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DIGITIZED MATCHMAKING:

MARRIAGE-MAKING STRATEGIES OF THE NEW MIDDLE CLASS THROUGH ONLINE MATRIMONIAL ADVERTISEMENTS IN INDIA

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Cover photo: Baraat (procession for the groom) at a wedding in Lucknow, Uttar Pradesh. (Photo: Jeanne Subtil, January 2020).

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Marriage-making Strategies of the New Middle Class Through Online Matrimonial Advertisements in India

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Abstract

Motivation Contrary to most Asian countries, in India family plays an active role in matchmaking by choosing their child's partner through an "arranged marriage." Yet, the rise of modern values endorsed by the "new middle class" tends to promote some degree of individuality in partner selection.

Objective We study matrimonial websites, an important tool of the matrimonial market for the new middle class, a social group encompassing the top segment of Indian society. We examine key indicators of the individualization of partner selection: individual agency, social openness, and gender (in)equality in marriage representations.

Methods Using an automatic extraction of a matrimonial website, we conduct a comprehensive quantitative analysis of 124,435 online male and female profiles.

Results Our results indicate that matrimonial websites allow increased agency for the spouse-to-be in the matchmaking process, although we observe that the agency gain is limited for women. This digital tool also enhances efficiency in caste and religious endogamy which is intensified by socioeconomic signaling strategies. Finally, profiles describe conventionally gendered representations of the ideal partner, although they also value forms of "companionate" marriage.

Contribution To our knowledge, this study is the first comprehensive quantitative study of Indian online matrimonial profiles, a material that notably overcomes the limitations of other research methods which may suffer from desirability bias. This is an important concern here given the discrepancies unveiled between the users of these platforms who claim to belong to the middle class, a social group aspiring to be "modern," and their exclusive and collective matchmaking practices.

Keywords: middle class, status, marriage, matrimonial website, digitalization, social reproduction, individualization, India

1. Introduction

Giddens' influential theory of modernization predicts a convergence in family forms across the globe, towards more individualization and an ideal of marriage based on "confluent love," which involve greater gender equality in sex and emotions. As countries urbanize, industrialize, and educate, relationships would converge to "modern" forms, adopting personal choice in partner selection, distancing from patriarchal family structures and reproductive logics (Giddens 1992). In the context of the development of a "new middle class" (Fernandes 2006) corresponding to the top segments of society in India, we question the extent to which marriage is modernizing, especially in this class. While marriage strongly legitimizes sexual relations to perpetuate family lineage (Jackson 2012), marital structures have been characterized by "arranged marriages," denoting the important role of families in the matchmaking process at the expense of the concerned individuals, and thereby distinguishing from unions based on romantic love and personal choice. Besides, in India, marriage is generally based on religious and caste endogamic rules. Yet, do the logics and strategies of collectively endorsed social reproduction still prevail in a self-claimed "modernized" social group? Are we witnessing forms of individualization, in the sense of an emancipation from economical, generational and caste hierarchies in favor of personalized choice in marital decisions?

In India's modern period, intermediaries such as marriage bureaus, brokers, and newspaper advertisements (Banerjee et al. 2013; Pandey 2004; Ramasubramanian and Jain 2009) emerged in the search process of a "suitable match." The late 1990s saw the first India-based websites dedicated to matrimonial matchmaking; in the 2010s, half of the matchmaking websites in the world were either Indian or South Asian (Kaur 2002). The use of online matrimonial websites remains restricted to the top segments of the society, who are often associated to the "new middle class." While referring to an objective group of elite members rather than an

intermediate group, "middle class" is used as a term denoting a subjective identity associated with lifestyles characterized by a fusion – a "fine balance" (Gilbertson 2014a) – between "modernity" and "tradition," claiming both "open-mindedness" and "tolerance" while maintaining the right amount of "Indianness" (Brosius 2010; Donner 2011). When it comes to its social practices and cultural discourses – be it consumption (Liechty 2003), dress code and the presentation of self (Gilbertson 2014a), marital life (Puri 1999), or weddings (Brosius 2010) –, many conclude with oxymorons such as "suitably modern traditionally Indian" (Donner 2011), informing us on the contradictions faced by a group who aspires to appear "modern" while endorsing the role of gatekeeper of tradition and having strong objective interests in maintaining both its social status and its economical privileges through successful alliances. Indeed, although claiming and displaying "open-mindedness" and tolerance, the Indian middle class seems to maintain indirect mechanisms of social closure in partnership formations (Bhandari 2017). Matchmaking websites, through filters one can set up on their profile to match only with "suitable" prospects, may as well be a tool generating more social closure. Outside India, the use of online dating websites tend to reproduce and reinforce class and racial stratification through the efficient use of endogamic mechanisms (*e.g.*, Bergström 2019 in France; Feliciano and Kizer 2021 in the United States).

Opposing indicators of individualism with indicators of collective preoccupations in marriage-making (Agrawal 2015), we question the extent by which online matchmaking shows a dismantling of collective, family practices in favor of an individualization in spousal choice. If individualism may signal belonging to the middle class, the presentation of self on matchmaking website profiles may be part and parcel of strategies of social reproduction on the matrimonial market. We also examine the degree of openness of the middle class and particularly regarding religious, caste and class endogamy as well as gender scripts as

characteristics of prevailing personal choice (overcoming concerns of social reproduction). To what extent middle class's partner selection is characterized by individualized attitudes?

Our analysis is based on online matrimonial profiles, hence used as a material showing matchmaking in the making rather than realized marriages. Instead of preferences deduced from successful matches who contracted a marriage, matrimonial website data give access to the ways in which marriageable individuals present themselves (or are presented by their relatives) and their actual matchmaking preferences (Bergström 2018). In other words, our data include in individuals' preferences the entire range of ideal profiles while individuals ultimately choose only one partner. Our vantage point being located at the time when matching happens, it also authorizes to observe both matching, or partner selection, and its "negative" counterpart: the processes by which candidates are eliminated or rejected (using filter options). That is without saying that by looking at spousal preferences collected from matrimonial websites, we observe individuals in real life situation and their actual practices, avoiding the biases found in self-declarations. Matrimonial websites are mainly used by social groups claiming to be part of the middle class (three fifth of the profiles analyzed in our study identify as "middle class" while almost two fifth identify as "upper middle"), therefore limiting our research to a small fraction of the population, yet a fraction of the population that may inform us on the degree to which marriage may be becoming a more individual matter. Indeed, the middle class can be considered as the role model of the "New India" – globalized yet traditional –,-setting up social trends on the long run. Our data also give us the opportunity to study on a group who is usually not easily captured in large-scale surveys (Deaton and Kozel 2005). To our knowledge, this study is the first comprehensive quantitative study of Indian online matrimonial profiles. Overall, our results unveil practices that fall quite in line with a collective and exclusionary marriage model, which may not have been easy to capture by other research

methods such as interviews or surveys which tend to conflate self-reports with behaviors and may thus suffer from "attitudinal fallacy" (Jerolmack and Khan 2014). This social desirability bias is all the more concerning that being middle class is associated with displaying "modernity" in the matchmaking context.

In the following, we first motivate our research by hypothesizing changes in marital preferences among the Indian middle class, in particular when they are channeled through digital matchmaking practices (2), before describing our data of interest and the methods we used for this work (3). Our results proceed in three parts: we examine the extent to which "family-arranged" online profiles are (4.1), the degree of social openness expressed in the ideal spouse's community (4.2.), and finally the gendered preferences expressed in partner seeking (4.3). The last section discusses the social attitudes of the middle class that are revealed by this analysis (5).

2. The digitalization of marriage in India

Beside the fact that the Internet remains highly unevenly accessible in India (TRAI 2021), the marketing strategies of matchmaking platforms specifically target the Indian globalized, urban elite (Titzmann 2013). Matrimonial websites are therefore an important site for looking at the middle class's matchmaking processes and discourses.

2.1. Family control and individual agency

The question of individuals' agency in marital decisions is a crucial indicator of modernization in Gidden's sense. In India, marriage is very tenuously individualized as it is for the most part a family matter, parents or elder family relatives on both parts getting involved in the spouse selection and marriage arrangements. According to the Indian Human Development Survey

(IHDS), in 2012 less than 5 percent of ever-married women aged between 15 and 49 years had chosen their husbands on their own (our calculation). This main type of spousal selection, "arranged marriage" as opposed to "love marriage," draws from the kinship system, with much authority given to the elders (Desai 1994: 199). The ties of kinship, caste and clan determine the individuals' social nexus, and those are enhanced or diminished by the selection of a partner as well as age at marriage or the way in which a marriage takes place (Desai and Andrist 2010). The deviation from these norms may be strongly sanctioned by the community in the form of "honor killings" (Narzary and Ladusingh 2019).

Yet, love marriages are on the rise, even if to a small extent (Allendorf and Pandian 2016). They are more common on the two opposite ends of the economic spectrum (Palriwala and Kaur 2014), that is the working class and the upper class. Besides, the involvement of children in their own arranged marriage is much more frequent than in the past. By the 2000s, the dominant marriage form in India was a joint selection involving both elder members of the family and the spouse-to-be, a trend that is more pronounced in urban areas, especially in the largest metropolitan regions (Allendorf and Pandian 2016). The dichotomy between arranged and love-marriage seems too simplistic to seize the way in which unions are formed nowadays in parts of Indian society, as the various terms such as "joint-arranged" marriage (Reed 2019), "love-cum-arranged" or "arranged-love" marriage (Grover 2009; Mukhopadhyay 2012), or "self-arranged" marriage (Kishwar 1994) depict. The demarcation between love and arranged marriage is blurred and marriage types should rather be considered a fluid continuum (Fuller and Narasimhan 2008). In this perspective, the digitalization of matchmaking appears as a new avenue to meet partners outside one's social circle and social norms, by individualizing the matchmaking process as well as by deterritorializing it and making it more immediate and direct (Titzmann 2013), possibly resulting in a "disintermediation of family" (Agrawal 2015;

Seth and Patnayakuni 2011). Yet, despite children gaining agency in partner choice, family plays a role on online platforms (Kaur and Dhanda 2014; Titzmann 2013). Indeed, relatives can create a profile for the kin they wish to marry.

