The Effect of Universal and Permanent Cash Transfers on Female Employment: Evidence from Alaska*

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Abstract

The effect of Universal and Permanent Cash Transfers, otherwise known as Basic Income or UBI, on female employment is theoretically ambiguous. Some economists suggest the potential for its ability to promote gender equality and employment, while other lines of thought in gender theory suggest that basic income further perpetuates gender stereotypes by disincentivizing female employment. This paper investigates the effect of a basic income dividend program in Alaska on female employment. Using survery data from IPUMS CPS surveys and the synthetic control method, we are able to run a difference-in-differences regression to show that UBI has a slightly positive effect on female employment. This positive effect persists, but loses its significance with the addition of more demographic controls.

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1 Introduction

This project is an extension of a previous study from Jones and Marinescu has found that UBI does not significantly decrease employment Jones and Marinescu (2018). Considering how this affects the financial independence of women and/or the employment rate among women seems important in determining the effect of UBI on gender equality.

Scottish Economist Ailsa Mckay argued that "citizens' basic income model can be a tool for promoting gender-neutral social citizenship rights". McKay (2001)

Economist Caitlin McLean is concerned that UBI's potential to lessen the net incentives for women to work a job and reinforce traditional gender roles of women at home. McLean et al. (2015)

2 Data

The Data was drawn from IPUMS CPS surveys, which contains the demographic and employment data we need.

In order to create a synthetic control for Alaska, we aggregate the data by state and year, calculating shares for our outcome of interest and its covariates. Our outcome of interest is the employment to population ratio for women. The associated covariates are average pre-period female share, industry shares, age category shares, and educational categories shares

The data for Alaska starts in 1977, so we consider data for all the states from 1977 to 2019 inclusive, excluding 2020 as there are no industry work statistics available yet.

We also proceed to balance the data set based on time, which is necessary for our empirical strategy of creating a synthetic control.

3 Empirical Strategy

We will aim to run a difference in differences regression.

The Alaska Permanent Fund Dividend was implemented for all residents starting June of 1982, giving us a clear treatment group and treatment starting time.

However, the dividend was distributed to all residents of the state, and thus there exists no control group within the state. Subsequently, because no obvious control exists, we construct a synthetic control for Alaska, which boils down to a weighted average of states that minimizes the "difference" in covariates in the pre-period. The synthetic control method is further elaborated on in Abadie et al. (2007)

Our equation of interest is as follows:

$$Y_{st} = \alpha_s + \beta_t + \gamma D_{st} + W'_{st}\lambda + \epsilon_{st},$$

where s indexes states and t indexes years. Y_{st} gives the female employment ratio, D_{st} is a dummy that is only true when $s = Alaska$ and $t > 1982$, and W_{st} consists of the covariates to Y_{st}. Furthermore, α_s and β_t embody the state and time fixed-effects of the regression, respectively.

In summary, our approach boils down to looking at the average difference between the treatment state (Alaska) and the synthetic control during the treatment period (1982 and onwards).

The assumptions necessary for difference-in-differences regression can be reasonably argued here.

By construction, the synthetic control for Alaska ensures parallel pre-trends between the synthetic control and Alaska in female employment. This seems to suggest that the synthetic Alaska is a suitable counter-factual for Alaska and that the parallel trends assumption is reasonable.

Moreover, it is also reasonable to assume that the treatment (i.e. the Alaska dividend program), has no spillover effects. Because the dividend program is limiting to residents who only reside in Alaska for the entire calendar year, it is reasonable to assume that the dividend program would not have any significant impacts on the female employment rate of other states that the synthetic control is constructed from.

4 Results

First, solving the optimizations problems involved in creating a synthetic control for Alaska, we are able to create a synthetic control for Alaska, which is shown in Table 1.

The synthetic control and Alaska seem to share parallel pre-trends in female employment, as expected. In figure 1, Alaska and synthetic Alaska seem to share a very close trend in female employment in the pre-period before the dividend was instituted in 1982.

The Diff-in-Diff regression excluding controls, shown in Table 2, reveals that the basic income dividend had an average effect of increasing the female employment rate by 1.84%, which is significant at the $\alpha = 0.1$ level.

5 Robustness

The results from part 4 are somewhat sensitive to the inclusion of controls.

