
Gender Differences in Beliefs on the Returns to Effort

Evidence from the World Values Survey

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ABSTRACT

We study gender differences in attitudes in the role of luck versus hard work in achieving success using data from the World Values Survey. Women are consistently more likely to report that success is a matter of luck. We consider several potential explanations: workplace discrimination, religion, household responsibilities, and political alignment. Our results favor explanations based on workplace discrimination and household responsibilities.

I. Introduction

We study gender differences in attitudes in the role of luck versus hard work in achieving success. This is a natural extension of the already large and growing body of work on gender differences in labor market outcomes.¹ Researchers have offered a range of explanations for these differences, such as differential rates of human capital investment, time out of work, and simple discrimination (see, for example, Kunze 2000).

Our contribution is to provide an account for some of the psychological impact that these differential outcomes, which, as we argue below, may further reinforce gaps in earnings and career advancement. Consider, for example, workplace discrimination.

1. These literatures are too vast to survey here. See, for example, Reskin et al (1999) for a survey of the sociology literature, and Altonji and Blank (2000) for a survey of the literature on determinants of the gender wage gap.

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This will obviously attenuate the potential benefits of exerting effort in the workplace. And this may reinforce an equilibrium of female underperformance—if women believe less in the returns to working hard, they may choose to supply less effort.

Our primary contribution is to document a statistically significant and economically large difference between men and women in their beliefs on the returns to effort. Using data from the World Values Survey (WVS), we find a robust gender difference in responses to the question of whether success is a matter of luck or hard work; this difference to hold across time and across countries.

This begs the question of why we might expect women to believe less in the rewards to effort. Here, we suffer from an embarrassment of riches in choosing among candidate explanations. First, if women may believe that childrearing responsibilities will eventually take them out of the workforce, this will reduce the benefits of investing in a career. Alternatively, rigid, traditional societies may force women into careers and vocations with little opportunity for advancement. Women also tend to be more liberal politically, and this alone could account for a more "social" (as opposed to individual) view on the determinants of success. And finally, workplace discrimination might cause women to undersupply effort since these efforts will not be rewarded.

We attempt to evaluate the merits of these possible explanations by examining how the gender gap varies according to various survey respondent and country characteristics. These include measures of religiosity, household demographics, political views, and workplace status. We find that the gender gap in beliefs on the returns to effort is strongly predicted by workforce status, consistent with the gap deriving primarily from workplace concerns. We do not find any evidence that the gap results from religiosity or political views. Limiting the sample to those in the workforce, we find a wider gap for those in supervisory positions, consistent with the well-documented decreasing prevalence of women higher up in the workplace hierarchy (see, for example, Wirth 2001). We additionally find that the gap is greater for those who believe that stay-at-home mothers are important for children, consistent with childrearing roles as an explanation. We also provide some tentative evidence of cross-country differences in the gap as a function of women's potential for advancement—the gap is narrower in countries with strong representation of women in political leadership positions.

Finally, we present some related evidence on a gender gap in the closely connected domain of workplace competition, based on a WVS question that asks subjects whether competition is harmful or beneficial. If success is determined primarily by luck, then the benefit of "tournament"-type competition, which should provide incentives to those who work hard, will be relatively low. Niederle and Vesterlund (2007) have already documented that female subjects in laboratory experiments are much more likely to self-select out of competitive situations than male subjects; our contribution is to show that this shows up in the attitudes of subjects across a much broader sample. Consistent with this earlier work, we find that significantly more women report that competition is harmful. Paralleling our earlier results on success and hard work, we also find that this gender difference is more pronounced among those in supervisory positions. To the best of our knowledge, we are the first to document this pattern in beliefs across a very broad cross-section of individuals.

