Reading Notes: Children and Gender Inequality

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1 Introduction

The paper "Child and Gender Inequality: Evidence from Denmark" is written by Henrik Kleven, Camille Landas, and Jakob Egholt Sogaard, who study the child penalty on gender inequality in the labor market– that is, how much earnings in percentage term women would fall behind men because of the arrival of their children.

Authors use Danish administrative data to study discrepancies of earnings as well as the three margins of the earnings penalty: hours of work, participation rates, and wage rate. They also conduct a event-study approach based on sharp changes before and after the birth of women's first child comparing to fathers. By controlling age, year, and time (number of years after the arrival of first child), researchers estimate the child penalty across these groups.They also show further that the impacts of child penalty on women's occupation and probability of being a manager or working in public sector, which comply with their conjecture that once having their first child, women will be more likely to make career choices that favor family amenities over pecuniary rewards.

Another important step researchers make is to decompose the gender inequality into three parts: child penalties, different returns to non-child covariates, and different levels in non-child covariates. This important step eventually enable them to decompose the gender inequality into residual inequality, education-related inequality, and child-related inequality.

Lastly, the paper also discusses about the intergenerational transmission of child penalties. They compare the norm of maternal grandparents and paternal grandparents to validate the potential explanation that parents' gendered preference or norms of women's appropriate roles will influence women's preference over family and career. From there, researchers later present evidences that validate the idea of the intergenerational transmission of child penalties.

2 Data & Empirical Strategies

This paper is based on Danish administrative data of the entire population in Denmark from 1964 to 2013, which contains information on children, earnings, labor supply, occupation, firms, education level, and etc.

As mentioned above in introduction section, the first empirical method authors use is the event study analysis, which is based on the birth of mothers' first child. More specifically, this is to set the first child birth year as event time zero and. The parents are then observed every year between five years before having their first child and ten years after. The estimation sample are thereby around 15,040,000 individual-year observations. Then, they regress earnings on event time, age, and year dummies to identify their effects on earnings. Note here the year dummy is included in order to control nonparamatrically the underlying life-cycle trends, and year dummy is included to control wage inflation and business cycle. Similarly, the impact of the first child birth on women's occupational rank, and probability of working as a manager or in a public sector.

Before introducing another empirical method, the paper clarifies the causal identification of those impacts from first child birth–that is, concerns about whether the identification of long-run effects requires stronger assumptions. Indeed, although they have control for time and age trends and the analysis results support the assumption of using men as controls for women, there are still questions about whether or not in the

long run the pre-trends will be less informative. To solve this problem, authors introduce two identification checks. The first one is a difference-in-difference event study design that basically compares women who have children to those who never have any child. Authors show here that although these women are identical pre-trend, they diverge sharply after the birth of the first child. The other identification check compare the event study approach to an IV approach and uses the sex mix of the first two children as an instrument for having a third child. This identification check, as authors further explain in their paper, indirectly validate the event study approach they conducted before since the event study estimates and the IV estimates are almost perfectly aligned. This two identification checks in general ensure the robustness of their methods and further suggest such impacts can be causally identified.

The paper then introduces the decomposition method where it basically runs the baseline regression introduced before but adding in a new dummy which stands for the interaction term of the event time and year dummies. They also add a rich set of education dummies. After that, they calculate the mean gender gap and rearrange them as the addition of inequality from the following three parts: child penalties, different returns to non-child covariates, and different levels in non-child covariates. Following this procedure the gender inequality is ultimately decomposed into child-related inequality, education-related inequality, and residual inequality.

Lastly, the paper introduces the empirical method they use to conduct research on intergenerational transmission of child penalties. To be specific, they rank labor supplies of the grandparents of the first born child to indicate whether or not these grandparents are more "modern" in their gender division of labor. Then, they run regressions on ranked grandparents to show the intergenerational transmission.

3 Empirical Results

One of the very first empirical results is that in the long run, women's earnings decrease about 20 percent comparing to that before childbirth, while men's earnings are essentially unaffected. The paper then shows that all three margins of the earnings, hours worked, participation rates, and wage rates, all decreases comparing to those before childbirth. Similar analysis in the paper shows that in the long run, women's occupational ranks keep decreasing much more than men after the childbirth, and they are more unlikely to be a manager comparing to that before parenthood. Mothers are also more likely to move to pubic sectors because those jobs are more family friendly.

Meanwhile, the decomposition of the gender inequality shows that without education controls, fraction of gender inequality that can be attributed to childbirth rises from 40 percent in 1980 to about 80 percent in 2013. This shows that although the total gender inequality drops during that period, more inequality can be attributed to childbirth. With the education controls, the estimation remains about the same, but it shows in addition that while the child-related inequality grows over time, the education-related inequality shrinks.

The paper also shows that the child penalty in earnings is larger if the mother grows up in a family where her mother work less relative to her father. The paternal grandparents, however, essentially have no effect on child penalty.

4 Summary & Caveats

In a nutshell, based on the Danish administrative data, this paper clearly shows the impact of child on women's career, where the differences have not shrunk over time. Also, almost all the gender inequality can be attributed to childbirth and this effect actually transmits over generations.

One of the potential caveats worth mentioning here is that the child penalty estimation might be much noisier due to frictions of job searching and etc. Since it takes time for women to find a new job that's more family orientated once they have a child, and the human resources departments of firms understand this perfectly, it might have some negative effect on women's earnings that is not counted towards child-related inequality.