Chu, Shuai; Zeng, Xiangquan; Zimmermann, Klaus F.

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Parental Gender Stereotypes and Student Wellbeing in China*

Shuai Chu
Xiangquan Zeng
Klaus F. Zimmermann

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Abstract

Non-cognitive abilities are supposed to affect student's educational performance, who are challenged by parental expectations and norms. Parental gender stereotypes are shown to strongly decrease student wellbeing in China. Students are strongly more depressed, feeling blue, unhappy, not enjoying life and sad with no male-female differences while parental education does not matter.

Keywords: Gender identity, gender stereotypes, student wellbeing, non-cognitive abilities, mental health, subjective wellbeing

JEL-Codes: I12, I26, I31, J16

* Corresponding author: **Klaus F. Zimmermann** (klaus.f.zimmermann@gmail.com), UNU-MERIT & Maastricht University, Global Labor Organization (GLO), and Centre for Economic Policy Research (CEPR). Other authors: **Shuai Chu** (chushuai1993@126.com), Renmin University of China and GLO and **Xiangquan Zeng** (zengxq@ruc.edu.cn), Renmin University of China and GLO.

1. Introduction

Whether subjective wellbeing (SWB) is affected by gender is debatable and previous findings in the literature have been inconclusive (Batz and Tay, 2018; Nikolova and Graham, 2020). Studies found stronger or lower effects for females or even no differences when properly controlled for relevant other factors. This may have to do with the observation that the evidence for genetic differences is weak and the observed associations have to be understood in complex and diverse social contexts. This points to the relevance of identities, attitudes, norms and stereotypes, which have been the concern of significant recent literature in economics (Akerlof and Kranton, 2000; Alesina, Giuliano and Nunn, 2013; Carlana, 2019; Bursztyn, González and Yanagizawa-Drott, 2020). Gender stereotypes may cause gender differences in SWB when the generated pressures lead men and women to actually feel and express their emotions differently (Nolen-Hoeksema & Rusting, 2003). Education seems to shape the way how more egalitarian gender role attitudes and behaviors are developing (Du, Xiao and Zhao, 2020).

Our contribution to this debate is to focus on the intergenerational association that *parental gender stereotypes* may show for the SWB of their children and how this transfer is associated to *parental education*. Those stereotypes can associate with SWB even if there are no gender differences. We study the role parental gender stereotypes and parental education have for student SWB in China using the largest national education survey. While we find that parental gender stereotypes are not gender-specific for student wellbeing as well as gender differences are irrelevant in general, they indeed show a strong and lower student wellbeing. Parental stereotypes could undermine girls' self-confidence and make them more prone to anxiety and other mental health issues. For boys, stronger stereotypes may indicate higher expectations and pressures, which also generate negative emotions. Also parental human capital has no association with offspring wellbeing.

2. Data

Data from the 2014 China Education Panel Survey (CEPS), the first and largest national representative education survey, are used. The survey covers middle schools from the 28 counties and city districts using a stratified sampling design, in which four middle schools and four classrooms in each school were selected to represent a given county or urban area. The data were collected in two samples, the *mother sample* (5,364 students) and the *father sample* (5,073 students) with a total

of 10,437 students, among them 5,407 girls. Each sample (father/mother) consists of a student and a parent questionnaire. Students covered are 11 - 18 years old.

The student questionnaires report the following feelings in the last seven days in the range "1 = never", "2 = seldom", "3 = sometimes", "4 = often" and "5 = always": "depressed", "feeling blue", "unhappy", "not enjoying life", and "sad". They cluster around "2 = seldom" and are ranking with respect to misery as "unhappy", "depressed", "sad", "feeling blue" and "not enjoying life" for both mother and father samples. A detailed analysis is provided in Table 1. Girls in both samples have mostly a smaller mean than boys, but the differences are very small. Table 1 (last panel "sample differences") also reveals that the mother and the father sample do not differ according to the provided difference t-tests.

The two key variables we focus our investigation on are parental gender stereotypes and parental education controlling for a larger number of student and parental characteristics. The parent questionnaires contain responses on *"Do you think boys are better at learning mathematics than girls?" (1=yes; 0=no)*. We treat "yes" as parental gender stereotype. Further, we use *"years of schooling"* to measure education of either the father or the mother according to the following rules: "0 = no education", "6 = primary school", "9 = middle school", "12 = high school", "15 = college", "16 = undergraduate", and "19 = graduate". Father and mother samples contain educational information for both father and mother of the student, parental gender stereotype is only available for the parent of the respective sample.