We note, finally, some of the limitations of our analyses. Our goal here is not to provide a definitive analysis of gender differences in beliefs on the returns to effort or the effect on motivation. We are limited by both our method, which is purely observational, and our source of data, which is based entirely on survey responses. However, the strength of the patterns we observe, and the striking cross-sectional differences in the gap based on workplace characteristics, suggest that this is likely to be an important and useful avenue for future research.

The rest of the paper is structured as follows: In Section I, we provide a description of the main theories that could explain gender differences in beliefs on the returns to effort. Section II describes the data; Section III presents our empirical findings, and Section IV provides a concluding discussion.

II. Theories on a Gender Gap in Beliefs

A. *Workplace discrimination*

Since Becker (1957), economists have studied the role of both statistical and taste-based discrimination in labor markets. The evidence, both direct (as in Goldin and Rouse 2000 and via wage decompositions (see van der Meulen Rodgers and Boyer 2006 for an overview), is suggestive of discrimination in both hiring and wage-setting. If discrimination impedes advancement, returns to effort will of course be lower. In its most extreme form, women may be restricted from entering certain types of economic activities (see Charmlou et al, 2008). We also note that the well-documented "glass ceiling" effect also implies that the extent of discrimination may be greater as one rises in the workplace hierarchy (see Blau and Kahn 2003 and Wirth 2001). This implies that the differential returns to effort may in fact be greater for men and women in more senior positions.

B. *Childrearing*

Fernandez (2007) summarizes the evidence on the crucial role played by childrearing responsibilities and fertility in determining female labor supply decisions. An unexplored corollary of these findings is that women who expect to exit the labor force due to familial obligations may not see the returns to their efforts. Once again, the labor supply decision impacts the actual returns to effort. Labor market interruptions are also a well-documented source of gender wage gaps. Kunze (2002) documents the impact of career interruptions on wages for West German women. In more qualitative work, Hewlett (2005), finds that 44 percent of white collar women in the United States who chose to take break from the labor force did so for family reasons (childcare or eldercare). When these women reentered the workforce, they faced a wage penalty on average of 18 percent throughout the labor market, 28 percent in the business sector.

C. *Religion*

In general, many religious traditions have elements of rigid social hierarchy (see, for example, Inglehart and Norris (2003) for a discussion in the context of modern

religion). But there may further be a gender-specific component—women may be pressured to take care of household duties (as above) discouraged from economic ambitions, and generally be relegated to subordinate roles (see, for example, Franzmann 2000). Hence, women in religious societies or families may see less of a role of hard work in determining success.

D. Political Alignment

As described in, for example, Alesina and Glaeser (2004), those with leftist political associations are more likely to expect that the State can and should take responsibility for individuals' welfare. A direct prediction, as documented by Alesina and Glaeser, is that leftist views will be negatively correlated with beliefs that success is a matter of one's own efforts. The link to gender comes from evidence, within the United States (Edlund and Pande 2002), that women tend to hold more liberal political views. Combining these two pieces of evidence suggests that a link between gender and beliefs on the returns to effort may simply be the result of gender differences in political leanings.

III. Data

Our primary outcome variable is drawn from the World Values Survey (WVS), a survey instrument administered in four waves (1981–84; 1990–93; 1995–97; 2000–2004) in 81 countries, with at least 1,000 survey respondents in each country-wave of data.² The WVS asks questions on a range of social and political themes, and also collects background demographic information on the respondents.³

The survey is conducted by in-country social science researchers using an identical set of questions, translated as closely as possible into the local language. Stratified samples are drawn to ensure appropriate geographical representation. In rural and remote areas of some countries a sample of towns is first drawn and then sampling within the town and households is done. In most countries the survey is administered in-person.

In what follows, the key variable of interest is derived from questions that ask subjects to place their views on various topics on a scale of one to ten. As our measure of beliefs on the returns to effort, we use a question where a value of one reflects the view that "In the long run, hard work usually brings a better life" and ten reflects the view that, "Hard work doesn't generally bring success—it's more a matter of luck and connections." We call this variable *SuccessIsLuck*. This question was asked in surveys conducted in the years 1989–99.