Upon including the controls (which were the covariates discussed in section 2) in our diff-in-diff regression, a positive effect from the dividend persists, but it loses its significance. Table 3 reveals that the effect of the treatment is a 1.7%, with p-value of 0.19. This result is not very significant, and would lead us to fail to reject the null hypothesis that the treatment effect of the dividend is 0.

Regression heterogeneity is difficult to implement here, as the synthetic control methods provides a synthetic Alaska as a weighted average of the state aggregates. However, it would be difficult to generate individual observations from synthetic Alaska, as there were none.

One approach to gain more accurate standard errors we could use is to weigh the state aggregates used to construct the synthetic control by sample size within each state in the diff-in-diff regression. This is left as one of the next or future steps in extending the project.

6 Conclusion

Because the regression with controls does not yield a statistically significant effect of the dividend on female employment, we fail to reject the null hypothesis that the effect of the dividend on female employment is 0. In other words, we have reason to believe that there is no effect of the basic income dividend program on female employment.

However, we can perhaps draw some suggestions from our results for future work.

The positive effect of the dividend on female employment could lend some support to McKay's idea that basic income can be leveraged as a tool for gender equality. However, because the significance of this effect was not robust to controls, these results only serve as a suggest rather than decisively conclude that McKay could be correct.

Likewise, while the lack of significance in an effect of the dividend leaves us with no conclusive answers, the fact that the treatment coefficients in both regressions were positive seems to perhaps suggest that McLean's hypothesis is wrong, and that basic income does not disincentivize female employment.

References

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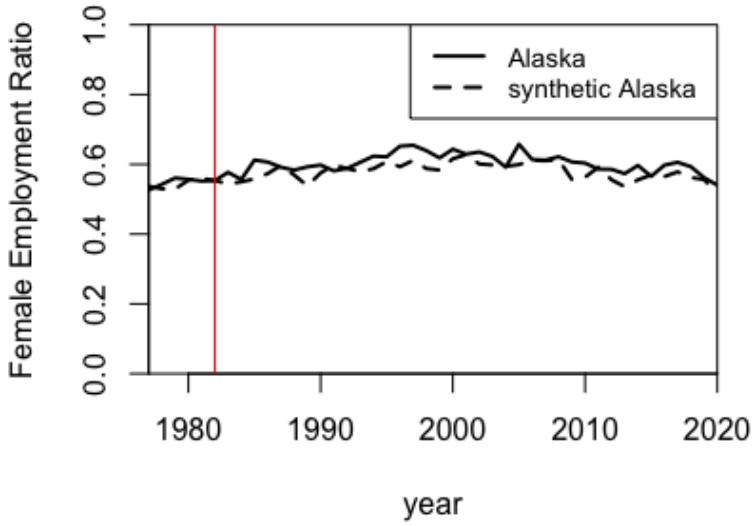
Figures

Figure 1: Female Employment for Alaska and Synthetic Alaska over Time



NOTES: This figure shows exposure to Female Employment to population ratio over time, as measured by ΔIP_d, from 1977 to 2019. The year 1982 is indicated in red, which gives us the start date of the Alaska Divivdend Fund program.

Tables

Table 1: Synthetic Control State Weights

State Names	Weights
Hawaii	0.810
Wyoming	0.127
Maryland	0.063

NOTES: This table presents the weights for each state obtained from solving the minimization problem in constructing the synthetic control for Alaska over the aforementioned covariates

Table 2: Diff-in-Diff Regression Coefficients (Without Controls)

	Estimate (std error)	t-value	p-value
State Fixed Effect	.0057 (.0081)	.6956	.4897
Time Fixed Effect	0.0382 (.0071)	5.404	6.262e-7
Treatment	0.0181 (.0100)	1.810	.0740

NOTES: This table presents regression output of the diff-in-diff regression without controls

Table 3: Diff-in-Diff Regression Coefficients (With Controls)

	Estimate (std error)	t-value	p-value
State Fixed Effect	-0.031 (.0213)	-1.457	.1494
Time Fixed Effect	0.0019 (0.0079)	0.2367	0.8136
Treatment	0.0174 (.0132)	1.31	.1914

NOTES: This table presents regression output of the diff-in-diff regression with controls