

Job Satisfaction and Perceived Gender Equality in Advanced Promotion Opportunities: An Empirical Investigation

Anastasia Semykina and Susan J. Linz*

I. INTRODUCTION

The share of women in the labor force has steadily grown in the past few decades in both developed and developing countries (Lim 2002). Moreover, recent data show that, in spite of significant barriers, more women reach the upper managerial ranks in the workplace (Baxter and Wright 2000, Desvaux et al. 2007). With female labor-force participation on the rise and more women gaining access to top management positions, an important question is how these changes affect the workplace environment and well-being of workers. In organizations where employment and promotion opportunities for women improve, one might surmise that the workplace environment will be perceived by employees as more equal. Does gender equality in workplace promotion opportunities have consequences for job satisfaction? We address this question by examining the link between job satisfaction and perceived prospects for women to become top manager at the firm.

Studying job satisfaction has long been of great interest to researchers and management professionals. Higher job satisfaction is associated with improved employee productivity and often is cited as instrumental to maintaining high

* Anastasia Semykina is Associate Professor of Economics at Florida State University, 113 Collegiate Loop, 288 Bellamy Building, Tallahassee, FL 32306-2180, email: asemykina@fsu.edu. Susan J. Linz is Professor of Economics at Michigan State University, 486 W. Circle Drive, 110 Marshall-Adams Hall, East Lansing, MI 48824-1038, email: linz@msu.edu. Linz acknowledges financial support provided by Michigan State University (CERES, CASID / WID, CIBER), William Davidson Institute at the University of Michigan, International Research and Exchanges Board (IREX), and the National Council for Eurasian and East European Research (NCEEER) under authority of a Title VIII grant from the U.S. Department of State. None of these funding organizations is responsible for the views expressed in this paper. We thank Linda Good and Patricia Huddleston for assistance with questionnaire development; Ramzis Akmitzyanov, Ana Jovancai, Inna Maltseva, Inna Petrova, Karina Simonyan, Nazira Tiuliundieva, Guzel Tulegenova, Elvin Afandi, and Firdovsi Fikretzade for assistance with data collection and data entry, and Terry-Ann Craigie and Sarah Vultaggio for assistance with data entry. Nicole Funari and Ilya Rahkovsky provided assistance with data management.

employee retention rates (Green 2010, Munyon et al. 2010, Sousa-Poza and Sousa-Poza 2007, Wood et al. 2012). Furthermore, given the substantial amount of time spent at work and spillover effects that work may have on other aspects of one's life, job satisfaction was found to be closely related not only to the overall life satisfaction (Judge and Watanabe 1994, Tait et al. 1989), but also to worker health (Faragher et al. 2005). Thus identifying workplace conditions that enhance job satisfaction benefits both firms and workers.

Among all factors that explain variation in job satisfaction, workplace environment is one directly influenced by firm policies. Policies to create conditions that allow women's equal access to senior-level positions have been discussed at length in the 'glass ceiling' literature,¹ but this aspect of work environment has yet to be linked to job satisfaction. Without empirical evidence, one can only speculate about whether the link will be positive or negative, and whether it would be the same for both men and women. For women, observing their company's dedication to gender balance at top managerial levels may have a positive 'encouragement' or 'signal effect,' especially among those who desire promotion. Similarly, some men may enjoy higher job satisfaction if they work in a company that promotes gender balance at the top. However, it also may be that men may dislike working for a woman (Baldwin et al. 2001), or view policies that improve opportunities for women's advancement to upper-level management positions as creating a more competitive work environment, which may lower their job satisfaction.

Addressing this knowledge gap – the link between job satisfaction and perceived opportunities for women to hold upper-level positions – is important because companies and countries are more competitive with full participation of women at all levels (Bush and Yee 2011, Catalyst 2004, World Economic Forum 2010). If providing genuinely equal opportunities for promotion to qualified men and women is linked to lower job satisfaction among (some groups of) workers, this signals the need for an 'education' program for existing workers, or a different hiring strategy for new workers. Firms cannot afford costs imposed by dissatisfied workers (Bockerman and Ilmakunnas 2008 2009, Mangione and Quinn 1975, Wright and Bonett 2007); nor can they afford to ignore benefits associated with different leadership styles and problem-solving skills (Bush and Yee 2011, Catalyst 2004, Davis et al. 2010).

Does perceived gender equality in advanced promotion opportunities influence job satisfaction? Estimating the effect of women's prospects for becoming a top executive on job satisfaction is challenging for several reasons. First, it is hard to find a good measure of the likelihood that a woman will advance to a

1. 'Glass ceiling,' a term coined by *The Wall Street Journal* in the mid-1980s, typically refers to barriers that prevent women from reaching the top of an organizational hierarchy (Baxter and Wright 2000, Cotter et al. 2001).

top-level position. Current and past gender composition of workforce and top managerial personnel could be used, but this information is rarely available. An alternative measure uses worker perceptions of equality in advanced promotion opportunities at their workplace.² However, perceptions are likely to be influenced by worker personality and aspirations,³ which, if not accounted for, may bias the results (Poggi 2010). Moreover, firms more likely to be managed by women may differ from other firms in terms of general work conditions, work schedules, and such.⁴ It is therefore crucial to account for differences in worker and firm characteristics when studying the link between job satisfaction and perceived gender equality in advanced promotion opportunities.

In this paper, we study job satisfaction in several formerly socialist economies. Due to limited data availability, little is known about employer-employee relations in these countries, which represent important sales markets and production centers. To learn more about these emerging market economies we use data collected from employees in Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Russia (part of former Soviet Union), and Serbia (part of former Yugoslavia).⁵ Analyzing data from countries incorporating a diversity of cultural and economic conditions allows us to take a step not only towards developing a more global perspective of factors linked to job satisfaction, but also towards a better understanding of factors influencing worker performance. While these employer-employee linked data are not nationally representative, their broad coverage of a variety of workplaces and unusually detailed information on participants' attitudes and expectations makes it possible to control for many unobserved employee and workplace-specific characteristics in our regression analysis. In particular, we not only account for numerous factors that may be correlated with the self-reported measure of perceived gender equality, but also examine biases resulting from failure to include individual and firm-specific characteristics in the analysis. Consequently, this study contributes to the literature, first, by examining the link between job satisfaction and perceived gender inequality in advanced promotion opportunities, and, second, by highlighting methodological problems associated with this type of estimation. That is, given the richness of

2. Smith et al. (2012) review existing measures that seek to capture women's beliefs about barriers to career advancement, but these studies focus exclusively on female survey participants.
3. A number of studies find that personality differences help to explain variation in job satisfaction. See, for example Furnham et al. (2002), Heller et al. (2002), Judge et al. (2002).
4. Data on firms where top executives are women are scarce, often out-dated, and mainly limited to Fortune 500 companies or studies focusing on a particular firm or sector (Gable et al. 1984, Weisul 2004). Some studies indicate that women generally prefer to work at workplaces that offer flexible work schedules (Bender et al. 2005, Desvaux et al. 2007, Hakim 2006).
5. The inclusion of these particular countries was driven exclusively by previously-established connections between project investigators and country residents who expressed willingness to assist with the survey project.

our employer-employee matched data, we consider multiple specifications in our regression analysis in order to assess the importance of omitted variable bias and study the possible sources of bias.

II. RELATED LITERATURE AND BACKGROUND

1. Perceived workplace equality and job satisfaction

Since the seminal article by Herzberg (1968), studies acknowledge that high pay alone is insufficient for keeping workers happy and motivated. Indeed, an extensive literature recognizes the importance of both extrinsic rewards (received for job performance) and intrinsic rewards (associated with job attributes), as well as the importance of workplace environment (Brockman and Ilmakunnas 2009, Carr et al. 2003, Clark 1998, Linz and Semykina 2012, Parker et al. 2003, Stewart et al. 2007, Wood et al. 2012). Because women's prospects to become top managers shape the overall workplace environment, this factor may explain variation in job satisfaction.

