

The Effect of Welfare on Educational Advancement among Unmarried Mothers

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Abstract

This paper analyzes the impact of receiving welfare benefits on the likelihood of unmarried mothers pursuing additional education using panel data. The data is from the Fragile Families and Child Wellbeing Study, a panel study of mothers from large cities. After controlling for demographic and sociological characteristics, this paper estimates a 4.3% increase in the odds of pursuing further education per 1000 dollars of benefits in the first year of motherhood, with similar statistics for ensuing years. These results are consistent with other work by Herbst and Tekin and suggest a role for welfare programs in promoting human capital investment.

Introduction

Unmarried mothers inhabit a unique social position where they face the challenge of meeting both their parenting responsibilities and economic needs without the aid of a spouse. These burdens are further compounded when a mother does not have a sufficient level of education to obtain a job that pays well enough to sustain a family. This study examines whether or not welfare programs aimed at alleviating unmarried mothers' financial stress might also help promote educational advancement and thus eventual improvement in employment opportunity.

As with other welfare recipients, significant debate has surrounded welfare programs targeting unmarried mothers. One might find in one camp Rawlsians and others arguing for welfare in order to guarantee a certain basic level of provision and participation in society for mothers and their children. On the other, one finds those who argue that the role of government is to provide only for strict equality of opportunity and that government welfare programs both degrade personal responsibility and discourage employment. A common response to this debate in the economic literature is to evaluate the efficacy of welfare programs in promoting employment, with the hope being that both sides of the debate would prefer welfare programs to encourage rather than discourage employment since employed persons will be more economically self-sufficient and less likely to require welfare.

While this study does not adopt the "work first" sensibility held by much of the welfare literature, it nonetheless also seeks to placate both sides of the welfare debate by evaluating the degree to which welfare programs can encourage self-sufficiency and so a reduction in the need for welfare. The wealth of studies extolling the benefits of education suggest it may be a promising path to self-sufficiency, especially in the light of findings by Pandey and Zhan confirming that significant benefits to education do accrue to unmarried mothers. Additionally, the benefits of education to unmarried mothers are further magnified because unmarried mothers transmit some of the benefits of education to their children (Goldrick-Rab and Sorensen). A welfare program for unmarried mothers designed to encourage self-sufficiency through educational advancement thus could prove amenable to all sides of the welfare debate, as well as those such as Hawkins and Hong et al who independently advocate for a more holistic view of the ends welfare should serve.

Literature Review

Perhaps as a consequence of the "work first" philosophy of welfare's dominance, the impact of welfare on educational advancement both in general and among unmarried mothers is not heavily examined in

the economic literature. Nonetheless, there are economic studies examining similar questions as well as some informative sociological literature.

The impact of welfare on educational advancement among women in general is empirically examined at the state level by Dave et al. They use what they refer to as a “difference-in-difference-in-differences” methodology to compare the impact of state welfare policies and welfare reform on adult women using state level data from the Current Population Survey. While Dave et al do not examine unmarried mothers specifically, those mothers do represent a large share of the adult women on the welfare programs they examined, in particular on Temporary Assistance for Needy Families (TANF). Their findings indicate that the introduction of TANF and other reforms in 1996 resulted in a 20% reduction in the number of female welfare recipients that seek further college education. This study thus provides valuable evidence that welfare policies do have a significant impact on decisions about human capital investment and suggests that current welfare policies are not optimized to encourage education. However, this work does not provide us with information about the magnitude of the impact of welfare receipt on an individual’s decision to seek further education against the baseline of receiving no welfare at all. This makes it difficult to gauge the absolute impact of programs like TANF on decisions to continue one’s education, even if the relative impact of its introduction has been a reduction.

