust standard errors in parentheses, clustered by market. The level of observation is a male-female meeting. Other variables included in all regressions are dummy variables recording missing partner's and subject's information on education, occupation, height, weight, and smoking. The estimates on these variables for the specifications in columns (3) and (4) are reported in Table 3, columns (5) and (6) respectively.
* significant at 5 percent; ** significant at 1 percent.

Table 5
Heterogeneity in Attribute Demand

Subject's gender and partner's attributes	Subject's type: Younger	Older	More educated	Less educated	Professional and managerial occupations	All other occupations
Female						
Age	-0.002**	0.003**	-0.002**	-0.0002	-0.0016	-0.001*
	(0.0005)	(0.0009)	(0.0006)	(0.0004)	(0.001)	(0.0004)
University degree or more	0.011*	-0.017**	0.016*	-0.008*	0.003	-0.0003
	(0.005)	(0.006)	(0.008)	(0.004)	(0.010)	(0.003)
Skilled non-manual	0.007*	-0.003	0.009	0.001	0.002	0.004
	(0.003)	(0.006)	(0.006)	(0.004)	(0.009)	(0.003)
Other occupations	0.002	-0.001	-0.003	0.004	-0.036**	0.010*
	(0.008)	(0.010)	(0.009)	(0.006)	(0.011)	(0.005)
Height	-0.00001	0.010**	0.001**	-0.0004	0.0008	0.0003
	(0.0003)	(0.0003)	(0.0004)	(0.0003)	(0.0006)	(0.0002)
Overweight	-0.002	0.006	0.012	-0.004	-0.016	0.004
	(0.005)	(0.007)	(0.009)	(0.005)	(0.017)	(0.004)
Smoking	-0.001	-0.019*	-0.016	0.001	-0.023	-0.0005
	(0.006)	(0.009)	(0.010)	(0.006)	(0.014)	(0.005)
Collective desirability	0.970**	0.573**	1.067**	0.687**	0.981**	0.765**
	(0.062)	(0.074)	(0.087)	(0.040)	(0.100)	(0.030)
R^2	0.147	0.073	0.158	0.092	0.135	0.107
Mean of dependent var.	0.138	0.081	0.139	0.099	0.141	0.106
Observations	23135	18647	27266	14516	8024	33758
Male						
Age	-0.005**	0.002**	-0.004**	-0.001	-0.003**	-0.002*
	(0.001)	(0.0009)	(0.0007)	(0.001)	(0.001)	(0.001)
University degree or more	0.019*	-0.003	0.025**	-0.009	0.028*	-0.002
	(0.008)	(0.007)	(0.008)	(0.006)	(0.011)	(0.005)
Skilled non-manual	0.008	-0.009	0.005	-0.004	0.0002	0.00002
	(0.008)	(0.007)	(0.008)	(0.005)	(0.012)	(0.005)
Other occupations	0.010	-0.012	0.015	-0.018*	-0.012	-0.001
	(0.011)	(0.012)	(0.013)	(0.008)	(0.020)	(0.009)
Height	-0.0004	0.0009	0.0001	0.0003	0.0003	0.0001
	(0.0005)	(0.0005)	(0.0005)	(0.0003)	(0.0008)	(0.0003)
Overweight	-0.019	-0.031	-0.039	-0.034*	-0.012	-0.045**
	(0.017)	(0.017)	(0.032)	(0.016)	(0.058)	(0.015)
Smoking	-0.002	-0.016	-0.021*	-0.006	-0.043**	0.002
	(0.010)	(0.010)	(0.010)	(0.008)	(0.014)	(0.007)
Collective desirability	0.901**	0.660**	0.984**	0.660**	0.992**	0.711**
	(0.042)	(0.060)	(0.036)	(0.050)	(0.051)	(0.040)
R^2	0.167	0.088	0.183	0.092	0.176	0.109
Mean of dependent var.	0.278	0.168	0.274	0.188	0.278	0.203
Observations	19881	20663	24572	15792	10625	29919

Linear probability model; robust standard errors in parentheses, clustered by market. The level of observation is a male-female meeting. Other variables included in all regressions are dummy variables recording missing partner's information on education, occupation, height, weight, and smoking. A subject is 'younger' if she/he has 35 or fewer years of age, and 'more educated' if she/he has university or higher educational qualifications. 'All other occupations' include skilled non-manual and other occupations (manual occupations, self-employed, full-time students, and individuals in other jobs).
* significant at 5 percent; ** significant at 1 percent.