Many studies point to the fact that fewer women than men rise to the top of an organization, a phenomenon often referred to as 'glass ceiling.' Although some studies indicate that the relatively small number of women among upper managerial ranks results from women's decisions not to pursue these positions because they entail undesirable work conditions, such as travel, long hours or unpredictable work schedules (Bender et al. 2005, Hakim 2006), there is substantial evidence suggesting that advanced career opportunities are more limited for women than for men (Blau and DeVaro 2007, Desvaux et al. 2007, Foley et al. 2002). Given this general disadvantage that women face, providing more opportunities for women's advancement within an organization would indicate more equitable treatment of both genders, which could create favorable perceptions of workplace environment among employees, perhaps more so among women.

The proposition that job satisfaction is linked to perceived glass ceiling is consistent with the existing empirical evidence. In their study of Hispanic law associates, Foley et al. (2002) find that perceived ethnic discrimination and glass ceiling are negatively related to perceptions of promotion fairness, which, in turn, increases intentions to quit. Moreover, Stewart et al. (2007) find that women have stronger organizational commitment and lower intentions to leave the organization if they perceive employees' contributions are adequately acknowledged. Given existing evidence, we hypothesize that women derive satisfaction from working in organizations with equitable promotion practices.

Women may also enjoy higher job satisfaction if they perceive gender inequality at the top as an indicator of own promotion opportunities ('signal effect'). This proposition follows from social identity theory and empirical evidence

suggesting that workers refer to peers for information about organizational norms and policies (Festinger 1954, Foley et al. 2002, Shah 1998). Foley et al. (2002) found that perceived glass ceiling had a significant negative effect on perceived own career prospects among Hispanic law associates, which, in turn, positively affected intentions to leave the organization. In a similar vein, Clark et al. (2009) argue that job satisfaction should be positively related to co-worker earnings if workers perceive peers' earnings as an indicator of own future earnings. Indeed, their empirical analysis reveals a positive link between peers' earnings and job satisfaction. Extrapolating from these results, we hypothesize that women may interpret nondiscriminatory promotion practices in terms of improved own career opportunities, and hence, may positively affect job satisfaction.

A note of caution should be added, however. Although existing evidence indicates that perceived higher chance of women reaching top executive ranks may be positively associated with job satisfaction among women, such a relationship may not be present if women perceive male domination in the top management positions as just. This may happen, for example, if social or cultural factors promote or do not oppose unequal treatment and individuals learn to accept male domination in top management positions as a norm. The lack of sensitivity to perceived gender inequality in advanced promotion opportunities may also result if women consider men to be more suitable for top leadership positions due to their superior education, training, or leadership skills. Such rationalizations were proposed in the literature on the 'Paradox of the Contented Female Worker' (Mueller and Wallace 1996, Phelan 1994), which attempts to explain roughly equal levels of job satisfaction among men and women, in spite of the fact that women often face inferior work conditions (e.g. lower pay and fewer promotion opportunities). Indeed, numerous studies find that women report higher job satisfaction than men (Bender et al. 2005, Clark 1997, Sousa-Poza and Sousa-Poza 2000a, 2000b).⁶ We posit that such phenomena may arise in our data, also, especially among older female workers who have been witnessing inequality for a longer time and might have learned to adapt to it.⁷

Predicting the effects of women's advanced career opportunities on job satisfaction among men is even harder. Because glass ceiling is a phenomenon that adversely affects women, intuition suggests that men may be indifferent to it. However, men adversely affected by discriminatory promotion practices in the past, or who oppose discrimination generally may derive satisfaction

6. We would like to thank the anonymous reviewer for drawing our attention to this literature.

7. Despite pronouncements of gender equality in socialist economies, gender equality was only evident in labor force participation rates. In terms of earnings, occupations, and promotions, gender segregation was the norm (Lane 1986, McAuley 1981, Moskoff 1984). Thus older generation workers are unlikely to have prior experience with gender equality in promotion at their workplace.

from working at an organization that treats all workers equally. In contrast, some men may experience lower job satisfaction if women are equally likely to become top managers. Baldwin et al. (2001) develop a theoretical model which shows that men may dislike working for female supervisors because it contradicts traditional roles of men and women. Whether perceived opportunities for advanced promotion of women are positively or negatively linked to job satisfaction among men is an empirical question that we attempt to answer in this paper.

2. Labor markets in formerly socialist economies

In this section, we provide relevant background information for the six countries included in this study, highlighting similarities and differences. In addition to placing our results in a broader perspective, this helps in making predictions about whether the link between job satisfaction and perceived advanced career opportunities for women will differ by country.

All six countries underwent transformation from a planned economy to a market-oriented economy in the 1990s. Although the transition was not smooth, by the early 2000s, basic market mechanisms had been implemented in each country: prices were fully liberalized; private sector's share of GDP reached or exceeded 60 % (EBRD 2005); labor market institutions and outcomes resembled those in developed market economies. In particular, performance increasingly played an important role in hiring/firing and reward allocation, and worker mobility increased, indicating more effective matching of workers to jobs (EBRD 2007). In environments where firms compete for workers, job satisfaction becomes an important issue. Moreover, because studies suggest that the socio-economic transformation contributed to generational differences in work ethic (Linz and Chu 2013a, 2013b; Torgler 2011), generational differences also may be evident in the link between perceived gender equality in advanced promotion opportunities and job satisfaction.

Although studies of job satisfaction among workers in formerly socialist economies are relatively rare, the existing literature finds many similarities with studies conducted in developed market economies. Specifically, workers appear to respond to both extrinsic rewards, such as higher pay and promotion opportunities, and intrinsic rewards, such as freedom on the job and friendly co-workers (Lange 2008, Sousa-Poza and Sousa-Poza 2000a, 2000b). At the same time, however, existing studies document cross-country differences in the overall level of job satisfaction, as well as factors that explain variation in job satisfaction (Fargher et al. 2008, Kaiser 2007, Linz and Semykina 2012, Sousa-Poza and Sousa-Poza 2000b, Vecernik 2003).

Finding differences across countries is probably not surprising, given the disparity in economic conditions, particularly those that may influence employ-

ment opportunities or job security, and thus job satisfaction.⁸ As reported in the Supplementary Information file (posted online) there is substantial income heterogeneity among the six countries considered in this study. Notably, in 2008 PPP converted GDP per capita is significantly lower in Kyrgyzstan (below \$3,000) than elsewhere, and lower in Armenia, Azerbaijan and Serbia (between \$5,000 and \$9,000), than Russia and Kazakhstan (above \$11,000). In all locations, GDP per capita is substantially lower than in developed market economies. Unemployment rates are relatively high, especially in Armenia and Serbia (above 10%). Given adverse macroeconomic conditions, it is not surprising that earlier studies conducted in transition economies find a weak relationship between workplace conditions and intentions to quit (Linz 2003, Linz et al. 2006), although job satisfaction proved to be a useful measure.

Level of educational attainment influences job satisfaction and career advance opportunities. Similar to developed market economies, women in the six countries considered in this study tend to have more education than men and are more likely to receive tertiary education. A notable exception is Azerbaijan, where women are less likely than men to have college education.

Moreover, the degree of women's involvement in business ownership and government is rather low. While the numbers are especially dismal for Armenia, they are relatively high in Kazakhstan, Kyrgyzstan, and Serbia (see the Supplementary Information file). Furthermore, based on the United Nations Economic Commission for Europe (UNECE) data,⁹ the ratio of female-to-male monthly earnings was roughly 60.8 in Armenia, 58.6 in Azerbaijan, 91.1 in Kazakhstan, and 67.9 in Russia in 2009; the ratio was 67.3 in Kyrgyzstan in 2008. Gender differences in wages are smallest in Serbia, where the ratio of female-to-male monthly earnings was about 95.4 in 2009 (Reva 2012).

The above discussion motivates several predictions. Because gender inequality appears to be less pronounced in Kazakhstan and Serbia, one might expect a weaker link between perceived glass ceiling and job satisfaction in these countries (particularly for women). Similarly, one might expect a relatively weak link in Kyrgyzstan, where women's participation in firm ownership and government is relatively high. An interesting special case is Azerbaijan, where the gender pay gap is substantial, but women are also less likely to have college education. Because of gender educational differences, Azeri women may feel that men's advantage in the labor market is fair, and hence, may be less sensitive to differences in advanced career opportunities between men and women. Correspondingly, the link between job satisfaction and perceived chance that a woman will reach a high executive rank is expected to be relatively strong in Armenia

8. Studies indicate that job satisfaction is lower when job insecurity is high (Blanchflower and Oswald 2000, Heany et al. 1994, Sveke et al. 2006).