Herbst and Tekin fill some of this gap with analysis at the individual level on the role receipt of childcare subsidies play in promoting educational advancement. They use data from the Kindergarten Cohort of the Early Childhood Longitudinal Study and analyze that data using a combination of both logistic regression models and instrumental variable models. Using these models, they find that receipt of child care subsidies increased the likelihood of an unmarried mother seeking further school or college education by 13% and enrolling in job training programs by 8%. Their instrumental variable methodology is of particular interest because it highlights the need to cope with the potential existence of a latent variable, perhaps aptly termed as *moxie*, which contributes to an individual's propensity to seek educational development and to successfully seek out and obtain government subsidies. The existence of one such latent variable would not be surprising, as it would be in line with the analysis of Goldrick-Rab and Sorensen who note that unmarried mothers must exert significant effort to overcome various institutional and bureaucratic barriers to obtaining government subsidies. While Herbst and Tekin’s findings suggest a role for welfare in promoting education, their work is limited by that they did not analyze the impact of or fully control for other sources of welfare funding, such as TANF or Women, Infants, and Children (WIC). It is not necessarily clear what impact more general purpose welfare programs would have on education investment decisions comparative to the more targeted childcare subsidy programs.

With respect to sociological work, Goldrick-Rab and Sorensen’s more qualitative study provides a reasonable basis for believing welfare receipt might cause an increase in a mother’s likelihood to advance her education. They find that unmarried mothers cite cost and the tradeoff between time spent with children and at work as key barriers to obtaining further education. Welfare funding could help to alleviate the financial burden of education for unmarried mothers and allow them to divert less time away from their children toward work.

Additional work in the sociological literature helps to clarify other factors influencing education investment decisions which may be worth controlling for. For example, unpublished work by MacGregor using a series of logistic regression models on data from the Fragile Families and Child

Wellbeing Study imply that a mother's romantic relationship situation has a substantial impact on education decisions, with unmarried mothers being more likely than cohabitating mothers to seek further education. MacGregor's work also suggests that a number of other factors, such as a mother's relationship with her parents in her youth and her degree of involvement in church and community activities, have a large role to play in determining decisions about human capital development. Related work by Teitler et al concerning the impact of welfare on decisions to initiate marriage also finds these same factors to be significant. If Teitler et al and MacGregor's suspicion that marriage and education serve as substitutable pathways to financial security holds true, Teitler et al's work provides further evidence that these underlying factors should be controlled for in studies of the impact of welfare on educational advancement.

Data and Methodology

This study draws upon public use data from the Fragile Families and Child Wellbeing Study conducted by Princeton University's Center for Research on Child Wellbeing. This panel study follows 5,000 new mothers whose children were born between 1998 and 2000 and contains a rich array of sociological and economic variables, including data on participation in education programs and welfare receipt. Study participants were selected through a stratified random sample of mothers giving birth in hospitals within United States cities with populations over 200,000 (Reichman et al). The Fragile Families Study then conducted an initial in-hospital interview of study participants as well as a mixture of face-to-face and phone interviews with participants at follow-up waves after 1, 3, 5, and 9 years. The number of individuals remaining for analysis at each follow-up wave after removing married mothers and people who dropped out of the study varies from 2116 at the first year follow-up to 1562 at the ninth year follow-up.

While a replicate weighting scheme designed to make the sample nationally representative was available for use with the data, this study chose not to use it. This study is robust against the chief sources of non-randomness in the Fragile Families study's sampling design, namely the oversample of unmarried mothers and the stratification scheme that guaranteed that at least one city from each of the policy regimes identified by the Fragile Families research group would be sampled. This robustness stems from that this study limits itself to the oversample of unmarried mothers rather than using the whole pool of mothers. Further, while overrepresentation of some policy regimes would affect the validity of certain summary statistics on such measures as average societal degree of welfare provision, it should not affect the relationship determined by regression models between those statistics and other variables. Finally, replicate weights are not yet available for the 9 year follow-up of the study and would have to have been foregone in any case.

