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Yuping Zhang and Emily Hannum
University of Pennsylvania
and
Meiyan Wang
Chinese Academy of Social Sciences

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The International Centre for the Study of East Asian Development, Kitakyushu

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Yuping Zhang and Emily Hannum
Department of Sociology
3718 Locust Walk
University of Pennsylvania
Philadelphia, PA 19104-6299
yupingz@ssc.upenn.edu, hannumem@soc.upenn.edu

Meiyan Wang
Institute of Population and Labor Economics
Chinese Academy of Social Sciences
5 Jianguomennei Dajie
Beijing, China 100732
wangmy@cass.org.cn

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Gender-Based Employment Differences in Urban China: The Contributions of Marriage and Parenthood

Abstract

Market reforms in China have brought enormous changes to employment, most notably the emergence of a competitive urban labor market. Researchers have argued that the human and political capital disadvantages of women and new discrimination are important factors that sustain gender gaps in the new urban labor market.

Analyzing a five-city urban labor survey, we show that gender disparities in human and political capital fail to explain gender gaps in work status and income. Moreover, we find no evidence of across-the-board discrimination against women. Instead, gender gaps in employment and earnings emerge primarily among the married and parents, groups for whom the gender gap in housework time is pronounced. Results suggest the need for further research on family-work conflict.

Gender-Based Employment and Income Differences in Urban China: Considering the Contributions of Marriage and Parenthood

Market reforms in China have brought important changes to employment, most notably the replacement of the socialist job placement system with a competitive labor market, the emergence of a private sector and privatization of state-owned enterprises, and the wholesale appearance of the profit motive as an organizing feature in personnel decision-making. These changes have stimulated a great deal of research aimed at understanding implications for social inequality, with a key debate centering on a hypothesis that returns to human capital would increase as the employment system more efficiently rewards talent (for a review, see Nee and Mathews 1996).

Scholars have also linked market reforms to gender-based employment disparities. From one perspective, the market system creates incentives to base employment decisions on proxies for productivity, such as human capital, rather than ascribed traits such as gender. On the other hand, past inequities in access to education and unequal access to political capital place women at a disadvantage in a system that increasingly rewards human capital and still rewards political connections. Moreover, privatization and the profit motive may have created incentives for discrimination based on gender: managers now face stronger incentives than in the past to act on perceptions that women's home and family responsibilities make them less productive, and that maternity benefits make female employees too expensive.

Making use of an extensive urban labor survey conducted in 2001, this paper considers the scope of the gender gap in employment and earnings, then investigates possible explanations for the gap. We evaluate potential contributions of a full set of indicators of human capital, political resources, and family responsibilities to observed gender gaps. We argue that while men enjoy advantages in human capital and political resources, and these factors are strong predictors of labor outcomes, neither significantly explains gender gaps. Instead, results point to the importance of family-work conflict: female disadvantages in income and employment exist only for wives and mothers, controlling for other factors, and working wives and mothers spend much more time on housework than do working husbands and fathers.

This paper begins with a brief summary of research on gender, family, and employment conducted in the West and other East Asian countries, which we contrast with the literature on market transition and gender-based employment inequalities in China. We then describe our data and methods. Finally, we present an analysis of gender-based gaps in employment, income, and time use. We close with a discussion of the implications of findings for further research on gender, work and family in reform-era China.

Gender and Employment

Comparative Perspectives

The conflict between family responsibility and work has been considered one of the major causes of gender disparities in labor market outcomes in the US and many other industrialized and developing countries. Research emphasizes that women's household responsibilities, particularly after marriage or childbirth, are often greater than men's. For this reason, wives and mothers face barriers to productivity in the workplace not experienced by single women, married men, or fathers.

For example, studies in the US have found a persistent wage penalty for motherhood (Waldfogel, 1997; Budig & England, 2001; Avellar & Smock, 2003; Lundberg & Rose, 2000; Anderson, 2003). Using National Longitudinal Survey of Youth data on mothers aged 14-21 in 1979, Budig and England (2001) found a wage penalty of 7 percent for each child; the penalty was larger for married women than for unmarried women. A cross-cohort comparison that also used National Longitudinal Survey of Youth data found that the penalty has not diminished over time, even after controlling for human capital and other unobserved heterogeneity (Avellar & Smock, 2003).

In identifying causes of this penalty, studies point to women's career break after childbirth, segregation into low-status jobs and part time jobs, shorter work hours, and, importantly, disproportionate share of family responsibilities in the context of dual-earner couples (Jacobs & Gornick, 2002; Jacobs, 1989, 2001; Arun, Arun, & Borooah, 2004; Reid, 2002; Cohen & Huffman, 2003). Noonan (2001) tests another explanation for the negative relationship between housework and wages for women by focusing on the fact that, typically, women and men perform different type of household chores. She found that only time spent on "female" household chores had a negative effect on wages.

Research has highlighted similar barriers to female employment in European countries (Sigle-Rushton & Waldfogel, 2004; Davies, Elias, & Pierre, 2003). Trappe and Rosenfeld (2000) found that in former West Germany, being a parent had positive effects on men's earnings, but strong negative effects on women's wages, whereas in the former East Germany, some young women balanced family and employment by taking jobs below their qualifications, and this reduced their earnings.

In East Asia, research outside of China has shown a rapid increase in women's

participation in the labor market in recent years (Brinton, 2001). For example, in South Korea, economic activity rates among 25-29 year-old women rose from 38 percent in 1980 to 58 percent in 2000; in Japan, corresponding figures were 49 and 70 percent (Hannum & Fuller, 2004, Figure 1). Despite these increases, in some East Asian countries, specifically Japan and South Korea, many women drop out of the labor force at marriage or childbirth, then re-enter in middle age. In Taiwan, where work and day care arrangements are more flexible, the trend of women's participation across the life course is more like that in the West, where many remain in the labor force after marriage and childbirth (Brinton, 2001).