Parental gender stereotypes are somewhat but not markedly different between mothers and fathers. Details can be seen in Table 2 in the first rows of Panel A: Mother sample and Panel B: Father sample: 25.6% of the mothers but only 24.3% of the fathers have the stereotype. This difference disappears if the student is a boy (27.8% for mothers against 27.5% for fathers), but is more marked if the child is a girl (23.8% for mothers against 20.9 for fathers). The stereotype is more present among parents with a male child than with a female child; it is also more present among mothers with a girl than among fathers with a girl. However, the differences between the mother and father samples are small.

Years of schooling is available in both (mother and father) samples, and can be compared for consistency (second and seven rows in both Panels of Table 2). In the mother sample, the mother has 10.1 years of schooling and the father has 10.4 years of schooling; in the father sample, the mother has 8.7 years of schooling and the father has 10.0 years of schooling. The schooling levels appear to be only marginally different for child gender within the four parent groups. Further, occupation (see Table 2) is available for both parents in both (mother and father) samples. Again, the variable means

between fathers (and mothers) in both samples are of similar size. Here, occupation is measured as occupational rank with values "0 = parent has no occupation", "1 = parent engaged in skilled work, general workers in manufacturing or service industries and farmers", "2 = parents engaged as teachers, engineers, doctors, lawyers and with individual business activities", and "3 = parents engaged in leadership or management positions". With respect to "years of schooling" and "occupation", the two samples (mother and father) are very similar.

Non-overlapping further controls for parents in both samples are "age" of the parent, his/her hukou ("1 = yes"), and his/her "health" sorted from 1-5 with "1 = very unhealthy" to "5 = very healthy". This data is only available for fathers in the father sample and for mothers in the mother sample, but may be important for control purposes. Further controls are available and used at the student level. They include "gender" of the student ("1 = girl"; 0 otherwise), hukou ("1 = yes"; 0 otherwise), academic ranking in primary school ("rank number"), "has attended kindergarten" ("1 = yes"; 0 otherwise), "age" in years, "age when starting primary school" in years, and family's "financial situation "0 = receive subsistence allowance at present "; 1 otherwise). In general, when family receive subsistence allowance at present, the financial situation is poor. Descriptive statistics on all these variables are provided in Table 2. The student controls in the two samples have very similar means; the exceptions are gender (55.3% girls in the mother sample against 48.1% in the father sample) and hukou (51.6% in the mother sample against 60.6% in the father sample).

3. Model specification and regression results

The student wellbeing measures Y ("depressed", "feeling blue", "unhappy", "not enjoying life", and "sad") are explained by a set of parental and student characteristics as explained in the previous section and listed in Table 2. Since the focus is on parental gender stereotypes and education, the other variables are just seen as controls and are not further presented and discussed in the sequel. For the analysis the two (father and mother) samples were merged resulting in a full sample size of 6,962 observations where all the variables were observed. The dummy regression specification is developed in a way to allow for direct tests for differences between the two samples and between child gender and their interactions in one regression for each wellbeing measure. The regression specification is:

$$
\begin{aligned}
y = {} & \alpha + a_1 M + a_2 G + a_3 (M \cdot G) + b_1 S + b_2 (S \cdot M) + b_3 (S \cdot G) + c(S \cdot M \cdot G) + \\
& d_1 E_f + d_2 (E_f \cdot M) + d_3 (E_f \cdot G) + d_4 (E_f \cdot M \cdot G) + d_5 E_m + d_6 (E_m \cdot M) + \\
& d_7 (E_m \cdot G) + d_8 (E_f \cdot M \cdot G) + e_1 X + e_2 (X \cdot M) + e_3 (X \cdot G) + e_4 (X \cdot M \cdot G) + \\
& g_1 Z + g_2 (Z \cdot M) + g_3 (Z \cdot G) + g_4 (Z \cdot M \cdot G) + \varepsilon
\end{aligned}
\tag{1}
$$

M and G are (0,1) - dummies where M stands for mother sample and G for girl student; S are parental gender stereotypes (either mother or father where available), E_f and E_m are father and mother years of schooling; further as controls: X are other parental characteristics and Z are other student characteristics. α is the intercept, and ε is the error term.

