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UPDATING THE TEEN MISCARRIAGE EXPERIMENT: ARE THE EFFECTS OF A TEEN BIRTH BECOMING MORE NEGATIVE?

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Updating the Teen Miscarriage Experiment: Are the Effects of a Teen Birth Becoming More Negative?

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This is a shortened version of a chapter forthcoming in *Kids Having Kids* (Revised Edition) to be published by the Urban Institute in 2008. Please do not cite or quote without permission.

Abstract: A reanalysis of the Hotz, McElroy, and Sanders research on the impact of a teen birth on socio-economic outcomes shows that their data set, which includes information on outcomes at older ages only for teen mothers with the earliest calendar year births, is partly responsible for their unexpected findings. Even more interestingly, I find that the impacts of a teen birth differ substantially between the teen mothers who had births in the early to mid 1970s and those who had births in the late 1970s and early 1980s. The mostly positive effects found by Hotz, McElroy, and Sanders hold only for the first group, while impacts are far more negative for the later ones. This tentatively suggests that teen birth effects, even those found using the teen miscarriage methodology, may be more negative than recently reported and also that the estimates from Hotz, McElroy, and Sanders may not be fully relevant for assessing the impact of a teen birth for today's young women. Because these new estimates are based on smaller samples with fewer miscarriages, the findings should be interpreted cautiously.

JEL Codes: J100, J130
Keywords: Teen, Teen Fertility

In *Kids Having Kids* (1996), Hotz, McElroy, and Sanders (hereafter HMS) famously used the comparison of teen mothers to young women who had a miscarriage to examine the socio-economic effects of a teen birth. Determining the causal impact of a teen birth – distinguishing it from the other risk factors in the lives of the young women who became teen mothers – is a daunting research task. HMS made a genuine methodological contribution to this literature by identifying what they described as a natural experiment based on the random occurrence of miscarriages among young teens. They found, perhaps surprisingly, consistently positive impacts of a teen birth, impacts that are sometimes quite large: teen mothers worked more, earned more, received more income from a spouse, and received less support from welfare through their mid-30s than if they had delayed their childbearing until their early 20s. They concluded that "the failure to account for selection bias vastly overstates the negative consequences of teenage childbearing and [the findings] certainly provide no support for the view that there are large negative consequences of teenage childbearing per se for the socioeconomic attainment of teen mothers" (p. 81).

Their findings regarding the effect of a teen birth on incomes were compromised by a coding error that inflated incomes in later years and thereby increased the corresponding "rebound" effects that HMS report; see Hoffman (2003) for details. However, even after correcting these errors, HMS show in recent papers in the *Journal of Human Resources* and in the revised edition of *Kids Having Kids* somewhat smaller but still consistently positive effects of a teen birth. In their *Journal of Human Resources* paper, they conclude that "our research casts doubt on the view that postponing childbearing will improve the socioeconomic attainment of teen mothers in any substantial way" (Hotz, McElroy, and Sanders, 2005, p.713). In the revised *Kids Having Kids*, they note that "these rather startling findings call into question the view that teenage childbearing is one of the nation's most serious social problems" (Hotz, McElroy, and

Sanders, forthcoming). They also note there that "standards of scientific inquiry dictate that further replications and scrutiny of our findings are required before one can confidently draw strong conclusions about the causal influence of teenage childbearing."

For the revised edition of *Kids Having Kids*, I recently undertook a reanalysis and updating of the HMS research (Hoffman, forthcoming), using the same data set (NLSY79) that they used. I followed their approach and adopted the major elements of their empirical specification. Importantly, in doing this, I constructed an updated sample with data through 2000 that included outcomes for all sample members through age 35. This eliminated an unfortunate feature of the HMS data: because their sample time frame ended in 1993, only the oldest set of teen mothers -those who had teen births in the early 1970s- were observed at older ages, while the teen mothers who had births in the late 1970s and early 1980s were observed only until their late 20s. As I explain below, the omission of these data points from the HMS analysis could bias their estimates of the life-cycle effects of a teen birth if the younger set of teen mothers fared worse at younger ages and would have fared worse at older ages than the older set of teen mothers. In fact, I find evidence that this appears to be the case.