Table 6
Mate Selection and the Distribution of Partner/Subject Attributes

	(1) Age (mean)	(2) University degree or greater qualification	(3) Professional and managerial occupations	(4) Height (mean)	(5) Overweight	(6) Smoking
A. Partner's attributes						
Female subject						
α_0	-8.75**	-0.06	-0.02	-8.75	-0.04	-0.02*
	(1.87)	(0.06)	(0.06)	(17.63)	(0.03)	(0.01)
α_1	1.18**	1.11**	1.03**	1.05**	1.16**	1.30**
	(0.05)	(0.09)	(0.13)	(0.10)	(0.11)	(0.10)
F test $(\alpha_1 = 1)$	0.001†	0.268	0.806	0.636	0.158	0.005†
R^2	0.864	0.633	0.433	0.585	0.587	0.657
Observations	84	81	81	82	81	84
Male subject						
α_0	-7.34**	0.10*	0.03	7.18	-0.01	-0.01
	(1.56)	(0.04)	(0.02)	(10.47)	(0.03)	(0.01)
α_1	1.13**	0.90**	0.94**	0.96**	0.60**	1.09**
	(0.04)	(0.06)	(0.07)	(0.06)	(0.04)	(0.07)
F test $(\alpha_1 = 1)$	0.005†	0.085	0.388	0.509	0.000†	0.202
R^2	0.886	0.762	0.717	0.737	0.787	0.729
Observations	84	84	78	84	80	84
B. Subject's attributes						
Female subject						
β_1	0.88**	0.10	-0.09	0.11	0.09	0.10*
	(0.07)	(0.14)	(0.10)	(0.12)	(0.05)	(0.05)
R^2	0.647	0.012	0.009	0.010	0.042	0.042
Observations	84	83	82	82	79	82
Male subject						
β_1	1.13**	0.001	0.02	0.10	-0.002	0.04
	(0.08)	(0.12)	(0.11)	(0.15)	(0.008)	(0.08)
R^2	0.704	0.001	0.003	0.005	0.001	0.003
Observations	84	83	82	82	79	82

Ordinary least squares estimates; standard errors in parentheses. Figures in panel A are obtained from the estimation of equation (2); those in panel B are from equation (3) which includes a constant (see text). Observations are at the meeting level. In the rows labelled 'F test', we report the *p*-value of the test that α_1=1.
* significant at 5 percent; ** significant at 1 percent.
† indicates that equality is rejected (at 1 percent).

Table 7
Relative Importance of Subject's Preferences and Market Opportunities

	(1) Age	(2) University degree or greater qualification	(3) Professional and managerial occupations	(4) Height	(5) Overweight	(6) Smoking
Female subject						
Fraction of R^2 due to preferences	0.315 [0.457]	0.006 [0.023]	0.0004 [0.004]	0.006 [0.058]	0.018 [0.052]	0.004 [0.020]
Fraction of R^2 due to opportunities	0.375 [0.543]	0.251 [0.977]	0.098 [0.996]	0.099 [0.942]	0.336 [0.948]	0.177 [0.980]
R^2	0.690	0.257	0.098	0.105	0.354	0.181
Male subject						
Fraction of R^2 due to preferences	0.157 [0.287]	0.018 [0.062]	0.002 [0.007]	0.003 [0.009]	0.069 [0.394]	0.001 [0.005]
Fraction of R^2 due to opportunities	0.389 [0.713]	0.273 [0.938]	0.286 [0.993]	0.272 [0.991]	0.107 [0.606]	0.249 [0.995]
R^2	0.546	0.291	0.288	0.275	0.176	0.250

