Senior Project

Department of Economics

"Welfare-to-Work: The Effect of Childcare Subsidies on Labor Force Participation Rates for Low-Income Single Mothers"

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Abstract

The allocation of funding toward childcare has historically been debated due to conflicting views on the effect childcare subsidies have on low-income, single mothers. Some suggest that federal, state and local funding could put the money allocated for childcare subsidies to better use – or perhaps that there is no need for additional federal, state and/or local funding. However, there is sufficient evidence that children raised in a family structure with low-income single mothers may face long-term negative consequences not only socially, but also economically. An increase in labor force participation rates as a result of childcare subsidies not only enables these low-income single mothers to potentially earn more than before, but also decreases the burden placed on taxpayers to support welfare programs. This paper observes the effect of childcare subsidies on low-income, single mothers across race.

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I. Introduction

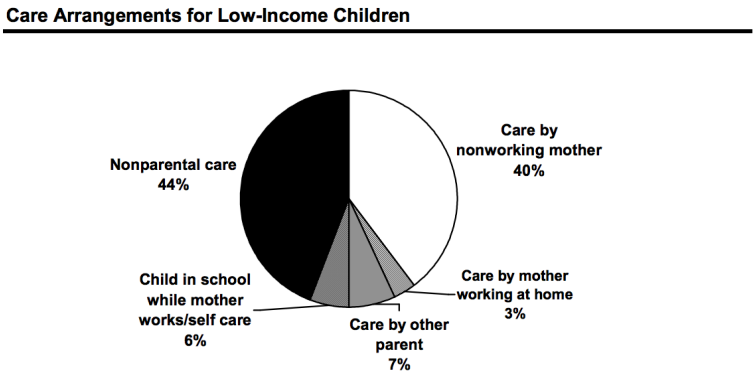
In the United States of America, the average cost of full-time childcare is estimated to be $9,589 per year for children under the age of four. By comparison, in-state college tuition is estimated to cost an average of $9,410 per year (Shulte and Durana, 2016). The development of policy and infrastructure to aid workers with family caregiving responsibilities has been largely neglected in the U.S. (Olivetti & Petrongolo, 2017). These conditions pose an opportunity for meaningful policy recommendations that could lead to greater economic wellbeing; especially for low-income single mothers. The purpose of this paper is to identify the effect of childcare subsidies on labor force participation rates among low-income, single mothers. Moreover, special attention will be given to understand how these effects differ across race.

In order to determine the effect of childcare subsidies on labor force participation rates for low-income, single mothers, it is important to understand the current economic situation many of these women experience; namely high poverty rates and relatively low-incomes (Blau & Tekin, 2003). Many of these female-headed households living in poverty earn lower incomes and have limited opportunities due to a lack of education (Blau et al., 1997). Additionally, the lower ratio of adults to children may lead to difficulty in coordinating sufficient childcare arrangements (Blau et al., 1997). Finally, women tend to earn less than their male counterparts, thus increasing the financial burden per child taken on by single mothers. This is commonly due to a lack of work experience (or greater time off) due to childbearing (Blau et al., 1997).

In 1996, the Child Care and Development Fund (CCDF) was created in order to support working families with young children. During 1990 to 2004, expenditures on childcare subsidies increased from $168 million (1990) to $9.4 billion (2004). Also during this period (1990 – 1993) expansions of the Earned Income Tax Credit (EITC) dramatically rose from $6 billion to $38

billion (Tax Policy Center, 2008). The expansion of childcare subsidies during this time was a result of a conscious effort to reduce the number of individuals collecting welfare. These economic policies accomplished the goal of increasing labor force participation rates while limiting the number of individuals who are dependent on welfare. The fraction of mothers working without welfare increased from 56% in 1990 to 72% in 2004. Additionally, the number of full-time workers increased from 54% to 62% during that same period. Although the U.S. has made great strides in allocating funds towards childcare subsidies, more can be done.