Specifically, when I estimate models like theirs for the same data years they used, I find results reasonably similar to theirs, although typically a bit less positive. I do not know exactly what accounts for the differences in our results, although I suspect it reflects idiosyncratic differences in coding in combination with the relatively small sample of young women with miscarriages. When I extend the sample to include the additional observations for the younger teen mothers, I consistently get results that are yet less positive and in one case more negative. This suggests that their data set may indeed suffer from biases resulting from the absence of the later-year observations of the younger teen mothers. To check this further, I examine earlier and later cohorts of teen mothers separately in order to reconcile the differences in the findings between the two samples. Across nearly the full range of outcomes examined, I find very consistent evidence that the effects of an early teen birth are quite different for the earlier and later cohorts of teen mothers. The positive or benign effects found by HMS hold only for the earlier cohorts, while the effects are far more negative for the later ones. This tentatively suggests that teen birth effects, even those found using the teen miscarriage methodology, may be more negative than reported by HMS and also that the HMS estimates may not be fully relevant for assessing the impact of a teen birth for today's teens.

In this paper, I first explain the sample design issue and its potential effects, in particular, the way in which it could cause bias in estimating the life-cycle effects of a teen birth. I then briefly summarize my estimates of the impact of a teen birth for a sample virtually identical to theirs and then to one that extends the sample time frame. I then present my findings concerning the impact of a teen birth for two groups of teen mothers, those born between 1957 and 1960 and those born between 1961 and 1964. For a full accounting of the issues raised here, see Hoffman (2008).

SAMPLE ISSUES

The most significant underlying difference between my data and that used by HMS is the age range of the teen mothers included in our samples. Both analyses use data on women from the NLSY79, which includes women who were ages 14-21 in 1979. The HMS sample runs from 1979 through 1993, when the maximum age of the women ranges from 28 to 35. Because of this, far fewer women are observed at older ages--only about 200 at age 35 and 350 at age 34, compared to about 1,000 at ages 21 through 28. Moreover and possibly more significantly, the women who are observed at older ages are exclusively those from the earlier birth cohorts of the NLSY79.[1] In their paper in the *Journal of Human Resources*, HMS acknowledge this feature of their data (Hotz, McElroy, and Sanders, 2005, footnote 25). They note there the

[1] Similarly, fewer women are observed at younger ages (less than age 21) and the ones who are observed are exclusively from the more recent birth cohorts.

possible effect of the smaller sample size at older ages for the reliability of their estimates of life-cycle effects.

It is possible, however, that this sample composition issue is a more serious problem that could affect their estimates of the impact of a teen birth, especially the critical estimates of its life-cycle effects. Recall, first, that the key HMS result is that teen mothers often do relatively poorly initially, but rebound by their late 20s or early 30s and end up doing better than if they had delayed their first birth. To see the possible problem that the sample design creates, consider the following scenarios. For simplicity, I will focus on outcomes for teen mothers only, but the issue is actually deeper and depends on their outcomes relative to the outcomes for the teens who have a miscarriage. First, suppose that all birth cohorts of NLSY79 teen mothers have (or will eventually have) the same mean outcome at each age, conditional on the family background variables included in the analysis. In that case, the fact that outcomes are not observed for some of the women will have no impact whatsoever on the estimated causal impact of a teen birth. Had these outcomes been observed, they would have replicated the mean outcome at each age for the sample actually observed and thus would leave all estimates unaffected.[2] Now suppose that some cohorts of teen mothers do systematically better than others, but the difference in outcomes is constant at each age. In that case, estimates of the life-cycle impacts of teen childbearing will once again not be affected by the sample drop-off as long as indicators (dummy variables) for each cohort are included, as they are in HMS.

A problem arises, however, if the cohorts have different age profiles. Suppose that outcomes at older ages for the earlier cohorts of young teen mothers (who are observed into their mid-30s) are better than those that will subsequently be observed for the later cohorts (who are observed only until their late 20s), relative to the same difference at earlier ages. That pattern would yield a distorted life-cycle profile that incorrectly suggested rebound and recovery from the early birth; in this case, if the additional information were available, mean outcomes at

[2] Exactly as HMS suggest, the additional cases would increase the efficiency of the estimates.

older ages would be lower than the means for the sample actually observed. The same result could also occur if outcomes at the earliest ages, which are observed only for the later cohorts, were substantially worse than for the earlier cohorts.

Figure 1 provides a general illustration of the potential problem. Age profiles for two cohorts are shown, one running from ages 18 to 28 (the later cohort) and the other from ages 22 to 34 (the earlier cohort). The two profiles differ both in level and slope – the later cohort does more poorly, especially so at older ages. The dashed line is an approximation of the resulting regression estimate of the life-cycle effect based on such a sample. It is steeper than either profile, because it reflects both the poorer outcomes at young ages of the later cohort and the better outcomes at older ages of the earlier cohort.

