

# Reading Notes

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## 1. Introduction

This paper mainly discussed the reason for the persistence of gender inequality against the whole picture that the gender difference in education and workplace is narrowing. It found that the reason for the long going gender inequality is from children bearing and rearing rather than other factors that can be eliminated by anti-gender discrimination policies. It argued that children rearing will bring penalty to female on wages and job rate, which will further solidify the gender inequality. In addition to this reason analysis, it also found the relation between maternal family work structure and the children penalty for female. Specifically, if the female's mother is highly involved in work, then the children penalty will be smaller for this female.

Overall, the paper reveals that the persistency of gender inequality may from the dynamic effects of children and it has significant intergenerational effect, which means it can be transmitted among generations.

## 2. Body

### • Overview of the theoretical foundation

The theoretical foundation lies in two main areas. The first area is about the gender inequality and its transmission and the second area is about the labor economics such as family labor force supply.

For the first theoretical foundation, the paper uses the definition “children penalty” to refer to the situation that women tend to fall behind compared with men after the arrival of the first children. It also defines that this penalty applies to three aspects: labor force participation, hours of work and the wage rate. The overall research uses these three aspects as the main threshold. It also uses the definition of mechanisms of gender inequality in labor economics: the dynamics of occupation, sector, and firm choices.

For the second theoretical foundation, the paper first has the common assumption in the family labor supply field: the endogeneity of children. It also divides the two conceptually effects on labor economics, which are the pre-child effect of anticipated fertility and the post-child effect. The pre-child effect is the response of female to the future motherhood (give up university etc) and the post-child effect is the focus of the paper.

### • Overview of the data and empirical strategy

The data of this paper comes from the census data in Denmark between 1980-2013. This paper also utilizes the data in 1964 to explore the intergenerational relationship. Overall, there are three basic advantages of this dataset. First, the gender inequality and the gender wage gap remain similar compared with other countries. Besides, this dataset contains information on children, earnings, labor supply, occupation, firms, education. In addition to this, this dataset provides links between each person by stating family relationship.

The paper filters data based on the first child born and the availability of data five years before the arrival of the first child and 10 years after. In other words, parents in this data are known, alive and have been staying in Denmark for 15 years. As for the target variables, this paper uses Arbejdsmarkedets Tillægspension (ATP) to denote the labor force supply (hours worked) and wage rates, which is the function of working hour based on this pension policy.

For the empirical methodology, the paper utilizes event study approach by understanding the implications of parenthood to gender inequality based on sharp changes around the birth of the first child to mother. This paper claims that it is orthogonal to other factors that influence the gender inequality over a long time. Overall,

the paper uses identification of the quasi experiment theory which enables us to get the causal inference by setting instrumental variable to gain the counterfactual result. To attain the quasi-experiment condition, the paper utilized IV method, which includes year effects and age effects to rule out baseline difference and the event dummy to indicate the childbirth. These IV methods eliminates the year effect and life cycle effect. Through these IVs, it reaches the counterfactual result by setting the indicator for event as 0 and use the ratio between actual Y and the counterfactual as the year effect when having a child. The child penalty is defined as the difference between the coefficients for male and female divided by the expected wage. It is noticeable that this identification only applies to short term effect. As for long term effects, the paper argues that after controlling the lifecycle and year effects female and male roughly have the same trend. This is problematic since this violates SUTVA due to network effect: male will also be influenced by the treatment-rearing children.

In addition to this method, the paper also uses DID. For the same trend assumption, it compares those who have children to those who never have children by assigning placebo and shows that women with and without children are having same wage trend. The second identification is to compare the event study with the IV(sex mix) by studying the third child. The results for both methods are roughly the same, which indirectly prove the robustness of the event study. The paper also uses this method to analyze the intergeneration transmission of children penalty.

The paper also uses Oaxaca-Blinder decomposition approach to delve into the unexplained part of traditional decomposition analysis by estimating the impact of children by cross-sectional analyses. It divide the impact of children into children-related inequality and residual inequality.

#### • Overview of the findings

Children will have a negative influence on earnings, labor supply and wage rates for female. The finding reveals that the wage, labor hour drastically diverges after the first child between men and women (before that these factors are similar between male and female). For instance, female experienced a 30% drop right after the arrival of first child while there is no significant impact for men. After long time, female still earn 20% less than male. Overall, the earnings, hours per work, wage rate, participation rates for women all experienced a significant drop after the first childbirth and show no sign of recovery.

In addition to this impact on female, having children will also cause the switch from previous workplace to more family friendly one. To be specific, there is a significant increase of occupational rank for female in jobs such as probability of getting involved in the public sector job.

Overall, even if the overall gender inequality on wages have decreased, the paper also discovers that ratio of the inequality due to children in overall gender inequality has largely increased over time while education related inequality experienced a steady decrease (for cases controlled and not controlled for education). Even all gender inequalities have been decreasing, the situation that gender inequality for children remains roughly the same makes the huge increase of ratio of inequality from children.

Last but not the least, the paper shows that the child penalty can be transmitted among generations. There is a strong connection between child penalty and the Quintile of relative labor supply of maternal grandparents. While the child penalty has no significant relation with paternal grandparents. This reveals that The channel for this transmission is through mother's mother. For instance, if the mother comes from a family where female tends not to work, then the child penalty for this mother will be larger.

### 3. Concluding Paragraph

This paper decomposes the gender inequality and reveals that the most significant part is due to children

rearing, which is noted by “children penalty”. This children penalty will severely influence the wage rate, work hour of women and will force them to move to more family friendly work place. Meanwhile, the transmission of this children penalty is through maternal family, which indicates that the growth environment of female will largely influence the work situation of women after having child. Overall, if women come from more conservative family, she will suffer more when bearing and rearing a child.

This paper indicates the dilemma of women and their loss from bearing children and reveals the importance of growing environment. If we really want to further eliminates gender inequality, we should improve the environment for female and reduce the transmission of this children penalty.

#### **4. Limitations of the Article**

First, there is an external validity problem in the article. This paper’s result will not be applicable for countries with totally different culture such as East Asian countries or Muslim countries. For these countries, the result would be larger compared with the result in the paper.

Besides, the paper did not take income as the factor which will influence the independent variable. Income will influence the time or age choosing for bearing child, the education of next generation etc. Lower income people may tend to have children earlier compared with others. This may cause baseline difference for the treatment and control group.

Last, the article did not take district into consideration. There may be fixed effects for different places. Some advanced places will reduce the birth rate (women tend to work) while poorer places will have new born rate. These places will also tend to cluster due to clustering trend for human beings.