Some suggest that federal, state and local funding could put the money allocated for childcare subsidies to better use – or perhaps that there is no need for additional federal, state and local funding. However, there is sufficient evidence that children raised in a family structure with low-income single mothers may face long-term negative consequences not only socially, but also economically (Blau et al., 1997). Granting childcare subsidies to low-income single mothers may lead to a greater chance of employment once the financial burden associated with childcare costs is alleviated (Forry, 2009). Additionally, childcare subsidies may offer some mothers greater choices regarding the type of childcare they choose to leave their children while they join the labor force. Below is a chart from the U.S. Department of Health and Human Services (2015) depicting that 40% of care arrangements for low-income children is done by nonworking mothers:



II. Literature Review

Tight budgets faced by low-income single mothers may result in the inability to afford or access childcare, which is noted to be an important indicator of labor force participation rates among this group (Bainbridge et al., 2003). All things considered, this barrier to employment poses a larger economic problem that must be addressed. Existing literature suggests that childcare subsidies are "highly effective in encouraging the welfare-to-work transition," meaning that low-income single mothers are better equipped to enter the labor force if offered subsidization for childcare (Kimmel, 1995). An increase in labor force participation rates as a result of childcare subsidies not only enables these low-income single mothers to potentially earn more than before, but also decreases the burden placed on taxpayers to support welfare programs.

Existing research ultimately suggests that granting childcare subsidies to low-income single mothers reduces out-of-pocket costs for childcare and allows for a significant number of single mothers to join the labor force (Bainbridge et al., 2003; Kimmel, 1995; Herbst, 2010; Jaumotte, 2003). However, Forry finds that, in the presence of a childcare subsidy, only half of low-income households headed by single mothers reduce monthly childcare expenditures (2009). On average, the low-income single mothers included in Forry's study decrease their out-of-pocket expenses for childcare by approximately $180/mo. (2009). In some cases, mothers may not experience lower out-of-pocket costs due to the fact that they switch from free, informal care to more expensive formal care paid for by a subsidy and a copay, without changing labor force participation choices (Forry, 2009). There is evidence of other benefits to childcare subsidies outside of female labor force participation rates, including the positive impact on childhood outcomes for those children who were in the care of a quality childcare provider.

Some studies control not only for childcare subsidies but also the Earned Income Tax Credit (EITC). Herbst observes the sensitivity these low-income mothers have towards the prices of childcare and their wages after EITC policies influence these amounts (2010). He concludes that mothers with higher childcare costs respond more to childcare subsidies compared to the EITC (2010). Moreover, the author notes that certain tax policy instruments may neutralize the effects of a childcare subsidy. Jaumotte finds that child benefits reduce female labor force participation rates due to an income effect (Jaumotte, 2003). Common examples of child benefits include offering longer maternity leaves to expecting mothers and the Child Tax Credit, which offers $1,000 per dependent to families who qualify based off annual income.

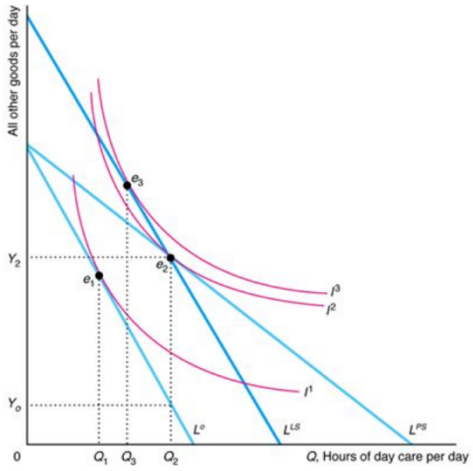
As attractive as childcare subsidy benefits may seem, there is evidence of low utilization rates among low-income single mothers. Some studies suggest there are societal stigmas associated with welfare as well as the "emotional and temporal costs" of applying for subsidization (Forry, 2009; Herbst, 2010). Policymakers note that individuals may be more willing to apply for childcare subsidies if temporal costs are lowered, such as reducing extensive paperwork and lengthy background checks. There is not much extensive economic action that is being done at the federal and state level to combat "emotional costs" for societal stigmas associated with receiving welfare. One possible economic solution is to tie childcare subsidies to income rather than welfare. Another possible solution focused on temporal costs is to simplify and (if possible) reduce the amount of paperwork needed for consideration. Additionally, it would be beneficial to focus on educating individuals who are eligible to receive these subsidies on how to apply and the general processes involved with obtaining a childcare subsidy.

The degree to which childcare subsidies positively impact low-income single mothers through encouraging labor force participation rates has been debated in the economic literature.

