Reading note for "Selection, Investment, and Women's Relative Wages over Time"*

Yifei Peng

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1 Introduction

This paper use three different method to evaluate the possible relation between the women ability in the different aspect to Although women's hourly paid grew some points relative to men's during 1970s to 1990s, previous studies still have controversial ideas on whether wages has become equal within genders. Therefore, this paper try to gauge the annual influence on gender wage gap, correcting for possible selection bias with methods that consistent with control functions that shift over time. To achieve this goal, they take advantage of empirical method to examine the existence of the above relationship and the significance for the influence over the gender selection, labor force attachment and human capital investment. Firstly, they use GHR model to deeply demonstrate the relationship between the change of women's wage, the selection bias and so on.Secondly, they use the Heckman's two step estimator to run the regression over the wages.Last but not least, they used the identification at infinity method to reduce the normality assumption for measuring the selection bias. To conclude, the author of this article claims that the relative growing in women's wages is the result of growing inequality within genders. Such growing inequality has influenced on women's selection into the labor force, labor force attachment and human capital investment, and thus leads to a seemingly grown women's wage. In other words, the current women's wage grown has incorporated with actual deepened inequality.

2 Method

In this article, the authors mainly apply three empirical methods to investigate the three main aspect of this paper. To start with, they first establish a model to represent the change in measured gender over time, which is $\Delta G_t = \Delta\gamma_t + b_{t-1}\Delta\omega_t^w + \omega_t^w \Delta b_t$. This model consists of 1) the change in gender-specific of net labor demand, 2) the change with relative market valuation of skill. 3) the change in the standardized selection biased. The former two term involves the change in gender wage discrimination, the market valuation of women's skill endowment and accumulation of human capital. Dig in to the selection bias, the authors suggests their model by composition the change of b_t and extend their ideas of modeling with three more empirical method.As for the data, This article use the dataset from Census

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Bureau's CPS March annual demographic. They limit their observed object to white non-Hispanic adults between ages of 25 and 54. The authors also clarify the working status FTFY, which is at the status of working for more than 35 hours per week and more than 50 weeks per year .

2.1 The application of GHR model

In the first place, they introduced the GHR model for repeated cross sections.The main purpose for introducing GHR model is to predict women's employment status by adding the non-market wage equation, which they would have w_{it}, r_{it}, G_t, bias term b_t, the inverse Mill's rate λ, and the declining function ζ. Then the articles discussed the derivation b_t and the compatative static formulas with respect to the λ and the ratio of the standard deviation of wage and reservation wage. As a result, the representation of change in bias would be $\Delta b_t = \theta(\sigma^w_{t-1}/\sigma^r_{t-1})[\lambda(P_t) - \lambda(P_{t-1})] + [\theta(\sigma^w_t/\sigma^r_t) - \theta(\sigma^w_{t-1}/\sigma^r_{t-1})]\lambda(P_t)$. The author would use the inverse Mill's ratio in the estimation using Heckman 2 stage.

2.2 Estimation using Heckman 2 steps estimator

Aiming at decreasing the selection bias and the endogeneity, the article estimate its previous wages model with Heckman two-step estimator derived form GHS model. The wages equations are actually different between 1975- 1979 and 1995-1999. The article presents two results tables, with a general one and a one conditioning on marital status and schooling. From these results, the level of the employment rate is negatively correlated to the change in the gender gap and suggest the selection bias did exists, and it still need to find methods to be consistent with time-varying selection rule.

2.3 Identification of Infinity

In the third place, the authors incorporate the identification at infinity for modification of their suggesting model. This is because the selection bias would disappear for groups with chracteristics according to GHR model. Identification of Infinity would use a smaller sample size with selected on observed characteristic.

3 Conclusion

3.1 Result

From the first two part of the empirical analysis, the selection is negative because the female population actually have more skill thank the female workforce. In addition, the increment in the return to human capital may affect the supply of skilled women than those of the unskilled women. As a result, the skill composition of the female workforce will be greater and causing selection bias.In breif, the measured women's relative wage does caused by the change in the composition of the female workforce. The overall selection rule is as similar as the selection rule of the observables.

3.2 Possible Limitation

As the author suggests, given the different requirement when using Heckman 2 step estimators and Identification of Infinity, their result do not including the historical work experience variables,which have been proved to be important for explain the level of gender gap.
Besides, when applying method in the GHR model, the result are based on comparisons of men and women with the same level of labor force attachment. Also, since the dataset is only from CPS and it only includes the white non-Hispanic adults, the demographics is not enough. By intuition, women from different different racies would have an sample selction bias.