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Trends in China's gender employment and pay gap: Estimating gender pay gaps with employment selection

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ABSTRACT

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In contrast to the United States and European countries, China has witnessed a widening gender pay gap in the past two decades. Nevertheless, the size of the gender pay gap could still be underestimated as a result of not accounting for the low-wage women who have dropped out of the labor force. As shown by a large and representative set of household survey data in China, since the 1980s the female employment rate has been falling and the gap between male and female employment rates has been increasing. We estimate the gap size using Heckman's selection-correction model and bounds of the raw gender pay gap, taking into consideration the different male and female employment rates in China. The results support the view that the gender pay gap estimate is biased without taking into account employment selectivity. *Journal of Comparative Economics xxx (xx) (2013) xxx–xxx*. School of Economics and Management, Tsinghua University, Beijing 100084, China.

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1. Introduction

In contrast to the narrowing gender wage gap in the United States,¹ China has experienced a widening gender pay gap in recent decades.² China also provides an interesting contrast to other transition countries, such as Poland, Hungary, Russia, Estonia, and Slovenia, where the relative wages for women were unchanged or even improved during the transition from a centrally-planned to a market economy.³

In theory, the gender wage gap could widen during the transition from a planned economy to a market economy, as a result of deregulation of wage setting and rising discrimination in the labor market. On the other hand, increasing market forces could punish employers with discriminatory tastes and reduce the gender pay gap (Becker, 1957). This mechanism has been confirmed in Hungary, where both the overall gender wage gap and the gap due to different returns to the endowments of men and women have declined (Jolliffe and Campos, 2005). The improved economic status for women in

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¹ Blau and Kahn (2006, 1997) and Blau (1998).

² Gustafsson and Li (2000), Appleton et al. (2005), Ng (2007), and Chi and Li (2008).

³ Glinskaya and Mroz (2000) and Reilly (1999) found that the gender pay gap in Russia did not change during the transition from 1992 to 1996. Adamchik and Bedi (2003) found no change in women's relative wages in Poland during their transition years. Jolliffe and Campos (2005) showed that the gender wage gap declined in Hungary from 1986 to 1988. Improvement in women's economic welfare was also found for Estonia and Slovenia by Orazem and Vodopivec (2000).

a transition country might also be explained by the change in the composition of the female labor force. Hunt (2002) showed that the gender wage gap fell by 10 points in East Germany during the economic transition, but a large part of this fall was due to the withdrawal of low-wage women from the labor market.

China has the world's largest labor force, with an estimated 0.78 billion actively working people as of 2010.⁴ The male–female pay gap is one of the key issues concerning the vast number of workers in China. Although prior research has examined the gender wage gap, occupation segregation, and discrimination in China,⁵ most studies have used samples of working individuals to estimate gender pay gaps, with very few addressing male and female employment rates or how the gender employment gap affects the pay gaps.

According to Chi and Li (2008), employment rates declined from 1987 to 2004 for both men and women, but more so for women. With only 3 years of data, they could not show a trend in the employment rate or gap. We extend Chi and Li (2008) by using 20 years of data to study the trend in gender employment and pay gaps. Appleton et al. (2005) proposed that the gender pay gap in China has stopped widening and has remained relatively static in recent years, suggesting that China may have “crossed the river”. We found a similar trend for the raw gender pay gap, but we argue that this finding may be overly optimistic since it does not consider the decline in female employment rates in China.

This paper studies formal sector employment of men and women, similar to the work of Chi and Li (2008). As a transition country, China has a large informal employment sector, which has grown rapidly and has absorbed a large number of rural migrants and urban unemployed workers. However, informal employment is often excluded from official employment statistics. Therefore, little is known about the gender composition of workers in the informal sector. Zhang et al. (2006), Meng (2001), and a recent study by the International Labor Organization (ILO),⁶ showed that there were fewer women than men working in urban China's informal employment sector, especially among the self-employed. Meng (2001) found that for both wage-earners and the self-employed, migrants had higher incomes in the urban informal sector than those in the formal sector. Although we could not provide a formal estimate because of a lack of data, our study speculates that the estimate of the gender pay gap would likely be even larger if we had taken informal employment into account, since more men are employed in the informal sector and men earn higher wages than women in the informal sector.

From a methodological perspective, our study applies both Heckman's selection-correction (Heckman, 1979) and the bound method (Manski, 1994; Manski and Pepper, 2000; Blundell et al., 2007) to correct for employment selection in estimating gender pay gaps. Heckman's selection-correction method is based on stringent parametric/semi-parametric assumptions. It is more restrictive, and is potentially subject to misspecification error. The bound method lies within the large and expanding literature of partial identification. It requires minimal assumptions. Although it fails to point-identify the interested parameters, it may still give informative bounds for the parameters of interest, and is generally more robust than Heckman's selection-correction method. However, the bound method may sometimes produce loose and uninformative results, making it difficult to draw a conclusion from the data. In summary, the two methods complement each other. By using both methods, we can check the robustness of our results.

Our main findings are that the employment rates in China have generally decreased since 1989, and have declined more for women than for men, which has contributed to a widening gender gap in the employment rate. Our data also shows widening gender pay gaps among working people. Using Heckman's selection-correction method, we find evidence that the raw gender pay gap has been underestimated for recent years. The bound results, however, are less conclusive.

The remainder of this article is organized as follows: Related studies are introduced in Section 2. We describe the data and present descriptive results in Section 3. Empirical methods are discussed in Section 4. Heckman's selection-correction and bound results are reported in Section 5. Finally, we discuss the results and conclude the article in Section 6.

2. Related studies

While many studies of the Chinese gender earnings gap show the gap widening since economic reform began in 1978, results vary as to the amount of this increase.⁷ However, the cause of the increase is relatively well established. The discrimination effect, which is the portion of the gender pay gap that cannot be explained by gender differences in productivity, has accounted for a larger portion of the gender gap and has been increasing (Chi and Li, 2008; Ng, 2007; Gustafsson and Li, 2000). Since previous studies have relied on cross-sectional data covering only a few years, the long-term trend in the gender pay gap remains unclear.

Regarding the gender employment gap, Chi and Li (2008) showed that both male and female employment rates had fallen from 1996 to 2004 for all age groups. Participation in work is influenced by one's own characteristics such as education and experience, as well as family characteristics such as marital status, the presence of a young child in the household, and

⁴ Data source: China Statistical Yearbook 2011, Table 4-1. <http://www.stats.gov.cn/tjsj/ndsj/2011/indexch.htm>.

⁵ Gustafsson and Li (2000), Appleton et al. (2005), Ng (2007), Meng and Miller (1995), Meng (1998a,b), Rozelle et al. (2002), Dong et al. (2003), Maurer-Fazio and Hughes (2002), and Maurer-Fazio et al. (1999).

⁶ International Labor Organization, “Women and men in the informal economy – Statistical picture”. http://laborsta.ilo.org/informal_economy_E.html.

⁷ Gustafsson and Li (2000) found that the gender wage gap in urban China had increased from 1988 to 1995, while Ng (2007) showed that the urban gender pay gap had decreased from the 1980s to the early 1990s, but had increased since the mid-1990s. Chi and Li (2008) found that gender earnings differentials in the urban labor market increased for both periods, from 1987 to 1996 and from 1996 to 2004, but the increase was more pronounced in the later period. Appleton et al. (2005) showed that the raw gender pay gap had increased from 1988 to 1999 but decreased from 1999 to 2002.

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