9. The data are from the UNECE Statistical Division Database, which can be accessed at http://www.uncece.org/stats/stats_h.html

and Russia. In all locations, however, the effects among female workers may be weakened if women have learned to perceive inequality in access to top leadership positions as the norm. That being the case, the link is expected to be particularly weak among older female workers.

III. DATA AND METHODOLOGY

1. Data

To examine the relationship between perceived advanced promotion opportunities for women and job satisfaction, we use data collected from employees in a wide variety of workplaces (manufacturing, construction, finance, education, and other sectors) in both large and small metropolitan areas in Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Russia, and Serbia,¹⁰ countries which reflect a diversity of post-socialist cultural and economic conditions (see Supplemental Information file).

In each country, a local coordinator used personal connections to contact top managers with a request to conduct the survey at their organization. Once permission was granted, employees were asked to fill out a questionnaire, assured of anonymity and confidentiality. Those who agreed to participate were allowed to change their mind or return incomplete questionnaires. The originally contacted manager was asked to recommend the survey to other workplaces (snowball technique). Additionally, with less success, the local coordinator visited potential organizations without prior appointment to request survey participation. Altogether, over 700 organizations participated in the survey.¹¹ Limited funding precluded randomized sampling at the country or firm level.

Restricting the data to observations without missing values for any of the variables used in our regression analysis, our sample includes: 1,142 observations in Armenia, 838 in Azerbaijan, 837 in Kazakhstan, 879 in Kyrgyzstan, 1,452 in Russia, and 1,412 in Serbia. Because of nonrandom sampling and non-response, we construct sample weights using nationally representative data to reduce bias in our regression analysis.¹² We use data from 2008 Armenia and 2011 Azerbaijan Caucasus Barometer surveys, 1999 Kazakhstan Demographic and Health survey, 1998 Kyrgyz Republic Multipurpose Poverty Survey, 2002

10. The survey was conducted in Russia (Rostov region, 2002; Sverdlovsk region, 2003; Bashkortostan autonomous republic, 2005); Armenia (Yerevan 2005; Shirak region 2008); Kazakhstan (Almaty, Taldyquorghan, and surrounding areas, 2005); Kyrgyzstan (Bishkek 2007, Kara Balta 2008); Serbia (Belgrade 2008, Novi Sad 2009); and Azerbaijan (Baku, Sumgait, Shabran, and Sabirabad, 2011). In all but Russia, the large metropolitan area was the capital city.

11. The data were collected from workers at 195 enterprises in Armenia, 63 enterprises in Azerbaijan, 163 enterprises in Kazakhstan, 103 in Kyrgyzstan, 172 in Russia, and 38 in Serbia.

12. We thank anonymous reviewer for suggesting this strategy.

and 2003 Russia Longitudinal Monitoring Survey of HSE, and 2007 Serbia Living Standards Measurement Survey.¹³ Unfortunately, we were not able to obtain more recent individual-level data for Kazakhstan and Kyrgyzstan, so we had to use these historic data. However, we are careful to refer explicitly to participating employees when discussing our results, sometimes using Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Russia, and Serbia, respectively, for convenience.

Unweighted sample summary statistics for the main worker and firm characteristics are displayed in Table 1. As is evident in the table, average employee age was mid-to-late 30s at the time the survey was conducted, with an average workplace tenure of 7–10 years. Among Azeri and Kazakh participants, average age is somewhat younger and average workplace tenure is correspondingly shorter. The majority of participating employees were relatively highly educated. At least half were married, with 10% or more reporting holding multiple jobs (except among Serbian participants). Participants holding supervisory positions tended to be male (except among Kazakh and Serbian participants). At least one quarter of the participating workers, particularly females, were employed in state-owned organizations; nearly 50% among Serbian participants and more than 80% among Kyrgyz participants. Given the gender distribution across sectors, it is not surprising that, despite the similarity in years of education and oftentimes longer workplace tenure, women's earnings, on average, are less than men's. In all but Serbia, women tend to be less optimistic than men about receiving a promotion in the next five years.

When comparing sample characteristics to nationally representative data (see Supplementary Information file), it is evident that in most locations respondents in our samples tend to be younger, more educated, and are less likely to be married than an average worker in the corresponding country. As mentioned earlier, we address these discrepancies by employing sample weights in our regression analysis.

Job satisfaction was measured using a single item. Specifically, respondents were asked to indicate the extent of their agreement with the statement: *Generally speaking, I am very satisfied with this job*, and given the option of selecting a number from 1 (*strongly disagree*) to 5 (*strongly agree*). Although using multiple items (such as satisfaction with pay, satisfaction with job security, and so on) for measuring different facets of job satisfaction is considered by many to

13. Links to data sources are available in the Supplementary Information file. In all locations, the data were limited to working individuals. In Kyrgyzstan, Russia, and Serbia weights were generated by age, education, tenure, and marital status. In the other three countries tenure information was not available, so weights were constructed by age, education, and marital status only. Because the DHS data were collected from women ages 18–49 and men ages 18–59, we imposed the same age restrictions in our Kazakhstan sample when performing regression analysis (22 women and 7 men were dropped).

Table 1
Sample Means and Standard Deviations for Basic Worker and Firm Characteristics

Worker characteristics	Armenia		Azerbaijan		Kazakhstan		Kyrgyzstan		Russia		Serbia	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Age (years)	38.9 (11.9)	38.0 (12.3)	33.0 (8.8)	32.3 (10.2)	33.5 (9.6)	33.2 (8.6)	38.2 (12.1)	40.5 (12.2)	38.2 (12.6)	38.5 (11.2)	38.1 (8.2)	37.0 (8.3)
Education (years)	15.2	15.1	13.7	13.6	14.8	15.2 (2.1)	15.1	14.6	14.4	14.4	14.1	14.4
Workplace tenure (years)	(2.2)	(2.1)	(2.8)	(2.6)	(2.5)		(3.4)	(3.5)	(3.0)	(2.7)	(2.0)	(2.0)
Supervisor (%)	7.1 (7.1)	7.3 (8.2)	4.3 (5.7)	6.0 (8.0)	4.6 (3.6)	5.3 (4.4)	6.6 (7.6)	10.7 (10.2)	8.4 (8.1)	10.2 (9.2)	7.8 (5.5)	7.1 (5.1)
Holds multiple jobs (%)	54	45	57	52	59	59	66	55	64	55	63	51
Monthly earnings (local currency)	17	14	19	7	9	8	16	12	19	12	4	2
Monthly earnings (local currency)	90639 (76826)	81502 (68735)	464 (373)	271 (168)	32907 (50710)	25295 (14295)	4189 (3470)	3123 (1586)	6765 (6407)	4369 (3204)	54123 (21444)	52547 (19890)
Number promotions expect (in next 5 years)	0.7 (1.4)	0.7 (1.1)	1.4 (1.4)	1.1 (1.2)	1.3 (1.2)	1.2 (1.1)	1.3 (1.4)	0.7 (1.0)	0.9 (1.1)	0.5 (0.8)	0.8 (0.7)	1.0 (0.7)
Workplace characteristics												
State-owned organization (%)	36	38	18	31	21	34	85	88	27	43	48	45
Manufacturing (%)	27	21	50	44	31	14	1	0	47	38	26	23
Education/health (%)	25	16	9	31	8	18	7	20	16	36	8	12
Retail/other services (%)	29	30	17	13	35	40	6	5	20	18	20	24
Financial organization (%)	2	3	12	6	4	7	2	1	3	0	15	17
Public (local, regional, federal) (%)	16	26	5	7	15	21	84	74	6	6	20	20
Construction/transportation (%)	2	4	7	0	6	1	2	0	8	3	11	4
Job satisfaction	3.7	3.5	3.1	3.0	3.8	3.8	3.9	3.9	3.6	3.4	3.2	3.2
Perceived chance woman becomes director	(1.0)	(1.1)	(1.3)	(1.4)	(0.9)	(1.0)	(1.0)	(1.1)	(1.2)	(1.3)	(0.9)	(0.9)
Ratio of female-to-male earnings	2.7	2.7	2.0	2.4	2.8	3.4	2.7	2.8	1.8	2.7	3.9	3.9
Ratio of female-to-male earnings	(1.6)	(1.5)	(1.3)	(1.6)	(1.5)	(1.4)	(1.4)	(1.6)	(1.3)	(1.7)	(0.9)	(0.8)
Number of observations	548	594	534	304	405	432	261	618	432	1017	730	682

be superior,¹⁴ several studies indicate that a single-item measure of overall job satisfaction conveys important information that more narrowly defined measures may fail to capture (Highhouse and Becker 1993). Since the single-item measure is the only measure available in our data, we use it in our analysis. The mean score, by country and gender, is reported in Table 1.