While profiles' managing agents are declared as "self," "parents," "siblings," or "other," we must not underestimate the possibility of joint or differed management, as recent studies on online matchmaking showed (Agrawal 2015; Seth and Patnayakuni 2011; Titzmann 2013): amongst various configurations, several family members including the person to marry can create a profile together, or the family can pre-select suitable candidates and give the lead to the concerned individual (who may also engage in a relationship prior to marriage). Yet not only do we admit that the declared profile manager is very likely to be the creator of the profile, but we also consider that the declared profile manager indicates the way in which the search for a partner is staged in a strategic way to attract desirable profiles. It participates in the presentation of self and the outcomes that one expects from it. For instance, a declared self-managed profile may signal a more "open" family and greater agency from the marriageable person while a profile indicating to be managed by parents may reassure prospects about the seriousness of the marital project.

We will use indications about profiles' managers as an instrument to measure the extent of (perceived) individualization in matchmaking practices: by observing who the agents of the matchmaking process are said to be, we aim to question the degree to which personal choice is (displayed as being) at play in marriage. Is marriage in the middle class only a family matter?

2.2. Status displays and exclusionary practices

Giddens' theory of modernization implies a weakening of endogamic marriage. The use of online tools, opening for an increased individual agency in partner choice, as well as the apparent "open-mindedness" of the "new middle class" may foster social openness.

Yet, Indian society is still strongly stratified according to ascribed positions, namely religion and caste. These categories may be broadly understood as Weberian status positions (Weber 2010), *i.e.*, groups of people who can be differentiated by prestige. Indeed, religious and caste prejudice is high in contemporary India, in particular through "untouchability" practices (prejudice towards lower castes, Borooah 2017) and segregation and discrimination towards Muslims (Khalid et al. 2020). Besides, religion and caste are highly congruent with the economic order so that upper-caste individuals are more likely to belong to economically dominant positions (Ferry 2022; Vaid 2018). Caste and sexuality are intertwined in the endogamic rules of marriage (Ambedkar 2014) and women are considered the gatekeepers of family status and of the social order (Srinivas 1977) as it is through marriage that status groups continue to exist. As a matter of fact, religious and caste inter-marriages in India are very uncommon (about 5 percent, see Goli, Singh, and Sekher 2013; Narzary and Ladusingh 2019) and marriage mainly follows strict endogamic rules. On the websites, profiles include religious and caste categories as well as filters in the research options. This provides users the ability to signal their status position and match others' markers. Caste and religion are salient "indicators of compatibility" (Seth and Patnayakuni 2011), or "equalizers" as an interviewee of Titzmann (2011) called the search criteria: they maximize the chance of compatibility in terms of cultural and socio-economic background and therefore foster social closure, in a perhaps more

"efficient" way than social circles do.[1] Following these observations from the literature, we ask: to what extent do the expressed preferences are part of strategies that aim at maintaining or upgrading status?

2.3. Marital expectations and gender scripts

Finally, Giddens also assumes enhanced gender equality in marital choice in modernized societies. Thus, we may question the possibility of a reshaping of gender scripts in marital expectations. As a matter of fact, physical attributes (*e.g.*, weight, height, complexion) and self-descriptions in terms of personality, hobbies and interests are displayed on matchmaking platforms (Agrawal 2015).

Traditionally, men have shown to prefer women who perform modesty and femininity (Derne 2003) as well as "simple" wives who "respect elders" (Abraham 2001). The notion of *izzat*, which relates to "honour," "reputation" or "prestige" is associated with femininity and calls for women who show both self-respect and good character and are primarily domestically-oriented (Abraham 2002). While women ought to show their capacity to give affection, be sensitive and caring, as well as to be obedient and docile, men bear the role of breadwinners. These gender scripts are reinforced by gender hierarchy, which is most visible in age difference at marriage. Mignot (2010) shows that as long as men value physical attractiveness and high fecundity in women, and women give importance to the revenue level and stability, men would prefer younger partners while women would rather choose older partners. Richman (1977) suggests that the more egalitarian a society, the less likely to hold traditional attitudes about male-female age differences, an observation that holds in countries outside India as well (*e.g.* Bozon 1990;

[1] Smaller matrimonial websites specialize in specific religious communities (for instance SikhingYou.com for Sikhs, Nikah.com for Muslims, TrinityMatrimony.com for Keralite Christians) or castes (PatelVivah.com for Patels, KutchiLohana.com for Kutchi Lohanas, see Mishra and Jayakar 2019).

Pyke and Adams 2010). Indeed, age difference between the spouses is an indicator of the degree of inequality in the couple (Cain 1993). In a comparative analysis of spouses' age-differences in and between countries, Casterline, Williams, and McDonald (1986) found that kinship structures and women's status, closely linked together, are the main determinants of age differences.

Gender relations have undeniably witnessed a loosening of traditional norms in the middle class, towards an individualization of marital relations. Acknowledged changes include more freedom to the youth in the choice of marital partners and the recognition of a higher emotional engagement in the relationship (Donner 2002). Gilbertson (2014a) finds that young married couples from the Hyderabadi middle class maintain the essence of "Indian" family relations based on love, affection and mutual dependence meanwhile including elements of gender equality in the couple, an important ingredient of the middle class's identity, along with "progressiveness" and "open-mindedness" (Gilbertson 2014b). Young middle-class partners thereby both valorize ideals of emotional compatibility, egalitarian relationships, and individual choice meanwhile the approval and support of the family remains critical (Bhandari 2017). Images and representations with their associated roles hence tend to be contradictory, as women are both the depository of individuality and have to show their capability to make decisions while they keep bearing the role of guardians of tradition (Thapan 2009). The "New Indian Woman" follows a global lifestyle yet sticks to "Indian values" (Mankekar 2009). In our own empirical investigation, we use two indicators, namely the image of the "ideal couple" and age preferences according to the profiles' sex, in order to highlight the extent to which egalitarian gender norm prevail in marital preferences.

3. Data and methods

3.1. Web scraping Indian matrimonial advertisements

To address our research questions, we web scraped (*i.e.*, extract the data of a website) matrimonial advertisements on a popular Indian matrimonial website. Indeed, while the literature on the social use of this digital tool in India often relies on ethnographic work and content analysis (*e.g.* Seth and Patnayakuni 2011; Titzmann 2011, 2013) or interviews with users (*e.g.* Jha and Adelman 2009 on skin color preferences; Agrawal 2015; Seth and Patnayakuni 2011; Titzmann 2011, 2013), to our knowledge only one previous research was based on a large number of individuals to describe the overall registered profiles and their characteristics (1,300 individuals, Kaur and Dhanda 2014), but as a preliminary, descriptive research. None has provided an exhaustive overview of marriage through matrimonial profiles in the Indian context.[2]

We chose one of the three most popular Indian matrimonial websites according to various sources.[3] The data was harvested in January and February 2020. Since we were primarily using these data in the context of another research in Uttar Pradesh (Ferry 2021), but also because this state is relatively traditional in terms of matrimonial practices (in Uttar Pradesh, around 2 percent of women have chosen their husband alone, against 5 percent of women for India, see Goli, Singh, and Sekher 2013), we focused on unmarried male and female Hindu profiles located in this state.

[2] Quantitative analysis of matrimonial websites do exist but except for Kaur and Dhanda (2014), they are based on very limited samples (*e.g.* Mishra and Jayakar 2019 who drew on a sample of 300 individuals).
[3] For legal and deontological purposes, we chose not to reveal the harvested website. Note however that it is considered among the most-used matrimonial websites (Pal, 2010).

All the characteristics filled by users on their matrimonial advertisements were transformed into a large database. Individual information relates to one's demographics (age), socioeconomic status, body characteristics, lifestyle (diet, alcohol or smoking habits, but also hobbies and sports) or horoscope information. Family characteristics describe the family in terms of composition (demographic information, family composition and whether siblings are married), locality of origin, language, caste and religious position, socioeconomic status, and family lifestyle/values. The database also includes information about the desired characteristics of the partner. Some of these variables relate to fields that users must complete, such as their own age, socioeconomic position, religion, or caste, but many other fields are not mandatory. The proportion of users who indeed completed a given item then reflects the salience of this information in presenting oneself on the matrimonial market (*e.g.*, one's vegetarian or non-vegetarian diet is very often filled but hobbies are less often mentioned). Detailed information on the content of the database can be found in the appendix.

We chose to only keep the profiles that had uploaded a picture on their advertisement, a proxy of their real interest in displaying oneself (or someone else to marry) on the website. Overall, our data includes 124,435 matrimonial advertisements, of which 87,833 correspond to male advertisements and 36,602 female advertisements.[4]

Although the reasons why women tend to be less represented on the matrimonial website are not entirely clear, we point to several hints in the following results. First, men are more likely than women to declare managing their profile themselves, but usually do not fill their profile

[4] 27,173 profiles are not used in the analysis due to the absence of a profile picture (our final analysis is not altered by excluding them). These eliminated profiles mostly correspond to young, female, "family-managed" profiles, with a poorer economic family background than the rest of the profiles. Besides, we verified that we harvested profiles in an exhaustive manner by checking the presence of harvested profiles that do not necessarily match with the preference setups of our "fake" profile.

page as thoroughly as women (many men did not upload a photograph and were therefore excluded from our database). Thus, it is possible that a significant proportion of registered men are exploring the online matrimonial market but not looking for a serious engagement. Second, it is possible that women have higher opportunities in finding a husband through traditional offline social networks (family and community), or merely that traditional networks are preferred over the web. In fact, marriage websites are the last resort when looking for a spouse, even more so with women, and the use of websites for marriage may also suffer from social stigma. Kaur and Dhanda (2014) point out that it may be part of the social construction of women's marriages: "[t]he marriageable girl is seen to be much more vulnerable and there is need to protect her reputation, which has an important bearing on her marital prospects" (277) and women would fear the misuse of their profiles. The second hypothesis raises the question of the potential of matchmaking websites in reflecting Indian society's dynamics: if the users, more specifically females, are marginalized in the offline matrimonial markets, they would form a specific subgroup in the matrimonial field. Considering the possible fears associated with deviating from the norms of femininity by registering on a matrimonial website, we can admit that women's profiles may overemphasize features claimed by the middle class such as "openness," egalitarianism, or individualism.