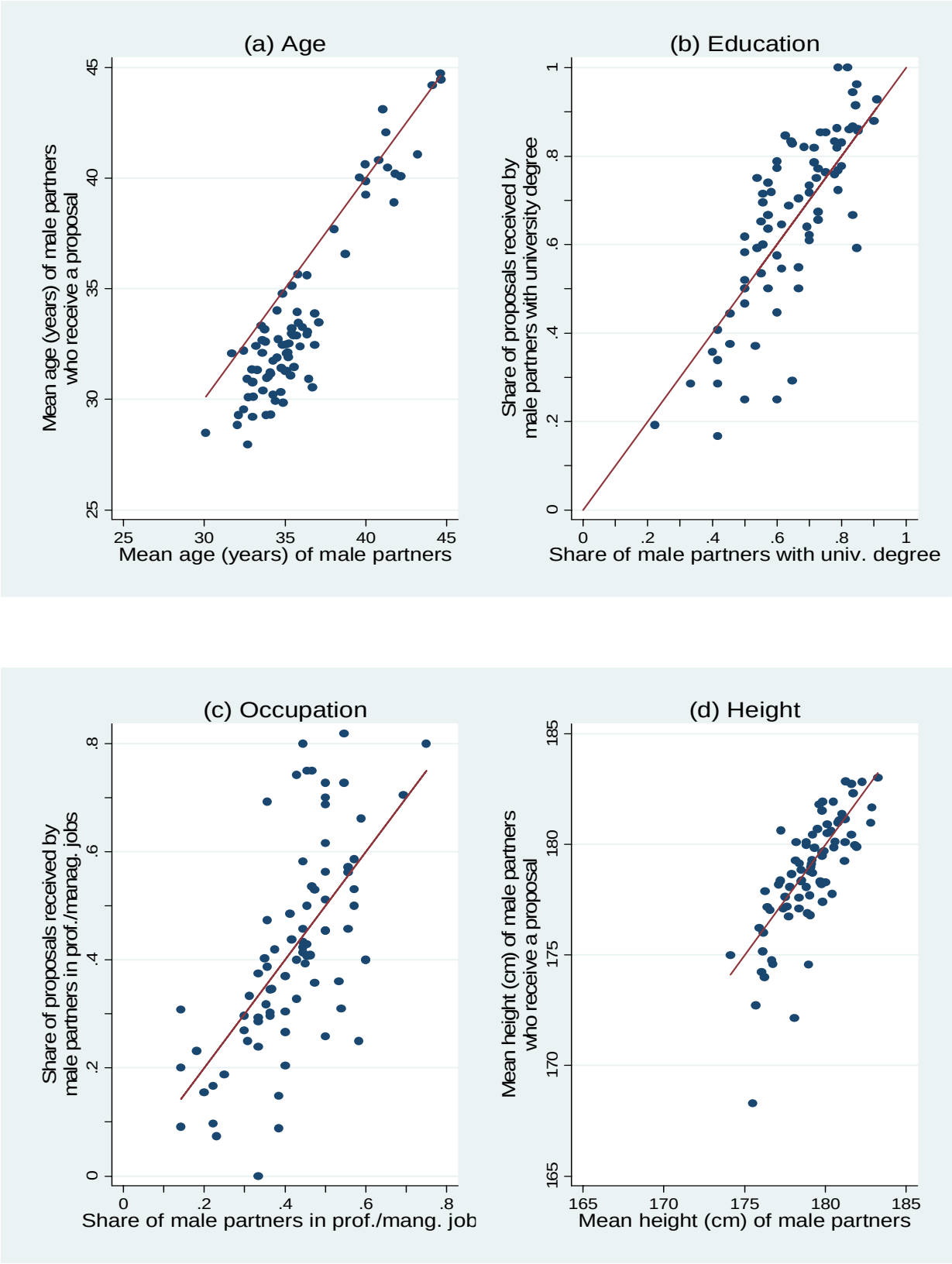
Figures are derived from the OLS estimation of equation (4) for each partner's attribute and from constrained regressions in which $\gamma_0=\gamma_2=0$ and $\gamma_1=1$. The corresponding percentage of the explained R^2 is in square brackets.