We obtained our measure of perceived women's advanced promotion opportunities by asking: *Thinking of your organization just now, if the position of director were to become available, how likely is it that a woman could hold the position of director?* and giving respondents the option of selecting a number between 1 (*not at all likely*) and 5 (*very likely*). Table 1 presents the mean score by country and gender. The disadvantage of this measure is that it is self-reported. If perceptions of the likelihood that a woman would become director are correlated with individual characteristics, such as attitudes or personality traits, inability to account for these factors would preclude estimation of the partial effect on job satisfaction of perceived women's prospects for top leadership roles. We address this problem by including measures of personality traits as well as aspirations variables in our regressions.

We use two personality measures. The first, locus of control, assesses the degree to which a person believes that outcomes are determined by own behavior, rather than fate or luck (Rotter 1966). The second measure, need for challenge versus affiliation, measures a person's preference for 'getting ahead' rather than 'getting along' (Hill et al. 1985). Summary statistics for the personality trait variables are provided in the Supplementary Information file.

We also include several variables that identify what workers want and their expectation of receiving it if they do their job well. Participants were asked first to rate the desirability of various work aspects using a five-point Likert scale: good pay, job security, promotion opportunities, praise by supervisor, respect from co-workers, chance to learn new things, chance to accomplish something worthwhile, freedom on the job, friendly co-workers, chance to feel good about oneself, and chance to develop new skills. They were then asked to assess the likelihood of receiving each of the aspiration variables, again using a five-point Likert scale. Because job satisfaction among workers in these six transition economies is influenced more by the expectation of receiving desired rewards rather than undesired rewards (Linz and Semykina 2012), we calculate and utilize the gap (desired minus expected) in our analysis.¹⁵ Summary statistics are provided in the Supplementary Information file.

Our data, collected from employees in more than 700 workplaces, contain information on ownership (public versus private establishments), as well as the

14. Rice et al. (1991), Staples and Higgins (1998), Wanous et al. (1997), among others, however, show that a single-item measure of job satisfaction works as well as composite measures.

15. We thank the anonymous reviewer for suggesting this strategy.

economic sector of each firm, which we incorporate in our regression analysis. We also construct and use workplace-averaged variables to account for unobserved workplace-specific characteristics, which potentially may be important for job satisfaction. Details are provided in the following subsection.

2. Estimation strategy

In order to estimate the partial effect on job satisfaction of the perceived chance that a woman will become director of the organization, we employ regression analysis. The overall level of job satisfaction of worker i in firm j is denoted as y_{ij}^* , and is modeled as

$$y_{ij}^* = \alpha + \delta \text{WomanDirector}_{ij} + \beta X_{ij} + \gamma Z_j + \varphi W_{ij} + c_j + u_{ij}, \quad (1)$$

where $\text{WomanDirector}_{ij}$ measures the perceptions of worker i about the chance that a woman will become a director of firm j , X_{ij} is the vector of worker characteristics (worker's age and its square, years of education and its square, tenure, dummy variables for the marital status and supervisory responsibilities, natural logarithm of worker's monthly earnings, and a dummy variable for holding multiple jobs), Z_j is the vector of observed workplace characteristics (an indicator equal to one if the firm is state-owned, and sector dummy variables¹⁶), W_{ij} includes measures of worker personality and the gap between aspirations and expectations, c_j is the unobserved firm effect, and u_{ij} is the idiosyncratic error.

Worker and firm characteristics in equation (1) are likely correlated with perceived chance that a woman will become director. Therefore, failure to account for these factors will lead to an omitted variable bias: part of the variation in job satisfaction may be wrongly attributed to $\text{WomanDirector}_{ij}$, while in fact the effect is due to variation in worker skills and personality, as well as attributes of the workplace. Our data provide detailed worker information, which minimizes the chance that biases would arise due to omitted worker characteristics. However, firm information is limited to the sector and ownership type, so that many workplace characteristics that are potentially correlated with $\text{WomanDirector}_{ij}$ remain unobserved. To address this problem, we employ the correlated random effects approach¹⁷ proposed by Chamberlain (1980) and model the unobserved firm effect as

$$c_j = \psi \bar{F}_j + \xi \bar{X}_j + \theta \bar{E}_j + a_j, \quad (2)$$

16. Dummy variables were created for the following sectors: health/education organization, retail and other service, banking/finance organization, public organization, and construction/transportation organization. Manufacturing was used as a reference group.

17. This approach was used, for example, by Clark et al. (2009) to study the impact of peers' earnings on job satisfaction.

where \bar{F}_j is the proportion of female workers at the workplace, \bar{X}_j is a vector of worker characteristics (included in X_{ij}) averaged at the workplace level, and \bar{E}_j is a vector of worker expectations averaged at the workplace level.¹⁸ These workplace-averaged variables help to capture variation in unobserved firm characteristics. For example, a greater proportion of female workers may indicate a higher chance that the workplace is family-friendly, or that the work is less physically demanding; it can also capture occupational segregation by gender. Similarly, hazardous conditions are less likely in firms that employ well-educated workers; average expectations of receiving rewards for work well done are likely higher at firms strongly interested in motivating their employees.

To assess the importance of omitted variable bias and study the possible sources of the bias, we consider several specifications. First, we control only for basic worker and workplace characteristics, X_{ij} and Z_j . Second, we add controls for personality traits and the gap between desired and expected rewards, W_{ij} . Comparing these two specifications, it is possible to analyze the bias due to omitting measures of personality and attitudes/expectations (data rarely available to researchers). In the third specification, to help assess bias due to failure to control for unobserved workplace characteristics, we add controls for average worker characteristics and average firm characteristics (E_{ij} , \bar{F}_j , \bar{X}_j , and \bar{E}_j).

To further disentangle the sources of non-zero correlation between job satisfaction and the perceived chance that a woman will become a director of the firm, we consider an extended model:

$$y_{ij}^* = \alpha + \delta \text{WomanDirector}_{ij} + \beta X_{ij} + \gamma Z_j + \varphi W_{ij} + \pi E_{ij} + \eta EP_{ij} + \rho \text{WorkerDirector}_{ij} + c_j + u_{ij}, \quad (3)$$

where EP_{ij} is the number of promotions a worker expects to receive in the next five years, $\text{WorkerDirector}_{ij}$ is the perceived chance that the worker himself/herself will become a director of the organization,¹⁹ and all other variables are as defined above. Here we considered two specifications: one that includes the expected number of promotions only, and one that includes both the

18. Because of these variables, we only consider workplaces where at least five employees participated in the survey. Because our data are not representative at the firm level, our estimates may suffer from the selection bias. As an alternative approach, we tried including firm dummies in the regressions; however, in most of these regressions convergence could not be achieved. The estimates could only be obtained for men and women in Serbia, where results were very similar to those obtained using the correlated random coefficients approach.
19. The variable $\text{WorkerDirector}_{ij}$ was obtained from responses to the following question: *Thinking of your organization just now, if the position of director were to become available, how likely is it that you could hold the position of director?* Participants were given a scale of 1 (*not at all likely*) to 5 (*extremely likely*).

expected number of promotions and $WorkerDirector_{ij}$. Comparisons between these additional specifications allow us to check for the presence of the ‘signal effect’ discussed in Subsection 1 of Section II.

