Gender Difference in Early Occupational Achievement:

The Roles of Field of Study, Gender Norms, and Gender Attitudes †

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Abstract

Based on the data from the Beijing College Student Panel Survey (BCSPS), this paper examines the effect of study fields on gender disparities in early occupational achievement. Multinomial logistic regression suggests that field of study can only explain part of the occupational gender differences. Women are more likely than men to become office clerks——a typical female occupation even if the field of study is controlled. Relative to clerks, gender disparities in entry into professional and technicians (male-typed of occupations) are largely attributed to women's underrepresentation in science and engineering fields. However, women's disadvantages in attaining managerial or marketing occupations are even enlarged after controlling the field of study. By innovatively adopting simulation strategy, our results further demonstrate that after considering gender role expectations, that is, if women would have the same likelihood of taking science and engineering fields at college as men given their social and economic background, women's disadvantage in entering professional and technicians would largely diminish. Despite the pervasive influence of gender norms, egalitarian gender attitudes at job entry can partially moderate women's disadvantage in entering male-dominated occupations. Women with more traditional gender attitudes are more likely to be office clerks. In contrast, those tending to be more progressive more likely to become managers. In this vein, we argue that gender norms are the main driving force behind the occupational gender differences.

Key Words: Higher Education, Gender Segregation by Field of Study, Early Occupational Achievement, Gender Attitude

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Introduction

The level of occupational gender segregation remains pervasive in society. Men dominate occupations with more pecuniary rewards and authority, and women are concentrated in the occupations or position with lower economic return and less authority (Bielby and Baron 1984, 1986; Reskin and Hartmann 1986). With respect to this phenomenon, human capital theory argues that, women, in anticipation of future family obligations, invest less in their education, therefore largely lowing their chances of entering highly paid professions (Bielby 1991; Polachek 1979; Mincer and Polachek 1974; Montmarquette et al. 2002).

In the past two decades, China has witnessed an unprecedented expansion in higher education. From 1998 to 2013, the number of universities more than doubled from 1,022 to 2,491, and the number of students enrolled increased by about six times (Figure 1). Expansion in higher education has largely narrowed the gender gap in educational attainment There are even more women than men enrolled in college education (Wu and Zhang 2010), especially for those born after 1982 (Yeung 2013). Unfortunately, women's enormous gain in educational advancement does not translate into corresponding advantages in the labor market (e.g., Appleton et al. 2005; Wu and Zhou 2015; Zhang, Hannum, et al. 2008; Zhang, Zhao, Park and Song 2008). Since 1990, the level of occupational gender segregation among nonagricultural employment has somewhat declined, but remained large (Li and Xie 2015; Wu and Wu 2008). Not only in China, the mismatch between women's educational advantage and the significant occupational

gender segregation has also been found in many western industrialized countries (Diprete and Buchmann 2013; Goldin, Katz and Kuziemko 2006).

[Figure 1 about Here]

Educational attainment has gradually lost its ground in explaining labor market disparity (e.g., Elliort and Parcel 1996; Egnland et al. 1988; Kaufman 2002). On the other hand, field of study, as a qualitative aspect of education, has drawn attention. Despite women's impressive gain in educational attainment, fields of study remain internally sex segregated across different societies (Charles and Bradley 2002, 2009; England and Li 2006; Jacobs 1986; Mann and Diprete 2013; Morgan, Gelbgiser and Weeden 2013). With the field-specific training at college, field of study would divert men and women into different occupations with different economic prospects and occupational prestige after graduation (Casselman 2014; García-Aracil 2008; McDonald and Thornton 2007; Shauman 2006; Van de Werfhorst and Kraaykamp 2001; Van de Werfhorst 2002; Xie and Shauman 2003).

Nevertheless, when estimating the effect of study fields, scholars often neglect the fact: the choice of study field stems from social conditioning or constraints rather than purely voluntary (Charles and Bradley 2009). Bounded by the deep-seated traditional gender norms, men and women are socialized to have different expectations, preferences and beliefs, making them choose different study fields, and even occupations after graduation to meet their own stereotypical gender role expectations (England and Li 2006; Leaper and Bigler 2011; Lippa 2005; Ruble, Martin and Berenbaum 2006). However, some evidence has also shown that, education, especially college education, can provide the exposure to egalitarian gender views which are conducive to counter the pervasive influence of traditional gender norms and make

individuals enter gender-atypical fields and occupations (Bryant 2003; Cassidy and Warren 1996; Davis and Robinson 1991; Rhodebeck 1996).

While the effect of field of study has been widely recognized, two above-mentioned gender perspectives —— the enduring gender norms of gender essentialist ideology and the silver lining behind the gender norms driven by gender egalitarian values, have been largely ignored (for an analytical scheme, please refer to Figure 2). Without considering these two gender-related factors, there is a chance of misreporting the effects of the factors associated to occupational gender segregation, as individuals' choices are bounded by gender norms as well as their own gender attitudes. Drawing data from Beijing College Student Panel Survey (BCSPS), we attempt to uncover the effects from both the gender norms and personal gender beliefs on the difference in the early occupational achievement between men and women.

In this analysis, we focus on gender differences in the entry into varies gender-typical occupations for college graduates. Entering different occupation is associated with different promotion chances, on-job training, pecuniary benefits and etc., where women are often crowed into occupations with lower earnings and fewer job benefits. Early studies also revealed that labor market gender pay gap can largely be attributed to occupational gender segregation (Peterson and Morgan 1995; Treiman and Hartman 1981). In this regard, studying occupation can provide us even heuristic and helpful evidences on labor market gender inequality.

Also, as one of our key explanatory variable, field of study is closely connected to occupation. Field-relevant trainings and skills at college have render men and women different chances of entering different occupations prior to labor market entry (e.g., Casselman 2014; García-Aracil 2008; Gerber and Cheung 2008; Kalmijn and van der Lippe 1997; McDonald and Thornton

2007; Shauman 2006; Van de Werfhorst and Kraaykamp 2001; Van de Werfhorst 2002; Xie, Fang and Shauman 2015; Xie and Shauman 2003). Different from these earlier studies that focus on field of study only, our analysis further includes the roles of gender norms and gender attitudes on the gender differences in entering various occupations.

The rest of our paper is organized as follows. We first briefly review the existing studies concerning how structural and cultural forces shape gender differences in occupational attainment. And then we move on to describe the data, variables and measures, and analytical strategy in the methods section. After that, we report descriptive and regression results. We finally discuss implications and conclusions of this study.

Theoretical Framework

Human Capital Theory

When men and women tend to concentrate in occupations dominated by their own sex, occupational gender segregation emerges. An early justification of underrepresentation of women in occupations traditionally dominated by male often resort to women's relatively low investment in human capital (Bielby 1991; Polachek 1979; Mincer and Polachek 1974; Montmarquette et al. 2002). As the reversed gender gap in education prevails in society where occupational gender segregation persists (Buchmann and Diprete 2006; Buchmann, Diprete and McDaniel 2008), this argument is subject to increasingly severe criticisms.

Field of Study

Field of study, as a qualitative dimension of education, is pivotal to one's future career (García-Aracil 2008; Kim, Tamborini and Sakamoto 2015; McDonald and Thornton 2007; Xie and Shauman 2003; Xie and Killewald 2012). AAs James et al. (1989, p. 252) have stated, "While sending your child to Harvard appears to be a good investment, sending him to your local status university to major in Engineering, to take lots of math, and preferably to attain a high GPA, is an even better private investment".

With field-related training in college, fields of study can effectively match students to different occupations (e.g. Kalmijn and van der Lippe 1997; Shauman 2006). Even though men and women hold the same degree, by entering different fields of study, they can end up with different occupations associated with dramatically different economic prospects (Casselman 2014; García-Aracil 2008; McDonald and Thornton 2007; Shauman 2006; Van de Werfhorst and Kraaykamp 2001; Van de Werfhorst 2002; Xie and Shauman 2003). Many studies have shown that the gender gap in studying STEM fields works as a "leaky pipeline" through which women engage and retain in less-rewarded non-STEM occupations than men (Glass et al. 2013; Ma and Savas 2014: Mann and Diprete 2013; Sassler et al. 2016). The underrepresentation of women in STEM education is thus regarded to be the key explanation to women's disadvantages in entering non-STEM occupations. Besides the STEM and non-STEM divide, there is a more general gender divide in terms of study field (Correll 2001; England and Li 2006; Lincoln 2010). Research has shown that women are less likely than men to enter fields of study associated with higher economic return (Davies and Guppy 1997). If women are overrepresented in fields with potentially lower salaries, they are more likely to be underrepresented in occupations with

potentially high remuneration, and the gender gap will emerge once women and men start to participate in the labor market.

Enduring Gender Norms

However, these findings are based on an implicit assumption, that is, gender differences in both fields of study and occupations are the result of a voluntary choice of men and women. The emergence of gender is "the most automatic, pervasive and earliest learned" (Glick and Fiske 1999, p.368). It would be too native ignore the substantial influence of gender norms when examining occupational gender differences. Because, by doing this, we largely underestimate the enduring gender norms of gender essentialism ideology in shaping individual's life experiences and identities, and in labeling the study fields as intrinsically masculine or feminine (Xie and Shauman 2003). Scholars have put forth that, the segregated outcomes, either field of study or occupation are generated through gender-specific socialization. In this process, individuals' perception, judgement of self and other can be constructed through family life, occupational prestige, and power constantly by interacting with the others (e.g., Corcoran and Courant 1985; Crompton and Harris 1998a, 1998b; England et al. 1994; Hitlin 2006; Marini 1989; Marini and Brinton 1984; Marini et al. 1996; Okamoto and England 1999). Based on their internalized expectations of women and men's differentiated roles, they would "make choices" on how much and what specific human capital they would invest, which job they aspire to take and etc. Each "choice" a man or woman made implies their respective attempt to affirm their essential femininity and masculinity (Blau 1984; Blau and Ferber 1986; England 1992; Jacobs 1989; Madden 1985).