3.2. A quantitative analysis of the advertisements

We conducted statistical treatments to analyze the characteristics of matrimonial profiles, which are treated as quantitative variables (they may be categorical – *e.g.*, occupation –, continuous – *e.g.*, age –, or textual – *e.g.*, family description). One piece of information proves challenging to analyze: caste on the matrimonial website is given as a jati category which leads to a very high number of enunciations (4,622). Here, we recoded jatis as Brahmins (they include "Brahmin" in their jati self-declaration), Other Backward Classes (also known as OBC,

following the official list of jatis falling in this category in Uttar Pradesh) or Dalits (we use the official list of Scheduled Caste jatis). Other jatis are considered "other upper castes." We also focused on who the agent who manages the matrimonial profile is as an indicator of the agency that marriageable individuals have in the family-arranged marriage context. Besides, we analyze the declared desired characteristics of the partner. We focused on caste and age preferences to understand whether the online matrimonial market contributes to enhancing social closure and to reproducing traditional gender age gaps at marriage. Finally, we also conducted textual data analyses on open-ended descriptions of one's family and one's desired partner to better understand the salient features that users display about their family and express to expect from a potential spouse – and their future marital relationship. We used the Reinert classification method to provide typologies of these textual descriptions. This classification method is based on clustering algorithms (Hierarchical Divisive Clustering and Correspondence Analysis) and uses the frequency of "word forms" (family of words) in the different "text segments" (here, descriptions) to distinguish and gather the matrimonial profiles. It provides an easily readable tool to analyze our high number of texts.[5]

3.3. Social composition of online profiles: the "new middle class" is going digital

Using a matrimonial website is a highly segmented social practice in Indian society as it implies having access to Internet services. According to the latest round of the National Family Health Survey (2019-2020), only a third of women and half of men (aged 15-49) have ever used the Internet. The access to Internet is highly segmented according to urban or rural areas, the wealth

[5] We used the software Iramuteq to conduct this analysis (Reinert 1990). The results of the analyses can later be used in the R environment. Another free alternative is the "Rainette" package in R (https://juba.github.io/rainette/index.html).

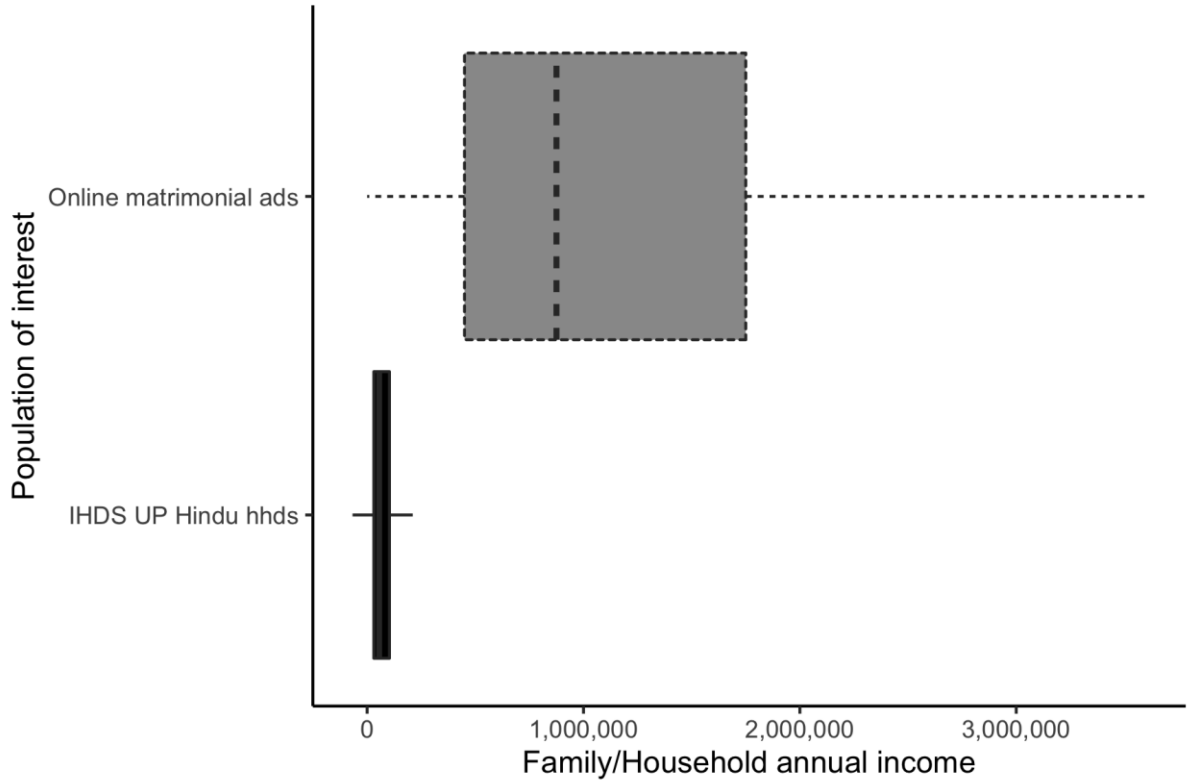
level of the household, but also according to educational attainment: three fourths of graduate men and women use the internet, against less than 10 percent of women and 25 percent of men with less than five years of schooling (IIPS and ICF 2021). A second factor also indicates the social selection of our population: our chosen matrimonial website is in English and thus requires some fluency in this language. Yet, a survey conducted by the Lok Foundation and Oxford University finds that only 6 percent of Indians list English as one of the languages they can speak (the 2011 Census found a slightly higher proportion with 10 percent). Again, the socioeconomic level and educational attainment is a strong predictor of one's English fluency: a third of graduates are able to speak English but virtually no one with less than five years of education can (Rukmini 2019). Our population of interest that uses matrimonial websites then highly likely belongs to the top segments of Indian society.

In order to find out more precisely who the users of the surveyed matrimonial website are, we compared the social position of profiles based on the matrimonial advertisements with average social positions of Hindu households and individuals residing in Uttar Pradesh (using the IHDS 2011-2012). We used five indicators to compare the matrimonial profiles with the surveyed population: family income, material ownership, occupational class, educational achievement, and caste.

The comparison of income shows very high discrepancies between the ads and the IHDS, the latter having a much more restrained statistical distribution (Figure 1). The average annual income of Hindu households in Uttar Pradesh is 84,562 INR (after adjusting for inflation to get comparable estimates) while the average declared income of the matrimonial advertisements is 1,316,011 INR. On average, online matrimonial seekers belong to families which are 15

times richer than the average population. Only 8 percent of the matrimonial advertisements declare an income that is below the average Hindu Uttar Pradesh income.

Figure 1 – Family income of matchmaking site profiles and overall population (Hindu households in Uttar Pradesh)



Note: The boxplot compares the declared annual family income (in Indian National Rupee, INR) of profiles on the matrimonial website with the annual income of Hindu Uttar Pradesh households from the IHDS. Given the difference in the year of collection of the datasets, we adjust the IHDS income distribution for inflation.

Income may well be overestimated on matrimonial advertisements (where one needs to display their status position) and underestimated through survey collection (because the richest households are more difficult to access for the surveyors and because respondents may underestimate their earnings if they suspect that the survey is done for administrative purposes). For this reason, material wealth is a usual point of comparison in the study of economic status in India (Barik, Desai, and Vanneman 2018). The only comparable asset to assess wealth is car ownership: 52 percent of matrimonial advertisement profiles report owning a car while the proportion of car owners among Hindus in Uttar Pradesh is only 3 percent. Clearly, material

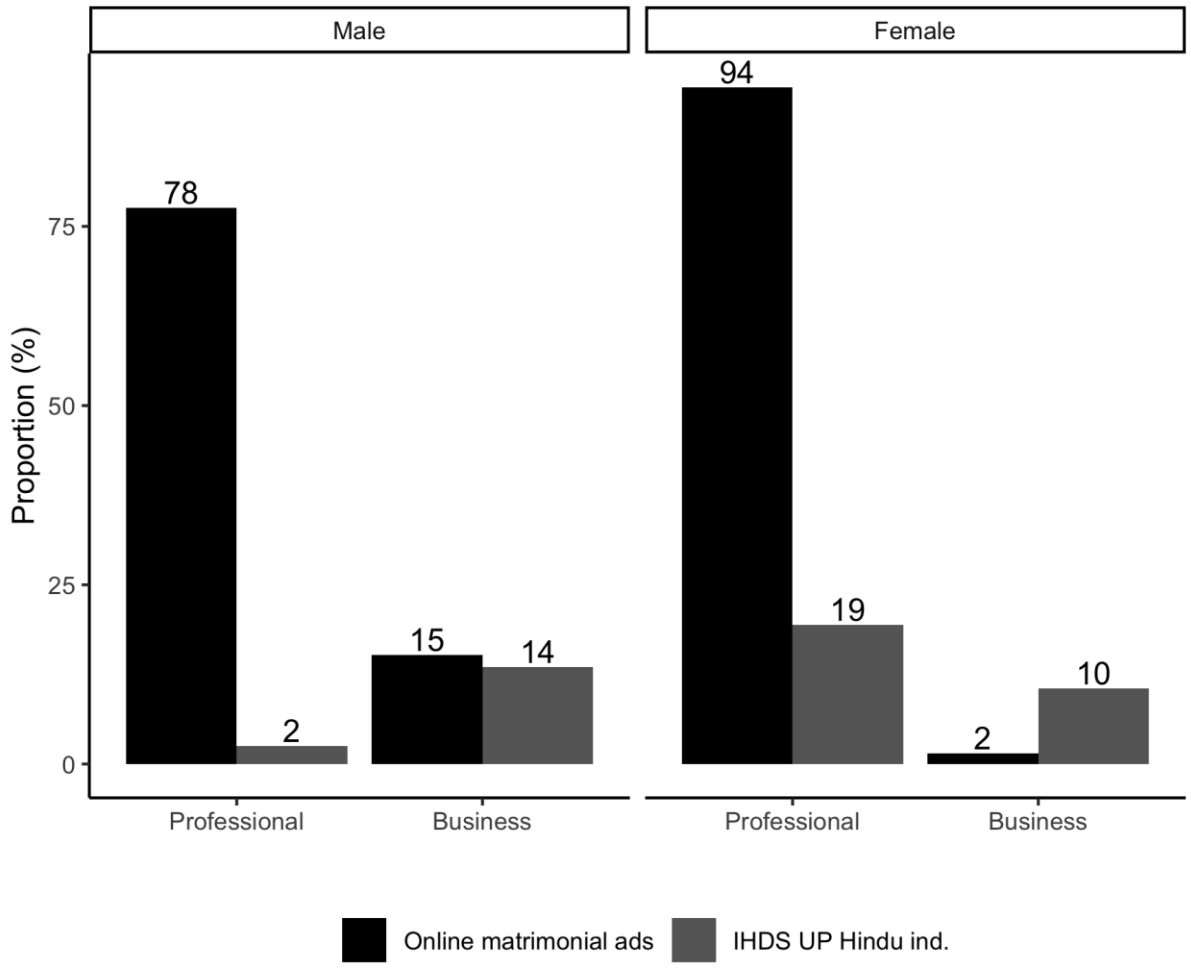
wealth confirms the economic discrepancies between online matchmaking seekers and the general Hindu population of Uttar Pradesh.