To evaluate whether there are gender differences, we first pool the data, and conduct the regression analysis separately for men and women. Next, we perform the same analysis by country to study cross-country differences. To check for generational differences, we repeat the analysis for younger and older men and women.²⁰

Because our dependent variable is a discrete measure of job satisfaction, which takes on values from 1 (*not at all satisfied*) to 5 (*very satisfied*), we use ordered probit as the estimation method. Year and location dummies are included in all regressions (please see footnote 10). To account for intra-firm correlation in unobservable characteristics that affect job satisfaction, standard errors in all regressions were adjusted for clustering at the firm level.

IV. RESULTS

1. Perceived gender inequality in advanced promotion opportunities

Before presenting regression results, we provide descriptive analysis of worker perceptions of the likelihood that women will hold top executive positions, in general and at their workplace. Table 2 displays weighted results for the percent of workers who think it is *very likely* that a woman would be top executive in a variety of different organizations; in most cases it is below 50%. This suggests that glass ceiling perceptions are widely held. However, female survey participants tend to be more optimistic than men. Gender differences tend to be larger and more statistically significant in among participants in Armenia, Kazakhstan, and Russia.

Both men and women think it is more likely that a woman will reach the upper managerial rank if the position is in a ‘traditional’ field. For example, in most locations, the percent of male and female survey participants who believe it is very likely that a woman would be a director of a school, hospital, or sanatorium/rest house, exceeds 50%. The numbers also are relatively high (30% or more) for the likelihood that a woman could be a director in a light industry organization (food processing, clothing, or toy manufacturing plant), retail shop, educational institution, theatre, or Minister of Culture. In contrast, few survey participants think that a woman is likely to be a director of a machine building or aviation plant.

Finally, the data illuminate sample-related country differences in response patterns. The percentages are generally higher among Kazakh and Kyrgyz

20. We thank the anonymous reviewer for suggesting that we do the analysis by age group.

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Table 2
Percent of Workers Who Report It Is Very Likely That a Woman Would Hold a Top Executive Position

	Armenia		Azerbaijan		Kazakhstan		Kyrgyzstan		Russia		Serbia	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Director of machine building plant	7.8	6.3	10.0	3.9	18.4	24.8	7.5	8.9	5.4	5.7	2.4	9.0
Director of clothing manufacturing plant	30.1	34.5	47.1	62.4	24.1	57.1	66.9	63.9	54.6	65.0	32.2	24.6
Head of ministry	8.8	10.9	12.2	9.7	13.0	26.1	7.2	13.8	5.2	7.7	26.1	26.6
Rector of university	30.5	37.7	48.8	39.9	28.8	54.2	45.8	47.0	33.1	30.0	5.3	6.4
Director of institute	33.4	46.5	36.7	38.0	35.6	61.7	49.0	53.8	42.0	44.1	10.8	9.1
Director of school	52.7	67.4	86.9	82.1	42.7	65.8	70.3	75.9	74.5	83.9	25.1	21.9
Director of hospital	37.4	49.8	80.5	77.1	72.6	65.1	64.1	68.1	62.9	74.0	28.4	34.9
Director of retail shop	33.1	48.6	30.6	36.5	56.8	67.1	66.5	64.1	64.5	78.9	42.8	44.3
Director of financial business/bank	13.3	21.0	25.8	24.2	25.8	47.8	41.6	45.2	27.8	36.9	30.2	35.6
Director/owner of large business ^a	12.6	16.9	26.6	24.9	23.1	41.9	28.2	35.2	29.1	36.3	24.7	30.6
Mayor	11.7	15.3	23.6	18.5	11.8	23.9	25.8	27.2	13.8	23.1	22.7	30.6
Head of regional administration	12.9	14.7	29.1	20.7	15.3	31.4	25.6	30.0	21.2	29.1	35.7	32.4
Director of food processing plant	25.3	31.2	44.7	47.8	30.3	48.2	50.4	51.4	46.3	57.5	19.6	12.7
Minister of culture	27.1	32.5	33.6	37.0	29.1	55.8	49.0	50.3	41.8	54.1	23.0	25.7
Director of theatre	29.9	33.9	52.6	47.9	33.4	62.4	60.7	45.9	44.0	48.7	30.6	27.2
Director of news organization, TV	26.2	29.1	35.4	25.0	29.8	56.2	55.8	44.2	37.3	41.6	26.6	24.7
Director of aviation plant	8.7	10.6	11.1	6.4	9.9	20.1	15.9	8.6	5.7	8.1	10.1	5.0
Director of toy manufacturing plant	25.0	36.6	35.5	32.1	22.1	53.0	41.5	42.6	34.2	43.6	28.7	19.1
Director of sanatorium / rest house	39.0	52.9	59.2	60.9	29.3	63.1	69.5	59.6	54.3	69.1	41.6	29.5

Weights were used to obtain results. The numbers are in **bold (italics)** if the corresponding gender difference is statistically significant at the 5% (10%) level or better. ^aLarge business means 200 employees or more.

survey participants, and smallest among Serbs. The high percentages in the Kazakhstan data are likely due to the higher proportion of female managers in the sample. In Kyrgyzstan, the result may be due to the high proportion of government (public sector) employees in the sample. Employees in state-owned organizations, where pay is relatively low but job security is relatively high, may be more outspoken about the importance of gender equality at their workplace, even if such practices are not being enforced within their organization. Moreover, the findings for Kazakhstan and Kyrgyzstan are consistent with predictions outlined at the end of Subsection 2 of Section II.

When specifically asked about their own organization (see Table 3), a significantly smaller proportion of survey participants responded that it would be *very likely* that a woman would become a director at their workplace if the position became available. As seen in the upper panel of Table 3, the patterns by sector are consistent with the results reported in Table 2. When ignoring cells with less than 20 observations, the percentages are generally higher among survey participants who work in education or health, and small for workers in manufacturing. Remarkably, female survey participants in Kazakhstan tend to be more optimistic about women's advancement at their firm than other groups of workers. Nevertheless, in all six countries, substantially fewer than 50% select *very likely*.

Perhaps not surprisingly, an even smaller percent of workers believe that they themselves are likely to reach the top executive rank in their organization (lower panel in Table 3). When focusing on cells with 20 or more observations, the numbers rarely exceed 20%, and are typically lower for women than for men. A notable exception is Kazakhstan, where percentages are relatively high, and where female survey participants are generally more optimistic than men about their own chances for advancing to a top managerial position. In all locations, however, gender differences are typically not statistically significant. We note that percentages are strikingly small among Russian participants (less than 4%). This is likely due to the fact that Russian data had the greatest proportion of large firms (more than 1000 employees), where chances for a particular worker to become top manager are quite small.

2. Regression analysis

Pooled regressions

Table 4 presents the weighted ordered probit regression results for men and women using the pooled data. In all specifications, for both men and women, the coefficients on perceived chance that a woman will become a director are positive and statistically significant. The last two columns in Table 4 aim to test whether there is a 'signal effect' associated with perceived promotion opportunities. In column (4), the coefficient on the number of expected promotions is

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Table 3

Percent of Workers Who Report It is Very Likely That a Woman/Worker Will Become a Director at Their Organization, by Sector