Not only does the gender norms exert pervasive influences on individuals' behaviors, it can also influence the way men and women are perceived in the labor market (Blau 1984; Blau and Ferber 1986; England 1992; Madden 1985). "Hiring discrimination", or "biased hiring", defined as the differential treatment on recruitment, allocation and retention through institutionalized personnel procedures, could offer an alternative explanation (England 1992; Reskin 2003; Roos and Reskin 1984). It is argued that, hiring decisions that are often coupled with bias or stereotypes tend to be quasi-rational (Strle 2012). As social role theory predicted, men's role is often connected with money earner, whereas women's role is often linked with care-taker (Eagly 1987). The congruity or incongruity between socially-expected gender roles and work role are partially responsible for workplace gender bias which makes employers favoring men over women (Eagly and Karau 2002; Reskin 2003), especially for high-status occupations (Bielby and Baron 1986).

Gender Attitudes - The Silver Lining of Gender Norms

Most women do not choose a science/engineering major/career that are traditionally male-dominated fields. If they do choose, they have to overcome the cultural beliefs about gender regarding what are appropriate female/male professions (Cech et al. 2011) . As a component of gender stereotypes, cultural beliefs about gender reflect that what we think most people believe or accept as true about men and women, through which men and women may modify their behavior to meet gender role expectation (Foschi 1996; Foschi, Lai and Sigerson 1994). It is important to note that, these beliefs are not rigid scripts that individuals are compelled to follow. Existing literature has proposed that education, especially college education can make people become increasingly gender egalitarian (Bolzendahl and Myers 2004; Brewter and Padavic 2000;

Brooks and Bolzendahl 2004; Bryant 2003; Corrigall and Konrad 2007). College experiences tend to liberalize individuals' gender attitudes (e.g., Astin 1993; Lottes and Kuriloff 1994; Pascarella and Tenzini 1991), the consistent exposure to these egalitarian values can facilitate individuals across the gender barrier and make nontraditional moves to enter gender-atypical fields (Cassidy and Warren 1996; Davis and Robinson 1991; Rhodebeck 1996).

The Chinese Context

China is an interesting case to study gender differences in occupational attainment. First, China is a country with a long patriarchal tradition, where the male breadwinner and female homemaker model is deeply rooted in traditional Chinese culture. First, China is a country with a long patriarchal tradition, where men are breadwinner, women are home-maker is strongly emphasized. Secondly, over the past four decades, China has undergone profound institutional transformations. In the socialist era, the state played a strong role in promoting gender equality (Whyte and Parish 1984). Since economic reform, the state has gradually retreated from providing measures to share women's reproductive responsibilities and care services, coupled with the resurgence of patriarchal tradition, leaving women — the primary care-taker to take over the main reproduction duties to fulfill their family obligations (He and Wu 2016; Ji et al. 2017; Thornton and Lin 1994). It is becoming increasingly attractive for women to take jobs that could achieve the balance between work and family featureing high job stability, less demanding job duties, and flexible working hours. From the employers' perspective, in consideration of women's presumed family duties, profit-prone managers may deliberately assign women to occupations with low pecuniary income but with more time flexibility, regardless women's own

aspirations or willingness.[1] Women in nowadays, are thus facing complexed, less favorable labor market conditions (He and Wu 2016; Wu and Song 2014). Both reasons, taken together, make gender norms to have an even increasingly strong and enduring influence on individuals' occupational choice and attainment.

Accompany with this process is the extensive expansion in higher education since 1999, which has substantially improves the educational level, and meanwhile, narrowes and even reverses the educational gender gap (Wu and Zhang 2010; Zhang, Han et al. 2008). As previously stated, immersed with gender egalitarian ideas, four-year college education, for some students, may liberate more students to egalitarian gender attitudes (Funk and Willits 1987), which could facilitate female and male graduates entering gender-atypical occupations. Therefore, individual's gender attitudes are an important factor that may influence the entry into gender-atypical occupations.

In the western context, gender differences in field of study explains most of the variation about the gender disparity in occupational attainment (Casselman 2014; Glass et al. 2013; Ma and Savas 2014: Mann and Diprete 2013; Sassler et al. 2016). However, in a society with deeply-rooted patriarchal culture, and a society experienced such rapid and drastic transformation, what factors drive the observed occupational gender pattern remains unknow. It is what we attempt to explore in this research.

[1] According to the economic literature, even when an economic agent (e.g., consumers, employers) is rational and non-prejudiced, "statistical discrimination" can still exist when stereotypes based on a group's (e.g., women's) average behavior are relied upon (Arrow 1998; Becker 1957; Phelps 1972).

Data, Variables and Method

To examine the three processes — field of study, gender norms, and gender attitudes — that drives the observed gender disparity in early occupational achievement, the analysis is conducted in three steps. As different study fields prepare college students with specific trainings and skills needed for the specific jobs in the university, field of study can sort men and women into different occupations. In the first step, we estimate whether and to what extent field of study is associated with early occupation achievement. Second, to reflect the underlying gender role norms that may drive men and women to choose gender-typical majors and occupations, we use the matrix of men's fields of study to simulate women's fields of study and calculate the hypothetical female occupational attainment and compare it with observed occupational attainment of men and women. This approach would control for the unobservable effect of gender norms on the selection of majors for women and men Third, given that College/University is a place to train and cultivate independent and self-reliant individuals emphasizing more about their own capability and less about biological differences between genders. The final step is to estimate how the effect of gender socialization can be moderated by the gender egalitarian attitude.

Data

The data are from the Beijing College Student Panel Survey (BCSPS) covering a period from 2009 to 2013. The first wave was conducted in 2009. In this sample, 4,759 college students entered college in either 2006 (juniors in 2009) or 2008 (first year students in 2009). They were from 15 randomly selected universities in Beijing. This survey collects information on basic socio-demographic characteristics (e.g., family background, hukou origin), academic

performances before entering university (e.g., high school rank and College Entrance Examination score, in total as well as by subjects), college life (e.g., college major, college quality, awards received in college, internships, expenditures, scholarship status, career aspirations), and egalitarian gender attitude, self-efficacy and etc. In the follow-up survey in 2010-2013, for students who have graduated or have started the first job, information on employment, graduate studies, dating and family formation was further collected.

Because the respondents were first interviewed when they were enrolled in university and followed up in two to four years, most of them have graduated and entered labor market. This feature makes BCSPS an ideal source to analyze college-to-job transition. The fact that these interviews were only conducted in Beijing, it offers a homogenous setting to evaluate the effect of field of study so that heterogeneity of regional characteristics such as, local education policy, labor market condition, etc. is less of a concern (Wu 2016).

Variables

The e dependent variables is the first occupational attainment. We construct this variable based on two questions, "What do you currently do?" and "Is it your first job?" If the respondent answered yes to the second question, we coded it as the first occupation. Considering the attribution from 2009 to 2013, we also use backward replacement to retrieve the information on first occupation for those with missing information in earlier surveys to preserve as many cases as possible. For example, if the information on the first occupation is missing in 2010 survey, we replace it with the available information on the "current occupation" in the 2011 survey for the same individual, so on and so forth. We group these first jobs into five categories, 1=corporate

manager, 2=professional (including engineer, doctor, lawyer, teacher), 3=technician (research and development personnel, technical workers), 4=office clerk, 5=sales/marketing.

The first key independent variable is gender, which is coded as dummy (0=male, 1=female). Field of study has six categories: 1=literature/history/arts; 2=management; 3=economics; 4=law; 5=science; and 6=technology. The differences in occupational aspirations[2] or self-evaluations between women and men may explain the observed gender differences in early occupational attainment. To account for these attributes that are correlated with both gender and occupational outcomes, we further include variables about occupational aspirations and self-efficacy. Occupational aspirations are measured by asking the students what they expect to do after graduation. We code it into the same 5-category variable as the first occupational attainment, 1=corporate manager, 2=professional, 3=technician, 4=office clerk, and 5=sales/marketing. We We also have measures for occupation aspiration, which asks the students what they expect to do after graduation, we code it into 5-category variable as first occupational attainment, 1=corporate manager, 2=professional, 3=technician, 4=office clerk, and 5=sales/marketing. We also control for self-efficacy, a composite measure of one's ability to succeed, created from factor analysis based on a 10-item general self-efficacy scale, "I can always manage to solve difficult problems if I try hard enough.", "If someone opposes me, I can find the ways and means to get what I want", "It is easy for me to stick to my aims and accomplish my goals", "I am confident that I could deal efficiently with unexpected events", "Thanks to my resourcefulness, I know how to handle unforeseen situations", "I can solve most problems if I invest the necessary effort", "I can remain calm when facing difficulties because I can rely on my coping abilities", "When I am

[2] Daymont and Andrisani (1988) suggested that the degree of labor market discrimination would be overstated without controlling for work preference.

confronted with a problem, I can usually find several solutions", "If I am in trouble, I can usually think of a solution", "I can usually handle whatever comes my way". To correct the selection bias of being employed in Beijing, we further created a variable – attrition probability.