As our main regressor, we code an indicator variable, *Female*, that denotes the gender of the subject. We will also analyze how the relationship between gender and beliefs on the returns to effort varies cross-sectionally according to the theories described in the preceding section. To examine the role of workplace concerns, we

2. Not all countries were surveyed in all years.

3. See www.worldvaluessurvey.org for further details.

construct an indicator variable, *Working*, denoting whether a respondent reports that he or she is currently employed. To measure the respondent's place in the workplace hierarchy, we define an indicator variable, *Supervisor*, which denotes survey respondents who reported under occupation as being: (a) Employer/manager; (b) supervisor and foreman; or (c) supervisory office worker.

To examine the role of household obligations, we use the WVS question of whether the respondent agrees with the statement, "A pre-school child is likely to suffer if his or her mother works." Subjects may express strong or weak agreement or disagreement. To make interpretation more straightforward, we recode the original variable to take on values in the range zero (strongly disagree) to one (strongly agree). We call this variable *HomeMother*.

We measure the strength of religious beliefs using self-reported active membership in a religious organization; we code this as an indicator variable, *Religious*. (We obtain very similar results using self-reports on the importance of religion in respondents' lives.) To capture political views, we use the self-ratings of subjects on the political spectrum ranging from one ("Left") to ten ("Right"). We call this variable *Ideology*.

We will also utilize the survey question that asks respondents to give their views on competition, where one reflects the view that "Competition is good. It stimulates people to work hard and develop new ideas" and ten reflects the view that "Competition is harmful. It brings out the worst in people." We call this variable *CompetitionIsBad*.

At the country level, we generate a pair of measures designed to capture opportunities for women in the workplace. First, using data on labor force participation (LFP) from the World Development Indicators, we calculate the difference between men and women in LFP rates for the years 1989–99, and take country-level averages. Of course, participation is very different from advancement. As a cross-country measure of the scope for female advancement in the workforce, we use the fraction of national parliamentarians that are female (*PercentFemaleParliament*). We take an average of the female representation rates in the lower and upper houses if there are multiple levels of national representation. These data are only available from 1997 onward, and we use the average for all available dates during 1997–99.

We also include basic individual and country controls. To account for income we use the respondent's self-reported household income decile (*Income*), and to control for education (*Education*), we use the WVS categories, ranging from one ("no formal education") to eight ("university-level education, with degree"). As a country-level measure of income and general economic development, we use the logarithm of GDP per capita in U. S. dollars (Source: World Development Indicators) averaged over the years 1989–99. We also use the United Nations regions code data⁴ to control for regional differences.

To construct our sample, we include data from all surveys where the *SuccessIsLuck* question was asked, and limit ourselves to observations where it was answered. We show the distribution of responses to this question by gender in Figure 1a. Responses are clearly skewed to the left (success is the result of hard