Theoretical Model

Following the methods of Herbst and Tekin as well as MacGregor, this study will analyze the impact of welfare programs on education decisions using logistic regression models, with one model being calculated for each follow-up survey wave. The theoretical model, as seen in (1), takes an individual's decision to participate in an education program ($education_i$) to be a function of the quantity of welfare assistance received by that individual within the year before the survey ($qwelfare_i$), whether or not that individual was participating in an education program at the previous survey ($edulag_i$), a vector of

economic and demographic control variables ($EconDemo_i$), a vector of sociological control variables ($Socio_i$), and individual error (ϵ_i). The economic and demographic variables include mother's age, race, initial level of education, household composition, household income, and indicator variables for Medicaid receipt and housing assistance receipt. The sociological variables, inspired by MacGregor and Teitler et al, include an indicator for frequent church attendance, an indicator for whether or not a mother lived with her parents at age 15, and whether or not a mother is cohabitating with or married to either her baby's father or some other individual. A full list of definitions for explanatory variables may be found in Table 1.

$$(1) \quad education_i = \beta_0 + \beta_1 * qwelfare_i + \beta_2 * edulag_i + \beta_3 * EconDemo_i + \beta_4 * Socio_i + \epsilon_i$$

The definition of the response variable $education_i$ requires some comment. First, this study defines an education program to include any education program listed on the Fragile Families Survey, including college, vocational school, English as a Second Language courses, General Educational Development (GED) classes, and job training programs. The variable is then coded to be 1 if the individual either was enrolled in one such education program at the time of their interview or if the individual completed one such program at any time since their previously having been surveyed by the Fragile Families Study. While this poses some problems since the number of years between follow-up surveys of the Fragile Families study increases, data on when programs were completed does not exist to allow for easy remedy of this problem. Fortunately, when empirical models were tested for robustness against redefining $education_i$ to be 1 only when individuals were enrolled in programs at the time of survey, no substantial differences were found between models which differed only in the definition of $education_i$.

Summary Statistics

Of the initial 2116 women in the sample as of the first follow-up survey, 53.4% percent of them will remain in the study and have participated in some activity to advance their education by the 9 year follow-up. Interestingly, the proportion of mothers continuing their education in some way at any given follow-up survey is stationary at approximately 32%, though the share of mothers who are advancing their education for the first time since the start of the Fragile Families Study declines from each follow-up survey to 7.2% in the ninth year follow-up.

Since this study's model seeks to test if government public assistance promotes the use of education programs, the summary statistics in Table 2 are of particular note because they show that the group of individuals advancing their education have higher median and mean levels of welfare receipt, even when their incomes began to outpace those of others not pursuing further education. This implies there may be a relationship between education program participation and welfare reciprocity that justifies its placement as a key explanatory variable in our model. The median and mean levels of welfare receipt for those mothers receiving some welfare are also reported for reference in Table 3.

In addition to examining the quantity of welfare assistance received by each mother, indicator variables for whether or not an individual received government housing assistance or Medicaid were also examined. The value of government housing assistance and Medicaid were not factored into $qwelfare_i$, so these indicators are summarized separately in Table 4. These factors do not appear to exhibit a clear association with education continuance, though are included in the model as control variables nonetheless.

Table 1: Definitions of Explanatory Variables.

Variable	Definition
$qwelfare_i$	Quantity of government assistance of any kind received in the last year.
$edulag_i$	Indicator that is 1 if $education_i$ was 1 in the previous follow-up survey.
--- $EconDemo_i$ ---	Economic and Demographic Variables Below This Bar
$hhincome_i$	Household income.
$medicaid_i$	Indicator that is 1 if the individual is on Medicaid or a comparable program.
$govhouse_i$	Indicator that is 1 if the individual is living in government provided housing.
$momage_i$	Individual's age in years.
$black_i$	Indicator that is 1 if the individual is African American.
$hispanic_i$	Indicator that is 1 if the individual is Hispanic.
$uscitizen_i$	Indicator that is 1 if the individual is a United States citizen.
$lesshs_i$	Indicator that is 1 if the individual had no high school diploma at childbirth.
$techorsome_i$	Indicator that is 1 if the individual had a tech degree or some college education at childbirth.
$highered_i$	Indicator that is 1 if the individual had a college degree at childbirth.
$parented_i$	Indicator that is 1 if the individual's parents have a college degree.
$hhkids_i$	Number of children in household.
$hhparents_i$	Indicator that is 1 if at least one of the unwed mothers' parents lives with her.
--- $Socio_i$ ---	Sociological Variables Below This Bar
$religion_i$	Indicator that is 1 if the individual attends at least 1 religious service a week.
$livedwparent_i$	Indicator that is 1 if the individual lived with their parents at the age of 15.
$marriedbf_i$	Indicator that is 1 if the individual married her baby's father.
$cohabwithbf_i$	Indicator that is 1 if the individual is cohabitating with her baby's father.
$marriednew_i$	Indicator that is 1 if the individual married someone other than her baby's father.
$cohabwithnew_i$	Indicator that is 1 if the individual is romantically cohabitating with someone other than her baby's father.