Other factors may also be correlated to both gender and the entry into different occupations. To control for school quality, we categorize 15 universities into three types: 1=non-211 university;[3] 2=211 universities except for three elite universities, Peking University, Tsinghua University and *Renmin* University; 3= Peking University/Tsinghua University/*Renmin* University.[4] We also control for entry cohort (0=2006; 1=2008), *hukou* status before attending college (0=urban; 1=rural), Beijing origin (0=non-Beijing; 1=Beijing), family SES, a self-rated ordinal measure of class with 1=upper class, 2=mid-upper class, 3=middle class, 4=mid-lower class, 5=lower class. To correct for the selection bias of being employed in Beijing[5], we further created a variable – attrition probability[6].

In the second step, to reveal the enduring gender norms, we estimate hypothetical occupational distribution of men and women (the detailed description can be seen in the next section). We use the same set of independent variables as the first step. The only difference is

[3] 211 is the project initiated by Chinese's government aiming at strengthening about 100 institutions of higher education and key disciplinary areas as a national priority for the 21st century.

[4] These three universities are elite universities, so we combine them in a single category.

[5] As shown by Melguizo and Wolniak (2012), self-selection should be taken into account when estimating how education experience affects earnings. In this analysis, when estimating early occupational achievement, only those individuals who are employed are included in the sample. The inclusion of individual attrition in the model, we, to a large degree, controlled for the selection into employment.

[6] The probability of attribution is controlled to correct for the selection issue, which is predicted from the Logit Model with whether missing as dependent variable (1 miss, otherwise 0). Control variables include female, cohort08, rural *hukou*, Beijing origin, college major, university type, and year dummy (results are not shown).

that we replace study fields with the simulated study fields by assuming that women would select the same fields as their male counterparts given the same social and economic background.

Lastly, our dependent variable is again the actual first occupational attainment In this analysis, the model includes the same control variables mentioned earlier, we further include gender egalitarian attitude. Five questions asked in wave 4 are used to measure this variable. These questions collect information on attitudes towards career and family orientation, ability, marriage, work norm and housework. They are: "Men are career oriented, while women are family oriented", "Men are more capable than women.", "For women, marriage is more important than their own career", "In economic recession, women should be fired first" and "Husband and wife should share equal amount of housework". Respondents are asked to select an answer based on a 5-point scale, 1 – completely disagree, 2 – somewhat disagree, 3 – whatever, 4 – somewhat agree, 5 – completely agree. We use factor analysis and construct a continuous variable indicating gender attitudes with higher score representing a more traditional attitudes. To make it range from 0 to 1, we subtract the minimum value from each value and divide it by the difference between maximum value and minimum value of predicted gender ideology.

Research Method

Frist, we employ multinomial logistic regression to investigate whether and how field of study can explain the gender differences in early occupational achievement. The regression model can be written as follows:

$$\ln\Omega_{j|4} = \ln\left\{\frac{\Pr(y=j|\mathbf{x})}{\Pr(y=4|\mathbf{x})}\right\} = \beta_{0,j|4} + \beta_{1,j|4}Female_{k|1} + \beta_{2,j|4}Major_{k|1} + \beta_{i,j|4}X_i, \quad (1)$$

$$\text{for i} \geq 3;\ j = 1,2,3,5;\ \ k = 2,3,4,5,6.$$

In this model, the office clerk is the reference category. $\Omega_{j|4}$ indicates the relative probability of j^{th} occupation relative to 4^{th} occupation. $\beta_{0,j|4}$is the logit estimate for j^{th} occupation relative to 4^{th} occupation (reference occupation: office clerk) when all the independent variables evaluated at 0. $Female$ and $Major$ are two key independent variables in the analysis, where $\beta_{1,j|4}$is the logit estimate comparing female to male in terms of actually working in j^{th} occupation relative to 4^{th} occupation (office clerk); and $\beta_{2,j|4}$ is the logit estimate comparing k^{th} major to 1^{st} major (reference major: literature/history/arts) for working in j^{th} occupation relative to 4^{th} occupation (office clerk) given that the other variables are held constant. X_i represents other control variables including entry cohort, whether holding rural hukou, whether from Beijing, whether participate in self-administered admission, standardized math score, standardized CEE score, self-efficacy, school dummies, familial socio-economic status, and familial cultural capital. $\beta_{i,j|4}$ is the corresponding logit estimate of X_i for j^{th} occupation relative to 4^{th} occupation (office clerk) holding constant of other predictors. In addition to these variables, a 5-category occupational aspiration and probability of individual attrition are further controlled.

As discussed above, gender socialization can have a much enduring and persistent effect on both the choice of field of study and the decision of entering certain type of occupation. In the second analysis, we predict women's hypothetical occupational attainment assuming that women would choose the same college field of study as men given the social and economic background. To achieve this, we first establish an estimation equation predicting field of study for male students only. We then apply this equation to female sample to calculate the simulated majors (results are shown in

the Appendix IIc), and create a new variable the simulated fields for the female sample. Thirdly, based on the female sample with the original observed information on field of study, we first estimate an equation to predict the female occupational attainment (Equation 2). We then apply this estimated equation to the female sample using the new variable with the updated simulated information on the field of study to predict the hypothetical female occupational attainment (Equation 3). The estimation equations of hypothetical female occupational attainment can be written as following:

$$\text{Female: } \ln\Omega^{f}_{j|4} = \ln\left\{\frac{\Pr(y_f = j|\mathbf{x})}{\Pr(y_f = 4|\mathbf{x})}\right\} = \beta^{f}_{0,j|4} + \beta^{f}_{1,j|4} Major_{k|1} + \beta^{f}_{i,j|4} X_i, \quad (2)$$

$$\text{for } i \geq 2;\ j = 1,2,3,5;\ \ k = 2,3,4,5,6$$

Equation (2) is the same as equation (1), but the estimation of equation (2) is based on the female sample only rather than full sample as equation (1). The subscript *f* of the coefficients denotes the corresponding coefficients of female sample as in equation (1).

$$\text{Female: } \ln\Theta^{f}_{j|4} = \ln\left\{\frac{\Pr(y_f = j|\mathbf{x})}{\Pr(y_f = 4|\mathbf{x})}\right\} = \beta^{f}_{0,j|4} + \beta^{f}_{1,j|4} Simulated\ Major_{k|1} + \beta^{f}_{i,j|4} X_i, \quad (3)$$

$$\text{for } i \geq 2;\ j = 1,2,3,5;\ \ k = 2,3,4,5,6$$

Equation (3) adopts the variables and the corresponding estimated coefficients of equation (2), except that we use the simulated major rather than the observed major as the key predictor. Simulated $\text{Major}_{k|1}$ represents *k*th simulated major relative to 1st simulated major (literature/history/art). X_i denotes all the control variables which are the same in earlier models.

Based on this equation, we can calculate hypothetical probabilities of entering different occupations for females, where $\Theta_{j|4}$ indicates the relative probability of j^{th} hypothetical occupation compared with reference category — 4th hypothetical occupation (office clerk).

Finally, to show how gender attitudes would affect men and women's likelihood of entering different occupations and whether the role of gender attitudes differ between women and men, we include individuals' gender atitudes at job entry[7] when estimating the first occupational attainment in the first step. The inclusion of the interaction between gender ideology and sex further shows the moderating effect of gender egalitarian attitude on gender disparity in first occupational attainment. In this step, we first use the composite measure of gender ideology to test what specific dimension contribute the most, we allow five different dimensions of gender ideology to enter the regression model one by one. The model can be written as below.

$$\mathrm{Ln}\Omega_{j|4} = \ln\left\{\frac{\Pr(y=j|\mathbf{x})}{\Pr(y=4|\mathbf{x})}\right\}$$

$$= \beta'_{0,j|4} + \beta'_{1,j|4} Female_{k|1} + \beta'_{2,j|4} Egalitarian_{k|1} + \beta'_{3,j|4} Female_{k|1} * Egalitarian_{k|1}$$

$$+ \beta'_{i,j|4} X'_{i}, \qquad (4)$$

$$\text{for } i \geq 3;\ j = 1,2,3,5;\ \ k = 2,3,4,5,6.$$

[7] Questions collecting gender attitudes are asked in wave 4. For 2008 entry cohort, they are measured when student just entered the job market. For 2006 entry cohort, they are measured two years after graduation, here we assume that gender ideology doesn't change within two-year period.

where, $Egalitarian$ refers to gender egalitarian attitude. $\beta'_{3,j|4}$ is the logit estimate of each unit increase in gender egalitarian in terms of actually working in j^{th} occupation relative to 4^{th} occupation (office clerk) for men, holding constant of other variable. $Female * Egalitarian$ denotes the interaction between Female dummy and gender egalitarian attitude. $\beta'_{3,j|4}$ is the corresponding logit estimate of additional increase in gender egalitarian attitude comparing women with men in terms of actually working in j^{th} occupation relative to 4^{th} occupation (office clerk). X'_i include all the control variables including college major. $\beta'_{i,j|4}$ is the corresponding coefficient of X'_i.

Results

Descriptive Statistics

Sample summary statistics of selected variables are given in Table 1. In the selected sample, 49.7% of individuals are men, and 50.3% are women. There is significant gender difference in the distribution of field of study. Women are substantially underrepresented in fields, such as science, technology-related, engineering, and mathematics (STEM) programs, (see Figure 3). There are 24.4% (=35.48/28.51-1) more men than women holding rural *hukou* before entering the college. In terms of the self-efficacy scale, men score much higher than women, which to a large degree reflects the fact that men are more confident and self-motivated in the Chinese society. With respect to individuals' family SES, women on average come from better-off families. As for occupation aspiration, majority of college students aspire to be managers after graduation regardless of gender. There are 43.1% (=7.01/4.90-1) more women than men aspire to be office clerk after graduation. Regarding to marketing position, the percent of women who

aspire to attain this occupation is about twice as large as men. However, when it comes technician as an occupation aspiration, the corresponding percentage for men is 25.43%, about four times that of women.