In East Asian countries, the income of women lags behind that of men. In Taiwan, estimates suggest that full-time employed women earn about 69.8 percent of men's earnings, while in South Korea, full-time women earn only about 54.6 percent of men's earnings (Brinton, 2001, p. 16). The gender wage gap is particularly wide for older workers (Brinton, 2001; Yu, 2001; Brinton & Lee, 2001).

Research on why these gaps emerge has considered discriminatory attitudes, but has also placed a high degree of emphasis on the degree of difficulty of balancing family and work life, especially for mothers (Yu, 2001). Importantly, women's increasing level of economic activity in East Asia does not appear to have accompanied increases in men's domestic roles: housework and childrearing remain primarily women's work (Tsuya & Bumpass, 2004).

Reform-Era China

In some ways, China's record of female employment and earnings stands out quite favorably in comparison to its East Asian neighbors. Economic activity rates for 25-29 year-olds in China were 87 percent in 1980 and 92 percent in 2000; higher than in South Korea or Japan (Hannum & Fuller, 2004, Figure 1). Similarly, while an earnings gap between men and women

exists, it is moderate in scope (Bian et al., 2000; Shu & Bian, 2003; Maurer-Fazio & Hughes, 2002; Zhou, 2000; Wang, 2003; Xie & Hannum, 1996). For example, in national, city-based surveys for 1988 and 1997, women earned 80 to 82 percent as much as men (Parish & Busse, 2000, p. 227).

Interestingly, as China has transitioned to a market-oriented society more like its neighbors, concerns have been raised that women's status in the urban workplace may be deteriorating. Part of this concern can be characterized as a discrimination story. For example, Summerfield (1994) argued that the main threat to urban women in the wake of economic reforms occurred through discrimination in hiring and policies taken under consideration to reduce the pressure of surplus labor. This argument states that managers, faced with numerous applicants for each position and with a growing awareness of the need to minimize costs, chose male applicants over equally qualified women, citing costs of maternity and child care benefits as the reason (Summerfield, 1994; Stockman, 1994).

Consistent with this argument, attitude research has indicated that women's perceptions of discrimination were on the rise among cohorts of women who had sought jobs in more recent years (Parish & Busse, 2000). In addition, women appear to be disproportionately represented among the ranks of the laid-off, a new phenomenon in the reform era. One press account cites Ministry of Labor statistics from 1997 indicating that women accounted for only 39 percent of China's work force, but nearly 61 percent of its laid-off population (Rosenthal, 1998). Still other research suggests that even within the work force, women and men experience significantly different career trajectories. Women experience slower wage growth than men, they have to retire earlier, and they face greater obstacles at every step as they seek to secure elite administrative positions (Bian et al., 2000; Solotaroff, 2003).

Somewhat surprising in light of changing settings in which women and men work, and the changing perceptions of discrimination, is evidence suggesting that the earnings gap between men and women is stable between the pre-reform and reform periods and across different cohorts (Bian et al. 2000; Shu & Bian 2003; Maurer-Fazio & Hughes 2002; Zhou 2000). This stability suggests that male-female gaps cannot be traced to phenomena that are new in the reform period.

Part of the story might be the different skills that women and men bring to the job. Most importantly, scholars have highlighted human capital differences between men and women, as human capital has become ever more important for employment and income. Returns to education in urban China have increased rapidly, with one recent study suggesting that returns were as high as 11.5 percent per year of schooling by 1999 (Zhang & Zhao, 2002). While studies suggest that returns to education are higher for women than for men (Zhang & Zhao, 2002), past educational disparities mean that the human capital stock of women currently in the work force remains lower than that of men (Hannum & Xie, 1994; Hannum, 2005). For example, according to UNESCO estimates for the year 2000, 7.9 percent of men ages 15 and over were illiterate, compared to 22.1 percent of women (UNESCO, 2003).

Recent studies have highlighted the important role of human capital in explaining the gender gap in earnings over time and space in urban China (Bian et al., 2000; Shu & Bian, 2003). Bian et al. (2000) also note that in the change from first job to current job, women's slower wage growth is attributable in part to their lower rates of college education. Further, educational differences may play a role in gender differences in whether individuals are employed at all. Maurer-Fazio's (2001) work indicates that the more education a worker has, the better his or her protection against layoff, and the better his or her chance of being reemployed once laid off.

A related line of thinking about sources of inequality, though not new sources under

market reforms, has emphasized women's limited "connections" in the form of access to political capital. For example, Solotoroff (2003) argues that women face intentional gender discrimination from the Party and employers in obtaining elite managerial positions.

Interestingly, conflicts between family responsibilities and work have received somewhat less attention, outside of discussions of employers' discrimination based on perceptions of family-work conflicts. A few studies of labor market outcomes have included marital status and parenthood as control variables, though not as a major focus of the study (Shu & Bian, 2003; Solotaroff, 2003). Other studies have suggested that women's home responsibilities are greater than men's. Parish and Farrer (2000) found that women spent more time per week on household chores, although their estimates excluded time spent on child care and so probably underestimate the total gender gap in housework. In addition, a qualitative study of 39 couples in Beijing in 1998 found that the division of housework remained unequal among dual earner couples, although most people saw it as fair (Zuo, 2003).