Table 2: Welfare Receipt and Household Income in Each Follow-up Year by Education Decision.

Variable, Follow-up	All Mothers		Mothers Continuing Ed. (ed=1)		Mothers Not Continuing Ed. (ed=0)	
	Median	Mean	Median	Mean	Median	Mean
<i>qwelfare, 1</i>	0	1904	180	2093	0	1816
<i>qwelfare, 3</i>	400	2335	600	2537	240	2241
<i>qwelfare, 5</i>	592	2544	722.5	2686	492	2483
<i>qwelfare, 9</i>	1320	3202	1000	3218	1525	3194
<i>hhincome, 1</i>	18930	24650	20000	26020	18790	24010
<i>hhincome, 3</i>	19090	26240	21000	29070	18580	24920
<i>hhincome, 5</i>	23000	28740	25000	30250	22000	28090
<i>hhincome, 9</i>	28000	33950	30000	37770	26500	32020

Table 3: Median and Mean Welfare Receipt at Each Follow-up for Mothers on Welfare.

Follow-up Year	Mothers Receiving Welfare	
	Median Level of Receipt	Mean Level of Receipt
1	3057	3919
3	3600	4465
5	4072	4811
9	4800	5516

Table 4: Percentage of Mothers Receiving Medicaid, Housing Assistance at each Follow-up.

Variable, Follow-up	Percentage of Mothers at Each Follow-up		
	All Mothers	Mothers Continuing Ed.	Mothers not Continuing Ed.
<i>medicaid, 1</i>	68.6	72.2	67.0
<i>medicaid, 3</i>	71.2	71.1	71.2
<i>medicaid, 5</i>	64.5	63.5	65.0
<i>medicaid, 9</i>	72.2	79.8	73.0
<i>govhouse, 1</i>	24.9	26.4	24.2
<i>govhouse, 3</i>	26.7	27.4	26.4
<i>govhouse, 5</i>	11.5	11.9	11.3
<i>govhouse, 9</i>	14.5	15.7	13.8

Empirical Results

This empirical work relates the log odds of an unmarried mother being enrolled in or having recently finished an education program with variables indicating levels of welfare receipt as well as a variety of demographic and sociological control variables. Models were calculated for the 1, 3, 5, and 9 year follow-up waves of the Fragile Families study, with variable relationships being reasonably consistent across these models. Full results for these models are available in Tables 5-8.

The quantity of welfare received variable is both statistically significant at the 10% level and positive across models for all follow-up waves, suggesting there is evidence to support the hypothesis that welfare helps to encourage education investment among initially unwed mothers. In particular, this model predicts that an unmarried mother with one child at the first follow-up sees for each 1000 dollars of welfare received a 4.3% increase in her odds of being enrolled in an education program or of having completed an education program since the last survey, after controlling for other variables. The increase in odds per 1000 dollars is 14.7% at the three year follow-up, 8.4% at the 5 year follow-up, and 9.1% at the 9 year follow-up. Note that while all effects are positive, a possible explanation for why the percent increases at later follow-ups are larger than in the first might include that the gap between surveys increased after the first follow-up and so allowed for more time in which an individual could complete an education program. Related variables such as household income and Medicaid receipt also are positive and significant at the 10% level across all models, though Medicaid receipt fails to be significant for the 5 year follow-up. These results are consistent with work by Herbst and Tekin and seem to fit nicely with Goldrick-Rab and Sorensen's reports that monetary issues are among the chief impediments to educational advancement for unmarried mothers.