Results for the five measures of wellbeing are presented in Table 3. The parameter estimates for M, G, and M*G are all insignificant with the exception of M*G for "sad", implying no overall average differences between the father and the mother samples, and with respect to gender differences among the students. Only girls in the mother sample feel on average statistically significantly more sad. Education of both parents (E_f and E_m) have no impact on child wellbeing; this is a very robust finding. Not only the direct overall effect parameters of E_f and E_m are not statistically different from zero, there are also no significant differences across the examined subgroups. These observations and exceptions are worth mentioning: The estimated direct common parameters for E_m (mother's education) for boys and girls are all negative (besides for "feeling blue") and significantly negative at the 10% level for "sad". E_m has also a strong and statistically significant negative effect on "feeling blue" among girls. Hence, mother's education has some positive elements for student wellbeing.

The key issue of the study is the expected effect of parent gender stereotype for student-kid wellbeing. In principle, the effects could be gender-different among kids and for both parents. Table 3 allows for a direct test of all these potential differences. The results for the Chinese families the research reveals is surprising simple, sizable, statistically significant and robust: There is only one parental stereotype effect that disapproves all five wellbeing measures in a similar range from strongest for "unhappy" (0.535) to "feeling blue" (0.495),"depressed" (0.444),"not enjoying life" (0.437), and to the smallest "sad" (0.391). In general, there are no parental differences or student gender differences. The only exception is a statistically significant negative parameter estimate for girls in the mother sample indicating a smaller wellbeing damage for this student subgroup.

4. Conclusions

Using a large sample for 2014 from the well established China Education Panel Survey, our study investigates the intergenerational association between parental education and gender stereotypes for non-cognitive abilities of the 11 - 18 years old students. Wellbeing measures collected on a 5 level intensity scale cover the well-defined items "depressed", "feeling blue", "unhappy", "not enjoying life", and "sad". Parental gender stereotypes are shown to strongly decrease student wellbeing in China, but with no relevant gender differences between parents and students. Also parental human capital has no stabilizing effects for offspring wellbeing.

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Table 1 Descriptive statistics of student well-being

Well-being	Mother sample			Father sample			Sample differences		
	Full sample	Girl	Boy	Full sample	Girl	Boy	Full sample	Girl	Boy
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Depressed	2.483	2.506	2.454	2.468	2.505	2.434	-0.014	-0.001	-0.02
	(0.937)	(0.902)	(0.979)	(0.966)	(0.913)	(1.012)	(-0.777)	(-0.04)	(-0.708)
Blue	2.215	2.165	2.278	2.236	2.158	2.309	0.021	-0.006	0.031
	(1.045)	(1.021)	(1.071)	(1.068)	(1.040)	(1.088)	(1.017)	(-0.217)	(1.003)
Unhappy	2.534	2.518	2.554	2.553	2.555	2.551	0.018	0.037	-0.004
	(0.979)	(0.939)	(1.027)	(1.012)	(0.984)	(1.038)	(0.946)	(1.407)	(-0.125)
Not enjoy. life	1.940	1.871	2.026	1.974	1.880	2.061	0.033	0.008	0.035
	(1.108)	(1.058)	(1.162)	(1.136)	(1.086)	(1.175)	(1.513)	(0.289)	(1.060)
Sad	2.267	2.259	2.278	2.293	2.281	2.305	0.026	0.022	0.027
	(1.011)	(0.974)	(1.055)	(1.041)	(1.007)	(1.071)	(1.294)	(0.823)	(0.893)
Count	5,364	2,965	2,399	5,073	2,442	2,631	10,437	5,407	5,030

Note. (1) To measure students' well-being, we use student responses to questionnaire items. Specifically, five questions asked students about the frequency of the following feelings during the previous 7 days on a scale from 1 (never) to 5 (always): (a) depressed, (b) blue, (c) unhappy, (d) not enjoying life,or (e) sad. (2) This table reports the summary statistics and the difference between the mother sample and father sample in students' well-being. In columns 1 to 6, the numbers indicate the mean of the variables, and the numbers in parentheses indicate the standard deviation of the variables. In columns 7 to 9, numbers are differences of variables between both parent samples, and the numbers in parentheses are t-statistics.