[Table 1 is about Here]

[Figure 3 about here]

Figure 4 shows the relationship between the field of study and occupational attainment, Figure 4 is drawn. The x axis is field of study, y axis shows the distribution of occupation given the field of study. Gender differences in early occupational achievement is prevalent, even fields of study are taken into account. The chances of becoming an office clerk are much higher for women (36.2 percent) than for men (17.3 percent). The opposite is true when it comes to becoming a technician, where the corresponding percentages for men and women are 21.6 percent and 9.3 percent, respectively (see Figure 4). These descriptive analyses demonstrate that gender differences in field of study does not offer a prime explanation to the gender disparity in occupational attainment.

[Figure 4 about Here]

Multinomial Logistic Regression Results

- Early Occupational Achievement

Table 2 presents multinomial logistic regression results on early occupational achievement. In Model 1, the baseline model, we include gender and above-mentioned control variables in the model. For their first occupation after graduation, women are less likely than men to become

managers/civil servants, professionals, technicians, and sales persons. Compared to men, women are less likely to become a manager, professional, technician, or marketer relative to becoming an office clerk; the corresponding figures are 57.9%, 57.4%, 78.0% and 49.8%, respectively with the odds of becoming technician being the lowest. In Model 2 where university tier is included, women's disadvantage at job entry remains largely the same. In Model 3, we include field of study. As expected, college major can well predict young men and women's first occupation. More specifically, compared to other majors, engineering students are more likely to become professionals or technicians than office clerks; students majoring in business management or economics are less likely to be in these two occupations than to become office clerk.

Consistent with the conclusion from the descriptive analysis, female disadvantage persist in some occupations. After controlling for field of study (Model 3), the absolute value of female coefficient decreased to a large degree. Therefore, field of study is an important mediator of gender differences in attaining professional or technician jobs, relative to office clerk. However, for some occupations (such as, manager, and marketer), fields of study even intensify the women's disadvantage. Relative to becoming office clerk, after controlling for college major, woman's log-odds of becoming a manager and a marketer have decreased further from -0.856 to -0.908, and from -0.677 to -0.864 respectively. This pattern holds even after occupational expectation and probability of individual attribution enters the models (see Models 4 and 5). Although, the differences in coefficient by 0.05–0.18 do not seem to be substantial in magnitude, these findings indicate that women may lose 5%–20% of their chances to acquire an occupation with higher earnings potential even at labor market entry. For some occupations, women are less likely to be included even though their major matches with these occupations.

[Table 2 is about Here]

- Predicted Early Occupational Achievement using Observed and Simulated Field of Study

To examine the role of the enduring gender norms, plays a role in affecting men and women choice of study field, we simulate the distribution of study fields for men and women, and further predict women's early occupational achievement by using this simulated field of study. This step relies on two assumptions. First, all the social and economic factors included in the model have a satisfactory explanatory power of study field choice of men and women at college. Second, for women, the difference between the observed choice and simulated choice of field of study captures the effect of gender norms prior to job entry, or specifically, the effect of gender socialization on individuals' choice of field of study. To estimate this effect, we first predict the students' study fields using multinomial logistics regression. The results show that women are least likely to be in science and engineering majors, holding constant of other characteristics (see Appendix IIa). Based on the simulated distribution of college major (see Appendix III), the hypothetical occupational attainment of women can be obtained. Figure 5 shows the distribution of observed and simulated early occupational achievement. The results suggest that if women choose the same field of study as predicted by matrix of observed majors of men, more women would have become professionals and technicians, and fewer of them would have become office clerks and sales persons. When further using the simulated female occupational distribution in estimation of earnings, women enjoy a slightly higher wage premium of 2% better than their male counterparts, as shown in Figure 6.

[Figure 5 and 6 are about Here]

- Gender Attitudes as a Moderator

To show how difference in gender attitude account for this gender gaps in the early occupational attainment. In this part, we further include gender attitudes variable on the basis of Table 2 Model III. The results suggest that inclusion of gender attitudes reduced women's likelihood of becoming manager, but increase their probability of the becoming professionals, and attaining marketing and technician positions, compared with office clerk. When running an interaction between sex and gender ideology, we can see that, holding constant of other variables, women are 26.43%, 17.95% and 21.41% (=1-e $^{-0.2409}$) less likely to become managers, professionals and marketer relative to men, when they are more traditional (gender ideology scale changing by a score of 0.1 out of 1). In addition of using the composite measure of gender attitudes, we also use five dimension of gender ideology questions to see which dimension best explains gender differences occupation entry. The attitude regarding whether "men are more capable than women" seems to have the best explanatory power. Women holding this belief are less likely to become manager, professional and marketing position versus office clerk. However, for those women who disagree with this statement even have some advantages in becoming manager ($p<0.05$) and professional ($p<0.1$). [8]

[Table 3 about here]

[8] We also did the sensitivity test by restricting the sample to those who were freshmen at Wave I, the results remain (results not shown).

Conclusion and Discussion

To summarize, this article has examined the gender disparity of early occupational achievement of college students in China's capital city. Besides the widely recognized role of the field of study, we further include two gender perspectives — the enduring gender norms that heavily influence women and men's choice of major and the silvering lining of which driven by driven by gender egalitarian attitude in shaping the observed occupational gender difference. We believe that solely focusing on the field of study substantially understate the effect of long-lasting gender norms in sorting women and men into different occupations.

Results show that, in China, field of study only provide part of the explanations of the difference in early occupational achievement between men and women. Entering different study fields would render different trainings and skills needed for the specific jobs at college; however, the effect can only explain the gender differences in professional or technician (male-typed job) compared with office clerk (the reference category). In terms of manager, marketing position, field of study cannot offer a satisfactory explanation.

Noted that, gender segregation can be manifested as the enduring culture force of gender-essentialist ideology. To examine the effect of gender socialization on choice of field of study, we innovatively adopt simulation method to show if women choose field of study as men do given their social and economic background, what their occupation would be. It is shown that after controlling for gender role expectation on choice of major, more women would become professionals or technicians for their first occupation. Gender socialization seems to be one of the most enduring processes in shaping individuals' personalities, preference, aspirations, motivations and behavior pattern within a proper gender boundary.

However, exposure in college immersed with gender egalitarian ideas, some students are more likely to hold gender egalitarian values after four-year study. This egalitarian ideology may facilitate their engagement in gender-atypical occupations after graduation. In this vein, beside gender role expectation, the gender disparity in early occupational achievement, if not all, can be moderated by gender egalitarian attitude at job entry. Indeed, our result provides some evidence of it. It reveals that women who hold traditional gender ideology, specifically, the belief that "men are more capable than women" are less likely to cross the gender boundary to work as a manager, professional or marketing staff instead of an office clerk. In contrast, for those women who hold more progressive gender attitude, they even show some advantages in becoming a manager. For men, as England and Li (2006) argued, holding traditional gender ideology make them more likely to enter managerial and professional position Nonetheless, even men with more progressing mindset cannot really convince themselves to enter traditional female typed occupation, for example, office clerk.

In a country with a deep patriarchal root, individuals' early occupational achievement would face strong challenge if one crosses the gender boundary, creating even perplexing pattern between field of study and early occupational achievement as previously suggested. However, as male sphere remains to be socially, economically and culturally valued, women are still motivated to make nontraditional moves. For those who hold liberal gender ideology, they take job entry as a new opportunity to break the rule, which reveals a silver lining behind the enduring gender norms.

Nevertheless, this research is not without limitation. Due to the data limitation, our analysis is based on individuals who were already in college in wave I. In China, choice of study field is

often made before entering the college. And after entering college, individuals who at the margin of being admitted are more likely to be allocated into a field of study not belonging to his/her choice set. The choice of field of study in this analysis is not strictly a choice. Moreover, gender ideology is not a repeated measure, transformation of gender attitude from traditional to egalitarian during college life is merely an assumption in this analysis. Besides, it is important to note that both distributional and discriminatory practices also play a role in shaping observed gender disparity on occupation. However, as these practices often involve the complex interplay between supply and demand, state policy and gender preference for specific positions, it would be much more difficult to simulate labor market job assignment without knowing more detailed information. Therefore, our analysis is just a simplified version. Despite these weaknesses, this study offer novel insights by showing the importance of gender norms in explaining the labor market gender differences and how to counter the pervasive influence of it. Education by all means offers a way out. As Ridgeway (2006) argued, the constructed gender belief through socialization makes gender "a primary framing device for social relations." If gender differences in occupational distribution primarily come from individual "preference" or "labor market expectation", any social and family policy intervention would be futile. Only can we understand the process of gender socialization, more efficient intervention can be taken to promote genuine gender equality.