Coefficients on demographic and sociological control variables such as parental and individual education levels generally have the expected signs, though they vary widely in terms of statistical significance across the various waves of the study. In particular, some variables such as age and the African American race indicator started off highly significant but grew less important in later waves of the study. Even the unmarried mothers' initial level of education and her parents' level of education were not consistently significant across all surveys. The indicator for high levels of church attendance is statistically significant for some waves of the study and is associated with a greater likelihood of educational progress, a finding which helps to support MacGregor's work. Finally, while Teitler et al propose that romantic relationships might serve as substitutes for education to some unmarried mothers, this analysis does not find a clear relationship between romantic relationship situation and likelihood of seeking further education.

Some limitations of this work should be considered when examining the output of these models. First, this study does not control for the level of effort an individual was willing to exert to receive welfare payments, a factor instrumented for and identified as important by Herbst and Tekin. Further, this study's measure of education progress does not take into account program completion rates and so is likely counting some individuals who will never complete the education programs they are enrolled in as cases of successful advancement, though there is evidence to suggest that there are positive returns to even partially completed degrees (Marcotte et al).

Table 5: Model for Educational Development by Welfare During 1 Year Follow-up.

Variables	Unrestricted Model			Restricted Model		
	Coefficient	Std. Error	P-value	Coefficient	Std. Error	P-value
(Intercept)	-0.535	0.4261	0.209	-6.065e-01	0.384	0.114
<i>qwelfare</i>	5.53e-05	3.04e-05	0.0689*	5.37e-05	2.72e-05	0.0482**
<i>qwelfare * hhkids</i>	-1.24e-05	1.06e-05	0.240	-1.20e-05	8.49e-06	0.158
<i>hhincome</i>	5.37e-06	2.47e-06	0.0295**	6.22e-06	2.33e-06	7.70-03**
<i>medicaid</i>	0.216	0.120	0.072*	2.24e-01	0.119	0.0598*
<i>govhouse</i>	0.0955	0.123	0.439	---	---	---
<i>momage</i>	-0.0771	0.0115	2.97e-11***	-7.88e-02	0.0108	3.03e-13***
<i>black</i>	0.499	0.136	2.42e-04***	6.45e-01	0.104	5.32e-10***
<i>hispanic</i>	-0.175	0.155	0.257	---	---	---
<i>uscitizen</i>	0.678	0.238	4.32e-03**	7.15e-01	0.230	1.91e-03**
<i>lesshs</i>	0.226	0.122	0.0633*	2.09e-01	0.120	0.0806*
<i>techorsome</i>	0.562	0.135	3.05e-05***	5.04e-01	0.130	1.02e-04***
<i>highered</i>	0.423	0.314	0.178	---	---	---
<i>parented</i>	0.418	0.121	5.57e-04***	4.46e-01	0.120	2.00e-04***
<i>hhkids</i>	8.94e-04	0.0489	0.985	---	---	---
<i>hhparents</i>	0.185	0.122	0.129	---	---	---
<i>religion</i>	0.0743	0.101	0.461	---	---	---
<i>livedwparents</i>	-0.0946	0.109	0.385	---	---	---
<i>marriedbf</i>	0.370	0.178	0.0378**	3.87e-01	0.166	0.0197**
<i>cohabwithbf</i>	-0.0600	0.116	0.606	---	---	---
<i>marriednew</i>	-0.495	0.488	0.311	---	---	---
<i>cohabwithnew</i>	-0.749	0.254	3.16e-03**	-7.32e-01	0.249	3.24-03**
Nobs	2116			2116		
Pseudo-R ²	0.13			0.125		

Note: P-values labeled with one * are significant at the .1 level, with ** are significant at the .05 level, and with *** at the .001 level.

Table 6: Model for Educational Development by Welfare During 3 Year Follow-up.