Table 2 Descriptive statistics of independent variables and control variables

		Full sample		Girl		Boy	
		Count	Mean/(SD)	Count	Mean/(SD)	Count	Mean/(SD)
Panel A: Mother sample							
Parent mother	Stereotype	5,338	0.256 /(0.437)	2,954	0.238 /(0.426)	2,384	0.278 /(0.448)
	Years of schooling	5,359	10.072 /(3.275)	2,962	9.990 /(3.239)	2,397	10.173/(3.318)
	Age	4,574	39.511 /(4.076)	2,555	39.430 /(4.008)	2,019	39.614/(4.159)
	Hukou	5,137	0.458 /(0.498)	2,860	0.435 /(0.496)	2,277	0.487 /(0.500)
	Health	5,210	3.814 /(0.908)	2,893	3.832 /(0.905)	2,317	3.792 /(0.912)
	Occupation	5,039	1.333 /(0.800)	2,775	1.321 /(0.796)	2,264	1.348 /(0.805)
Parent father	Years of schooling	5,359	10.414 /(3.162)	2,962	10.386 /(3.084)	2,397	10.449 /(3.256)
	Occupation	5,007	1.509 /(0.771)	2,763	1.485 /(0.746)	2,244	1.538 /(0.801)
Individual students	Girl	5,364	0.553 /(0.497)	2,965	--	2,399	--
	Academic ranking in primary school	5,018	15.837 /(11.864)	2,775	14.116 /(11.007)	2,243	17.966 /(12.525)
	Hukou	5,364	0.516 /(0.500)	2,965	0.530 /(0.499)	2,399	0.499 /(0.500)
	Age	5,266	13.812 /(1.265)	2,927	13.789 /(1.284)	2,339	13.840 /(1.240)
	Attend kindergarten	5,321	0.818 /(0.386)	2,953	0.826 /(0.380)	2,368	0.809 /(0.393)
	Age when starting primary school	5,308	6.512 /(0.939)	2,940	6.512 /(0.916)	2,368	6.512 /(0.967)
	Family's financial situation	5,188	0.914 /(0.280)	2,868	0.917 /(0.276)	2,320	0.911 /(0.285)
Panel B: Father sample							
Parent father	Stereotype	5,042	0.243/(0.429)	2,434	0.209/(0.407)	2,608	0.275/(0.446)
	Years of schooling	5,070	10.015/(2.964)	2,440	10.065/(2.944)	2,630	9.968/(2.982)
	Age	4,169	41.291/(4.723)	2,093	41.312/(4.739)	2,076	41.27/(4.708)
	Hukou	4,807	0.376/(0.484)	2,334	0.387/(0.487)	2,473	0.366/(0.482)
	Health	4,913	3.825/(0.938)	2,404	3.849/(0.937)	2,509	3.802/(0.938)
	Occupation	4,749	1.446/(0.732)	2,280	1.447/(0.710)	2,469	1.445/(0.753)
Parent mother	Years of schooling	5,070	8.729/(3.543)	2,440	8.733/(3.546)	2,630	8.725/(3.541)
	Occupation	4,683	1.264/(0.698)	2,248	1.284/(0.684)	2,435	1.246/(0.710)
Individual students	Girl	5,073	0.481/(0.500)	2,442	--	2,631	--
	Academic ranking in primary school	4,662	16.362/(11.936)	2,221	14.457/(11.094)	2,441	18.095/(12.405)
	Hukou	5,073	0.606/(0.489)	2,442	0.598/(0.490)	2,631	0.614/(0.487)
	Age	4,968	14.063/(1.380)	2,405	14.000/(1.372)	2,563	14.121/(1.385)
	Attend kindergarten	5,038	0.772/(0.420)	2,432	0.782/(0.413)	2,606	0.762/(0.426)
	Age when starting primary school	5,009	6.488/(0.967)	2,420	6.512/(0.928)	2,589	6.465/(1.002)
	Family's financial situation	4,871	0.886/(0.318)	2,366	0.893/(0.309)	2,505	0.878/(0.327)