	Armenia		Azerbaijan		Kazakhstan		Kyrgyzstan		Russia		Serbia	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
<i>Woman director</i>												
Overall	21.0 (n = 548)	14.7 (n = 594)	12.5 (n = 534)	27.1 (n = 304)	6.0 (n = 398)	29.9 (n = 410)	8.3 (n = 261)	21.2 (n = 618)	8.1 (n = 432)	29.8 (n = 1017)	25.9 (n = 730)	22.4 (n = 682)
By sector:												
Manufacturing	7.3 (n = 148)	6.2 (n = 125)	14.2 (n = 269)	13.3 (n = 133)	2.0 (n = 121)	6.5 (n = 51)	5.9 (n = 2)	0.0 (n = 3)	9.3 (n = 201)	20.2 (n = 387)	18.6 (n = 187)	31.0 (n = 158)
Education / health	51.3 (n = 135)	21.3 (n = 98)	11.8 (n = 47)	47.4 (n = 93)	37.4 (n = 33)	39.5 (n = 69)	56.5 (n = 17)	12.2 (n = 123)	10.6 (n = 71)	41.5 (n = 368)	32.0 (n = 58)	24.3 (n = 81)
Services	19.5 (157)	25.7 (n = 178)	10.0 (n = 89)	22.0 (n = 40)	15.0 (n = 143)	23.8 (n = 170)	7.1 (n = 15)	22.1 (n = 28)	4.0 (n = 88)	26.8 (n = 179)	32.9 (n = 148)	15.5 (n = 164)
Finance	0.0 (n = 10)	5.2 (n = 18)	2.4 (n = 64)	18.6 (n = 17)	13.4 (n = 18)	44.2 (n = 27)	9.5 (n = 5)	11.9 (n = 5)	0.0 (n = 12)	0.0 (n = 1)	20.8 (n = 111)	22.5 (n = 114)
Public	9.7 (n = 86)	10.7 (n = 153)	4.0 (n = 25)	4.9 (n = 21)	9.6 (n = 59)	45.1 (n = 87)	5.6 (n = 218)	26.3 (n = 457)	16.5 (n = 24)	34.5 (n = 58)	25.9 (n = 148)	21.4 (n = 139)
Construction	9.9 (n = 12)	15.9 (n = 22)	18.7 (n = 40)	- (n = 0)	1.0 (n = 24)	96.2 (n = 6)	0.0 (n = 4)	0.0 (n = 2)	0.8 (n = 36)	32.1 (n = 27)	31.6 (n = 78)	8.3 (n = 26)
<i>Worker director</i>												
Overall	8.3 (n = 548)	6.2 (n = 594)	8.2 (n = 534)	7.4 (n = 304)	8.3 (n = 398)	20.2 (n = 410)	4.2 (n = 261)	6.6 (n = 618)	2.4 (n = 432)	2.3 (n = 1017)	8.0 (n = 730)	8.4 (n = 682)
By sector:												
Manufacturing	2.7 (n = 148)	5.6 (n = 125)	7.1 (n = 269)	5.0 (n = 133)	1.1 (n = 121)	5.7 (n = 51)	0.0 (n = 2)	0.0 (n = 3)	3.0 (n = 201)	1.8 (n = 387)	4.9 (n = 187)	12.0 (n = 158)
Education / health	16.8 (n = 135)	9.0 (n = 98)	8.9 (n = 47)	12.0 (n = 93)	36.1 (n = 33)	14.4 (n = 69)	0.0 (n = 17)	2.4 (n = 123)	2.7 (n = 71)	2.7 (n = 368)	2.0 (n = 58)	16.8 (n = 81)
Services	9.0 (157)	6.2 (n = 178)	2.2 (n = 89)	5.6 (n = 40)	27.2 (n = 143)	29.2 (n = 170)	4.0 (n = 15)	5.8 (n = 28)	1.0 (n = 88)	3.4 (n = 179)	3.0 (n = 148)	1.7 (n = 164)
Finance	0.0 (n = 10)	0.0 (n = 18)	7.7 (n = 64)	0.0 (n = 17)	35.0 (n = 18)	6.0 (n = 27)	9.5 (n = 5)	11.9 (n = 5)	0.0 (n = 12)	0.0 (n = 1)	13.7 (n = 111)	13.1 (n = 114)
Public	4.5 (n = 86)	4.0 (n = 153)	10.2 (n = 25)	2.8 (n = 21)	17.7 (n = 59)	24.3 (n = 87)	4.4 (n = 218)	8.9 (n = 457)	0.0 (n = 24)	0.0 (n = 58)	22.8 (n = 148)	7.5 (n = 139)
Construction	35.6 (n = 12)	21.0 (n = 22)	18.1 (n = 40)	- (n = 0)	13.3 (n = 24)	76.3 (n = 6)	0.0 (n = 4)	0.0 (n = 2)	3.2 (n = 36)	0.0 (n = 27)	0.6 (n = 78)	2.1 (n = 26)

Weights were used to obtain results. The numbers are in **bold (italics)** if the corresponding gender difference is statistically significant at the 5% (10%) level.

Table 4

Weighted Ordered Probit Estimates for Job Satisfaction: All Countries (Pooled)		(1)	(2)	(3)	(4)	(5)
	Worker and firm characteristics	Yes	Yes	Yes	Yes	Yes
	Gap between desired & expected rewards	No	Yes	Yes	Yes	Yes
	Personality traits	No	Yes	Yes	Yes	Yes
	Average worker characteristics	No	No	Yes	Yes	Yes
	Average expected rewards	No	No	Yes	Yes	Yes
Women (n = 3,625)	Expected promotions				0.147*** (0.035)	0.147*** (0.035)
	Worker becomes a director					-0.021 (0.029)
	Woman becomes a director	0.070*** (0.023)	0.071*** (0.023)	0.067*** (0.023)	0.064*** (0.023)	0.070*** (0.024)
Men (n = 2,903)	Expected promotions				0.163*** (0.045)	0.163*** (0.045)
	Worker becomes a director					-0.003 (0.049)
	Woman becomes a director	0.081** (0.032)	0.065** (0.030)	0.069** (0.031)	0.068** (0.031)	0.069** (0.035)

Standard errors adjusted for clustering at the firm level are in parentheses under the coefficient estimates.

***significant at the 1% significance level, **5% level, *10% level.

All regressions include country, year, and location dummies.

positive and significant among men and women. In column (5), the coefficient on the perceived chance that the worker her/himself will become a director is negative, but not statistically significant, and the coefficient on the general perception that a woman will become a director remains unchanged, indicating no 'signal effect'.

Women's regressions

Table 5a reports results by country from the weighted ordered probit regressions for women. In the first specification, coefficients on the perceived chance that a woman will become director are positive and statistically significant among participants in Armenia and Russia. As discussed earlier, the positive effects may be due to differences in worker or firm characteristics. Our results indicate little influence of personality traits and aspiration-related variables: among Armenian participants the coefficient on the perceptions variable becomes slightly smaller (column 2); among Russian participants there is no change. Including workplace-averaged worker characteristics and expected rewards

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Table 5a

Weighted Ordered Probit Estimates for Job Satisfaction: Women

	(1)	(2)	(3)	(4)	(5)
	Yes	Yes	Yes	Yes	Yes
Worker and firm characteristics					
Gap between desired & expected rewards	No	Yes	Yes	Yes	Yes
Personality traits	No	Yes	Yes	Yes	Yes
Average worker characteristics	No	No	Yes	Yes	Yes
Average expected rewards	No	No	Yes	Yes	Yes
Armenia (n = 594)				0.109** (0.054)	0.116** (0.054)
Worker becomes a director					-0.075 (0.076)
Woman becomes a director	0.160*** (0.052)	0.141*** (0.050)	0.174*** (0.050)	0.177*** (0.049)	0.207*** (0.060)
Azerbaijan (n = 304)				0.050 (0.093)	0.050 (0.095)
Worker becomes a director					-0.002 (0.112)
Woman becomes a director	-0.013 (0.074)	-0.073 (0.072)	-0.209** (0.095)	-0.208** (0.095)	-0.207** (0.092)
Kazakhstan (n = 410)				0.141 (0.155)	0.147 (0.154)
Worker becomes a director					0.028 (0.090)
Woman becomes a director	-0.021 (0.059)	0.009 (0.062)	-0.030 (0.061)	-0.036 (0.061)	-0.047 (0.064)
Kyrgyzstan (n = 618)				0.191** (0.080)	0.192** (0.079)
Worker becomes a director					-0.010 (0.084)
Woman becomes a director	0.085 (0.065)	0.060 (0.070)	0.047 (0.085)	0.045 (0.087)	0.047 (0.087)
Russia (n = 1,017)				0.269*** (0.068)	0.260*** (0.067)
Worker becomes a director					0.067 (0.042)
Woman becomes a director	0.078** (0.030)	0.078*** (0.030)	0.078*** (0.030)	0.070** (0.031)	0.063* (0.032)
Serbia (n = 682)				0.004 (0.104)	-0.008 (0.101)
Worker becomes a director					-0.109 (0.081)
Woman becomes a director	-0.053 (0.082)	-0.021 (0.081)	0.003 (0.103)	0.003 (0.103)	0.031 (0.101)

Standard errors adjusted for clustering at the firm level are in parentheses under the coefficient estimates. ***significant at the 1% significance level, **5% level, *10% level. The effects are in **bold (italics)** if gender differences are statistically significant at the 5% (10%) level. All regressions include year and location dummies.