Table 8
Endogamy among All Pairs and Among Matched Pairs

	(1) All speed daters	(2) Matched only	(3) Test of equality (*p*-value)
Age[a]	2.39** (0.03)	11.01** (0.97)	0.000
University degree or greater qualification	1.10** (0.03)	1.34** (0.13)	0.010
Professional and managerial occupations	1.01 (0.02)	1.25* (0.12)	0.013
Height[a]	1.06* (0.03)	1.08 (0.09)	0.933
Overweight	1.29* (0.16)	0.69 (0.76)	0.421
Smoking	1.18* (0.08)	1.81* (0.41)	0.059

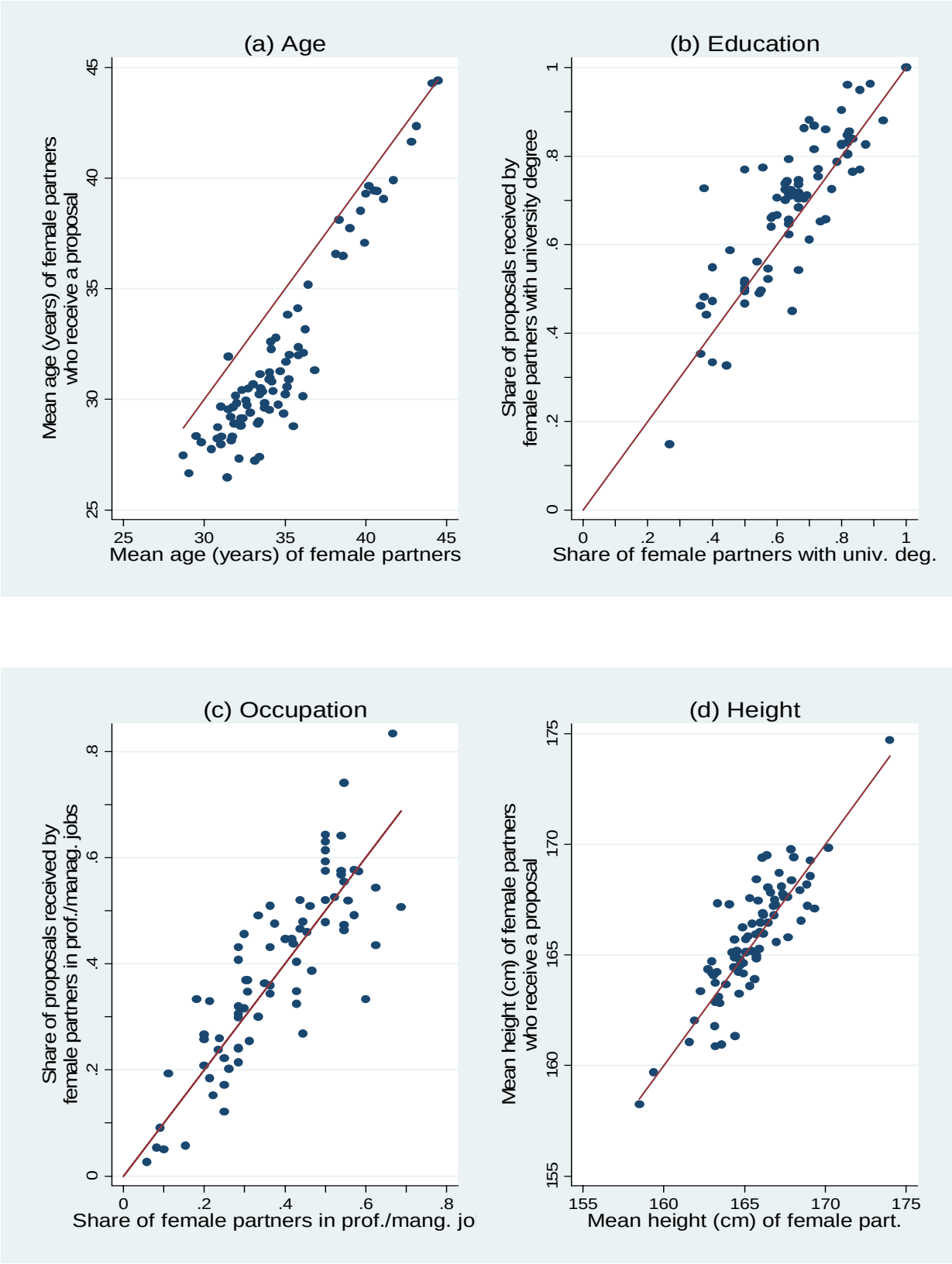
The figures in the first two columns are odds ratios obtained from logistic regressions. Standard errors are in parentheses. In the column labelled 'Test of equality' we report the *p*-value of the test that the odds ratio in first column equals the corresponding odds ratio in the second column.
[a] Figures are computed using two distinct groups, that is, individuals who are above the average age or height, and individuals who are at the average or below.
* significantly different from 1 at the 5 percent level; ** significantly different from 1 at the 1 percent level.