4. Available at <http://unstats.un.org/unsd/methods/m49/m49regin.htm>.

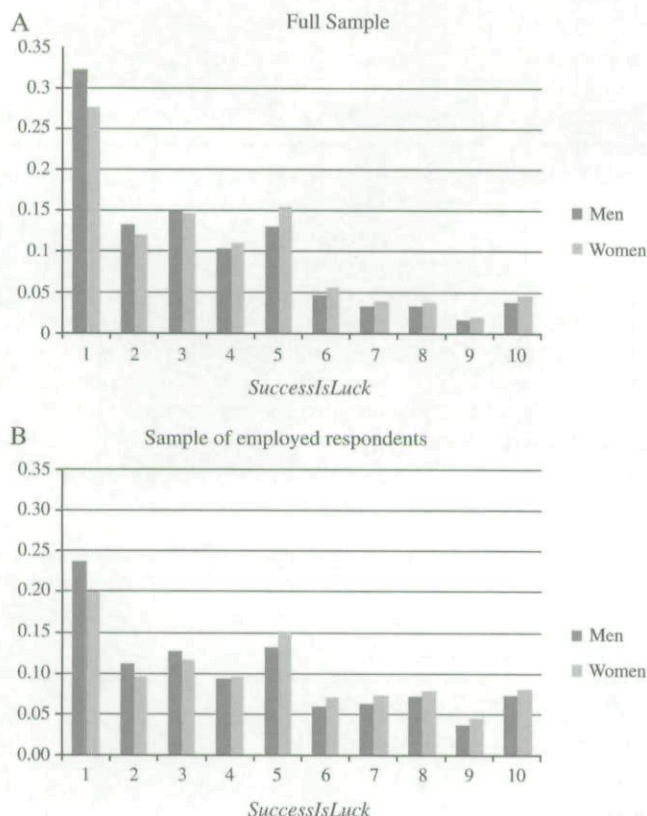


Figure 1
Distribution of SuccessIsLuck by gender

work). But there are clear gender differences: The fraction of male respondents giving responses in the range 1-3 is higher than that for women, while the proportion of female respondents is higher for all other values. In Figure 1b, we provide the distribution of values for respondents that have self-identified as being in the workforce (55.6 percent of the sample). A similar pattern emerges, though the gender differences are even more striking.

Summary statistics for the full sample are listed in Table 1a; Table 1b shows the difference between male and female responses for a subset of variables. The "gender perceptions gaps" reported in Table 1b makes clear that female respondents are more likely to attribute success to luck, as reflected in the distributions from Figure 1. Also, not surprisingly, we observe gender differences in income, education, and various workplace variables, thus highlighting the importance of controlling for these differences. We now proceed to examine these patterns in a regression framework.

Table 1a
Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum	Observations
<i>SuccessIsLuck</i>	4.38	2.90	1	10	128,663
<i>CompetitionIsBad</i>	3.44	2.47	1	10	125,029
Female	0.52	0.50	0	1	128,528
Working	0.56	0.50	0	1	128,663
Supervisor	0.15	0.36	0	1	115,264
Income	4.57	2.46	1	10	111,013
Education	4.62	2.24	1	8	76,875
Ideology	5.52	2.22	1	10	99,420
Religious	0.18	0.38	0	1	65,986
Home	0.64	0.28	0	1	51,710
log(GDPPC)	8.31	1.40	5.65	10.46	125,224
%FemaleParliament	12.93	6.89	0	33.5	116,598
<i>LFP_gap</i>	0.36	0.08	0.17	0.47	121,737

Table 1b
Basic gender difference in summary statistics

	Female (A)	Male (B)	Gender gap (A)-(B)
<i>SuccessIsLuck</i>	4.50	4.26	0.24
<i>CompetitionIsBad</i>	3.59	3.29	0.29
Working	0.42	0.65	-0.23
Supervisor	0.11	0.19	-0.08
Income	4.44	4.72	-0.27
Education	4.54	4.71	-0.17

Variable definitions: All variables are taken from the World Values Survey unless otherwise noted. *SuccessIsLuck* is the survey respondent's rating on a 1-10 scale where 1 is, "In the long run hard work usually brings a better life" and 10 is, "Hard work doesn't generally bring success—it's more a matter of luck and connections." *CompetitionIsBad* is the survey respondent's rating on a 1-10 scale where 1 is, "Competition is good. It stimulates people to work hard and develop new ideas" and 10 is, "Competition is harmful. It brings out the worst in people." Female is an indicator variable for gender. Working is an indicator variable denoting whether the respondent self-reported being in the workforce. Supervisor is an indicator variable denoting whether the survey respondent reported being in a managerial or supervisory position. Income is the self-reported income decile of the respondent. Education is self-reported level of education from one (no formal education) to eight (university education). Ideology is the self-reported respondent's political ideology from one (left) to 10 (right). Religious is an indicator variable denoting that the respondent is an active member of a religious organization. *HomeMother* reflects the intensity of the respondent's belief that a stay-at-home mother is important for young children. log(GDPPCUS) is the logarithm of GDP per capita in 1982 US dollars (Source: World Development Indicators) for the years 1989-99. Percent Female in Parliament is the fraction of government representatives in the national parliament that are women (Source: International Parliamentary Union). *LFP_gap* is the difference between the labor force participation rates of men and women during 1989-99 (World Development Indicators).