Turning to the occupational composition of matrimonial profiles, we observe that most of the profiles that include an occupation[6] are those representing professional or business workers (Figure 2). While only 2 percent of men belonging to the labor force are professional workers in the population of Uttar Pradesh, 78 percent of male profiles fall in this category. Among women, it is first to be noted that a large proportion does not declare any occupation as their main activity, whether on matrimonial profiles or in the IHDS sample. But in the latter, the proportion is much larger: less than one fifth of women are counted as belonging to the labour force, whereas the share of women with an occupation amounts to 70 percent on matrimonial profiles. Among them, 94 percent fall in the professional class. A significant proportion of male individuals are business workers, *i.e.*, business owners and entrepreneurs, both in matrimonial profiles and in the IHDS sample. Yet, they probably correspond to different economic realities (most of the business workers in the IHDS are "petty business workers" with no employee). Female profiles less frequently correspond to business workers than in the IHDS female sample. [7]

[6] Only 1 percent of profiles do not show information on the activity status. Among those that hold this information, 4 percent of men and 29 percent of women do not declare an occupation. They may be either students or, for women, unpaid household workers.

[7] For the relation between women's education attainments and their participation in the labor force depending on the sectors, see Chatterjee, Desai, and Vanneman (2018).

Figure 2 – Occupational position of matchmaking site profiles and overall population

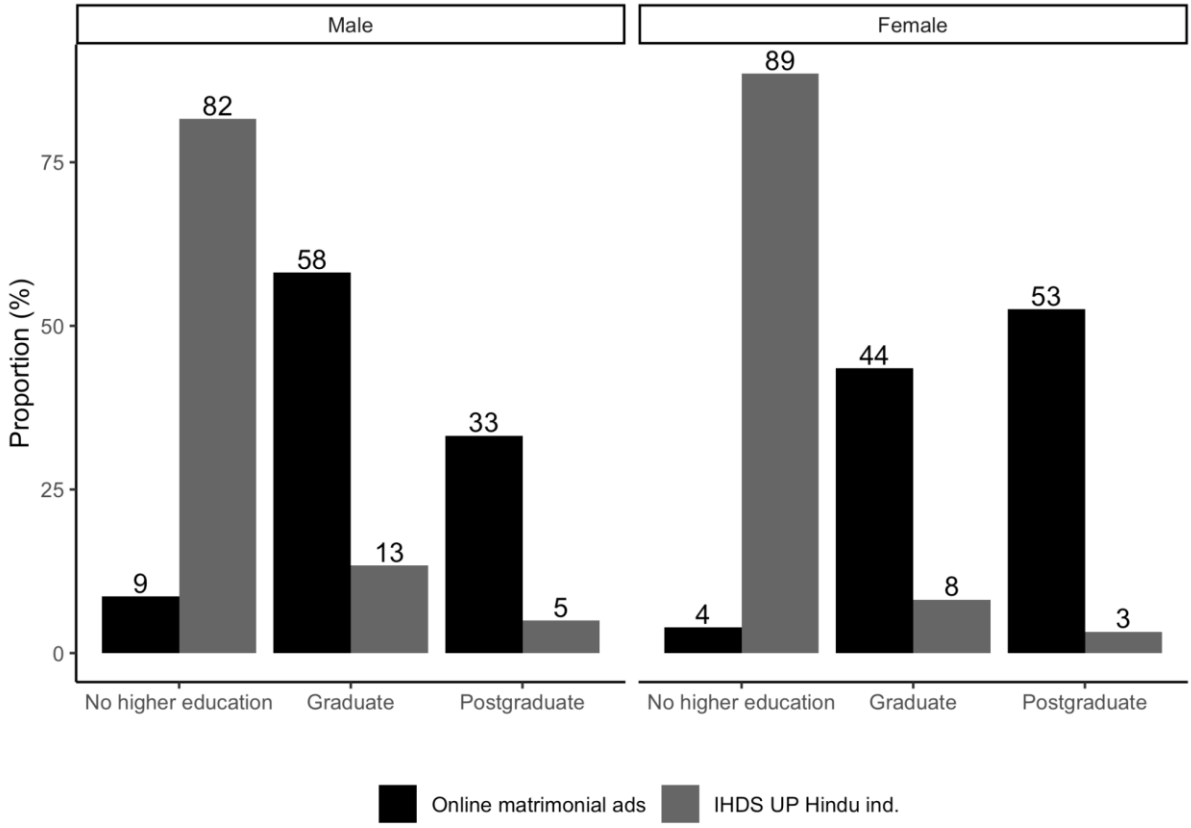


Note: Only Hindu individuals residing in Uttar Pradesh and aged between 24 and 35 years are kept in the IHDS sample (80 percent of matrimonial profiles are in this age range). Occupations are classified as such following the categorization of (Iversen et al., 2017). Only individuals who declared an occupation are presented here: among men, 4 percent of the profiles (9 percent in the IHDS sample) do not declare an occupation, and among women, 29 percent of the profiles (92 percent in the IHDS sample) do not declare an occupation (most commonly household worker).

Matrimonial profiles show individuals with higher educational attainments than the general corresponding population (Figure 3). Less than 9 percent of men and 4 percent of women in advertisements did not reach higher education. But in the corresponding population (Hindu individuals aged 24 to 35 residing in Uttar Pradesh), it amounts respectively to 82 and 89 percent of the population. Another interesting feature is that women on the matchmaking website display a much higher educational level than both the general female population of Uttar Pradesh and the males who own a profile. This can be put in parallel with the lower proportion of female business owners: possibly, upper class men more often inherit a family

business and do not require further educational credentials to legitimize their economic status (as observed among the Indian top CEOs, see Naudet, Allorant, and Ferry 2018), so that women on the contrary have to achieve higher educational credentials.

Figure 3 – Educational achievement of matchmaking site profiles and overall population

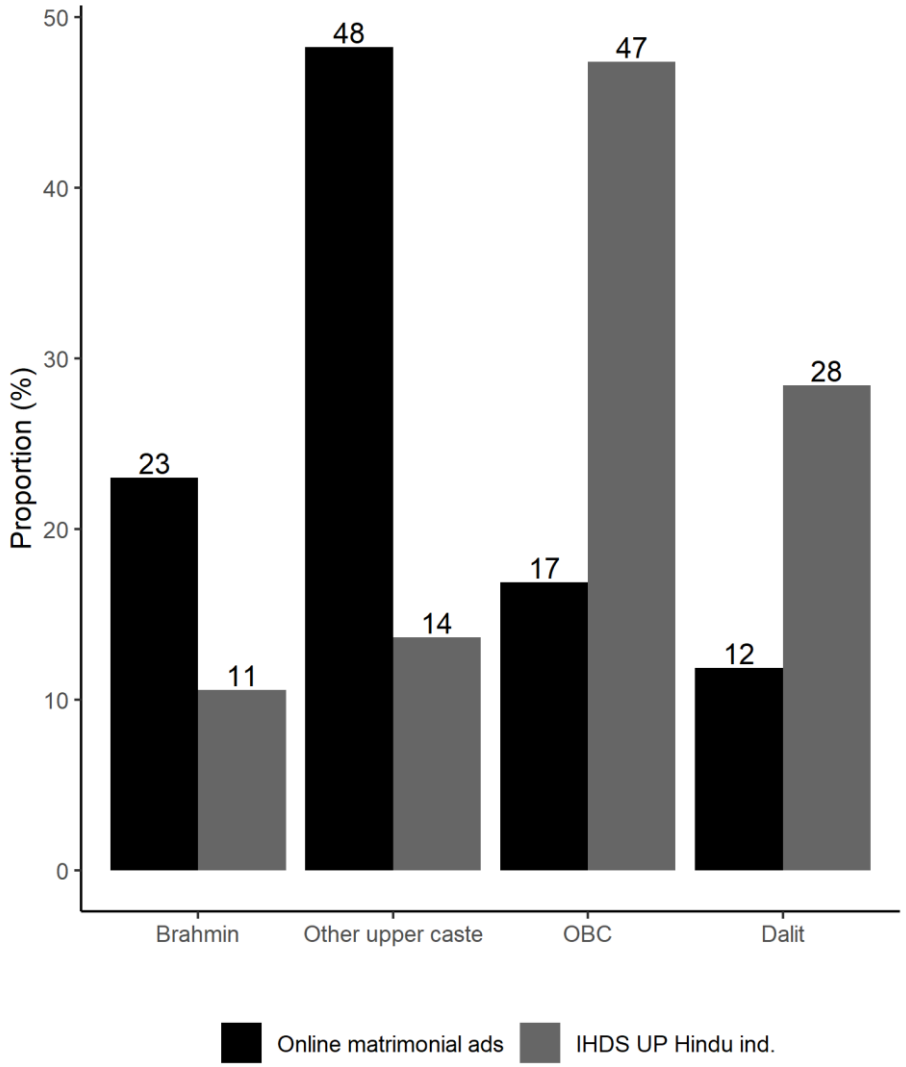


Note: Only Hindu individuals residing in Uttar Pradesh and aged between 24 and 35 years are kept in the IHDS sample (80 percent of matrimonial profiles are in this age range).

Upper-caste Brahmins and other castes are overrepresented on the matrimonial website, whereas lower-caste Dalits and OBCs are clearly underrepresented (Figure 4).[8] Since we have shown the large overrepresentation of individuals with high educational achievement and upper class positions on matrimonial ads, it is no surprise that upper-caste profiles are overrepresented as well, given the prevailing caste and class congruence in India (Vaid 2018).