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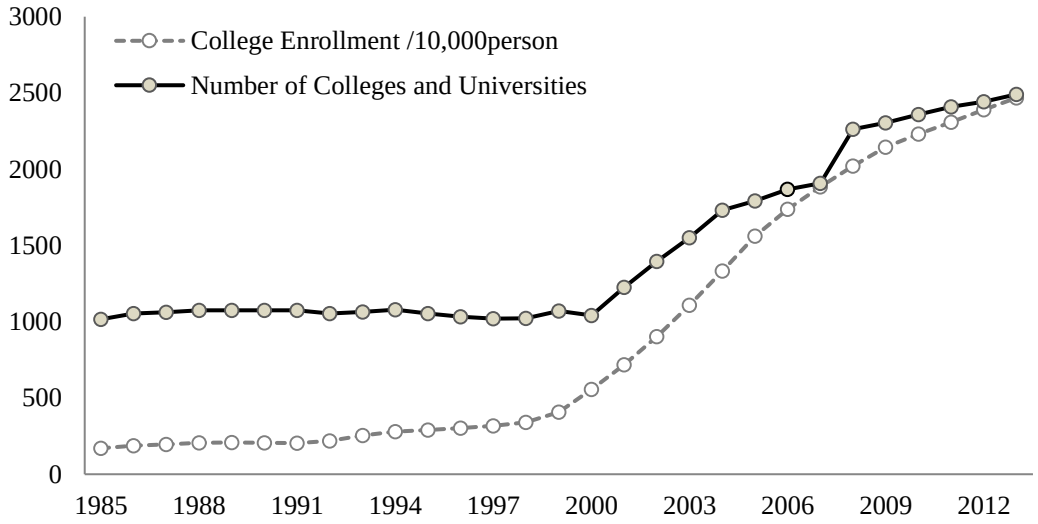
Figures

Figure 1. Trend of College Enrollment and Number of Colleges and Universities 1985-2013



Data Source: China Education Yearbook 2014

Figure 2. Analytical Diagram of Gender Difference in Early Occupational Achievement