IV. Empirical Results

Our baseline specification considers the relationship between *SuccessIsLuck* and *Female*:

$$(1) \text{ SuccessIsLuck} = \alpha_{cy} + \beta_1^* \text{Female}_i + \varepsilon_i$$

where α_{cy} is a country-wave fixed-effect (that is, up to three fixed effects per country) and ε_i is the error term; in all regressions we report robust standard errors. We first consider the basic specification without fixed effects in Column 1 of Table 2. Consistent with the summary differences reported in Table 1b, women are significantly more likely to report that success is a matter of luck rather than hard work. The magnitude of the coefficient, 0.236, is approximately 8 percent of the standard deviation of *SuccessIsLuck*. In Columns 2-4 we include various combinations of fixed effects; while the coefficient on *Female* drops marginally (particularly for the country-wave-education fixed effect specification), it remains highly significant.

In Specifications 5-9, we attempt to evaluate some of the explanations for the gender gap in *SuccessIsLuck*. In Column 5, we include country-wave-ideology fixed effects; the coefficient on *Female* is virtually unchanged, suggesting that the gender difference we observe is not simply due to gender differences in political preferences. In Column 6, we add the interaction term *Female*Working*; we find that it is highly significant, and takes on a value of 0.169. The direct effect of *Female* in this specification is 0.138, implying that the gender gap in *SuccessIsLuck* is more than twice as high for those in the workforce. This provides highly suggested evidence that the gender differences we observe are due at least in part to workplace considerations. In Column 7, we consider the effects of religiosity, adding the interaction term *Female*Religious*. In this case, the coefficient is small and indistinguishable from zero. Finally, in Columns 8 and 9 we include a pair of country-level controls—*Female*log(GDP/PC)* and *Region*Female* fixed effects—to try to control for a differential gender distribution of workforce participation across countries. We find that our results from Column 6 on the effects of workforce participation are unchanged.

In Table 3 we limit the sample to those in the workforce to further probe the workplace conditions that may account for gender differences in beliefs on the returns to effort. As noted in Section 1, gender discrimination is often thought to be more severe for jobs higher up in the workplace hierarchy. We therefore consider the interaction of *Female* and *Supervisor* in Column 1. We find that this interaction term takes on a value of 0.136, and is significant at the 1 percent level, implying that the gender gap for *SuccessIsLuck* is about 50 percent higher for workers in supervisory positions. In Column 2, we look at the impact of opinions on the role of women in child-rearing, by including the interaction term *Female*HomeMother*. The coefficient takes on a value of 0.352 and is significant at the 1 percent level. In this case, the direct effect of *Female* is only 0.0973, and is no longer significant at conventional levels, implying a very large difference in the gender gap for *SuccessIsLuck* as a function of expectations of childrearing duties. (Interestingly, when we run the same specification on the sample of respondents not in the workforce, this interaction term is insignificantly different from zero.) Finally, in Columns 3-6, we examine whether the gender gap we have documented differs across countries as a function