Note. (1) "Parent's stereotype" is 1 if the answer of mother or father is "Yes" when asked: "Do you think boys are better at learning mathematics than girls?". (2) We use years of schooling to represent the education of either the father or the mother, defined according to the following rules: no education = 0; primary school = 6; middle school = 9; high school = 12; college = 15; undergraduate = 16; graduate = 19. (3) Age indicate age of the student and the student's father or mother. (4) When the student individual or the student's father or mother has an agricultural household registration, Hukou=1; otherwise, Hukou=0. (5) Health is sorted from 1-5, 1=very unhealthy, 5=very healthy. (6) We define Occupation=0 if parent has no occupation; Occupation=1 if parents engaged in skilled workers, general workers in manufacturing or service industries and farmers; Occupation=2 if parents engaged in teachers, engineers, doctors, lawyers and individual business activities; Occupation=3 if parents engaged in leadership or management positions. (7) The variable "Girl" indicates the gender of the student. (8) Academic ranking in primary school reflects the relative ranking of students' academic performance in their classes when they are in primary school. If the score is the best, the value is 1. The higher the value, the worse the students' academic performance in primary school. (9) Student who have attended kindergarten, Attend kindergarten=1; otherwise, Attend kindergarten=0. (10) Age when starting primary school reflects the age at which students enter primary school. (11) If the family do not receive subsistence allowance at present, then family's financial situation=1; otherwise=0.

Table 3   Regression results

	Depressed (1)	Blue (2)	Unhappy (3)	Not enjoying life (4)	Sad (5)
Mother	-0.322	-0.698	-1.094	0.018	-0.609
	(0.626)	(0.857)	(0.667)	(0.683)	(0.536)
Girl	-0.381	-0.150	-0.408	0.234	-0.913
	(0.732)	(0.590)	(0.712)	(0.800)	(0.698)
Mother * Girl	1.059	0.985	1.467	-0.053	2.194**
	(1.028)	(1.002)	(1.014)	(1.081)	(0.873)
Stereotypes	0.434***	0.518***	0.548***	0.466***	0.401***
	(0.061)	(0.064)	(0.055)	(0.076)	(0.044)
Stereotypes * Mother	-0.007	-0.083	-0.063	-0.116	0.013
	(0.074)	(0.090)	(0.066)	(0.082)	(0.061)
Stereotypes * Girl	0.086	0.103	-0.061	0.137	0.026
	(0.083)	(0.081)	(0.082)	(0.096)	(0.082)
Stereotypes * Mother * Girl	-0.101	-0.100	0.006	-0.191**	-0.072
	(0.098)	(0.109)	(0.097)	(0.093)	(0.097)
E_f	0.006	-0.001	-0.001	0.010	0.008
	(0.014)	(0.010)	(0.012)	(0.015)	(0.013)
E_f * Mother	0.004	-0.006	0.007	-0.019	-0.014
	(0.016)	(0.015)	(0.015)	(0.020)	(0.018)
E_f * Girl	-0.018	0.007	-0.007	-0.014	-0.010
	(0.020)	(0.015)	(0.018)	(0.020)	(0.019)
E_f * Mother * Girl	0.023	0.025	-0.008	0.021	-0.003
	(0.024)	(0.021)	(0.022)	(0.023)	(0.025)
E_m	-0.004	0.002	-0.002	-0.003	-0.016*
	(0.007)	(0.008)	(0.010)	(0.011)	(0.009)
E_m*Mother	0.000	0.002	-0.005	0.017	0.013
	(0.012)	(0.017)	(0.015)	(0.017)	(0.014)
E_m * Girl	0.008	-0.017**	-0.004	0.003	0.012
	(0.009)	(0.008)	(0.014)	(0.015)	(0.011)
E_m * Mother * Girl	-0.009	-0.005	0.009	-0.012	-0.008
	(0.014)	(0.015)	(0.020)	(0.018)	(0.017)
Constant	2.063***	1.806***	2.785***	1.360**	2.544***
	(0.452)	(0.491)	(0.443)	(0.506)	(0.417)
R^2	0.069	0.073	0.069	0.053	0.057

Note. This table reports OLS estimations of eq (1). Number of observations = 6,962. Standard errors are robust and clustered at the district level, the number of clusters is 28. ***$p<0.01$; **$p<0.05$; *$p<0.1$. All regressions contain student controls (Academic ranking in primary school; Hukou; Age; Attend kindergarten; Age when starting primary school; Family's financial situation) and parent controls (Parent Age; Parent Hukou; Health; Occupation) properly specified according to eq. (1).