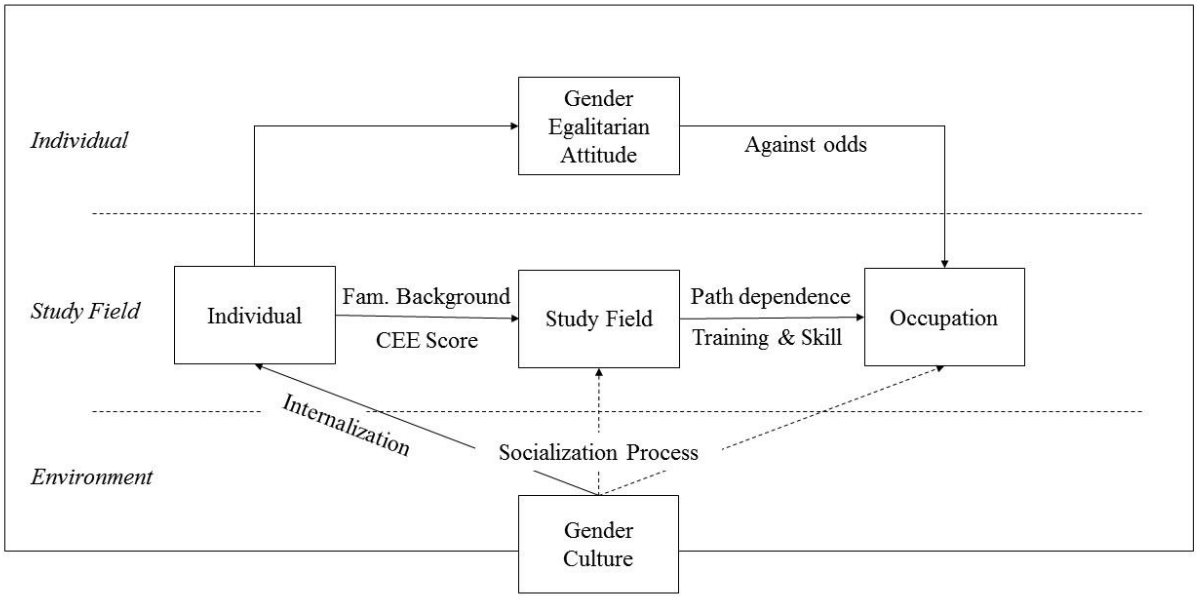


Figure 3. Gender Specific Distribution of College Fields of Study

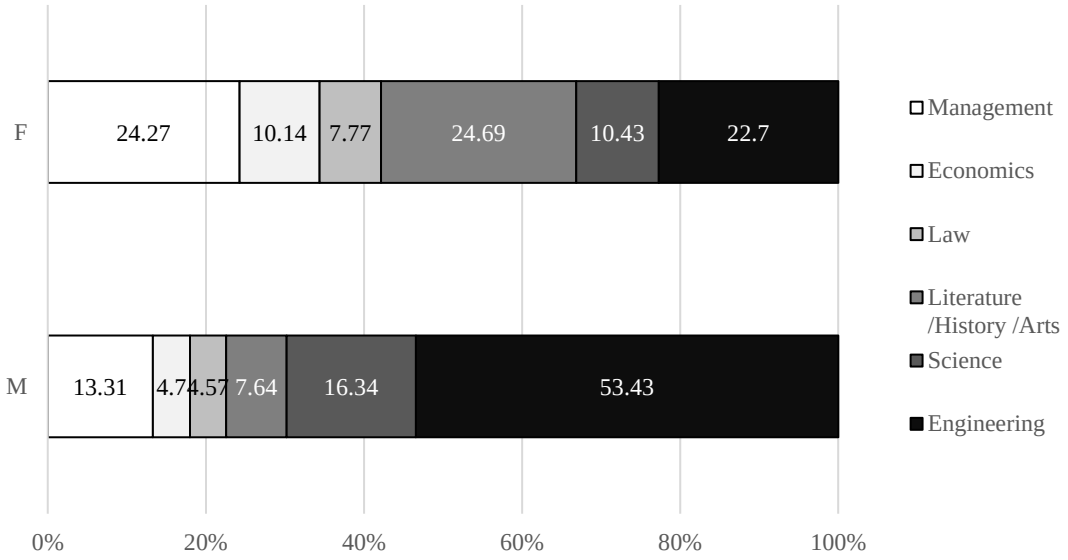


Figure 4. Field-Specific First Occupational Attainment by Gender

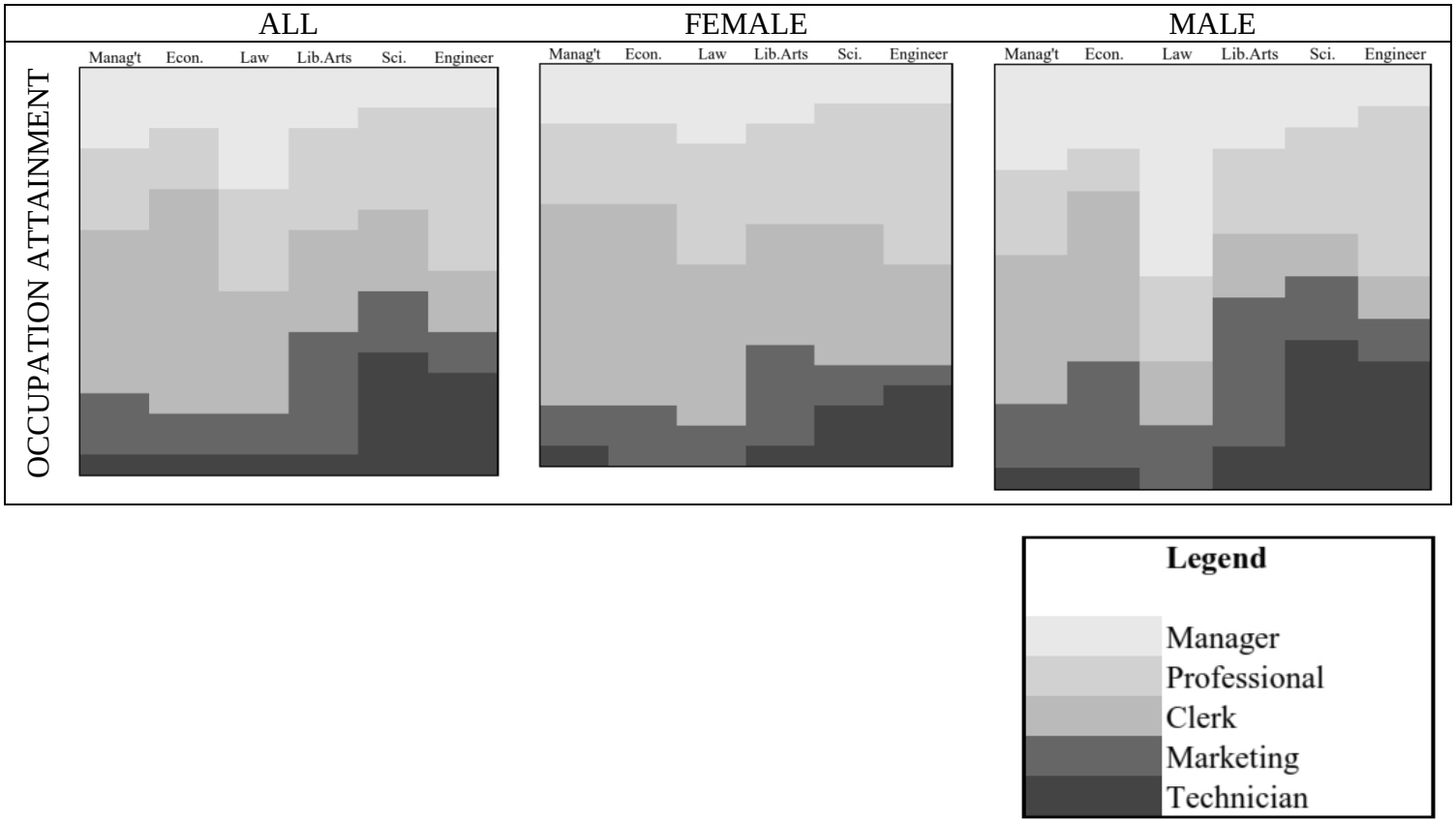
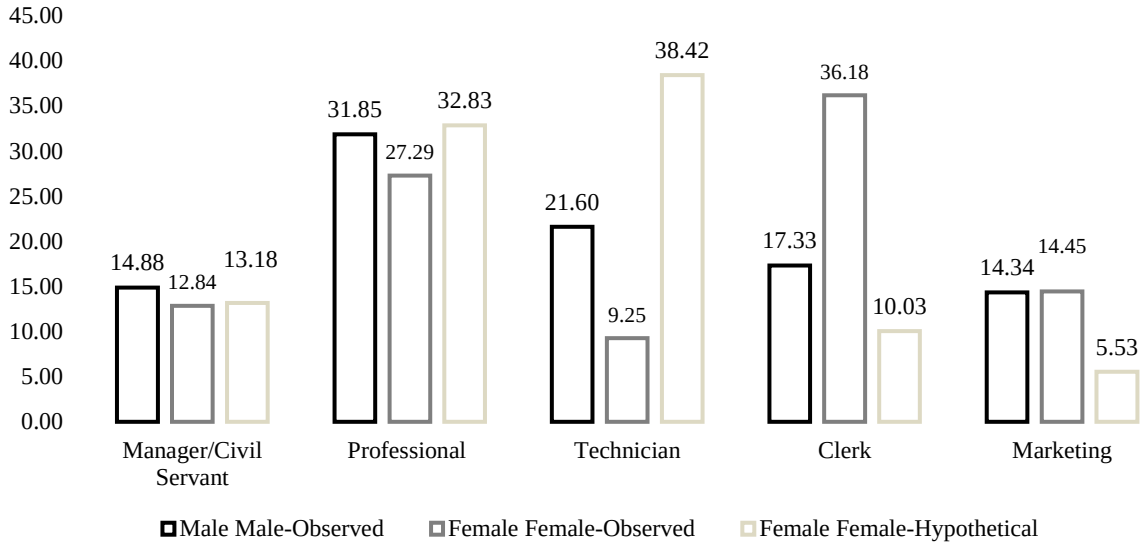
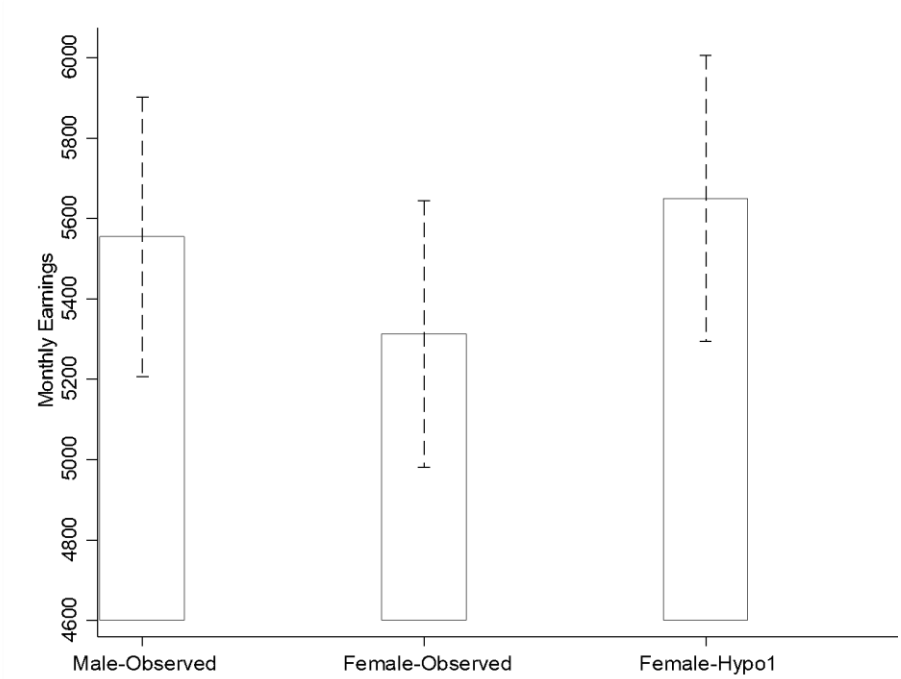


Figure 5. Observed and Simulated First Occupational Attainment



Note： Female-Hypothetical1 takes only Simulated fields of study into account, Female-Hypothetical2 not only takes Simulated fields of study into account.

Figure 6. Predicted Average Wage with Observed and Hypothetical First Occupational Attainment



Note： Female-Hypo1 takes only Simulated fields of study into account.

Tables

Table 1 Descriptive Statistic of Individual Level Selected Variables

	Total	Male	Female	Diff	p-value
Key Independent Variables					
First Occupation					
Manager	13.85	14.88	12.84	2.04	0.164
Professional	29.56	31.85	27.29	4.56	0.019
Clerk	26.81	17.33	36.18	-18.85	0.000
Marketing	14.4	14.34	14.45	-0.11	0.939
Technician	15.39	21.6	9.25	12.35	0.000
Occupation Aspiration					
Manager	47.18	42.87	51.44	-8.75	0.000
Professional	14.37	15.71	13.04	2.67	0.073
Clerk	5.96	4.90	7.01	-2.11	0.001
Marketing	16.54	11.08	21.94	-10.86	0.000
Technician	15.95	25.43	6.56	18.87	0.000
Study Fields %					
Management	23.44	17.51	29.32	-11.81	0.000
Economics	7.32	4.81	9.80	-4.99	0.000
Law	5.51	4.36	6.65	-2.29	0.018
Literature/history/arts	17.25	9.80	24.64	-14.84	0.000
Science	11.38	14.70	8.09	6.61	0.000
Engineering/medicine	35.09	48.82	21.49	27.33	0.000
School Type					
non211	47.61	41.92	53.24	-11.32	0.000
211	33.97	38.84	29.14	9.70	0.328
Peking/Tsinghua/*Renmin* U	18.43	19.24	17.63	1.61	0.224
Other Individual Characteristics					
2008 Entry Cohort%	36.81	30.57	38.04	-7.47	0.224
Rural *Hukou*%	31.98	35.48	28.51	6.97	0.000
Beijing Origin%	37.58	32.12	42.99	-10.87	0.000
Self-Efficacy	29.22	29.78	28.67	1.11	0.000
	(5.05)	(4.97)	(5.06)	(0.21)	
Family Background					
Socio-economic Status	3.26	3.33	3.20	0.13	0.000
	(0.84)	(0.85)	(0.81)	(0.04)	
N	2,213	1,101	1,112		

Note: The numbers in the parentheses are standard deviation.

Table 2. Multinomial Logit Model Predicting First Occupation of College Students

	Manager					Professional				
VARIABLES	I	II	III	IV	V	I	II	III	IV	V
Female	-0.866***	-0.856***	-0.908***	-0.913***	-0.906***	-0.853***	-0.846***	-0.517***	-0.455***	-0.454***
	(0.148)	(0.149)	(0.158)	(0.158)	(0.158)	(0.121)	(0.122)	(0.131)	(0.134)	(0.134)
Study Fields(ref: Literature/History/Arts)										
Management			-0.077	-0.068	-0.303			-0.490*	-0.474*	-0.915**
			(0.228)	(0.235)	(0.313)			(0.201)	(0.206)	(0.299)
Economics			-0.359	-0.346	0.542†			-0.970***	-0.926**	-0.156
			(0.297)	(0.306)	(0.314)			(0.279)	(0.286)	(0.302)
Law			0.543†	0.586†	-0.184			-0.06	-0.144	0.126
			(0.294)	(0.301)	(0.582)			(0.291)	(0.294)	(0.507)
Science			-0.009	0.088	-0.409			0.389	0.212	0.649†
			(0.302)	(0.318)	(0.406)			(0.250)	(0.260)	(0.344)
Engineering			-0.316	-0.239	0.0262			0.879***	0.702***	-0.447†
			(0.252)	(0.258)	(0.288)			(0.196)	(0.203)	(0.255)
School Type	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Occup. Expect.	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Prob[Missing]	No	No	No	No	Yes	No	No	No	No	Yes
Observations	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213
Log-Likelihood	-3,299	-3,270	-3,079	-2,999	-2,997	-3,299	-3,270	-3,079	-2,999	-2,997
Chi2	264.6	310.1	19,808	19,195	19117	264.6	310.1	19,808	19,195	19,117

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Robust standard errors in parentheses. In the Model, the reference category of dependent variable is office clerk. Other controls include whether cohort 2008, graduate education, rural *hukou*, Beijing origin, family SES, and self-efficacy.