Table 2
Gender and perceptions of luck versus hard work in determining success

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female	0.2360 ^c (0.0176)	0.2130 ^c (0.0171)	0.2120 ^c (0.0187)	0.1850 ^c (0.0219)	0.2100 ^c (0.0189)	0.1380 (0.0275)	0.1970 (0.0252)	0.1490 (0.1070)	0.0039 (0.1860)
Working						0.0245 (0.0266)		0.464 ^a (0.0270)	0.0500 ^a (0.0272)
Working*female						0.1690 ^c (0.0357)		0.1350 ^c (0.0364)	0.1300 ^c (0.0367)
Religious							(0.2170) ^c (0.0496)		
Religious*female							0.0423 (0.0641)		
Log(GDPPC)*female								0.0019 (0.0123)	0.0183 (0.0153)
Country*wave FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country*wave*income FE	No	No	Yes	No	No	No	No	No	No
Country*wave*educ FE	No	No	No	Yes	No	No	No	No	No
Country*wave*ideology FE	No	No	No	Yes	Yes	No	No	No	No
Female*region FE	No	No	No	No	No	No	No	No	Yes
Observations	128,528	128,528	110,906	76,819	99,305	128,528	65,920	125,089	122,386
R-Squared	0.002	0.079	0.093	0.108	0.105	0.08	0.084	0.08	0.082

Dependent variable in all regressions is the survey respondent's rating on a 1-10 scale where 1 is "In the long run hard work usually brings a better life" and 10 is "Hard work doesn't generally bring success—it's more a matter of luck and connections." Female is an indicator variable for gender. Income is the self-reported income decile of the respondent. Education fixed effects are for WVS education categories ranging from one (no formal education) to eight (university education). Political ideology fixed effects are the WVS respondent's self-rating from one (Left) to ten (Right) on the political spectrum. Working is an indicator variable denoting whether the respondent self-reported being in the workforce. Religious is an indicator variable denoting that the respondent is an active member of a religious organization. log(GDPPC) is the income per capita in 1982 dollars of the respondent's country. Linear Probability Model. Robust standard errors in parentheses, clustered by country-wave. The dependent variable in all regressions is Decision, an indicator variable that takes on a value of one if a subject desired contact information for a partner. All regressions include country-wave fixed effects, robust standard errors in parentheses.

a. significant at the 10 percent level;
 b. significant at 5 percent level;
 c. significant at 1 percent level.

Table 3
Gender, workplace concerns, and perceptions of success is due to luck

	(1)	(2)	(3)	(4)	(5)	(6)
Female	0.2500 ^c (0.0260)	0.0973 (0.0835)	0.4470 (0.0811)	0.2820 (0.2420)	0.3570 ^a (0.2070)	0.1920 (0.2750)
Supervisor	(0.4090) ^c (0.0356)					
Female*Supervisor	0.1360 ^b (0.0606)					
HomeMother		(0.3050) ^c (0.0881)				
Female*HomeMother		(0.3520) ^c (0.1270)				
Female *%FemaleParliament			(0.0112) ^b (0.0049)	(0.0128) ^b (0.0054)		
Female*LFP_Gap					(0.2060) (0.5330)	(0.2730) (0.5300)
Female*log(GDPPC)				0.0218 (0.0306)		0.0225 (0.0264)
Observations	68937	67049	58795	34091	33025	28823
R-squared	0.06	0.06	0.07	0.06	0.06	0.06

Dependent variable in all regressions is the survey respondent's rating on a 1-10 scale where 1 is "In the long run hard work usually brings a better life" and 10 is "Hard work doesn't generally bring success—it's more a matter of luck and connections." The sample in all regressions is limited to respondents that self-identified as being in the workforce. Female is an indicator variable for gender. Supervisor is an indicator variable denoting whether the survey respondent reported being in a managerial or supervisory position. *HomeMother* reflects the intensity of the respondent's belief that a stay-at-home mother is important for young children. $\log(\text{GDPPCUS})$ is the logarithm of GDP per capita in 1982 US dollars (Source: World Development Indicators) for the years 1989-99. Percent Female in Parliament is the fraction of government representatives in the national parliament that are women (Source: International Parliamentary Union). *LFP_gap* is the difference between the labor force participation rates of men and women during 1989-99 (World Development Indicators). All regressions include country-wave fixed effects, Robust standard errors in parentheses.