[8] Preliminary results (not shown here) show that among this category, typically upper caste jatis such as Kayasth, Rajput or Baniya are overrepresented on matrimonial advertisements compared to their self-declaration in the IHDS sample.

Figure 4 – Caste composition among matchmaking seekers and overall population



Despite the overall extremely privileged socioeconomic and caste objective position of matrimonial website users, one should note that a very large proportion of registered users define their family as belonging to the "middle class" (61 percent, while 37 percent identify their family as "upper middle," and only 2 percent as "rich/affluent"). This confirms the centrality of the "middle class" tag for the top segments of society to refer to a set of specific practices and attitudes.

This overview of the social composition of individuals holding a matrimonial profile points to the overrepresentation of the most affluent segments of the population. Professionals, highly educated and high caste are common features of the individuals registered on the website, yet it must be pointed that they are also highly likely to represent most of Internet users in general. In that way, our population may be quite specific in regards with the general population, but not as much as in regards with India's Internet users.

Finally, female profiles are on average 28.8 years old and male profiles are on average 29.4 years old (respective medians are 28 and 29). This age average values are much higher than the age at marriage in the population for both men and women, in part due to the higher educational achievements of this population and to the valorization of urban lifestyles on matrimonial websites. As Kumari (2004) has shown, working women with high educational backgrounds – which are the main female population of our sample – most of the time marry after 25 years old. In the corresponding surveyed population (Hindus in Uttar Pradesh), the age at the time of marriage is 16.5 years old (18 for all-India women). But the age at the time of marriage increases with educational attainment and urban location (from 15 years old for non-literate rural women to 22 years old for urban post-secondary degree female achievers). Cohort effects may also explain the gap between the surveyed population and our population of interest (given that the age of first marriage increases for younger cohorts).

4. Results

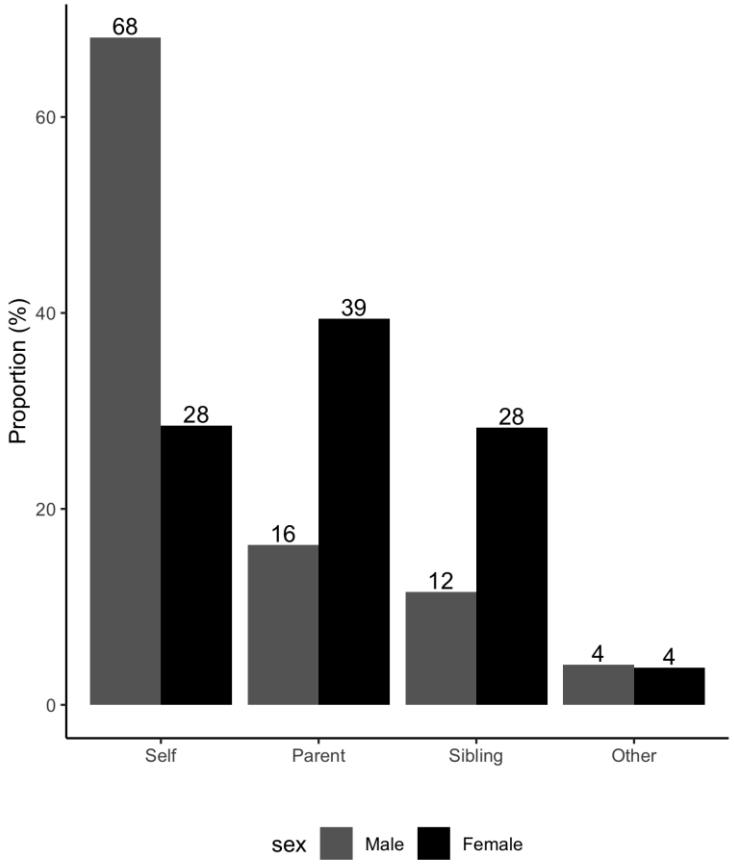
4.1. Digital but traditional matchmaking? Arranging marriage online

In typical "arranged marriages," family plays a key role in the partner seeking process, while other matchmaking channels also involve intermediaries. Online matchmaking may change the matchmaking process since matchmaking agents can be the future weds themselves and thus interact directly with the possible matches or their relatives. Matchmaking websites may therefore give more agency to future weds both in choosing their partner and in developing relationships prior to marriage.

Yet, online matrimonial advertisements are not necessarily filled and managed by the marriageable individuals themselves (Figure 5). If a large majority of male matchmaking site users declare managing their own profile, it is the case of less than one third of women. Female profiles are more commonly said to be managed by parents or siblings.[9] This large discrepancy between men and women in their displayed agency to seek partners reflects different gender performances and a larger family control over women (Desai and Andrist 2010). Self-arranged marriages seem to be more accepted for men, or men may have more say in their own marriage (*i.e.*, may be more proactive).

[9] Titzmann (2011) found that 47 percent of the female users of Shaadi.com in Mumbai had created their profiles themselves, a much larger proportion than that of our findings, suggesting women in globalized, metropolitan areas may have more agency regarding their marriage.

Figure 5 – Person in charge of the digital profile management



Note: The information on who manages the matrimonial profile is visible on the advertisement. The category "Other" includes friends and matrimonial agencies. 68 percent of male profiles are managed by the person looking for a spouse themselves.

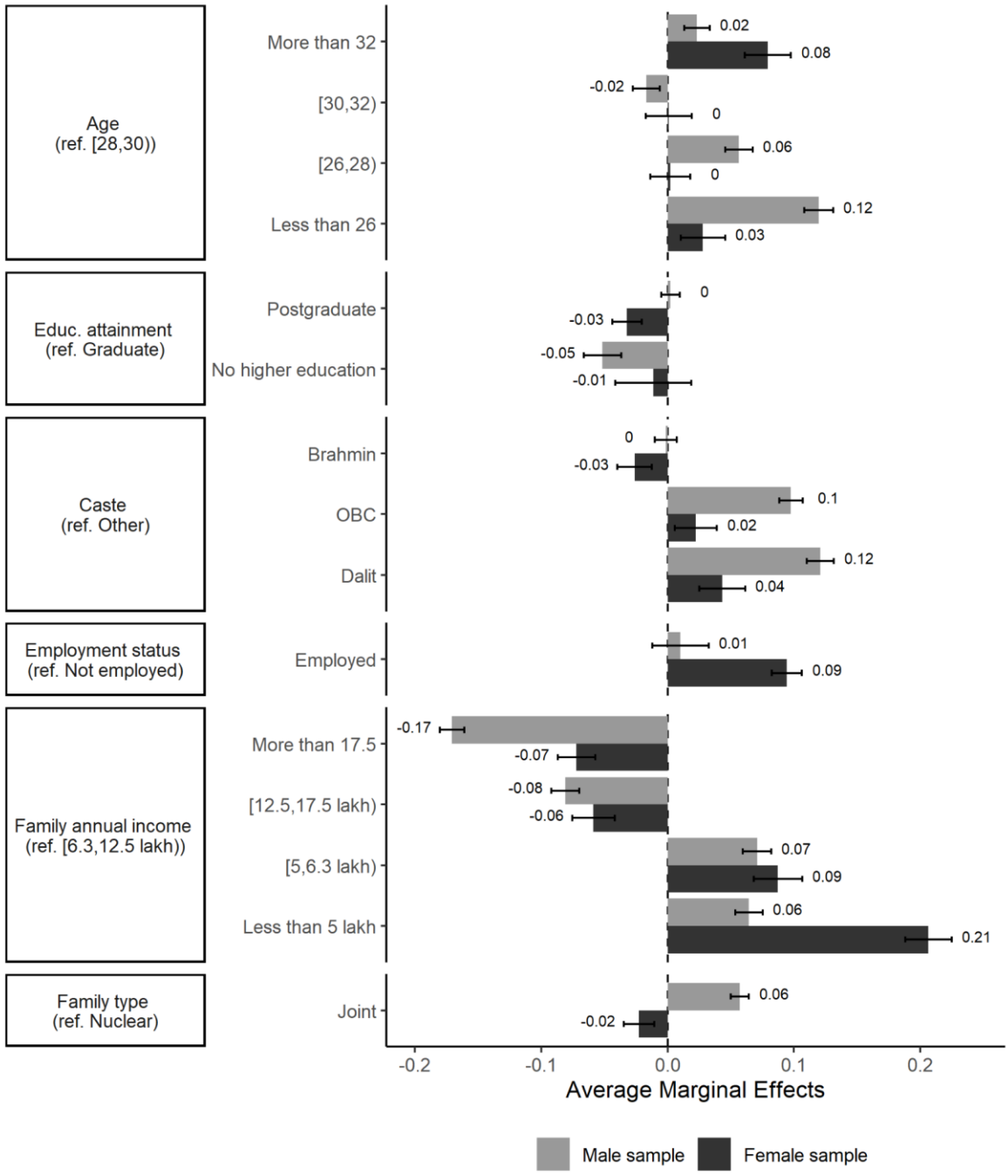
We then modeled the odds of managing one's matrimonial profile to see whether displayed agency in choosing one's partner vary according to social positions. We ran two separate binomial logistic regressions respectively on the male sample and on the female sample. The dependent variable is declaring managing one's profile versus not and the independent variables capture different dimensions of the individual's social position. The resulting Average Marginal Effects are presented in Figure 6.

Rather than merely fostering more displayed agency on choosing one's partner, educational attainment shows contrasting results between men and women. Men without higher education are less likely to declare they manage their own profile, while women with postgraduate

degrees are also less likely to declare so compared with individuals with graduate degrees. Hence, it seems that one's educational attainment increases men's displayed agency, while for women, educational attainment corresponds to a status signal with degrees not necessarily feeding through to a higher degree of displayed agency, but rather, perhaps, to higher "stakes" in the matchmaking process (so that it is the family that is said to manage the account). In turn, employment situations affect women's displayed agency in choosing a partner: being employed increases the probability of declaring to manage one's profile by 9 percentage points.