(column 3) has a similarly small effect. Interestingly, among Azeri participants, the link between job satisfaction and the perception variable is negative, and becomes statistically significant when additional workplace-averaged characteristics are included (column 3). We also test joint significance of the groups of variables (worker and firm characteristics, gaps between desired and expected rewards, etc.), and often find that they are jointly statistically significant (see Supplementary Information file).²¹

Regarding whether there is a 'signal effect' associated with perceived promotion opportunities, after the number of expected promotions and perceived chance that the worker herself will become a director are added in the regressions (columns 4 and 5), the coefficient on the perceived chance that the woman will become director is almost unchanged and remains highly significant among Armenian female workers, and marginally significant in the Russian sample. This suggests that the 'signal effect' is either zero or close to zero; however, Armenian and Russian female survey participants enjoy working at firms that promote equality at the top. In all other locations, the results are roughly unchanged.

The fact that the perceived likelihood for women's leadership does not play an important role in explaining the variation in job satisfaction among female Kazakh, Kyrgyz, and Serbian participants may be explained by several factors. As discussed in Subsection 2 of Section II, women's involvement in business ownership and government, as well as female-to-male earnings ratio are relatively high in Serbia. Similarly, gender inequality in Kazakhstan and Kyrgyzstan is less pronounced. Among all groups of workers included in the survey, Kazakh and Kyrgyz women demonstrated the lowest perceptions of glass ceiling. Moreover, the proportion of women with supervisory responsibilities is relatively high in the Kazakhstan sample. Thus, these women may not feel discrimination. In Azerbaijan, the negative link between job satisfaction and perceived chance for women's authority may be due to the fact that nearly 50% of women in the Azerbaijan sample work in manufacturing. Manufacturing is traditionally viewed as men's sector, suggesting that Azeri women may believe it would be inappropriate for a woman to be top manager in their organization. Moreover, as discussed in Subsection 2 of Section II, in Azerbaijan men are more likely than women to enroll in tertiary education, which might motivate the perception that men are more suitable for top leadership positions.

As discussed above, female workers may be indifferent to women's chances for advanced career opportunities if they have learned to accept men's dominance in authority as a norm. To check whether it may be the case in our data, we

21. We thank the anonymous reviewer for suggesting this additional analysis.

ran regressions by age group.²² Results are reported in the Supplementary Information file. Consistent with our expectations, a significant positive link between job satisfaction and perceived chance for women's advancement to the top level is more common among younger women; effects are statistically significant in Armenia, Kazakhstan, and Russia. Indeed, the negative relationship found in the Azerbaijan sample is observed only among older Azeri women.

Men's regressions

Table 5b displays estimation results by country from the weighted ordered probit regressions for men. Among male participants in Azerbaijan, there are positive effects of the perceived chance that a woman will become director, even after controlling for worker personality, aspirations, and firm characteristics. In Kazakhstan and Kyrgyzstan, the results indicate the presence of a 'signal' effect. Although highly significant in columns (4) and (5), the coefficients on *WomanDirector_{ij}* become insignificant once the perceived chance that the worker himself will become a director is included in regressions. In Armenia and Serbia, the coefficient on the perceived probability that a woman will advance to the top of the organization is positive, but never statistically significant. In Russia, the perceived chance that a woman will become a director has a small negative (usually insignificant) effect on job satisfaction of men. Moreover, as seen in Tables 5a-5b, gender differences in coefficients are highly significant in Azerbaijan and Russia, and somewhat significant in Armenia and Kazakhstan.

When repeating the regression analysis for younger and older generation men, significant positive coefficients on the perceived chance that a woman will become director are slightly more common among younger men (see Supplementary Information file). However, generational differences among men are much less systematic than among women.

Quantitative effects

While the coefficients in the ordered probit regressions are useful for evaluating qualitative effects of the perceived women's advanced career opportunities on job satisfaction, they do not have direct quantitative interpretation. To obtain quantitative effects, we compute predicted probabilities that the worker is satisfied with the job (that is, the job satisfaction variable takes on the value 4 or 5)

22. Unfortunately, we could not use the same age thresholds in all locations for technical reasons; estimation did not converge in some subsamples, possibly due to insufficient heterogeneity within the age group. Therefore, we searched for subsample-specific thresholds, for which we could achieve convergence. For these reasons, the 'younger' groups of female workers in Azerbaijan and Kazakhstan are substantially younger than the other 'younger' groups.

Table 5b

Weighted Ordered Probit Estimates for Job Satisfaction: Men

	(1)	(2)	(3)	(4)	(5)
Worker and firm characteristics	Yes	Yes	Yes	Yes	Yes
Gap between desired & expected rewards	No	Yes	Yes	Yes	Yes
Personality traits	No	Yes	Yes	Yes	Yes
Average worker characteristics	No	No	Yes	Yes	Yes
Average expected rewards	No	No	Yes	Yes	Yes
Armenia (n = 548)				0.079 (0.063)	0.079 (0.063)
Worker becomes a director					-0.108 (0.082)
Woman becomes a director	0.071 (0.059)	0.028 (0.054)	0.036 (0.054)	0.037 (0.054)	0.065 (0.060)
Azerbaijan (n = 534)				0.324*** (0.083)	0.324*** (0.082)
Worker becomes a director					-0.018 (0.101)
Woman becomes a director	0.206*** (0.056)	0.176*** (0.062)	0.177*** (0.064)	0.169** (0.068)	0.172** (0.078)
Kazakhstan (n = 398)				0.571** (0.239)	0.559** (0.253)
Worker becomes a director					0.308** (0.141)
Woman becomes a director	0.105 (0.079)	0.181* (0.101)	0.315*** (0.118)	0.336*** (0.122)	0.183 (0.124)
Kyrgyzstan (n = 261)				0.247** (0.109)	0.243** (0.104)
Worker becomes a director					0.266** (0.134)
Woman becomes a director	0.154 (0.116)	0.195 (0.127)	0.204** (0.086)	0.255* (0.147)	0.178 (0.129)
Russia (n = 432)				0.219** (0.090)	0.220** (0.091)
Worker becomes a director					-0.015 (0.104)
Woman becomes a director	-0.114** (0.056)	-0.104* (0.054)	-0.078 (0.063)	-0.081 (0.063)	-0.078 (0.059)
Serbia (n = 730)				-0.066 (0.168)	-0.062 (0.169)
Worker becomes a director					-0.152* (0.079)
Woman becomes a director	-0.009 (0.047)	0.053 (0.063)	0.113 (0.081)	0.112 (0.081)	0.119 (0.084)

Standard errors adjusted for clustering at the firm level are in parentheses under the coefficient estimates. *** significant at the 1% significance level, ** 5% level, * 10% level.

The effects are in **bold (italics)** if gender differences are statistically significant at the 5% (10%) level. All regressions include year and location dummies.

for two values of the perceived chance that a woman will become a director of the firm: 1 (*not at all likely*) and 5 (*very likely*). This helps to assess the maximal effect of the perceptions variable on job satisfaction. Specifically, for each respondent in a given regression sample, we used the ordered probit formulae to compute the predicted probability that the job satisfaction variable takes on value 4 or 5 when variable $WomanDirector_{ij}$ is set to equal one (all other variables kept at their actual values) and averaged the predictions in the sample. Similarly, we obtained the average predicted probability of being satisfied for the case when $WomanDirector_{ij}$ is equal to five.

Results are reported in Table 6. Changes in the predicted probabilities when $WomanDirector_{ij}$ increases from 1 to 5 are at times rather large. The estimated effects tend to be greater among men than among women. After the observed worker and firm characteristics have been accounted for, the predicted changes in probability of being satisfied with the job are particularly large among male survey participants in Azerbaijan, Kazakhstan, and Kyrgyzstan, where the estimated increase is roughly 22, 28, and 23 percentage points, respectively. The estimates are also substantial among female employees in Armenia and Russia (about 21 and 11 percentage points, respectively). Among Kyrgyz female survey participants, the predicted changes are sizable (about 5 percentage points), but not systematic.