a. significant at the 10 percent level;

b. significant at the 5 percent level;

c. significant at the 1 percent level.

of employment opportunities available to women. In Equation 3, we find that the interaction *Female*PercentFemaleParliament* is negative and significant at the 5 percent level, implying a smaller gap for countries with high rates of female political leadership. We add *Female*log(GDPPC)* as a control in Column 4, and find the results unchanged. In Column 5, we include the interaction term *Female*LFP_gap*. In this case, the interaction term is indistinguishable from zero. This is perhaps not surprising—participation in the workforce does not necessarily imply opportunities for advancement (consistent with this, *LFP_gap* is only weakly correlated with basic measures of development, such as $\log(\text{GDPPC})$).

As noted in Section I, if workplace success is determined primarily by luck, then the benefit of "tournament"-type competition, which should provide incentives to those who work hard, will be relatively low. This is consistent with the findings of Niederle and Vesterlund (2007); we examine whether there are significant gender differences in attitudes toward competition in our much broader sample (albeit based on survey data, rather than real decisions that they employ in their laboratory experiments). We therefore repeat our basic specification using the outcome variable *CompetitionIsBad*; these results are reported in Table 4. We find that the basic gender difference is comparable to that of our *SuccessIsLuck* analyses in Table 2, Column 2. That is, women are more likely to hold negative views on the merits of competition. In Column 2, we examine how this gender difference varies according to workplace participation. Again paralleling our earlier findings, we find a stronger effect of gender on *CompetitionIsBad* among those in the workforce. Finally, in Column 3 we limit the sample to those in the workforce, and examine the effect of being in a supervisory position. As with our earlier analyses, we find a stronger impact of gender for those in supervisory roles.

Table 4
Gender and perceptions on whether competition is harmful

	(1)	(2)	(3)
Female	0.2830 ^c (0.0149)	0.2180 ^c (0.0245)	0.2660 ^c (0.0175)
Working		(0.1680) ^c (0.0232)	
Female*Working		0.0703 ^b (0.0313)	
Supervisor			(0.3310) ^c (0.0240)
Female*Supervisor			0.1190 ^c (0.0419)
Observations	68937	67049	58795
R-Squared	0.06	0.06	0.07

Dependent variable in all regressions is the survey respondent's rating on a 1-10 scale where 1 is "Competition is good. It stimulates people to work hard and develop new ideas" and 10 is "Competition is harmful. It brings out the worst in people." In Equation 3, the sample is limited to respondents that self-identified as being in the workforce. Female is an indicator variable for gender. Supervisor is an indicator variable denoting whether the survey respondent reported being in a managerial or supervisory position. Linear Probability Model. Robust standard errors in parentheses, clustered by country-wave. All regressions include country-wave fixed effects, Robust standard errors in parentheses.

a. significant at the 10 percent level;

b. significant at the 5 percent level;

c. significant at the 1 percent level.

V. Conclusions

In this paper, we document gender differences in beliefs on the role of hard work versus luck in getting ahead, using data from the World Values Survey. Women are consistently more likely to report that success is a matter of luck, and hold negative views on the merits of competition. Further, these gender differences vary systematically with workforce participation, workplace status, and other attributes in a way that is consistent with an explanation built on differential access to career advancement.

These differences are important for considering women's roles in the workforce. We argue that these overall patterns are consistent with barriers to females' advancement to higher positions in the workplace hierarchy, but also emphasize in closing that these perceptions on the merits of working hard may themselves serve as a barrier to advancement—if one does not see the merits of hard work and therefore chooses not to exert high effort, advancement is unlikely. While we view our contribution to be quite preliminary—much more work is required to better understand the determinants and evolution of these gender differences—we believe that these patterns provide useful motivation and direction for examining the role of attitudes in explaining gender differences in workplace achievement.

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