Some research concludes that there are substantial positive and statistically significant effects (Bainbridge et al., 2003; Jaumotte, 2003), while others suggest that although there are statistically significant labor supply effects, they are considered minimal (Forry, 2009). While childcare subsidies are likely to be highly effective in encouraging labor force participation, other factors such as education, labor market conditions, and cultural attitudes remain major determinants of female participation (Jaumotte, 2003; Kimmel, 1995).

III. Theoretical Model

This study will apply the economic theory of utility maximization subject to budget constraints to understand the effect of childcare subsidies on the optimal choice of labor force participation for low-income single mothers. Women make choices of labor force participation that maximizes utility subject to a budget constraint and if reservation wages are above the cost of childcare, a utility maximizing individual will not work. Below is a graph depicting the effects an EITC and a childcare subsidy may have on labor force participation decisions for low-income, single mothers:



L^o is the budget constraint for mothers without an EITC or childcare subsidy. L^{LS} is the new budget constraint in the event of an EITC. L^{PS} depicts the new budget constraint for mothers

who receive a childcare subsidy. Mothers are able to work more hours while their child(ren) are cared for when there is a childcare subsidy while still maintaining the same quantity of "All other goods per day". Theoretically, childcare subsidies are the most effective way to get low-income single mothers into the labor force when compared to the EITC.

For the purpose of this study, the testable hypothesis states that an increase in childcare subsidies will lead to an increase in labor force participation rates among low-income single mothers. The niche of this research is the race component, which has been studied in sociological research but not extensively from an economic perspective. Some economists have included the differences between White and Black mothers, however my research also includes Asians and Hispanics. This is an important distinction between previous literature because my research is more inclusive. Best practices for policy recommendations should include research that is inclusive of all groups of mothers, including those of different race.

IV. Empirical Examination

The goal of this study is to show the effects that childcare subsidies have on labor force participation rates among low-income single mothers and how these effects differ across race. Previous literature suggests that childcare subsidies will have a positive impact on employment status while child tax credits will have a negative impact on employment status. Variables that will be used in the model include: age (AGE), race (including White, Black, Asian, Hispanic) (RACE), sex (SEX), marital status (MARST), educational attainment (EDUC99), employment status (WKSTAT), total family income (FTOTVAL), welfare income (INCWELFR), collecting Earned Income Tax Credit (EITCRED) and a variable controlling for receipt of childcare subsidies (KIDCARE). According to the economic theory, we would expect that an increase in educational attainment, welfare income, EITC collection and childcare subsidies would all

positively impact the labor force participation rates for low-income single mothers. Below is the econometric model for a basic OLS regression as well as the bivariate probit model which will be used as a more accurate estimator. Each model is run with each data set based on race. Additionally, there is one OLS and bivariate model that uses combined race data to observe the effect for all races included in data set.

OLS Model

$$\boldsymbol{LFP_i} = \alpha_0 + \alpha_1 Age_i + \alpha_2 Education_i + \alpha_3 Single_i + \alpha_4 Welfare\ Income_i + \alpha_5 EITC_i + \alpha_6 Subsidy_i + \varepsilon_i$$

Bivariate Probit Model

$$\mathbf{Pr}(\boldsymbol{LFP_i}) = \beta_0 + \beta_1 Age_i + \beta_2 SomeHighSchool_i + \beta_3 HighSchool_i + \beta_4 SomeCollege_i + \beta_5 College_i + \beta_6 Single_i + \beta_7 WelfareIncome_i + \beta_8 EITC_i + \beta_9 Subsidy_i + \varepsilon$$

V. Data

I use Current Population Survey data extracted from IPUMs for 2008-2009. The original data extract includes 414,325 observations. The number of observations in the data set drops to 15,008 after data manipulation. The sample is restricted to women between the ages of 16 and 40 to reflect child-bearing ages for women. Dummy variables were created for marital status (MARST), employment status (EMPSTAT) and race variables. Low-income is defined as those who earn 200% or less than the federal poverty rate, which is less than $47,248 per year. The income variable was split into "Low" and "Extremely Low" for the descriptive statistics in order to demonstrate how many extremely low-income mothers are represented in this data set. Roughly half of all participants are considered "Low" while the other half is "Extremely Low." Black mothers have a slightly higher percentage of extremely low-income mothers compared to White, Hispanic and Asian mothers. Additionally, there are substantially more White, low-income single mothers represented in this data set (10,448) compared to Black (3,382), Hispanic (4,683), and Asian (274) mothers.