Variables	Unrestricted Model			Restricted Model		
	Coefficient	Std. Error	P-value	Coefficient	Std. Error	P-value
(Intercept)	-2.94	0.356	<2e-16***	---	---	---
<i>qwelfare</i>	1.69e-04	3.80e-05	9.40e-06***	1.74e-04	3.71e-05	2.78e-06***
<i>qwelfare * hhkids</i>	-3.83e-05	1.17e-05	1.05e-03**	-3.69e-05	1.14e-05	1.22e-03**
<i>edulag</i>	0.878	0.117	5.29e-14***	0.903	0.113	1.51e-15***
<i>hhincome</i>	9.28e-06	2.55e-06	2.68e-04***	8.74e-06	2.27e-06	1.15e-04***
<i>medicaid</i>	0.318	0.141	0.0242**	0.336	0.137	0.0139**
<i>govhouse</i>	0.236	0.139	0.0887*	---	---	---
<i>momage</i>	-1.59e-03	9.34e-03	0.865	---	---	---
<i>black</i>	0.134	0.156	0.391	---	---	---
<i>hispanic</i>	0.200	0.172	0.245	---	---	---
<i>uscitizen</i>	0.489	0.243	0.0439**	0.528	0.231	0.0226**
<i>lesshs</i>	-0.0580	0.139	0.676	---	---	---
<i>techorsome</i>	0.482	0.148	1.10e-03**	0.487	0.126	1.12e-04***
<i>highered</i>	0.452	0.334	0.175	---	---	---
<i>parented</i>	0.175	0.135	0.196	---	---	---
<i>hhkids</i>	0.100	0.0540	0.0637*	0.0827	0.0476	0.0827*
<i>hhparents</i>	0.323	0.150	0.0314**	0.318	0.141	0.0238**
<i>religion</i>	0.383	0.116	9.93e-04***	0.424	0.113	1.69e-04**
<i>livedwparents</i>	-0.0565	0.120	0.637	---	---	---
<i>marriedbf</i>	-0.0975	0.185	0.597	---	---	---
<i>cohabwithbf</i>	-0.206	0.147	0.162	---	---	---
<i>marriednew</i>	-0.0392	0.373	0.916	---	---	---
<i>cohabwithnew</i>	0.0907	0.197	0.645	---	---	---
Nobs	1806			1806		
Pseudo-R ²	0.153			0.145		

Note: P-values labeled with one * are significant at the .1 level, with ** are significant at the .05 level, and with *** at the .001 level.

Table 7: Model for Educational Development by Welfare During 5 Year Follow-up.

Variables	Unrestricted Model			Restricted Model		
	Coefficient	Std. Error	P-value	Coefficient	Std. Error	P-value
(Intercept)	-2.41	0.360	2.29e-11***	-2.47	0.293	<2e-16
<i>qwelfare</i>	9.69e-05	3.52e-05	5.95e-03**	1.10e-04	3.24e-05	6.74e-04***
<i>qwelfare * hhkids</i>	-2.81e-05	1.09e-05	0.0103**	-2.96e-05	1.02e-05	3.86e-03**
<i>edulag</i>	0.859	0.119	5.93e-13***	8.75e-01	0.116	5.33e-14***
<i>hhincome</i>	5.77e-06	2.40e-06	0.0162**	4.37e-06	2.11e-06	0.0381**
<i>medicaid</i>	0.171	0.142	0.230	---	---	---
<i>govhouse</i>	0.0705	0.187	0.706	---	---	---
<i>momage</i>	-1.84e-03	9.38e-03	0.844	---	---	---
<i>black</i>	-0.0373	0.157	0.812	---	---	---
<i>hispanic</i>	-0.132	0.178	0.460	---	---	---
<i>uscitizen</i>	0.358	0.266	0.177	0.458	0.256	0.0737*
<i>lesshs</i>	-0.443	0.141	1.62e-03**	-0.448	0.127	4.34e-04***
<i>techorsome</i>	0.0722	0.150	0.629	---	---	---
<i>highered</i>	0.0908	0.333	0.785	---	---	---
<i>parented</i>	0.474	0.137	5.38e-04***	0.476	0.0134	4.02e-04***
<i>hhkids</i>	0.200	0.0554	2.95e-04***	0.202	0.0450	7.35e-06***
<i>hhparents</i>	0.0695	0.165	0.673	---	---	---
<i>religion</i>	0.228	0.121	0.0589*	0.227	0.116	0.0516*
<i>livedwparents</i>	-0.314	0.126	0.0127**	-0.332	0.123	7.03e-03**
<i>marriedbf</i>	-0.200	0.188	0.289	---	---	---
<i>cohabwithbf</i>	-0.133	0.183	0.467	---	---	---
<i>marriednew</i>	-0.128	0.265	0.630	---	---	---
<i>cohabwithnew</i>	0.156	0.172	0.364	---	---	---
Nobs	1767			1767		
Pseudo-R ²	0.144			0.1399		