Table 2. (Cont'd)

	Marketing					Technician				
VARIABLES	I	II	III	IV	V	I	II	III	IV	V
Female	-0.690***	-0.677***	-0.864***	-0.962***	-0.939***	-1.513***	-1.519***	-0.965***	-0.798***	-0.788***
	(0.145)	(0.146)	(0.158)	(0.161)	(0.161)	(0.148)	(0.150)	(0.163)	(0.170)	(0.170)
Study Fields(ref: Literature/History/Arts)										
Management			-0.077	-0.068	-0.303			-0.490*	-0.474*	-0.915**
			(0.228)	(0.235)	(0.313)			(0.201)	(0.206)	(0.299)
Economics			-0.359	-0.346	0.542†			-0.970***	-0.926**	-0.156
			(0.297)	(0.306)	(0.314)			(0.279)	(0.286)	(0.302)
Law			0.543†	0.586†	-0.184			-0.06	-0.144	0.126
			(0.294)	(0.301)	(0.582)			(0.291)	(0.294)	(0.507)
Science			-0.009	0.088	-0.409			0.389	0.212	0.649†
			(0.302)	(0.318)	(0.406)			(0.250)	(0.260)	(0.344)
Engineering			-0.316	-0.239	0.026			0.879***	0.702***	-0.447†
			(0.252)	(0.258)	(0.288)			(0.196)	(0.203)	(0.255)
School Type	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Occup. Expect.	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Prob[Missing]	No	No	No	No	Yes	No	No	No	No	Yes
Observations	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213	2,213
Log-Likelihood	-3299	-3270	-3079	-2999	-2997	-3299	-3270	-3079	-2999	-2997
Chi2	264.6	310.1	19808	19195	19117	264.6	310.1	19808	19195	19117

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Robust standard errors in parentheses. In the Model, the reference category of dependent variable is office clerk. Other controls include whether cohort 2008, whether received graduate education, rural *hukou*, Beijing origin, family SES, and self-efficacy.

Table 3. The Moderation Effect of Gender Ideology

	No Interaction				Interaction			
VARIABLES	Man.	Prof.	Market.	Tech.	Man.	Prof.	Market.	Tech.
Composite Gender Ideology Index								
Female	-0.850***	-0.511***	-1.052***	-0.797***	0.402	0.288	-0.102	-0.545
	(0.169)	(0.147)	(0.177)	(0.184)	(0.393)	(0.309)	(0.369)	(0.392)
Ideology	0.239	-0.408	-1.117**	-0.22	2.045**	0.845	0.352	0.452
	(0.416)	(0.344)	(0.427)	(0.445)	(0.667)	(0.521)	(0.647)	(0.609)
Female#Ideology					-3.069***	-1.970**	-2.409**	-0.54
					(0.856)	(0.694)	(0.859)	(0.887)
Men are career oriented, while women are family oriented								
Female	-0.910***	-0.495***	-1.008***	-0.808***	-0.179	0.182	-0.174	-0.355
	(0.167)	(0.144)	(0.173)	(0.179)	(0.485)	(0.389)	(0.470)	(0.478)
Ideology	-0.055	-0.066	-0.173*	-0.079	0.095	0.076	-0.001	0.029
	(0.074)	(0.061)	(0.072)	(0.075)	(0.113)	(0.089)	(0.115)	(0.102)
Female#Ideology					-0.236	-0.219†	-0.275†	-0.143
					(0.149)	(0.121)	(0.147)	(0.149)
Men are more capable than women								
Female	-0.841***	-0.459**	-1.001***	-0.771***	0.883*	0.661†	0.151	-0.375
	(0.166)	(0.144)	(0.174)	(0.179)	(0.432)	(0.339)	(0.403)	(0.417)
Ideology	0.070	0.006	-0.161*	-0.005	0.451***	0.276**	0.118	0.151
	(0.073)	(0.059)	(0.073)	(0.073)	(0.114)	(0.089)	(0.108)	(0.100)
Female#Ideology					-0.657***	-0.428***	-0.448**	-0.147
					(0.150)	(0.120)	(0.148)	(0.146)

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Robust standard errors in parentheses. In the Model, the reference category of dependent variable is office clerk. Other controls include college major, school type, occupational expectation, whether cohort 2008, whether received graduate education, rural *hukou*, Beijing origin, family SES, self-efficacy and probability of missing.

Table 3. (Cont'd)

	No Interaction				Interaction			
VARIABLES	Man.	Prof.	Market.	Tech.	Man.	Prof.	Market.	Tech.
For women, marriage is more important than their own career.								
Female	-0.876***	-0.469***	-0.932***	-0.765***	-0.267	-0.44	0.268	-0.678
	(0.163)	(0.140)	(0.167)	(0.175)	(0.436)	(0.356)	(0.424)	(0.458)
Ideology	0.020	-0.056	-0.078	0.030	0.138	-0.036	0.149	0.068
	(0.069)	(0.057)	(0.068)	(0.069)	(0.103)	(0.083)	(0.103)	(0.093)
Female#Ideology					-0.206	-0.006	-0.414**	-0.029
					(0.137)	(0.113)	(0.136)	(0.142)
In economic recession, women should be fired first.								
Female	-0.845***	-0.547***	-1.010***	-0.811***	-0.431	-0.0589	-0.972**	-1.044**
	(0.169)	(0.145)	(0.175)	(0.184)	(0.361)	(0.307)	(0.357)	(0.367)
Ideology	0.056	-0.146*	-0.163†	-0.071	0.158	-0.026	-0.145	-0.082
	(0.079)	(0.069)	(0.085)	(0.084)	(0.112)	(0.098)	(0.118)	(0.109)
Female#Ideology					-0.210	-0.265+	-0.009	0.137
					(0.162)	(0.143)	(0.169)	(0.168)
Husband and wife should not share equal housework.								
Female	-0.861***	-0.499***	-0.915***	-0.776***	-0.625	-0.39	-0.518	-0.611
	(0.170)	(0.145)	(0.171)	(0.181)	(0.404)	(0.336)	(0.398)	(0.408)
Ideology	0.032	-0.065	0.008	-0.016	0.089	-0.033	0.098	0.026
	(0.078)	(0.066)	(0.077)	(0.079)	(0.110)	(0.095)	(0.111)	(0.104)
Female#Ideology					-0.099	-0.044	-0.169	-0.070
					(0.154)	(0.133)	(0.153)	(0.162)

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Robust standard errors in parentheses. In the Model, the reference category of dependent variable is office clerk. Other controls include college major, school type, occupational expectation, whether cohort 2008, whether received graduate education, rural *hukou*, Beijing origin, family SES, self-efficacy and probability of missing.

Appendix

Appendix I. Descriptive Statistic of Individual Level Selected Variables

	Total	Male	Female	Diff	p-value
Study Fields %					
Management	7.08	4.66	9.76	-5.1	0.000
Economics	6.3	4.94	7.81	-2.87	0.000
Law	16.88	8.71	25.91	-17.2	0.000
Literature /History /Arts	14.04	17.38	10.34	7.04	0.000
Science	37.58	51.47	22.23	29.24	0.000
Engineering	18.12	12.85	23.96	-11.11	0.000
School Type					
non211	35.43	30.47	40.91	-10.44	0.000
211	35.36	39.18	31.14	8.04	0.000
Peking/Tsinghua/*Renmin* U	29.21	30.35	27.95	2.4	0.070
Other Demographic Characteristics					
Rural *Hukou*%	26.7	30.83	22.14	22.14	0.000
Beijing Origin%	28.58	24.01	33.63	33.63	0.000
Self-efficacy	0.03	0.11	-0.05	0.16	0.000
2008 Entry Cohort%	51.82	52.15	51.46	51.46	0.638
CEE score	580.96	589.98	571.24	18.73	0.000
	(1.12)	(1.53)	(1.63)	(2.23)	
Math score	128.54	133.54	123.15	10.39	0.000
	(1.16	(1.83)	(1.37)	(2.32)	
Family Socio-economic Status	3.14	3.22	3.06	0.15	0.000
	(0.83)	(0.85)	(0.81)	(0.02)	
Family Cultural Capital	0.66	0.63	0.70	-0.08	0.000
	(0.28)	(0.01)	(0.01)	(0.01)	
N	4,745	2,491	2,254	4,745	4,745

Note: The numbers in the parentheses are standard deviation.

Appendix IIa. Multinomial Logit Model Predicting College Study Fields by Gender, Full Sample

VARIABLES	Man.	Econ.	Law	Science	Engineering
Individual					
Female	-0.651***	-0.357*	-0.597***	-1.586***	-2.005***
	(0.122)	(0.155)	(0.159)	(0.128)	(0.110)
Cohort08	-0.225*	0.194	0.131	-0.206+	-0.024
	(0.112)	(0.144)	(0.151)	(0.120)	(0.102)
Rural *Hukou*	0.158	0.350+	0.0461	0.109	0.223
	(0.158)	(0.201)	(0.220)	(0.168)	(0.143)
Beijing Origin	1.133***	0.974***	0.767***	0.793***	0.709***
	(0.144)	(0.181)	(0.198)	(0.163)	(0.141)
Math score	3.780**	4.629***	3.527*	1.497	2.067
	(1.315)	(1.363)	(1.502)	(1.413)	(1.272)
Total CEE score	9.914***	14.20***	3.055*	12.45***	16.048***
	(1.291)	(1.739)	(1.412)	(1.415)	(1.218)
Self-Administered Admission	-0.854***	-0.503*	-0.142	-0.0863	-0.267
	(0.211)	(0.239)	(0.215)	(0.194)	(0.173)
Self-Efficacy	0.167*	0.152+	0.102	0.091	0.049
	(0.067)	(0.086)	(0.089)	(0.072)	(0.061)
School (ref: non-211)					
211 university	-1.400***	-0.839***	-0.311	-0.0657	0.130
	(0.162)	(0.211)	(0.233)	(0.166)	(0.137)
Peking U/Tsinghua U/*Renmin* U	-0.706***	-0.155	1.037***	-0.238	-1.177***
	(0.183)	(0.234)	(0.237)	(0.206)	(0.180)
Family Background					
Socio-economic Status	0.004	0.114	-0.003	-0.038	-0.006
	(0.079)	(0.101)	(0.106)	(0.084)	(0.072)
Family Cultural Capital	-0.390	-0.373	-0.609	-1.162***	-0.922***
	(0.287)	(0.368)	(0.389)	(0.300)	(0.257)
Constant	-5.358***	-10.16***	-2.982**	-5.319***	-7.604***
	(0.833)	(1.138)	(0.947)	(0.905)	(0.776)
Observations	4382	4382	4382	4382	4382
ll	-6179	-6179	-6179	-6179	-6179
chi2	1704	1704	1704	1704	1704

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Standard errors are in parentheses. Reference category is literature/ history/arts. The CEE raw scores cannot be directly taken as a control as because the exam and cut-off score vary substantially across provinces. To make it comparable, we adopt the strategy from Han and Li (2009) and use the CET percentile within each province instead..

