HW1: Text

**Now calculate the sample means separately for single women with one child and women with two or more children (add the information to Table 1). How do they differ from each other?**

Table 1 gives a brief overview of the demographic characteristics of single women without children, with children, with one child, and with two or more children. In terms of age, we see that single women without children tend to be older than those with children, with one child or with two or more children on average. We would expect this relationship as an older woman is more likely to have children that have left the household. Additionally, single women with two or more children are more likely to be nonwhite in comparison to the other counterparts. This relationship gives insight on the fact that nonwhite families are larger than white families on average. The data also reveals that on average single women without children participant more in the labor force in comparison to any of the other comparison groups, and they are also the highest earners on average.

**Create a figure (Figure 1) that illustrates the annual mean labor market participation rates by year (1991-1996) for single women with children (treatment group) and single women without children (control group). Label the axes and include a title and a legend into the graph.}**



**Now normalize the value of the labor force participation rate for each of the two groups to group-specific 1991 values. That is, the mean of the labor market participation rates in 1991 become equal to 1. Plot a graph (as the one before, including labeling, title, and legend) in Figure 2.**



**Based on Figures 1 and 2, discuss the validity of using single women without children as control group.**

Using single women without children as a control group is valid as Figure 1 and Figure 2 assist in illustrating the common trend assumption. The common trend assumption states that the trend of the two groups would be the same if the treatment didn’t occur. If we evaluate the two groups prior to the EITC expansion, it is evident that the two groups trend in parallel. However, the annual mean labor participation rate of single women without children is higher than the annual mean labor participation rate of single women with children. If the EITC expansion did not occur, there seems to be no other economic shock that changes labor force participation rate of single women with children. It is only after the shock that the control group does not trend in parallel to the treatment group.

**Calculate the sample means of labor force participation rates (work) of women with and without children for the pre- (average over 1991-1993) and post-reform (average over 1994-1996) period. Organize your table (Table 2) as in Table II in Eissa and Liebman (1996).**

TABLE 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Pre-1993 Expansion | Post-1993 Expansion | Within Group  Differences | Difference-in-Difference |
| *Treatment Group:* |  |  |  |  |
| With Children | 0.4459 | 0.4908 | 0.0449 |  |
| *Control Group:* |  |  |  |  |
| Without Children | 0.5754 | 0.5734 | -0.002 | 0.0469 |
| Between Group  Differences | 0.1295 | 0.0826 |  | 0.0469 |

**Calculate the within- and between-group differences as well as the unconditional difference-in-differences estimate and add them to Table 2. Briefly comment on your results.**

The within in group differences illustrate that the treatment group, single women with children, were most impacted by the 1993 EITC expansion as there labor force participation rate increased by 4.49 percentage points. As expected, the labor force participation rate of the control group doesn’t change much post the 1993 expansion as it decreases by .02 percentage points. The between group differences reveal how the gap of labor force participation decreases between single women with children and single women without children post the 1993 EITC expansion. The difference in difference estimate shows that the due to the EITC expansion labor force participation of single women with children increased by 4.69 percentage points more than those women without children.

**Repeat the comparison separately for women with one child and for women with at least two children for the years before and after the EITC expansion. Again, compute the within- and between-group differences and the difference-in-differences estimates. Compare each of the two groups separately to single women without children (the control group). Display the results in Table 3 and discuss your findings. For which of the two groups do you find larger treatment effects? Is this consistent with the theoretical predictions?**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Pre-1993 Expansion | Post-1993 Expansion | Within Group  Differences | Difference-in-Difference |
| 1. *Treatment Group:* |  |  |  |  |
| With One Child | 0.5236 | 0.5541 | .0305 |  |
| *Control Group:*  Without Children | 0.5754 | 0.5734 | -0.002 | 0.0325 |
| Between Group  Differences | 0.0518 | 0.0193 |  | 0.0325 |
| 1. *Treatment Group:*   With Two or More Children  *Control Group:*  *Without Children* | 0.3965  0.5754 | 0.4497  0.5734 | 0.0532  -0.002 | .0552 |
| Between Group Differences | 0.1789 | 0.1237 |  | .0552 |

**Table 3**

The within group difference in Panel A reveals that single women with one child increased their mean annual labor participation rate increased by 3.05 percentage points. Panel B shows that the single women with two children or more increased labor force participation by 5.32 percentage points. As anticipated, single women with two or more children were most impacted by the EITC expansion. The difference in difference estimation shows that single women with one child increased labor force participation by 3.25 percentage points in comparison to single women without children. Single women with two or more children also increased labor force participation by 5.52 percentage points in comparison to single women without children. While both treatment groups were impacted by the EITC expansion, women with two or more children were impacted the most as anticipated.

Return to the comparison of women with and without children. Estimate the difference-in-differences effect from the EITC expansion by running OLS regressions. As dependent variable use the dummy indicating labor market participation (work). First run a regression without controls (“unconditional diff-in-diff estimate”). Then add control variables (urate nonwhite age ed) to obtain the “conditional diff-in-diff estimate”. Present your results (including standard errors) in Table 4 and interpret them. Compare the estimates and their statistical significance for the conditional and unconditional difference-in-differences estimates. Also comment on the estimated coefficients of child and post1993. }

\textit {Answer: }

\item \textbf{ Estimate a conditional (i.e., including urate nonwhite age ed), “placebo” treatment model on the pre-treatment period. For this purpose, take data from the years 1991-1993 only and leave the treatment and control groups unchanged. Assume for the analysis that the placebo reform would have taken place on January 1st, 1992 (generate a dummy variable postplacebo that is one for year 1992 and after and an interaction with child) and present your results (including standard errors) in Table 5. What do you find, and how do you interpret this?}