Parish and Busse (2000) suggest that whereas the socialist social contract encouraged formal work for all citizens, a new non-work norm for women with small children may be emerging. This norm is manifested in data showing that declines, albeit moderate declines, in market work through 1995 were concentrated among young women. The authors interpret this finding to mean part of the shift was voluntary, as young women chose to stay home to care for children. Direct documentation of gender role attitudes in China, however, is limited (significant exceptions are Parish and Busse (2000) and Shu's (2004) study of gender attitudes and their variation with education). The trend documented by Parish and Busse (2000) might also be framed as a rising incompatibility between home and work responsibilities, as socialist institutions such as day care centers and canteens in urban work units have disappeared, and

investment of private resources in homes and children has grown.

Overall, research outside of China has highlighted the central role of family-work conflict for understanding gender-based employment and income gaps. While China's female labor force participation remains high, and estimates of gender gaps in income, low, recent trends in China itself suggest the continuing, and perhaps rising, relevance of family-work conflicts for understanding gender differences in employment and income attainment.

In this paper, we use evidence from a five-city urban labor survey to estimate the gender gap in employment and earnings among young workers, and to consider evidence about various explanations for observed gaps. We focus on human capital, political capital, and family-work conflict explanations. A strength of this study is that we capitalize on measures of human capital that are much more complete than those used in earlier studies.

Data and Methodological Approach

We analyze the China Urban Labor Survey/China Adult Literacy Survey (CULS/CALS). The CULS/CALS is a labor survey combined with a survey of adult literacy among urban workers in China. The survey was designed to measure quantitative, document, and prose literacy in the Chinese context, to allow analyses of how literacy is related to different worker characteristics, to enable the use of literacy measures to analyze how human capital affects income and employment outcomes, and to address the extent to which urban labor markets discriminate with respect to gender. Analyses using test scores in standard wage regressions and employment model estimations suggest that literacy tests measure important aspects of human capital, not captured by years of education, that have significant effects on labor outcomes (Giles, Hannum, Park, & Zhang, 2003). The CULS also contains extensive measurements of education, including training opportunities, which are not found in most surveys.

Sample

The sampling procedure for the CULS is described in Giles et al. (2003). The CULS was conducted from November 2001 to January 2002 in five large cities in China: Shenyang, Xian, Wuhan, Shanghai and Fuzhou. The survey was administered by the Institute for Population Studies at the Chinese Academy of Social Sciences, in collaboration with local offices of the National Statistical Bureau in each of the five cities. For each city, households were selected based on a probability proportional to size sampling method. The probability of sample units being chosen varied with their size such that the larger size units had a higher probability of being chosen.

There were three stages in the sampling process: In stage 1, *jiedao* (街道) or neighborhoods were selected in each city. All of the *jiedao* in the city were listed with their population size, and the sampling interval was found by dividing the total population of the city by the number of *jiedao* that needed to be chosen from the city. Then, a random start point was selected. Finally, *jiedao* were selected based on the sampling interval. In stage 2, *juweihui* (居委会) or community residents' committees) were chosen from each jiedao, following the same procedure. In stage 3, households were chosen in the same way.

Within each city, an average of 15 households was chosen from each of 70 *juweihui*. An average of 10 households would be interviewed, and an additional 5 would be available for interview if households could not be found, had moved, or refused to be interviewed. After a household was selected, all of the family members above age 16 who were no longer in school were interviewed.

From this sample, we drew a subsample of those between ages 25 and 44. We set the lower age limit at 25 to ensure that our sample is unbiased by omission of individuals who are

still in school. Among those older than 45 in the sample, there are very few cases who have never had children or who are not currently married. Since our analysis focuses on the different experiences of individuals by marital and parenting status, and marriage rates are extremely high among older respondents, we select younger cohorts with enough cases to make comparisons by marital and parenting status. We also removed all cases with missing data on relevant variables. The total sample meeting these criteria is 2280 cases.

Variables

Labor Market Outcomes

We utilize two measures of labor market outcomes: employment status and earnings (see Table 1 for detailed definitions for all variables used in the analysis). *Employment* is measured by a dummy variable indicating if a respondent was currently working or not (0=no, 1=yes). We include those who have retired but are still working in the currently working category. The non-working group includes those who have retired, those who have been laid off, those who are taking long-term illness leave or maternity leave, those who are disabled, and those who stay at home doing housework. The few cases that reported their employment status as "other" are treated as missing.

(Table 1 about here.)

We measure labor market earnings as *income* for those who were currently working at the time of survey. Our current total monthly income measure includes monthly wages, bonuses and subsidies, and other non monthly-based income, bonuses and subsidies. If a respondent worked at more than one job, all income from the secondary job is also included. The natural log of income is used in multivariate analyses.

Human Capital

We are able to capitalize on CULS/CALS' extensive measurement of concepts related to human capital. The first measure of human capital is *schooling*, measured in the standard way as years of formal education that a respondent has completed. We also consider a direct measure of human capital, in the form of a *literacy score*. The literacy score is derived from the CALS, which was given to each respondent in the CULS who was under age 60 during August to October of 2002. All respondents were given the same 30 minute test. The design of the literacy test followed the literacy classification used in the International Adult Literacy Survey developed by Statistics Canada. The test encompassed three dimensions of life skills: prose literacy, document literacy, and numeracy, and items were adapted to suit the working-age population of urban China (Giles et al., 2003). The total test score used here is derived from the sum of the number of right answers across all three parts of the test. The standardized version of the total score is used in the analysis.

Access to human capital after entering the labor market is also important in understanding the current working status and income of the urban work force. Here, we use two measures: *experience* and *training*. For the experience variable, we use the reported beginning and ending time for each past job to calculate the total duration of work experience for all who were in the work force at some point in the five years prior to the survey (2026 out of 2280 total cases). For those who report not participating in the work force in the five years prior to the survey or at any earlier time (73 cases), work experience is coded as zero.

