

ECON 613 Reading Notes

Children and gender inequality: Evidence from Denmark

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This paper used a quasi-experimental method in order to evaluate the impacts of children on women compared with men in the labor market. The data used in this article is administrative data, which includes the entire population in Denmark from 1980 to 2013. The authors included information such as children, income, labor supply, occupation, nature of the work unit, and education level. More importantly, this dataset is able to represent the relationship between the family members, generations, and workers with firms. This research focuses on the impact of the birth of the first child on parents in the labor market. Specifically, the authors studied from 5 years before the birth of the first child to 10 years after the birth. The relationship between parents can be marriage, cohabitation, separation, divorce, etc. Overall, there are a total of 470,000 newborns and 15.04 million main observations.

For each pair of parents in the data, the author used $t = 0$ to indicate the year in which the individual had the first child, and indexes all years relative to that year. The benchmark of this article is to consider a balanced group of parents, based on the annual observation of the time between 5 years before the birth of the first child and 10 years thereafter, so the event time t ranges from -5 to $+10$. Specifically, the explained variable represents Y of the individual i of gender g in year s , and t represents the time when the childbirth occurred. Regression (1) is performed on males and females respectively:

$$Y_{ist}^g = \sum_{j \neq -1} \alpha_j^g \cdot \mathbf{I}[j = t] + \sum_k \beta_k^g \cdot \mathbf{I}[k = \text{age}_{is}] + \sum_y \gamma_y^g \cdot \mathbf{I}[y = s] + \nu_{ist}^g \quad (1)$$

The author found that, wages, working hours, labor participation rate, and hourly wages for women and men were almost the same in all aspects before the birth of the first child; however, starting from the birth, the gap in these factors between women and men became more and more distant. The author also studied some other indicators: occupational rank and choice of work environment and found that after the birth of the child, women's occupational rank dropped significantly. Moreover, women are more inclined to choose civil servant careers since the family friendliness responds strongly to motherhood.

$$Y_{ist}^g = \sum_y \sum_{j \neq -1} \alpha_{yj}^g \cdot \mathbf{I}[j = t] \cdot \mathbf{I}[y = s] + \sum_k \beta_k^g X_{kis}^g + \nu_{ist}^g \quad (2)$$

Next, using Regression (2), the authors decomposed the gender inequality into two part, which investigated how much should be attributed to having a child. The results further confirmed that the gender inequality is all related to having a child.

$$\begin{aligned}
Y_{ist}^g = & \sum_q \alpha_q^g \cdot \mathbf{I}[\text{after}_t] \cdot \mathbf{I}[\text{grand}_{iq}^m] + \sum_k \beta_k^g \cdot \mathbf{I}[k = \text{age}_{is}] + \sum_y \gamma_y^g \cdot \mathbf{I}[y = s] \\
& + \sum_q \zeta_q^g \cdot \mathbf{I}[\text{grand}_{iq}^m] + \delta^g \cdot X_i^m + \eta^g \cdot \mathbf{I}[\text{after}_t] \cdot X_i^m + \nu_{ist}^g
\end{aligned} \tag{3}$$

Furthermore, with Equation (3), the authors estimated how child penalties vary by these grandparental rank measures by linking child penalties and the relative labor supply of grandparents. They found that female preferences shaped during childhood significantly led to child penalties instead of male preferences, which implied that child penalties exert more significant effect on women grown up in traditional family than those brought up by modern family.

In summary, there are three basic conclusions in this paper:

- The impact of children on women in the labor market results is huge and long-lasting, while men are not substantially affected. In the long run, the income penalty for women is close to 20%.
- The author has broken down gender inequality into factors attributable to children and factors attributable to other reasons. Therefore, the remaining gender inequality is entirely related to children. This implies that potential discrimination works through the influence of children.
- For the choice of family and occupation, the author provided evidence of family environmental impact. In particular, the paper pointed out that the punishment of women is closely related to the work experience of the maternal grandparents. In general, the research believes that children's punishment is influenced by the female gender identity formed during childhood, rather than driven by the male gender identity formed during childhood.

Although this paper provided empirical evidence for child penalties on women, the welfare and relevant policy implications were not determined. Since gender inequality could possibly be influenced by culture, social norm, or other implicit factors that are difficult to measure, this paper did not provide solid evidence to investigate these factors. Further work needs to address the underlying mechanism behind this issue and provide policy implications.