Two other results deserve special attention here. First, two variables reflect the importance of family status in the matchmaking process. Indeed, the higher the status – caste or income –, the more likely profiles are said not to be managed by the prospects themselves, irrespective of sex (these effects seem stronger for men). This most likely reflects the importance of marriage as a family strategy rather than an individual choice among high-status families. Second, when men are younger, they are more likely to declare they manage their own profile, while for women, the older, the more likely they are declared to manage their own profiles. Interestingly, younger men and older women fall within the less desired age categories, as we analyze in the last result section. Hence, not being in the most desired age category may foster displayed agency, or rather, it may be that the family does not consider their child as marriable (a younger son is too young to get married, but he may be "exploring" the matrimonial market through his own account, an elder daughter is less desirable for partners and parents may thus not be much involved in her marriage).

Figure 6 – Average Marginal Effects on managing one's matrimonial advertisement oneself



Note: The AMEs are computed through two binomial logistic regressions predicting the odds of managing one's own matrimonial advertisement. The regressions are run separately across the male and female samples. AMEs provide an easily interpretable tool to compare the effects of the independent variables across samples (Mood, 2010). It calculates the average change in the probability of managing one's own profile (among all observations in the sample, e.g.*, men in the oldest age category are 2 percent more likely to manage their own profile compared with the middle age category). The age indicated on the profiles has been categorized in five equal modalities, the information on family annual income has been categorized in five equal modalities (1 lakh = 100,000 INR). The employment situations are categorized using information provided on the profiles.*

4.2. Self-presentations and partner preferences: what's at play with marriage?

4.2.1. Family descriptions: insisting on socioeconomic position

Interestingly, among the three open-ended descriptions profile makers can write, one is about the family,[10] indicating family keeps being important in marital processes. We analyze open-ended descriptions of families on matrimonial profiles using textual data analysis.[11] Overall, the automatic classification identifies four classes, the three first corresponding to similar ways of describing one's family with small lexical variations (green, blue, and red types on Figure 7), while the fourth corresponds to a clearly differentiated form of family description (purple type on Figure 7).

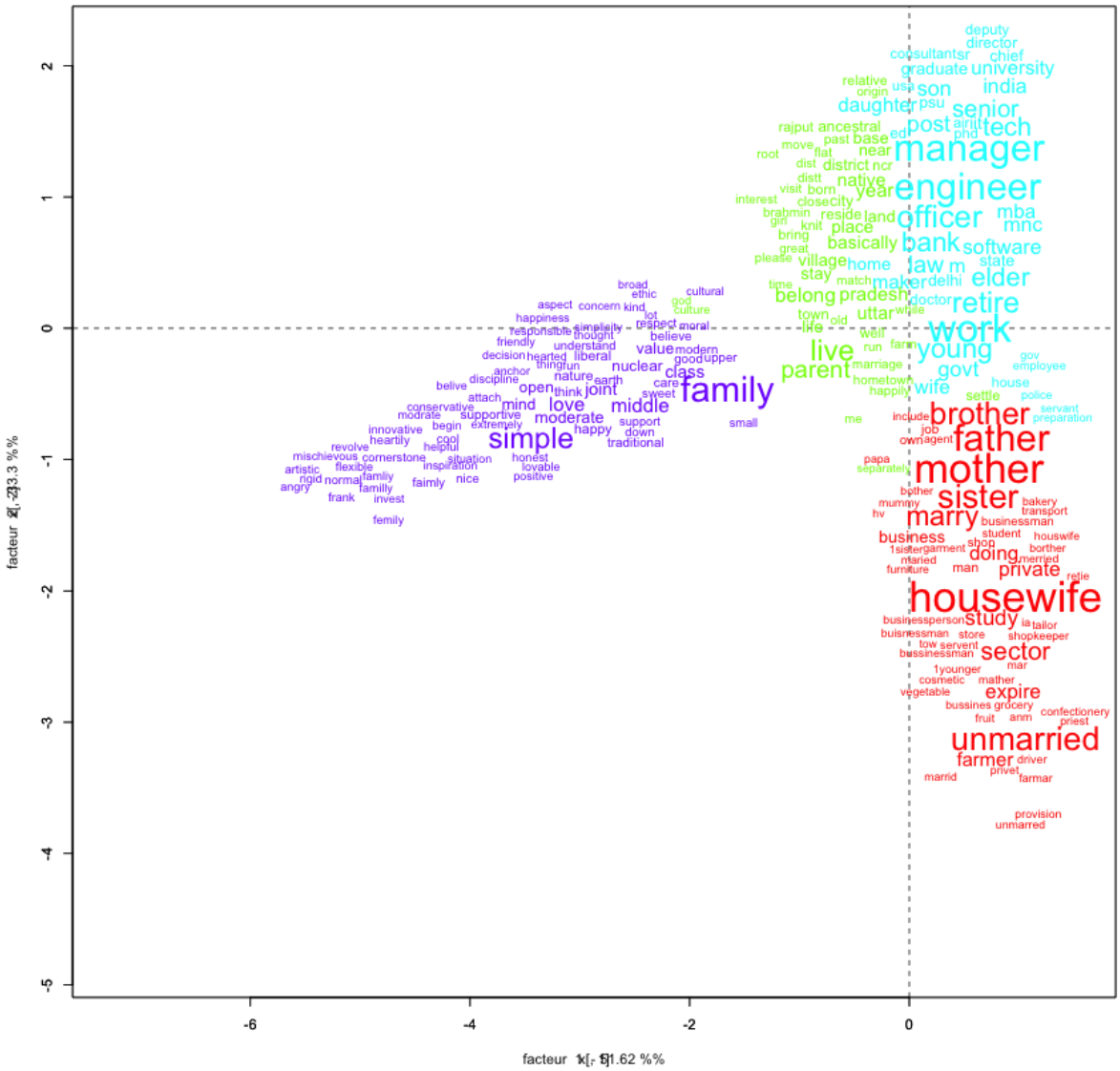
The three first types of descriptions are by far the most common (in total they gather 80 percent of the descriptions). These descriptions provide a detailed social tableau of the family in terms of father's and siblings' economic and occupational positions (*e.g.*, "manager," "engineer," "real-estate," "private company," "government employee"). The term "housewife" most commonly qualifies the "mother" of the household. In the case of siblings, profiles also mention their marital status and when adequate their partners' occupations. Some profiles (in green) also insist on place or communal belonging (origins): they describe the geographical trajectory of their family.

On the other hand, only a minority of descriptions (20 percent, in purple) distinguish from these economic status-signaling markers. These descriptions are mostly found on male

[10] For a self-managed profile, the "About your family" section writes: "Write about your parents and your brothers or sisters. Where do they live? What are they doing?"
[11] About 55 percent of profile makers wrote a short description of the family (on average, the length of these descriptions is about 18 words).

advertisements whose profiles are managed by the spouse-seeker himself. Here, descriptions rather insist on personality traits of the family members (“simple,” “open-minded,” “happy”), on feelings characterizing the family relationships (“love,” “supportive”), asserted family values (“moderate,” “middle class”) and hobbies of the different family members (“my father invests a lot of his time in innovative gardening techniques,” or “homemaker artist”). These descriptions also reflect a class position, but they tend to use lifestyle markers rather than objective social origin positions to assert their status position. Indeed, some terms act as signals of belonging to the middle-class (including calling oneself “middle class”): “liberal,” “understand[ing],” “broad” and “flexible” yet “traditional,” “moral,” “ethic” and “family”-oriented. The descriptions also depict an opening to the global world, talking about “artistic” activities, having “fun,” being “innovative” and “cool,” loving “nature,” as well as the importance of being “loving,” “caring,” “supportive,” “helpful.”

Figure 7 – Factorial representation of the most common occurrences used to describe one's family according to the Reinert typology



Note: The Reinert textual clustering method suggests four different types of family descriptions whose most salient words are projected on a two-dimensional factorial plane.

Hence, (usually bluntly) signaling one's socioeconomic status position also largely characterizes open-ended family descriptions. The textual data analysis confirms the centrality of presenting socioeconomic status markers on matrimonial advertisements and, in contrast, the little room given to family and individual lifestyles – except for 20 percent of the descriptions where the description of lifestyles acts as a metonymy of middle-class belonging.

4.2.2. Openness versus social exclusion

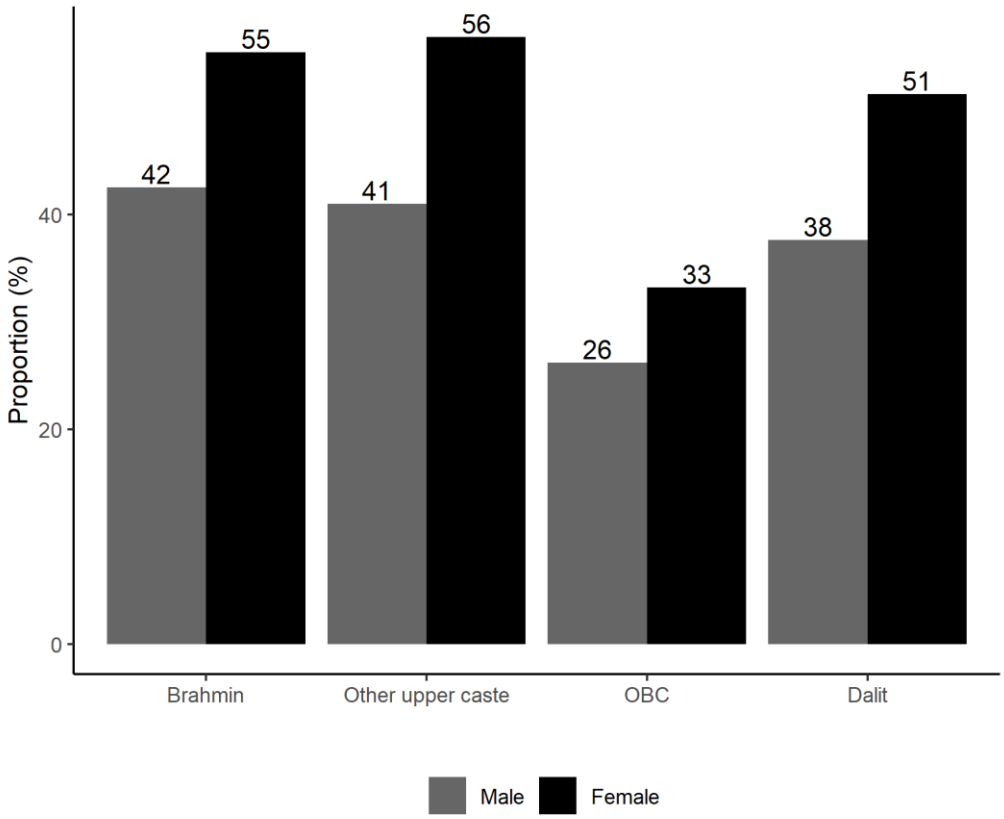
We examined to what extent matrimonial advertisements are inclusive (or exclusive) by looking at desired partners' characteristics. How salient are strategies of social reproduction in the search for a spouse? Reversely, does the community and socio-economical belonging of the potential partner not matter as much, while other individual criteria (such as emotional compatibility, personality, and so on) have a higher weight in the equation?