For those who report not working in the five years prior to the survey but report having worked at some point earlier in life (191 cases), due to a data limitation, we are forced to use the value of the total duration of first job. The fact that job changes were less common in the past

than in recent years may reduce the error introduced by our approximation. While we acknowledge that this approximation is not ideal, we believe that the direct calculation of the total number of years of paid work that a person has experienced is still preferable to a more common approximation that subtracts age at school completion from current age to calculate potential experience. Women may have more potential experience, if they left school earlier, yet they are probably more likely to experience a break in work experience due to childbearing. We have checked all analyses for consistency of results using an alternate sample that includes only those cases with full reporting on work experience.

Access to job training once in the labor market is another important dimension of access to human capital, though it is one that is little studied. It is possible that opportunities for job training differ by gender, and that this difference translates to disparities in credentials or skills needed for improving employment status or increasing wages. In our analysis, training experience includes on-the-job training organized by work units, specialized technical training provided by professional training organizations, and re-employment training provided by the government. A dummy variable indicates if a respondent has ever had any training experience (0=no, 1=yes).

Political Capital

While the concept of political capital is not common in studies of gender and the labor force outside of China, this notion is common in research on the changing labor market under China's transition. Political capital is thought to matter less than in the past, but to still matter, for occupational advancement or income attainment. Women may have less access to political capital, and thus it is important to consider.

Two variables are used to measure political capital: *Communist Party membership* and

cadre position (0=no, 1=yes). Cadre position refers to whether or not individuals hold administrative, professional, or administrative/professional positions with ties to the government.

Family Structure

To consider the effects of family formation on labor outcomes, we treat marital status as a dummy variable, *married,* indicating if a respondent is currently married or not (0=no, 1=yes). The non-married category includes those who are single and never married, and those who are divorced and widowed. We also created a dummy variable, *child*, indicating whether or not a respondent has ever had children, regardless of whether the children still live in the household or not (0=no, 1=yes). This construction assumes that the experience of having children will have impacted women's labor trajectories, even though the child (or children) may already be grown up.

Time Use

To directly illuminate our assumption that married women and women with children faced greater competition for time, we consider *housework* and *paid work hours*. Housework hours are measured as the average weekly hours that a respondent reports spending on housework. This measure includes time spent taking care of children and elderly household members and time spent on different kinds of household chores, such as shopping, cooking, cleaning, and other activities. The paid work hour indicator is a measure of the average weekly time spent on paid work outside the home.

Demographic Variables

Our central analytic variable is the respondent's *gender*. *Gender* is coded 0 if male, 1 if female. We also control for age in the models, with *age* and *age-squared* terms.

Wealth

Finally, for use in selection equations for the income models, we calculate and index of *family wealth* by adding up the values of all durable goods in the household.

Analytic Approach

First, we provide tabulations of labor market outcomes, human capital, and political capital by gender, in order to describe the average differences in labor outcomes, and in the distribution of resources thought to matter for labor outcomes. We also describe the marital and parenting status of men and women. We then estimate models of employment and income, in order to test the contributions of each of these factors to labor outcomes, and to gender differences in outcomes. We use logistic regression models for employment status. For the income analysis, we use both OLS specifications and Heckman models that seek to correct for bias associated with selection into the employed state (Heckman, 1979; Winship & Mare, 1992). Finally, to illustrate the scope of difference in family responsibilities, we analyze gender differences in time spent on housework by marital and parenting status.

Analysis

Descriptive Results

We begin by describing the scope of the gender gap in employment and in earnings. Table 2 shows descriptive statistics for labor market outcomes, access to human capital and political capital, and family structure. Overall, in our sample, 68.2 percent of women are employed, compared to 81.9 percent of men. In terms of income, women are earning ¥890 per month on average, about 79 percent of the comparable figure of ¥1,1119 for men. This figure is close to that obtained in Parish and Busse's (2000) analysis of a 1997 national urban survey,

which found women's income was 80 percent of men's (Parish & Busse, 2000, p.227).

(Table 2 about here.)

We next consider gender differences in human capital, looking first at the most widely-used measure of human capital, years of formal school. We observe that women, on average, have less education than men, though the scope of the gap is less than one year (0.52 years). Women also have significantly lower human capital by our literacy skills measure, though again the difference is modest, representing a difference of about one sixth of a standard deviation. Both of these differences are highly statistically significant. In contrast, there is no statistically significant difference in the chance of obtaining job-related training.

Work experience gaps also disfavor women. On average, women have about two fewer years work experience than men. This finding may emerge in part because women are much more likely to have left work to be home with a child or to take care of other family members. Consistent with this interpretation, among people with children, the gender gap in work experience is larger, at 3.1 years; while among people with no child, the gender gap in work experience is 1.8 years, and both gaps are statistically significant. If we look at the gender difference in work experience by marital status, we see that among people who are not married, the gender difference is only 0.7 years and is no longer significant. However, among people who are currently married, there is a significant gender difference of 3.6 years (our calculation, not shown).

Thus, on almost all measures of human capital, women fare worse than men, but the scope of the disadvantage is small, except in the case of work experience. Considering next political capital, we observe more striking results: men were much more likely than women to be communist party members (17.9 percent of men, compared to 8.3 percent of women) and to be in

cadre positions (4.2 percent of men, compared to 2.3 percent of women).

Finally, if we consider the family structure measures, we find that marriage and childbearing are prevalent, with women more likely to have formed families than men: 89 percent of women in the sample and 78 percent of men are married; 87 percent of women and 76 percent of men have ever had a child. Both marriage and childbearing are significantly associated with gender.

Overall, these descriptive findings suggest that human capital differs between urban men and women, but much more in terms of work experience than in terms of skills or educational background. Men have much more political capital. Married women and women with children lag behind men more in work experience. We now turn to a multivariate analysis to examine whether human capital, political capital and family responsibilities might explain gender differences in employment and income.