Note: P-values labeled with one * are significant at the .1 level, with ** are significant at the .05 level, and with *** at the .001 level.

Table 8: Model for Educational Development by Welfare During 9 Year Follow-up.

Variables	Unrestricted Model			Restricted Model		
	Coefficient	Std. Error	P-value	Coefficient	Std. Error	P-value
(Intercept)	-3.15	0.3941	1.23e-15***	-2.99	0.243	<2e-16***
<i>qwelfare</i>	1.04e-04	3.53e-05	3.35e-03**	1.07e-04	3.43e-05	1.83e-03**
<i>qwelfare * hhkids</i>	-2.10e-05	9.57e-06	0.0283**	-2.02e-05	9.40e-06	0.0313**
<i>edulag</i>	0.765	0.138	2.85e-08***	0.820	0.134	1.06e-09***
<i>hhincome</i>	9.61e-06	2.50e-06	1.19e-04***	9.81e-06	2.28e-06	1.67e-05***
<i>medicaid</i>	0.351	0.159	0.0278**	0.403	0.157	0.0101**
<i>govhouse</i>	0.279	0.185	0.132	---	---	---
<i>momage</i>	0.0209	9.95e-03	0.036**	0.0217	9.69e-03	0.0254**
<i>black</i>	0.0120	1.69	0.943	---	---	---
<i>hispanic</i>	-0.0848	0.198	0.668	---	---	---
<i>uscitizen</i>	0.109	0.270	0.687	---	---	---
<i>lesshs</i>	-0.231	0.155	0.137	-0.345	0.138	0.0125**
<i>techorsome</i>	0.207	0.167	0.215	---	---	---
<i>highered</i>	0.440	0.348	0.206	---	---	---
<i>parented</i>	0.0702	0.155	0.650	---	---	---
<i>hhkids</i>	0.152	0.0573	7.85e-03**	0.136	0.0545	0.0127*
<i>hhparents</i>	0.435	0.194	0.0250**	0.417	0.191	0.0289**
<i>religion</i>	0.459	0.132	4.83e-04***	0.493	0.129	1.35e-04***
<i>livedwparents</i>	-0.332	0.139	0.0166**	-0.361	0.135	7.51e-03**
<i>marriedbf</i>	-0.0586	0.202	0.771	---	---	---
<i>cohabwithbf</i>	-0.153	0.235	0.515	---	---	---
<i>marriednew</i>	0.201	0.236	0.393	---	---	---
<i>cohabwithnew</i>	-0.0531	0.191	0.780	---	---	---
Nobs	1562			1562		
Pseudo-R ²	0.219			0.212		

Note: P-values labeled with one * are significant at the .1 level, with ** are significant at the .05 level, and with *** at the .001 level.

Conclusion and Policy Recommendations

This study provides evidence that welfare programs can play some role in promoting further educational attainment among urban unmarried mothers. Policy makers interested in shrinking welfare rolls should take special note, considering the body of literature supporting that education is critical to attaining higher levels of income (Pandey and Zhan). Further, policy makers might consider that education for unmarried mothers is associated with an externality in the form of higher incomes for their children (Goldrick-Rab and Sorensen), which policy makers might wish to encourage through welfare subsidy.