We first look to which extent matching preferences are exclusive. An "exclusive" profile filled desired religious and caste categories but did not include specifically prejudiced ones (*i.e.*, the category of the desired religion of the partner is filled but does not include "Muslim"). Regarding religion, among all (Hindu) profiles, the religious belonging of the desired partner is a very commonly filled category as only 2 percent of profile makers did not fill this category and can thus be considered as "religious-indifferent." Profile makers who filled the desired religious category very rarely mention "Muslim": less than one percent (0.9). Overall, matchmaking site users are highly religiously exclusive. Regarding caste, we limited the investigation to test whether Dalit jatis are considered "desired" (*i.e.*, they are mentioned on the desired profiles). Overall, 80 percent of upper-caste Brahmin profiles filled in desired jatis but did not mention any Dalit jati in their desired jati. This proportion is slightly lower among other castes (67 percent). The proportion of caste-indifferent profiles (who have not filled any desired partner's jati) is lower among upper-caste Brahmins (16 percent) than lower-caste Dalits (27 percent). This suggests that maintaining caste barriers even if it implies openly showing oneself as being caste-exclusive is more salient among upper-caste individuals.

Second, we compute indicators of declared desired homogamy, *i.e.*, how frequent profiles belonging to a certain caste group (Brahmin, Other upper caste, OBC or Dalit) declare

searching for a partner exclusively within the same caste group. Notice that this indicator does not say much about realized matches for which caste homogamy maintains at high levels throughout India and Uttar Pradesh. On Figure 8, desired caste homogamy is at the highest levels among Brahmin and other upper caste profiles and is especially lower for OBC profiles (they often also mention caste groups belonging to the upper caste category such as Rajput, which denotes a form of desired caste hypergamy). Female desired caste homogamy is also higher than for men among all caste groups.

Figure 8 – Declared desired caste homogamy according to caste and gender



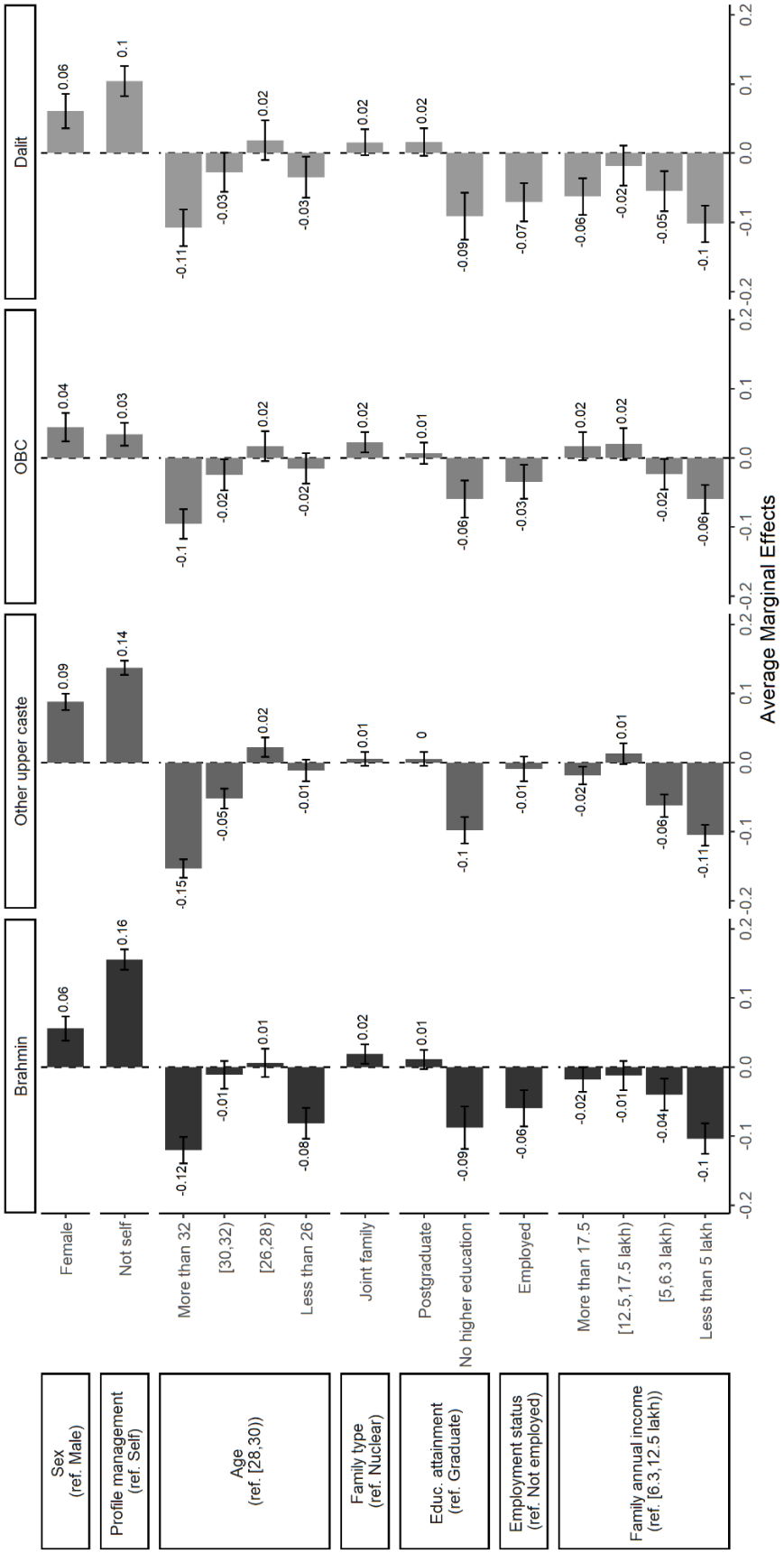
Note: For instance, 42 percent of Brahmin male profiles declare desiring exclusively a Brahmin partner.

Do gender differences simply reflect the differences in profile management that we have previously uncovered (principally showing that most women's profiles appear to be managed by the family)? Does desired caste homogamy vary according to one's socioeconomic position? And does it vary within each caste group? We modeled desired caste homogamy

according to previously studied social determinants using four binomial logistic regressions for each caste subsample (Figure 9). The models clearly show that when profiles are said to be managed by family members, desired caste homogamy is higher, pointing that caste exclusiveness relates before all to a family imperative. Yet, differences between male and female profiles still persist after controlling for profile management: women are more likely to prefer within-caste partners, even if they display a profile self-management. The eldest profiles as well as the youngest profiles – especially the Brahmin ones – are less likely to prefer caste homogamous partnerships, which may denote a relaxation of caste norms for "atypical" profiles in terms of age. Finally, the models clearly point that in terms of educational attainment and family income, higher socioeconomic positions are associated with higher desired caste homogamy and these effects are substantially similar among all caste groups. Notably, marked differences are greatly observed "at the bottom" (between profiles without higher education and graduates, or between the less economically endowed and the average economically endowed) rather than "at the top." This suggests that caste homogamy is a rather strong social norm that remains for any socioeconomic level, but that aspiring grooms and brides tend to depart from this norm in case they are socioeconomically "atypical" (*i.e.*, they have less economic and educational endowments compared to other members on the website).

Preferred religious and caste characteristics hence very explicitly point to the importance of ascribed identities in terms of social closure. These results highlight the continuing salience of religious and caste barriers in marriage strategies. Far from opening avenues for meeting different people, the digitalization of matchmaking processes suggests the continuing relevance of exclusive practices, and even more so for the top-level individuals and families. In other words, it does not appear that individual characteristics prevail over the collective, familial stakes of social reproduction.

Figure 9 – Average Marginal Effects on declaring desiring a caste homogamous partnership



Note: See the previous note for explanations on the use of AMEs.

4.3. What women look for; what men look for

4.3.1. Gender age preferences

Age disparity in marital relationships is a common phenomenon in the Indian context. On average, Hindu husbands in Uttar Pradesh are 3.8 years older than their spouses.[12] Are age-hypergamous relationships (defined as a relationship where men are older than their spouse) also a characteristic of marital preferences on matrimonial websites?

Even though male and female profiles on the website fall more or less in the same age range, male profiles aspire for partners that are younger to them, while female profiles tend to aspire for partners that are older (Table 1). On average, men prefer younger women, while women prefer older men. Importantly, these differences persist even when examining solely profiles appearing as self-managed. Age preferences then denote strong persisting gender norms in matrimonial partnerships from which aspiring partners do not depart at all.

Table 1 – Average gaps between lower and upper bounds of desired partner's age and own age (in years)

	Gap between desired age and own age	
sex	**With lower age bound**	**With upper age bound**
Male	-6.7	0.5
Female	-0.2	5.8

Note: The gaps are obtained by averaging the difference between the lower (respectively, upper) bound of desired partner's age and the age indicated on the profile. For instance, male profiles, on average, aspire for a partner aged up to 6.7 years younger but not older to them. The results are similar whether the profile is managed by a parent or not.

Partner's age preferences hence confirm the enduring role of gender scripts among the middle class as revealed on digital matrimonial websites.

[12] Our own calculations from the IHDS.

4.3.2. Marital expectations

We finally analyze the open-ended descriptions of the "desired partner." The textual data analysis reveals a highly common type of the "desired partner," representing 71 percent of all the descriptions (red type on Figure 10).[13] This type of desired partner is rather typical of profiles that are declared to be managed by parents or siblings, and more commonly concerns female profiles' advertisements (although it also characterizes male profiles).