Analysis of Employment

(Table 3 about here.)

Table 3 shows a logistic regression analysis of employment status. Model 1, which includes only gender and city of residence, is a baseline model. It shows that, overall, women's odds of employment are 53 percent lower than men's. Model 2 incorporates controls for education years, literacy skills, and age. Education and literacy skills increase odds of employment. Probably because we limited the sample to the 25 to 44 age group, age does not have significant influence of its own. However, what is striking here is that controlling for the factors introduced in model 2 does not reduce the gender employment gap: Model 2 implies that, net of human capital obtained before entering labor market, women's odds of employment are still about 52 percent lower than men's.

Model 3 adds in measures of human capital after entering labor market and political capital measures. Work experience, opportunities for training and being a Communist Party member increase the odds of being currently employed. These factors reduce the gender effect a little, but it is still highly significant. After controlling for all measures of human capital and political capital, women's odds of currently being employed are still about 45 percent lower than men's.

In Model 4, we add in family structure measures: marital status and parental status. On average, married people are more likely to be working than non-married people, while people with children are less likely to be working than childless people. In order to test the hypothesis that family responsibilities affect women and men differently, in the next two models, we test, respectively, interactions between gender and marital status and gender and parental status. In Model 5, with the interaction of marital status and gender, we see that married men are more likely to be employed than unmarried men. But the effect for women is just the opposite. For women, being married reduces their odds of being employed by about 14 percent.

Model 6 illustrates the relationship between parenting status and men's and women's employment. For men, having children has no significant effect. But for women, having children has a highly significant negative effect on their employment status. Women who have children have only 45 percent the odds of being employed of women who have no child. These two models further support the hypothesis that marriage and having children are negatively associated with women's, but not men's, employment.

Analysis of Income

We next turn to an analysis of the gender gap in income. We begin by discussing Heckman selection models that account for selection into the work force. Logged income is the

dependent variable in our main equation. In the selection equation, the employment status is the dependent variable, and we include family wealth along with all variables that are in the income full model (model 4). Results show that the error terms of the selection equation and the income equation are significantly correlated (p=0.0012 for the test that rho=0).

(Table 4 about here.)

Model 1, which includes only gender and city of residence, is a baseline model. Consistent with the descriptive results, there is, overall, a highly significant gender effect, suggesting that in our sample women's income, on average, is about 85 percent of men's.

Model 2 incorporates controls for education years, literacy skills, and age. Both years of formal education and literacy skills are positively related to income. Model 3 adds measures of human capital obtained after entering the labor force and political capital. However, as in the case of the employment gap, these factors do little to explain the gender gap in income. Actually, model 3 implies that, net of these factors, women's income is 18 percent lower than men's.

We add marital status and having children into Model 4. On average, marital status and parenting status are unrelated to people's incomes. Also similar to the employment status results, we find that we gain more leverage from the family variables in interaction models. Models 5 and 7 test, respectively, interactions between gender and marital status (Model 5) and gender and parenting status (Model 7).

Models 5 and 7 offer support for the idea that family responsibilities differently affect women and men. For men, marriage has no significant effect on their income, while for women, marriage is associated with reduced income. The child variable also becomes significant once the differential effects for women and men are incorporated. For men, ever having children has no significant effect on their income. In contrast, for women, ever having children decreases

their income by 14 percent. In fact, these models suggest an important insight: it is only among married people or parents that a gender gap exists at all. Gender is only significant in the interaction with marriage or ever having children.

For the sake of comparison, we also show OLS results for the two interaction models (Model 6 and Model 8 in Table 5). The main trend of the effects is the same across OLS and Heckman selection models, with only a slight change in the magnitude of the coefficients.

Analysis of Time Use

We have argued that marriage and parenting have different implications for the competition between family and work for women and men. To further investigate the issue of time competition, we now consider the gap in women and men's time spent in work at home, by marital and parenting status. Table 5 shows the weekly hours spent on housework, on paid work, and total work hours of those who were working at the time of the survey, by sex, marital, and parenting status.

(Table 5 about here.)

On the whole, working women spent far more time doing household chores than do working men: 28 hours versus 18 hours per week (Table 5). More to the point, however, is evidence about the gender gap in housework hours by marital and parenting status. Among unmarried working people, women spent 5.8 more hours on housework than men, whereas among married working people, women spent 10.2 more hours than men. Among childless working people, women spent 2.3 more hours on housework than men every week. Among working people who had ever had children, this difference is as large as about 11 hours.

However, it is important to note that when we examine the hours that working respondents spent on paid work, there is no gender difference, even in different marital and

parenting statuses. In other words, working women spend as many hours as men do at paid jobs, even though they spend much more time on housework, especially if they are wives and mothers.

Finally, many argue that housework allocation might be determined by differences in spouses' potential earnings. In Table 6, we present a multivariate analysis of housework hours that controls for differences in the human and political capital of men and women, to see if housework hour differences persist (see Table 6). The analysis includes the whole sample, not just those in the work force, as in Table 5, in order to show the total scope of differences in household work time, net of controls for variables that proxy for potential earnings.

(Table 6 about here.)

The baseline model (Model 1 in Table 6) suggests that, overall, women spend 12 more hours on housework. Human capital and political capital differences between men and women do little to explain the difference in housework hours: we still find an 11.7 hour difference between women and men, though more educated people do spend significantly fewer hours on housework (Models 2 and 3). Marital status has no effect, whereas ever having children, on average, increases housework hours (Model 4). These results are consistent with the descriptive findings.