While this study consistently found that welfare programs had a positive association with participation in education programs, it should be noted that the precise impact of welfare spending on education program participation cannot be established in this study. This shortfall is a consequence of this study's inability to determine the degree to which welfare recipients would have sought education even without receiving welfare, as it is possible that individuals who apply for welfare might be categorically more likely to pursue education than individuals who do not apply at all. One should also take note that this study examines only women living in cities with populations larger than 200,000 and cannot necessarily be generalized to smaller cities and rural areas.

Policy makers seeking to use welfare programs in order to promote education should also consider that if welfare provision does promote educational attainment, increasing the quantity of welfare income provided is not necessarily more efficacious than reforming the way welfare is provided. Goldrick-Rab and Sorensen argue that the structure of existing welfare programs and the requirements associated with welfare receipt represent significant barriers to unmarried mothers who wish to use them to pursue further education. Statutory increases in levels of welfare provision to unmarried mothers, then, are not necessarily a better course of action than reforming other aspects of these programs.

Future researchers might wish to turn an eye toward the structure of financial aid policy. The Consolidated Appropriations Act, 2012 (H.R. 2055, Sec 309), passed after the most recent wave of Fragile Families data, reduced from \$32,000 to \$23,000 the threshold household income above which students with children automatically qualify for claiming zero Expected Family Contribution (EFC) on the Free Application for Federal Student Aid (FAFSA). This change in financial aid policy could potentially affect the efficacy of welfare as a tool to promote education by increasing the degree to which welfare received is offset by reductions in financial aid. Future researchers might use this change in policy as a natural experiment to observe the impact of financial aid policy on education investment by welfare recipients.

References

The Consolidated Appropriations Act of 2012, H.R. 2055, 112th Cong., 1st Sess. (2012).

Dave, D., Corman, H., Reichman, N. "Effects of Welfare Reform on Education Acquisition of Adult Women". 2012. Journal of Labor Research. *Online First*. February 15th.

Goldrick-Rab, S., Sorensen, K. "Unmarried Parents in College". 2010. The Future of Children. Vol. 20, No. 2, pp. 179-203.

Hawkins, R. "From Self-Sufficiency to Personal and Family Sustainability: A New Paradigm for Social Policy". 2005. Journal of Sociology and Social Welfare. Vol. 32, No. 4, pp. 77-92.

Herbst, C. and Tekin, E. "Do child care subsidies influence single mothers' decision to invest in human capital?" 2011. Economics of Education Review. Vol. 30, No 5, pp. 901-912.

Hong, P., Sheriff, V., and Naeger, S. "A Bottom-up Definition of Self-sufficiency: Voices from Low-income Jobseekers". 2009. Qualitative Social Work. Vol 8, No 3, pp. 357-376.

MacGregor, C. "Education Delayed: Family Structure and Postnatal Educational Attainment". Working Paper 09-07-FF (Princeton: Center for Research on Child Wellbeing, July 2009).

Marcotte, D., Baily, T., Borkoski, C., Kienzl, G. "The Returns of a Community College Education: Evidence from the National Education Longitudinal Survey". 2005. Educational Evaluation and Policy Analysis. Vol. 27, No. 2, pp. 157-175.

Pandey, S. and Zhan, M. "Postsecondary Education and Economic Well-Being of Single Mothers and Single Fathers". 2005. Journal of Marriage and Family. Vol. 66, No. 3, pp. 661-673.

Reichman, N., Teitler, J., Garfinkel, I., and McLanahan, S. "Fragile Families: Sample and Design". 2001. Children and Youth Services Review. Vol 23, Nos 4/5, pp. 303-326.

Teitler, J., Reichman, N., Nepomnyaschy, L., Garfinkel, I. "Effects of Welfare Participation on Marriage." 2009. Journal of Marriage and Family. Vol 71, November, pp 878-891.