A large negative effect is observed among Azeri female survey participants; the predicted probability changes by approximately 16 percentage points. There are also sizable negative predicted changes among male Russian workers (about 9 percentage points), although these effects are not statistically significant.

V. CONCLUSIONS

Using data collected from employees in six formerly socialist economies, we examined the link between job satisfaction and perceived opportunities for women to hold senior-level positions. Thanks to availability of unusually rich data we are able not only to investigate whether job satisfaction correlates with perceived chance for women's advancement to the top executive level, but also to examine the sources of such correlation.

Among workers who participated in our survey, job satisfaction often is positively related to the perceived chance that a woman will become director of the organization. When a significant correlation is present, it is found to be partly due to worker personality and firm characteristics. However, our results also indicate that some male workers perceive lack of inequality at the top as an indicator of own promotion opportunities, which increases their job satisfaction. Among female workers, such a 'signal' effect is close to zero. Moreover, in some groups of survey participants (Armenian and Russian women; Azeri men), it

Table 6

Predicted Probability of Being Satisfied with the Job (job satisfaction = 4 or 5) When the Perceived Chance That a Woman Will Become a Director Is Equal to Either 1 (not likely at all) or 5 (very likely)

		(1)	(2)	(3)	(4)	(5)
	Worker and firm characteristics	Yes	Yes	Yes	Yes	Yes
	Desired rewards	No	Yes	Yes	Yes	Yes
	Personality traits	No	Yes	Yes	Yes	Yes
	Expected rewards	No	No	Yes	Yes	Yes
	Average worker characteristics	No	No	Yes	Yes	Yes
	Average expected rewards	No	No	Yes	Yes	Yes
	Expected promotions	No	No	No	Yes	Yes
	Worker becomes a director	No	No	No	No	Yes
<i>WOMEN</i>						
Armenia	Woman becomes a director = 1	42.18	44.03	42.48	42.33	40.39
(n = 594)	Woman becomes a director = 5	63.57	61.94	63.47	63.56	65.19
Azerbaijan	Woman becomes a director = 1	51.08	53.70	58.72	58.69	58.68
(n = 304)	Woman becomes a director = 5	49.55	46.96	43.05	43.07	43.09
Kazakhstan	Woman becomes a director = 1	71.04	68.91	71.97	72.39	73.09
(n = 432)	Woman becomes a director = 5	68.41	69.96	68.85	68.64	68.22
Kyrgyzstan	Woman becomes a director = 1	68.36	70.03	70.72	70.92	70.82
(n = 618)	Woman becomes a director = 5	78.23	76.33	75.39	75.31	75.46
Russia	Woman becomes a director = 1	45.48	45.61	45.77	46.35	46.78
(n = 1,017)	Woman becomes a director = 5	56.87	56.66	56.68	55.97	55.42
Serbia	Woman becomes a director = 1	57.36	54.98	53.18	53.19	51.48
(n = 682)	Woman becomes a director = 5	49.79	52.04	53.63	53.62	55.42
<i>MEN</i>						
Armenia	Woman becomes a director = 1	42.47	46.13	45.45	45.42	43.52
(n = 548)	Woman becomes a director = 5	52.34	49.70	49.85	49.97	51.53
Azerbaijan	Woman becomes a director = 1	31.00	34.11	34.74	35.47	35.31
(n = 534)	Woman becomes a director = 5	59.91	57.66	56.56	55.52	55.64
Kazakhstan	Woman becomes a director = 1	62.38	58.05	52.28	51.49	60.05
(n = 405)	Woman becomes a director = 5	74.49	77.32	80.76	80.97	76.00
Kyrgyzstan	Woman becomes a director = 1	53.58	52.62	54.14	50.70	54.29
(n = 261)	Woman becomes a director = 5	72.06	74.22	77.53	76.37	72.22
Russia	Woman becomes a director = 1	67.46	66.13	64.45	64.65	64.51
(n = 432)	Woman becomes a director = 5	51.70	53.10	55.21	55.21	55.34
Serbia	Woman becomes a director = 1	48.28	43.69	39.86	39.94	39.52
(n = 730)	Woman becomes a director = 5	47.05	50.73	54.35	54.28	54.61

All regressions include year and location dummies.

The numbers are in **bold (italic)** if the difference between the two effects (woman becomes a director = 1 and woman becomes a director = 5) in the ordered probit regression is significant at the 5% (10%) significance level.

appears that workers derive higher satisfaction from working in organizations that use equitable promotion practices, as the positive effect cannot be explained by other factors.

Among participants of the survey, the positive effect of perceived chance that a woman will become director tends to be relatively strong among younger women, and weak among older women, which is consistent with the hypothesis that with time women learn to adapt to men's authority and become less sensitive to gender inequality in advanced promotion opportunities.

We find little evidence in support of the proposition that men dislike working for a woman. Among male survey participants, the effect of the perceived chance that a woman would become a director was negative only among Russian workers, but it was not significant. This may in part be due to relatively high unemployment rates in formerly socialist economies, especially among older workers. Older workers (including older men) may be happy to have any job at all, regardless of the leadership style or gender mix at the top executive level.

Our findings have important research and policy implications. Presented evidence suggests that promoting gender balance at the top generally benefits both men and women. Among women, these benefits are expected to be particularly large for younger workers. As promotion opportunities for women improve over time, more women may become interested in advanced careers. Hence, the gender equality factor is expected to become increasingly more important. Finally, our analysis underscores the importance of accounting for detailed worker and firm characteristics when studying job satisfaction.

Although our findings shed light on the link between job satisfaction and advanced career opportunities for women, more research is needed. Because we consider countries that are typically not studied in the literature, we are not able to assess reliability of our results in the broader context. Once more is known about formerly socialist economies, it will become possible to draw useful comparisons and derive general conclusions. Moreover, our measure of women's promotion opportunities has limitations, which we tried to overcome by using an extended set of controls in our regressions. Considering alternative measures (such as actual promotions), as well as different data sets would help to further verify the robustness of our findings. It would also be beneficial to have specific information about job amenities and firm characteristics. Additionally, availability of longitudinal data would make it possible to study the dynamics in women's promotion opportunities and their effect on worker job satisfaction. Using longitudinal data would also permit accounting for unobserved worker characteristics (see, for example, Georgellis et al. 2012). Collecting data for countries not considered in this study, as well as nationally representative data, would further allow conducting more comprehensive cross-country comparisons and obtaining results that would be representative at the national level.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Table A1. Selected Economic Indicators.

Table A2. Sample Means and Standard Deviations for Basic Worker Characteristics Using Nationally Representative Samples.

Table A3. Sample Means and Standard Deviations for Personality Traits and Their Components.

Table A4. Sample Means and Standard Deviations for Gap (Desired – Expected Reward) Variables.

Table A5. Sample Means and Standard Deviations for Within-Firm Averaged Worker Characteristics.

Table A6. Sample Means and Standard Deviations for Within-Firm Averaged Expected Rewards Variables.

Table A7a. Significance of Groups of Variables: Women

Table A7b. Significance of Groups of Variables: Men

Table A8a. Weighted Ordered Probit Estimates for Job Satisfaction: Younger Women

Table A8b. Weighted Ordered Probit Estimates for Job Satisfaction: Older Women

Table A8c. Weighted Ordered Probit Estimates for Job Satisfaction: Younger Men

Table A8d. Weighted Ordered Probit Estimates for Job Satisfaction: Older Men

SUMMARY

Does gender equality in advanced promotion opportunities in the workplace have consequences for job satisfaction? We use data collected from workers in six formerly socialist economies (Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Russia, and Serbia) to investigate the link between job satisfaction and the perceived chance that a woman would hold a senior-level position at the firm. Among many survey participants, such a link exists and is positive; that is, these survey participants enjoy working at firms that promote gender balance at the top. The positive link is explained in part by worker personality/attitudes and firm characteristics, and in part by the result that participating workers often enjoy higher job satisfaction because they perceive the lack of 'glass ceiling' as a signal of improved own career opportunities. Among women, positive effects are more significant for younger workers. We discuss possible explanations for these findings, as well as cross-country differences and policy implications.