The last two models contain interaction terms of marital status and ever having children with gender (Models 5 and 6). Here, we see that marriage and parenting have no significant effect on men's time on housework. For women, marriage means 3.8 more hours each week on family chores, and ever having children means 8 more hours of housework each week. These results show that, even accounting for differences in many factors that signal earnings potential, women, and especially wives and mothers, are investing much more time in housework.

Discussion and Conclusions

Much of the discussion of gender and employment in China in the reform era has focused on elements of the transition to markets as key, and particularly issues such as rising returns to education, the value of political capital, and new discrimination against women enabled by the marketplace. Our main results show that women remain disadvantaged along measures of human capital, especially work experience, and political capital. However, these disadvantages do not appear to explain away gender differences in employment or income.

More strikingly, our findings suggest that there is, in fact, little gender gap to be explained among the unmarried and among non-parents. As has been documented by research in the US, Europe, and East Asia, in urban China, family formation appears to be a critical part of the story of gender differences in employment and income: gaps are concentrated among married women and women with children. Multivariate models show *no* gender differences in employment and income among single women. Further supporting the interpretation of family-work conflict, married women and mothers are also those who spend the most time on housework, even if they have the same level of human capital and political capital as men and even when they work as many hours in paid labor as men.

Three significant questions for further research are suggested by our findings. One question is whether the impact of marriage and childbearing on women's labor outcomes can be traced to overtly discriminatory practices that have, by some accounts, emerged in the reform era, or to more subtle factors at home and work that condition women's preferences and choices. The topic of workplace discrimination has attracted much speculation, but very little direct empirical research in China. Our results suggest that if there is any such workplace discrimination, it is focused on wives and mothers, much more than on women in general.

Another question is whether marriage and parenthood are becoming more optional than in the past in China. Rates of singlehood among young adults have been rising in China since the mid-1980s, possibly as women increasingly choose to place career goals ahead of family (Hannum & Liu, 2005). Under these circumstances, it is possible that marriage itself is increasingly optional, and thus selective of women (and men) who hold more traditional gender role attitudes or women who are less attached to the work force. In other words, the definition of marriage and motherhood may be relatively stable, but the composition of people opting into marriage and motherhood is changing.

A third question is whether standards for being a wife and mother might be becoming more demanding in urban China. One contributing factor may be that in the reform period, housing markets have emerged and urban families have begun to be able to own and invest in their homes. A second, and critical, factor is that families must invest ever more heavily in the education of their only children in order to secure children's social mobility and parents' old age security (though see Parish & Busse, 2000, p. 214 for an argument that child care burdens have declined). The highly competitive educational system pushes urban parents to be intensely involved in their children's schooling from a very early stage. Very often, mothers have to spend large amounts of time supervising children's homework and enrolling their children in proliferating after-school programs. This child-centered strategy may cause women to sacrifice, or at least reduce investments in, their own careers for the upbringing of their children, though most families in our sample have only one child.

The stringent resource requirements—whether in terms of time or money—expected from mothers for investing in children's education in other East Asian countries have often been cited as a significant factor determining whether and in what capacity women work (Tsuya &

Choe, 2004). For example, in Japan, the intensity and the depth of mothers' involvement in their children's education created the phenomenon of the "*kyoiku mama*" (教育ママ), or education mothers, who devote a large part of their lives to supporting their children's academic success (Hirao, 2001). At the same time, Tsuya and Choe (2004) argue that, while expectations that mothers will supervise young children's schooling and development pull women out of the labor force, the need to earn money to pay for exam preparation classes actually pushes some mothers of older school-aged back *into* the work force. Our results, and these examples, suggest that expectations about the appropriate roles of mothers and fathers in their children's upbringing, even in the small families of East Asia, have important implications for women's work trajectories and are a worthy topic of study.

Research on these questions would allow further insights about the degree to which, despite a very different starting point in the early 1980s, working women in urban China are facing similar issues to their counterparts elsewhere in East Asia, in the US, and in Europe. More broadly, results presented here suggest that the current research focus on changes in the labor market associated with market transition would be well complemented by additional work on combining marriage, parenthood, and work

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Table 1. Definition of Measurement Used in the Analysis

Labor Market Outcomes	
Income	Current monthly income of those who are currently working, including wage, monthly bonus and subsidies, annually bonus and subsidies, and income from secondary job if there is one.
Employment	1=currently working. The currently working category includes those who are currently working, those who already retired but still working, and those serving in the army. Non-working category includes those who are laid-off, retired, taking long-term illness leave or maternity leave, and being in school. The cases that reported their employment status as "others" are treated as missing.
Human Capital	
Schooling	Continuous variable measuring years of formal schooling completed.
Literacy Score	The total score is the sum of right answers to all items in three parts of the literacy test: quantitative, document and prose literacy. The total score used in the analysis is standardized.
Experience	For those who have ever worked 5 years prior to the survey, experience is the length of work experience a person ever has in years. If there is change of jobs, lengths of working experience at each job are added together. For those who have not worked 5 years prior to the survey, but had worked before that, experience is the length of their first job. For those who have never worked, experience is coded as 0.
Training	The training experience includes on-the-job training organized by the work unit, training in special techniques provided by professional training organizations, and re-employment training provided by the Labor Bureau.
Political Capital	
Communist Party Membership	1=membership of Chinese Communist Party, else 0.
Cadre Position	1=cadre position, which refers to those who are holding administrative and administrative/professional positions with ties to the government, else 0.
Family Circumstances	
Married	1= currently married, else 0. The non-married category includes never married, divorced and widowed.
Child	1=ever have had children, whether still living in the household or not. 0= never had children.
Family Wealth	Total value of household durable goods
Time Use	
Housework Hours	The sum of weekly total hours spend taking care of children, taking care of elderly persons, and doing housework, such as shopping, cooking, washing, and cleaning, etc.
Paid Work Hours	Total number of weekly hours spent on paid work.