Data sets were created for each race in order to run bivariate probit models, as well as an all-encompassing data set which included all races. This was used to run the combined bivariate probit along with individual probits and OLS regressions by race.

VI. Results

The output for the OLS and bivariate probit regressions can be found in the "Appendix" section under Table 2. The values in brackets under the "*Probit*" section on the table indicates the marginal effect on labor force participation rates across race. Additionally, the top value is the parameter estimate and the value in parenthesis is the standard error. The marginal effects will be used to understand the results of the bivariate probit models. It is interesting to note that the marginal effect in the probit model are eerily similar to the parameter estimates in the OLS regression. However, the marginal effects for the childcare subsidy variable are different across race.

The results of the childcare subsidy effect on low-income single mothers is consistent with literature, indicating a positive relationship for White, Black and Hispanic mothers. There is a negative relationship with Asian mothers. However, there are very few observations for Asian mothers so the results are mostly negligible and insignificant. White, low-income single mothers who obtain a childcare subsidy are ten percentage points more likely to join the labor force, while Black mothers are seven percentage points more likely to join the labor force. Hispanic mothers see the greatest gains to labor force participation rates by being 16.2 percentage points more likely to join the labor force. There seem to be general inconsistencies with the results for Black and Asian mothers. Mothers with a college degree are much more likely to join the labor force. White mothers with a college degree are 12.5 percentage points more likely to join the labor force. Black mothers see the greatest increase in likelihood at 21.9 percentage points.

Hispanic mothers notice an 11.2 percentage point increase in the likelihood of joining the labor force while Asian mothers see 4.2 percentage points of greater likelihood.

VII. Conclusion

The decision for women to enter the labor force is dictated by a wide variety of reasons, each reason unique to a mother's personal choices, abilities and preferences. Using the economic theory of utility maximization subject to budget constraints, the research shows that childcare subsidies have a significant effect on low-income single mothers. Hispanic mothers see the greatest positive effect on labor force participation rates subject to childcare subsidies by being 16.2 percentage points more likely to join. Additionally, education plays a large role in labor force participation decisions, as noted for those mothers who hold a college degree.

VIII. Limitations

There are many possible improvements that can be made for this paper. It would be beneficial to include descriptive statistics on the number of children mothers have, the age of each child, or a general number of how many young children they care for. Additionally, there is a limitation on the number of observations for this data set. The amount of White mothers represented overwhelms the number of observations for the other three races and may skew results. In the future, it would be best to eliminate the Asian race variable because there are so little observations. Including the Hispanic variable was a good decision that added value to the existing economic literature.

IX. Appendix

Table 1.

DESCRIPTIVE STATISTICS								
	White		***Black***		***Hispanic***		***Asian***	
	mean	*standard deviation*	*mean*	*standard deviation*	*mean*	*standard deviation*	*mean*	*standard deviation*
Labor Force Participation	0.714	0.452	0.86	0.347	0.665	0.472	0.734	0.443
Age	31.15	5.38	31.057	5.215	31.397	5.315	33.018	4.839
Education								
Some High School	0.027	0.161	0.025	0.156	0.041	0.199	0.036	0.188
High School	0.371	0.483	0.43	0.495	0.313	0.464	0.376	0.485
Some College	0.214	0.41	0.27	0.444	0.141	0.348	0.234	0.424
College	0.051	0.22	0.035	0.183	0.03	0.17	0.058	0.235
Marital Status								
Single	0.595	0.491	0.868	0.339	0.517	0.5	0.526	0.5
Married	0.405	0.491	0.132	0.339	0.483	0.5	0.474	0.5
Income								
Low (<$47,248)	0.46	0.498	0.355	0.479	0.437	0.496	0.544	0.499
Extremely Low (<$23,624)	0.54	0.498	0.645	0.479	0.563	0.496	0.456	0.499
Welfare								
Welfare Income ($)	225.048	1146.469	276.482	1010.79	291.959	1366.05	351.241	1381.24
EITC ($)	2684.012	1400.216	2806.808	1417.038	2865.091	1356.634	2655.755	1508.726
Subsidy	0.083	0.276	0.14	0.347	0.048	0.215	0.069	0.255
No Subsidy	0.917	0.276	0.86	0.347	0.952	0.215	0.931	0.255
Number of observations	10448		3382		4683		274	

Table 2.