These descriptions feature the typical "new way" of being a couple. The expressed expectations mix the "traditional" Indian values (of marriage) with the right amount of "modernity" associated with middle-classness. On the one hand, partners should respect "family values" and applicants clearly seek a "life partner," but on the other hand partners should also be "open-minded" and "fun." This finding falls in line with the main results from studies conducted on matrimonial websites (*e.g.*, Titzmann 2011).

Nevertheless, looking at our data more closely, we observe that men clearly assert that they seek a "supportive," "respecting" and "loving" partner (including towards other family members). Interestingly, some men declare that they want a partner that "behave[s] like a friend" (and they sometimes add, "not like a wife"), yet they reassert female traits that are typical of woman's role in the traditional image of marital relationships (women as caring, taking care of the family and always available). One example of a typical description of a male profile (declared to be managed by parents) is the following:

[13] We again used Reinert's method to identify patterns of words used to describe one's desired partner. Only a third of applicants have filled this open-ended description. Descriptions are on average 24 words long.

> "*I am looking for a girl who is ready to share my responsibility and happiness, she should be caring, loving, understanding, tall, fair, and educated. She should stand by me in all difficult times she should respect elders' family values.*"

This description conforms to the image of "the New Indian Woman," showing a combination of elements that are "modern" (*e.g.*, confident, autonomous, educated) and "traditional" (*e.g.*, culturally rooted – caring, understanding, positive but also dedicated), and which are not exempt from contradictions.

Women rather aspire for a "well-educated" and (economically) "independent" partner that is also "understanding." A typical description of a female profile (here, displayed as self-managed) goes as follows:

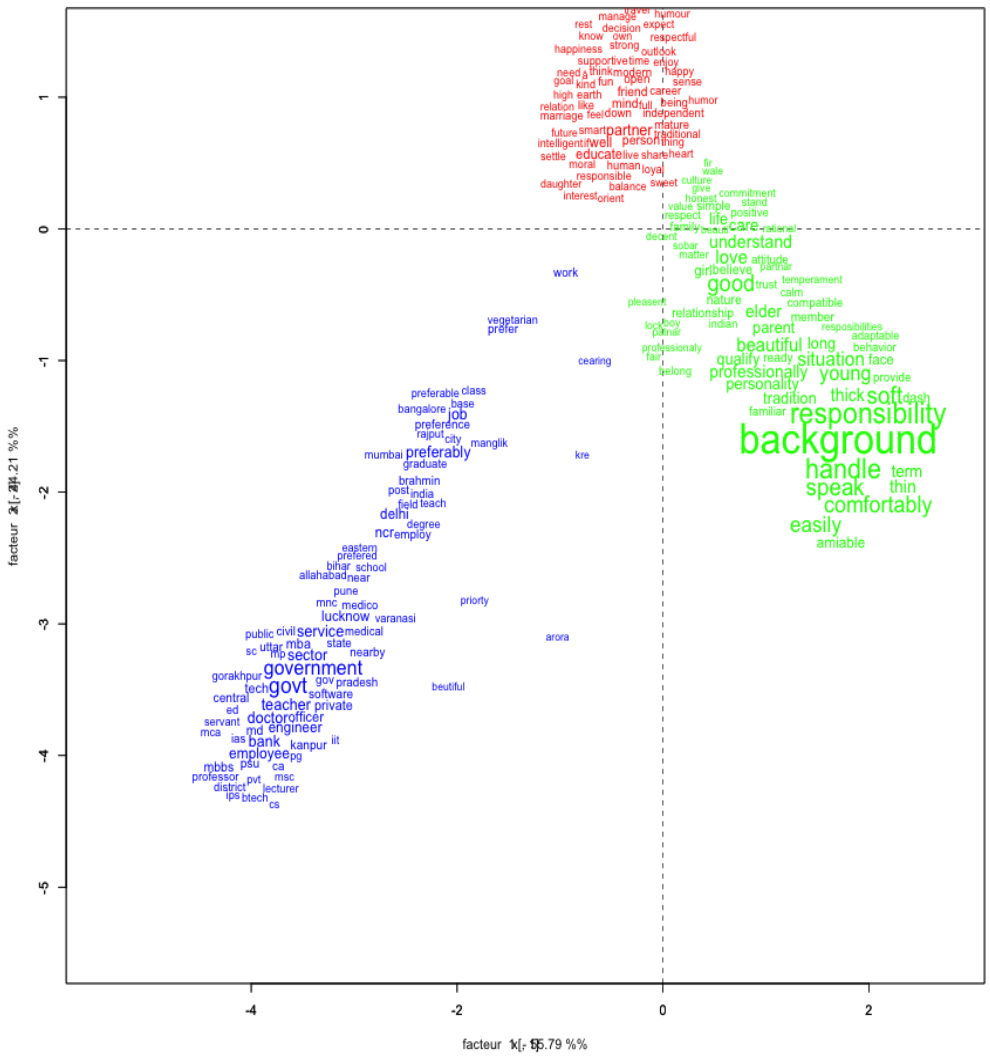
> "*Looking for a person who is independent and understanding. He should be a good human being with a positive attitude towards life. He should be well-educated and settled partner, along with a modern outlook.*"

Even though descriptions emphasize the aspiration for specific traits of character that show that personality and emotional compatibility are critical, both men and women profiles aspire to conform to a marital relationship where men are the breadwinners while women confine to the "care" work within the family.

The statistical analysis also allows to identify two other, minor, types of descriptions that more evidently conform to traditional representations of the typical male and female roles in families. Indeed, 20 percent of descriptions (in green on Figure 10) are rather exclusively typical of declared to be self-managed male advertisements. In these cases, the aspired female partners should rather conform to a more traditional representation of women in marital relationships: they should hail from a "decent" or a "very good family background" and they are assigned the role of "soft-spoken" family caregivers. These descriptions suggest that even when young

males display autonomy and individuality by managing their own profile they conform to a traditional representation of marriage. Another small share of descriptions (9 percent, in blue) is rather exclusively of women's declared self-managed profiles (looking for a groom). These profiles insist on the desired educational ("BTech" or "MBA") and occupational position of the ideal partner, either a "government" position (meaning economic stability) or a private sector position, such as "bank officers" and "software engineers." These profiles also typically reiterate one's caste position ("Brahmin," "SC," "Arora") or a typically high-caste cultural marker: "vegetarian."

Figure 10 – Factorial representation of the most common occurrences used to describe one's desired partner according to the Reinert typology



Note: Reinert's textual clustering method suggests three different types of desired partners whose most salient words are projected on a two-dimensional factorial plane.

5. Discussion

Using an exhaustive web extraction of matrimonial advertisements in Uttar Pradesh, our analysis investigated to what extent marriage is an individual matter in Indian middle class. Middle class members claim to be open and to value individual, free choice, along with having the right amount of "Indianness," which includes great importance given to the family and collective decision making. More importantly, given that they hold socioeconomically privileged positions, middle class members have objective interests in maintaining their status and position, if not in upgrading them, while masking their strategies of social reproduction. Our data authorize access to the exclusive preferences of the middle class on matchmaking websites, which may not have appeared as clearly with other methods of data collection.

Interestingly, our analysis is based on matchmaking in the making rather than on realized marriages. This type of data is quite rare and allows to look at desired and declared preferences and values, which express the prevailing social norms in the middle class. Presenting oneself or someone to marry means conforming to what one believes is valued by others they wish to gain. In this aspect, "true stories" and "success stories" usually displayed on the main matchmaking websites – and sometimes on the matchmaking TV channels websites own – may define what is perceived as the norm and what is desirable (Titzmann 2011), mostly achievements of ideals of romantic and companionate marriages (Agrawal 2015).

Our results show that the middle class's matchmaking practices fall more in line with the collective, patriarchal definition of marriage as (social) reproduction than with a somewhat new, more individualistic way of forming couple around the idea of "confluent love" (Giddens 1992). Indeed, matrimonial arrangements appear to remain a family matter as relatives are presented as the agents who look for and choose a partner for their children, especially so for

women. Gendered representations of the ideal partner suggest the enduring role of gender scripts among the middle class, away from egalitarian values. Indeed, along with the maintenance of the gender age hierarchy, male partners are expected to be breadwinners while female partners are associated with chaste, docile, and adaptive characteristics (Desai and Andrist 2010). Furthermore, away from Kaur and Dhanda (2014) who concluded that online marriage seekers sought more "individual compatibility" than "social conformity," marriage appears as a place of status-maintenance through strategies of marrying inside one's community and the salience of (family) socioeconomic markers. Indeed, on top of the symbolic stakes of marriage, such as symbolic status linked to caste, the fact that "[extended] family residence and joint property-holding often keep the economic fortunes of individuals tied to their families" (Desai and Andrist 2010: 668) adds material challenges to it.

The digitalization of matchmaking for the middle class suggests the continuing relevance of exclusive practices, which are fostered by the filter options – and perhaps the website suggesting selected profiles matching users' preferences. We follow Agrawal (2015) who argued that such websites make it possible to "reconcile contradictory and diverse pressures that shape the marriage market in contemporary urban India: highly individualized on the one hand, community- and group-oriented on the other" (20). Indeed, the "modern aspirations" carried by the middle class appear more clearly in the descriptions of the desired partner and people's expectations from the relationship to come. Most profiles also highlight the importance of friendship in the couple. Yet, such display of "modernity" may be a signal of belonging to the middle class, which would participate in social reproduction strategies. Meanwhile, profiles and profiles' preferences display gender scripts in both age preferences and the desired relationship, which rather stands away from individualistic, egalitarian marital relations. In that sense, the modernization of marriage among the middle class appears as

essentially discursive in the open-ended descriptions which acknowledge the idea of "companionate marriage." If the middle class exemplifies individualistic values in partner choice and relationships, the stakes of the collective, patriarchal family structure and the maintaining of their status remain at the heart of matrimonial decisions, revealing a "family-oriented" individualism (Titzmann 2011).[14]

Interestingly, matrimonial websites in India resemble the newspaper matrimonial advertisements that have been a very important medium of matchmaking in urban India for more than a century (Agrawal 2015) so that the way matchmaking websites made it to India represents a nationalization of the global (Fernandes 2000). Rather than being agents of social change, matrimonial websites reflect and perpetuate societal values (Seth and Patnayakuni 2011).

Acknowledgements

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[14] A research on one-person households concludes that the desire for independence and self-choice in family matters does not equate the deinstitutionalization of family, which remains at the chore of social institutions (Dommaraju 2015).

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