Table 2: Description of Variables by Gender

	Male		Female		Total	
	Mean/%	(SD)	Mean/%	(SD)	Mean/%	(SD)
Gender (%)	47.15		52.85			
Labor Market Outcomes						
Income ***	1119.63	(1261.62)	890.61	(1205.82)	1105.00	(1239.00)
Employment (%) ***	81.86		68.22		74.65	
Human Capital						
Schooling***	11.84	(2.96)	11.32	(2.87)	11.55	(2.92)
Literacy Score***	15.44	(5.97)	14.53	(6.22)	14.96	(6.12)
Experience***	13.37	(6.85)	11.66	(7.06)	12.46	(7.01)
Training (%)	6.23		7.63		6.97	
Political Capital						
CCP Membership (%) ***	17.86		8.30		12.81	
Cadre Position (%) **	4.19		2.32		3.20	
Family Structure						
Married (%) ***	78.23		89.38		84.12	
Child (%) ***	75.63		87.30		81.80	
Family Wealth	25136.79	(57970.48)	24829.84	(55417.72)	24974.56	(56623.38)
Number of cases	1075		1205		2280	

Significant t-test or chi-square test of difference by gender: ** p<.05 ***p< .001

Table 3. Logistic Regression of Employment Status

	1	2	3	4	5	6
Female	-0.765	-0.735	-0.594	-0.609	0.197	0.22
	(0.096)**	(0.107)**	(0.114)**	(0.117)**	(0.28)	(0.28)
Wuhan[1]	-0.868	-0.789	-0.817	-0.806	-0.865	-0.797
	(0.179)**	(0.188)**	(0.202)**	(0.205)**	(0.203)**	(0.203)**
Shengyang	-0.781	-0.677	-0.69	-0.7	-0.767	-0.687
	(0.190)**	(0.197)**	(0.212)**	(0.215)**	(0.215)**	(0.214)**
Fuzhou	0.082	0.47	0.581	0.585	0.494	0.587
	(0.19)	(0.202)*	(0.223)**	(0.225)**	(0.226)*	(0.224)**
Xian	-0.339	-0.339	-0.322	-0.315	-0.363	-0.315
	(0.19)	(0.20)	(0.22)	(0.22)	(0.22)	(0.22)
Age		0.186	0.105	0.127	0.023	0.228
		(0.13)	(0.14)	(0.15)	(0.14)	(0.15)
Age2		-0.003	-0.003	-0.003	-0.002	-0.004
		(0.00)	(0.00)	(0.00)	(0.00)	(0.002)*
Schooling		0.264	0.209	0.206	0.208	0.202
		(0.022)**	(0.025)**	(0.025)**	(0.025)**	(0.025)**
Literacy Score		0.035	0.03	0.03	0.029	0.031
		(0.009)**	(0.010)**	(0.010)**	(0.010)**	(0.010)**
Cadre			1.397	1.541	1.386	1.425
			(0.73)	(0.80)	(0.72)	(0.726)*
CCP Membership			0.91	0.889	0.904	0.915
			(0.251)**	(0.248)**	(0.247)**	(0.249)**
Training			0.812	0.825	0.819	0.811
			(0.271)**	(0.277)**	(0.275)**	(0.271)**
Experience			0.123	0.123	0.122	0.123
			(0.010)**	(0.010)**	(0.010)**	(0.010)**
Child				-0.896		0.119
				(0.284)**		(0.23)
Married				0.933	0.875	
				(0.247)**	(0.211)**	
Married*Female					-1.031	
					(0.302)**	
Child*Female						-0.922
						(0.310)**
Constant	1.952	-4.889	-2.793	-3.312	-1.712	-5.132
	(0.161)**	(2.318)*	(2.38)	(2.56)	(2.51)	(2.606)*
Observations	2280	2280	2280	2280	2280	2280

Robust standard errors in parentheses
* significant at 5% level; ** significant at 1% level