REGRESSION ANALYSIS										
	Combined		***White***		***Black***		***Hispanic***		***Asian***	
	OLS	*Probit*	*OLS*	*Probit*	*OLS*	*Probit*	*OLS*	*Probit*	*OLS*	*Probit*
Intercept	0.195*** (0.021)	-1.199*** (0.07)	0.179*** (0.025)	-1.198 (0.093)	0.371*** (0.041)	-0.953*** (0.197)	0.12*** (0.039)	-1.05*** (0.138)	0.502 (0.178)	0.062 (0.082)
Age	0.006*** (0)	0.026*** (0.002) **[0.007]**	0.007*** (0)	0.026*** (0.002) **[0.007]**	0.005*** (0.001)	0.025*** (0.006) **[0.005]**	0.006*** (0.001)	0.023*** (0.004) **[0.006]**	-0.003 (0.005)	-0.015*** (0.002) **[-0.004]**
Education										
Some High School	0.067** (0.02)	0.238* (0.078) **[0.057]**	0.046** (0.025)	0.161** (0.089) **[0.043]**	0.130** (0.038)	0.645 (0.210) **[0.125]**	0.063** (0.03)	0.193 (0.104) **[0.053]**	0.011 (0.136)	0.027 (0.46) **[0.007]**
High School	0.064*** (0.008)	0.224*** (0.029) **[0.061]**	0.063*** (0.009)	0.214*** (0.034) **[0.058]**	0.06*** (0.016)	0.243*** (0.069) **[0.047]**	0.087*** (0.014)	0.291*** (0.049) **[0.08]**	0.086 (0.06)	0.224 (0.224) **[0.057]**
Some College	0.065*** (0.009)	0.239*** (0.034) **[0.061]**	0.068*** (0.011)	0.245*** (0.041) **[0.066]**	0.06*** (0.016)	0.265** (0.078) **[0.051]**	0.059*** (0.018)	0.218** (0.069) **[0.06]**	0.114 (0.07)	0.44 (0.274) **[0.113]**
College	0.127*** (0.016)	0.511*** (0.067) **[0.13]**	0.125*** (0.017)	0.466*** (0.072) **[0.125]**	0.143*** (0.032)	1.131*** (0.286) **[0.219]**	0.122*** (0.035)	0.407** (0.067) **[0.112]**	0.044 (0.113)	.163 (0.415) **[0.042]**
Marital Status										
Single	0.401*** (0.007)	1.274*** (0.026) **[0.325]**	0.413*** (0.008)	1.289*** (0.03) **[0.347]**	0.27*** (0.007)	0.981*** (0.07) **[0.191]**	0.463*** (0.012)	1.432*** (0.045) **[0.396]**	0.384*** (0.049)	1.382*** (0.202) **[0.354]**
Welfare										
Welfare Income ($)	0*** (0)	0 (0) **[0]**	0 (0)	0*** (0) **[0]**	0*** (0)	0 (0) **[0]**	0** (0)	0 (0) **[0]**	0** (0)	0*** (0) **[0]**
EITC ($)	0*** (0)	0 (0) **[0]**	0** (0)	0*** (0) **[0]**	0*** (0)	0.000109 (0) **[0]**	0 (0)	0 (0) **[0]**	0*** (0)	0*** (0) **[0]**
Subsidy	0.061*** (0.011)	0.286*** (0.049) **[0.073]**	0.077*** (0.011)	0.372*** (0.064) **[0.1]**	0.064*** (0.016)	0.362** (0.096) **[0.07]**	0.102 (0.028)	0.587*** (0.138) **[0.162]**	-0.033 (0.098)	-0.341*** (0.355) **[-0.087]**
Adjusted R-Squared	0.2163		0.2259		0.1086		0.2711		0.1926	
Root MSE	0.38497		0.3978		0.3278		0.40295		0.39797	
F-Value	460.02		339.72		46.77		194.51		8.23	

***, **, *** indicates significance at 90%, 95%, and 99% level** **[Marginal Effect] | (Standard Error)**

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