Appendix IIb. Multinomial Logit Model Predicting College Study Fields by Gender, Female Sample

VARIABLES	Man.	Econ.	Law	Science	Engineering
Individual					
Cohort08	-0.174	0.210	0.067	-0.130	-0.065
	(0.134)	(0.173)	(0.188)	(0.167)	(0.134)
Rural *Hukou*	0.253	0.564*	0.318	0.004	0.251
	(0.195)	(0.247)	(0.284)	(0.248)	(0.192)
Beijing Origin	1.184***	1.141***	1.050***	1.090***	1.028***
	(0.171)	(0.216)	(0.238)	(0.220)	(0.183)
Self-Administered Admission	-0.571*	-0.395	0.058	-0.066	-0.103
	(0.266)	(0.304)	(0.279)	(0.276)	(0.248)
Math score	2.287	3.298*	0.009	0.401	1.172
	(1.461)	(1.531)	(2.267)	(1.897)	(1.501)
Total CEE score	9.580***	12.72***	8.029***	9.603***	12.75***
	(1.598)	(2.079)	(2.108)	(1.965)	(1.673)
Self-Efficacy	0.061	0.211*	0.135	0.180+	0.048
	(0.080)	(0.103)	(0.111)	(0.099)	(0.080)
School (ref: non-211)					
211 university	-1.234***	-0.677**	-0.384	0.271	0.541**
	(0.192)	(0.252)	(0.295)	(0.236)	(0.178)
Peking U/Tsinghua U/*Renmin* U	-0.596**	0.100	0.958**	0.560*	-0.632**
	(0.218)	(0.274)	(0.296)	(0.278)	(0.243)
Family Background					
Socio-economic Status	0.043	0.088	0.056	-0.018	0.026
	(0.098)	(0.123)	(0.136)	(0.120)	(0.097)
Family Cultural Capital	-0.362	-0.351	-0.429	-1.425**	-1.210***
	(0.356)	(0.459)	(0.515)	(0.435)	(0.346)
Constant	-5.899***	-9.598***	-6.605***	-6.236***	-7.700***
	(1.050)	(1.380)	(1.394)	(1.285)	(1.094)
Observations	2,109	2,109	2,109	2,109	2,109
Log-Likelihood	-3290	-3290	-3290	-3290	-3290
Chi-Square	558.2	558.2	558.2	558.2	558.2

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Standard errors are in parentheses. Reference category is literature/ history/arts. The CEE raw scores cannot be directly taken as a control as because the exam and cut-off score vary substantially across provinces. To make it comparable, we adopt the strategy from Han and Li (2009) and use the CET percentile within each province instead.

Appendix IIc. Multinomial Logit Model Predicting College Study Fields by Gender, Male Sample

VARIABLES	Man.	Econ.	Law	Science	Engineering
Individual					
Cohort08	-0.202	0.222	0.305	-0.168	0.153
	(0.207)	(0.263)	(0.262)	(0.197)	(0.178)
Rural *Hukou*	-0.050	-0.119	-0.330	0.009	0.062
	(0.279)	(0.353)	(0.358)	(0.264)	(0.239)
Beijing Origin	0.705*	0.363	-0.047	0.111	0.026
	(0.277)	(0.346)	(0.369)	(0.277)	(0.253)
Self-Administered Admission	-1.273***	-0.723+	-0.491	-0.241	-0.515*
	(0.347)	(0.388)	(0.345)	(0.284)	(0.256)
Math score	10.52*	11.05*	11.20*	7.853+	8.481+
	(4.745)	(4.778)	(4.791)	(4.756)	(4.702)
Total CEE score	10.65***	17.72***	-1.410	15.89***	19.37***
	(2.410)	(3.293)	(2.105)	(2.396)	(2.161)
Self-Efficacy	0.374**	0.042	0.099	0.068	0.093
	(0.125)	(0.159)	(0.155)	(0.120)	(0.109)
School (ref: non-211)					
211 university	-2.042***	-1.440***	-0.605	-0.853**	-0.663*
	(0.318)	(0.409)	(0.407)	(0.289)	(0.262)
Peking U/Tsinghua U/*Renmin* U	-1.314***	-0.992*	0.698	-1.465***	-2.208***
	(0.355)	(0.463)	(0.427)	(0.354)	(0.323)
Family Background					
Socio-economic Status	-0.087	0.144	-0.101	-0.102	-0.071
	(0.138)	(0.176)	(0.173)	(0.131)	(0.119)
Family Cultural Capital	-0.421	-0.435	-0.691	-0.968*	-0.706+
	(0.499)	(0.631)	(0.619)	(0.470)	(0.425)
Constant	-5.792***	-12.44***	-0.378	-8.212***	-9.616***
	(1.373)	(1.992)	(1.241)	(1.351)	(1.182)
Observations	2,273	2,273	2,273	2,273	2,273
Log-Likelihood	-2840	-2840	-2840	-2840	-2840
Chi-Square	595.9	595.9	595.9	595.9	595.9

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Standard errors are in parentheses. Reference category is literature/ history/arts. The CEE raw scores cannot be directly taken as a control as because the exam and cut-off score vary substantially across provinces. To make it comparable, we adopt the strategy from Han and Li (2009) and use the CET percentile within each province instead. ** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Standard errors are in parentheses. Reference category is literature/ history/arts. The CEE raw scores cannot be directly taken as a control as because the exam and cut-off score vary substantially across provinces. To make it comparable, we adopt the strategy from Han and Li (2009) and use the CET percentile within each province instead.

Appendix III. Observed and Simulated College Study Fields of Women

	Female	
	Observed	Hypothetical
Management	24.27	15.48
Economics	10.14	4.80
Law	7.77	5.13
Literature/History/Art	24.69	8.98
Science	10.43	16.02
Engineering	22.70	49.59
Total	100.00	100.00

Note: Simulated percentage is calculated using the regression equation of opposite sex.

Appendix IV. Multinomial Logit Model Predicting First Occupation of College Students by Gender

	Female				Male				Diff			
VARIABLES	Man.	Prof.	Tech.	Mar.	Man.	Prof.	Tech.	Mar.	Man.	Prof.	Tech.	Mar.
Major Type (ref: Literature/History/Arts)												
Management	0.132	-0.503*	-0.420	-0.742**	-0.361	-0.462	-1.207*	-1.397***	0.509	-0.002	0.858	0.865†
	(0.301)	(0.241)	(0.397)	(0.272)	(0.405)	(0.405)	(0.538)	(0.396)	(0.514)	(0.483)	(0.677)	(0.492)
Economics	-0.058	-0.924**	-16.33***	-0.749*	-0.800	-1.190*	-1.210	-0.952†	0.753	0.289	-14.27***	0.309
	(0.376)	(0.326)	(0.341)	(0.359)	(0.528)	(0.588)	(0.739)	(0.486)	(0.651)	(0.674)	(0.817)	(0.608)
Law	0.200	-0.218	-16.07***	-1.123*	1.013†	0.035	-14.97***	-0.921	-0.774	-0.160	1.274†	0.230
	(0.427)	(0.346)	(0.381)	(0.493)	(0.525)	(0.583)	(0.545)	(0.626)	(0.713)	(0.704)	(0.718)	(0.833)
Science	-0.416	-0.142	0.396	-0.416	0.577	0.865†	1.515**	0.208	-0.970	-0.937	-0.985	-0.273
	(0.488)	(0.338)	(0.456)	(0.419)	(0.504)	(0.459)	(0.520)	(0.471)	(0.734)	(0.590)	(0.716)	(0.657)
Engineering	-0.176	0.444†	1.189***	-1.097**	-0.240	1.003**	1.091*	-0.807*	0.109	-0.443	0.310	0.252
	(0.357)	(0.255)	(0.358)	(0.346)	(0.412)	(0.373)	(0.445)	(0.381)	(0.626)	(0.518)	(0.662)	(0.595)
Obs.	1,112	1,112	1,112	1,112	1,101	1,101	1,101	1,101	2,213	2,213	2,213	2,213
Log-Likelihood	-1,481	-1481	-1,481	-1,481	-1,465	-1,465	-1,465	-1,465	-2,944	-2,944	-2,944	-2,944
Chi2	15,240	15,240	15,240	15,240	6,498	6,498	6,498	6,498	28,302	28,302	28,302	28,302

Note: *** p<0.001, ** p<0.01, * p<0.05, † p<0.1. Robust standard errors in parentheses. In the Model, the reference category of dependent variable is office clerk. Other controls include school types, occupational aspiration, whether cohort 2008, whether received graduate education, rural *hukou*, Beijing origin, family SES, and self-efficacy.