1. Reference city is Shanghai.

Table 4. Models of Logged Monthly Income

	1	2	3	4	5	6	7	8
	Heckman	Heckman	Heckman	Heckman	Heckman	OLS	Heckman	OLS
Female	-0.167	-0.199	-0.196	-0.195	0.017	-0.014	0.006	-0.012
	(0.028)**	(0.027)**	(0.026)**	(0.027)**	(0.07)	(0.07)	(0.07)	(0.07)
Wuhan[1]	-0.377	-0.427	-0.415	-0.413	-0.419	-0.46	-0.42	-0.457
	(0.056)**	(0.049)**	(0.050)**	(0.051)**	(0.051)**	(0.051)**	(0.051)**	(0.051)**
Shengyang	-0.444	-0.497	-0.49	-0.486	-0.494	-0.526	-0.5	-0.529
	(0.059)**	(0.052)**	(0.053)**	(0.053)**	(0.053)**	(0.052)**	(0.053)**	(0.052)**
Fuzhou	-0.304	-0.269	-0.282	-0.28	-0.29	-0.273	-0.292	-0.274
	(0.056)**	(0.048)**	(0.049)**	(0.050)**	(0.049)**	(0.048)**	(0.049)**	(0.048)**
Xian	-0.617	-0.661	-0.657	-0.655	-0.66	-0.675	-0.663	-0.676
	(0.053)**	(0.047)**	(0.046)**	(0.047)**	(0.047)**	(0.047)**	(0.047)**	(0.047)**
Age		0.057	0.063	0.062	0.08	0.077	0.08	0.084
		(0.03)	(0.03)	(0.04)	(0.037)*	(0.037)*	(0.040)*	(0.040)*
Age2		-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
		(0.00)	(0.00)	(0.00)	(0.001)*	(0.001)*	(0.001)*	(0.001)*
Schooling		0.073	0.069	0.069	0.068	0.077	0.068	0.077
		(0.006)**	(0.006)**	(0.006)**	(0.006)**	(0.006)**	(0.006)**	(0.006)**
Literacy score		0.008	0.007	0.007	0.008	0.009	0.008	0.009
		(0.003)**	(0.003)**	(0.003)**	(0.003)**	(0.003)**	(0.003)**	(0.003)**
CCP Membership			0.011	0.012	0.01	0.031	0.01	0.032
			(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Training			0.044	0.042	0.044	0.072	0.042	0.069
			(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Experience			-0.008	-0.008	-0.008	-0.001	-0.008	-0.001
			(0.003)*	(0.003)*	(0.003)*	(0.00)	(0.003)*	(0.00)
Child				0.042			0.102	0.093
				(0.06)			(0.06)	(0.06)
Married				-0.047	0.072	0.082		
				(0.06)	(0.06)	(0.06)		
Married*Female					-0.247	-0.241		
					(0.077)**	(0.077)**		
Child*Female							-0.249	-0.254
							(0.070)**	(0.070)**
Constant	7.296	5.35	5.303	5.32	4.958	4.835	4.946	4.697
	(0.044)**	(0.570)**	(0.581)**	(0.663)**	(0.633)**	(0.628)**	(0.692)**	(0.689)**
Observations	2280	2280	2280	2280	2280	1688	2280	1688
R-squared						0.29		0.29

Robust standard errors in parentheses
* significant at 5% level; ** significant at 1% level
1. Reference city is Shanghai.

Table 5. Average Weekly Housework and Paid Work Hours of those Currently Working by Gender and Family Structure

	Housework Hours					Paid Work Hours					Total Work Hours				
	Male		Female			Male		Female			Male		Female		
	Mean	(SD)	Mean	(SD)		Mean	(SD)	Mean	(SD)		Mean	(SD)	Mean	(SD)	
Total	18.26	(11.75)	28.16	(14.32)	***	46.01	(13.91)	45.41	(13.43)		64.41	(18.76)	73.51	(20.08)	***
Marriage Status															
Married	18.82	(11.71)	29.06	(13.47)	***	46.25	(14.37)	45.52	(13.52)		65.10	(18.76)	74.49	(19.33)	***
Not Married	15.96	(11.66)	21.83	(18.20)	***	45.48	(11.81)	44.65	(12.84)		61.50	(18.53)	66.48	(23.70)	**
Child															
Having Children	18.75	(11.51)	29.88	(14.37)	***	46.38	(14.28)	45.83	(13.84)		65.17	(18.42)	75.63	(20.35)	***
No Child	16.74	(12.36)	19.06	(10.04)	**	45.22	(12.66)	43.22	(10.79)		62.01	(19.65)	62.28	(14.09)	

Significant t-test by gender(within category): **p< .05 ***p< .001

Table 6. OLS Regression of Weekly Housework Hours, Full Sample

	1	2	3	4	5	6
Female	12.043	11.866	11.686	11.401	8.395	4.368
	(0.543)**	(0.536)**	(0.552)**	(0.581)**	(1.878)**	(1.148)**
Wuhan[1]	2.888	2.272	2.277	2.047	2.291	2.04
	(1.038)**	(1.020)*	(1.025)*	(1.05)	(1.045)*	(1.032)*
Shengyang	6.962	6.435	6.432	6.262	6.478	6.391
	(1.286)**	(1.254)**	(1.257)**	(1.287)**	(1.286)**	(1.268)**
Fuzhou	1.003	0.348	0.307	0.128	0.402	0.296
	(1.04)	(1.02)	(1.03)	(1.07)	(1.06)	(1.04)
Xian	6.124	5.886	5.894	5.714	5.914	5.796
	(1.209)**	(1.182)**	(1.194)**	(1.211)**	(1.214)**	(1.194)**
Age		1.933	2.061	1.349	1.834	0.678
		(0.750)*	(0.752)**	(0.81)	(0.815)*	(0.81)
Age2		-0.022	-0.022	-0.014	-0.019	-0.004
		(0.011)*	(0.011)*	(0.01)	(0.01)	(0.01)
Schooling		-0.706	-0.675	-0.655	-0.66	-0.607
		(0.126)**	(0.133)**	(0.132)**	(0.132)**	(0.130)**
Literacy Score		0.005	0.011	0.011	0.013	0.008
		(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Cadre			0.994	0.967	0.991	0.652
			(1.61)	(1.59)	(1.61)	(1.59)
CCP Memebership			-0.445	-0.409	-0.442	-0.414
			(0.85)	(0.84)	(0.85)	(0.84)
Training			0.555	0.468	0.539	0.58
			(1.15)	(1.15)	(1.16)	(1.15)
Experience			-0.118	-0.122	-0.114	-0.116
			(0.06)	(0.06)	(0.06)	(0.06)
Child				3.589		-0.346
				(1.353)**		(1.17)
Married				-1.401	-0.969	
				(1.53)	(1.16)	
Married*Female					3.81	
					(1.933)*	
Child*Female						8.408
						(1.299)**
Constant	15.676	-16.46	-19.348	-6.927	-14.763	6.172
	(0.870)**	(12.64)	(12.73)	(13.86)	(14.00)	(13.74)
Observations	2280	2280	2280	2280	2280	2280
R-squared	0.16	0.21	0.21	0.21	0.21	0.22

Robust standard errors in parentheses
* significant at 5% level; ** significant at 1% level
1. Reference city is Shanghai.