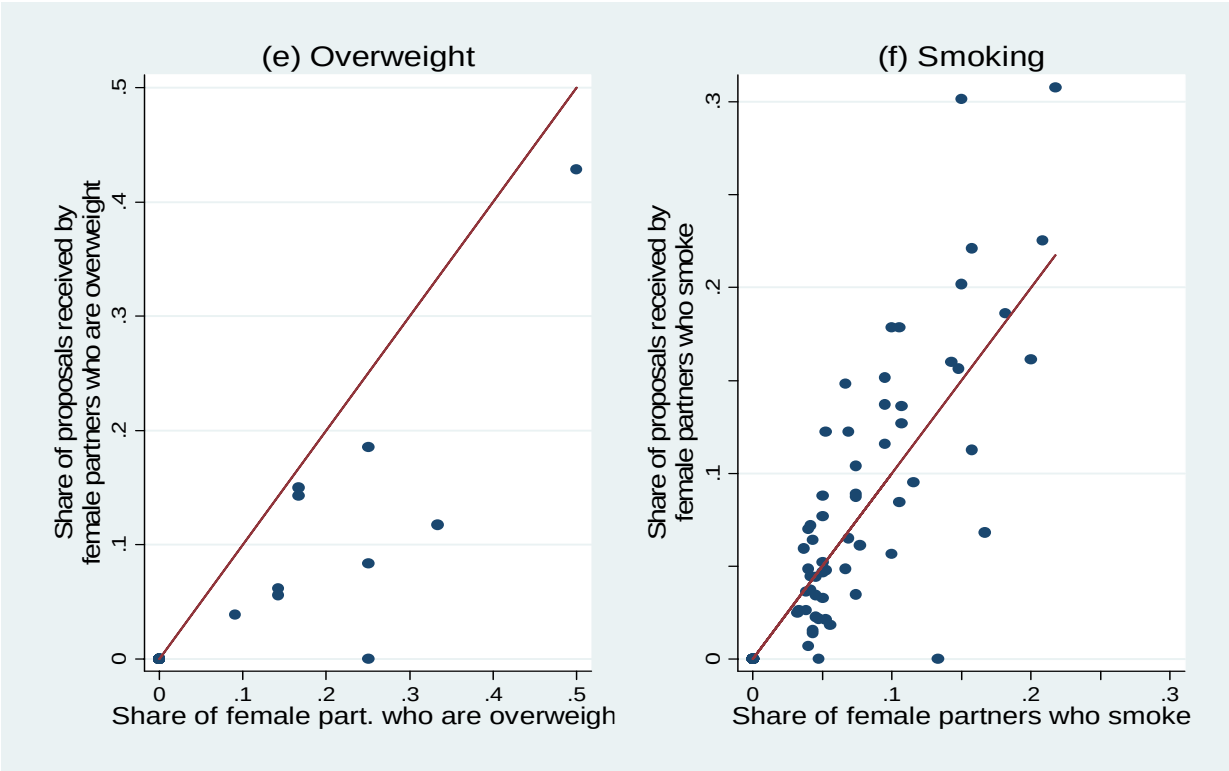
Figure 1
Mate selection and partners' supply – Female subjects



Each dot represents means or shares of characteristics of partners in a specific meeting. The straight line is the 45 degree line.

Figure 2
Mate selection and partners' supply – Male subjects





Each dot represents means or shares of characteristics of partners in a specific meeting. The straight line is the 45 degree line.