The teen births in the NLSY79 occurred as early as 1970 and as late as 1983, a time period that spans substantial changes in the landscape of teen fertility. The teen fertility rate fell almost 25% between 1970 and 1976 (from 68.3 births per 1000 women aged 15-19 in 1970 to 52.8 births per 1000) and then remained essentially steady through 1983. The proportion of teen births that were non-marital rose from 30% in 1970 to 44% by 1978 and 53% by 1983. Abortion was legalized in 1973 and the proportion of teen pregnancies ending in abortion increased from 23.7% in 1972 to 45% by 1980. Births to the later cohorts of teen mothers occurred during the more punitive welfare environment of the early 1980s. Thus, experiences may have been substantially different for these teen mothers, depending on the timing of their first birth.

RESULTS

To examine the issues raised by sample design, I estimated the impact of a teen birth using a sample that includes just the age range and years used by HMS and then using a sample that extends the age range to age 35 for all sample women.[3] The full sample includes an additional nine percent observations, all of which are for the women from the younger cohorts at older ages.[4] See Appendix Table 1 for information about the two samples. I then look separately at the impact of a teen birth for the earlier and later cohorts of women in the NLSY.

Briefly, my analysis of a sample constructed similarly to that used by HMS and using a specification that is quite similar to theirs yields estimates of teen birth effects that are reasonably close to theirs.[5] Both sets of estimates show that teen mothers are about ten percentage points less likely to complete high school, and more likely to complete a GED in either an equivalent amount (my estimate) or slightly more than offsetting amount (theirs). I do find that a teen birth reduces the probability of acquiring post-secondary schooling, an outcome not considered by HMS. My estimate of the effect of a teen birth on a woman's earnings is positive, but only about one-third of their estimate. My estimate of the effect on spouse's earnings is about two-thirds the size of theirs. These latter two impacts are positive in both their analysis and mine.

Extending the sample through age 35 further weakens most of the positive effects and magnifies the negative one. The negative effect on post-secondary education doubles, the impact on own earnings falls to one-sixth of the total reported by HMS, and the effect on spouse earnings is now about one-half the size of theirs. Impacts on welfare assistance are unchanged. The overall message, though, is still broadly consistent with the findings of HMS, with the exception of post-secondary education.

[3] Because of the every-other-year interviewing pattern of the NSLY, some women are observed at age 36, not 35.

[4] The representation of the later birth cohorts increases by 13-23% (two or three additional years of data, based on every-other-year interviewing), while representation of women at ages 31-35 increases by 45%.

[5] Our samples are not literally identical, since they were constructed independently. Sample means are similar. Small differences in coding or procedures could account for the remaining differences.

However, the fact that the estimates are quite consistently affected by the sample design suggests that the more recent cohorts of teen mothers are not faring as well at older ages as the previous ones. If that not were not true, extending the sample would have left the estimates unchanged. To test that hypothesis directly, I divide the sample in half and separately examine the impact of a teen birth for the early cohorts of women in the NLSY who born between 1957 and 1960 and the later ones who were born between 1961 and 1965. As I noted earlier, this time period is one of substantial change in teen birth rates, in the proportion of teen births that are non-marital, and in the economic and political environment facing teen mothers at older ages.

In what follows, I am not formally testing for statistically different effects across the two cohorts. Given the smaller sample sizes and correspondingly smaller number of miscarriage cases that are used to identify the teen birth effect, it is unlikely that the observed differences are statistically different. Even in the full sample, many of the teen birth estimates are not statistically reliable, and that is also the case here. The results should be interpreted cautiously and conservatively. Nonetheless, the differences are, as shown below, quite consistent and suggestive of an interesting cohort pattern of teen birth effects.

The results are shown in Figures 2-4. For the educational outcomes, I test for a life-cycle effect, but report results from models with no age interactions. This specification fits the data far better and yields predictions that are quite similar to the models with full age-teen birth interactions.[6] For the income variables, I use the same age interactions that HMS used in order to make comparisons more straightforward; in some cases, the model with age interactions is not the preferred statistical model. Full estimates are shown in Appendix Tables 2-6.

Before looking at the outcomes separately, I want to summarize the general finding of the separate cohort analyses. I find differences between the two samples that are quite large

[6] T-statistics for age interaction effects are typically less than 0.5. I do use a consistent specification across cohorts. The goal is not so much comparison with the earlier results for the full sample, but rather to identify possible differences across the cohorts.

for most, though not all, outcomes, with the later birth cohorts consistently having more negative impacts of a teen birth. This is true for own earnings, even more so for the earnings of a spouse, and also for educational attainment and, to a lesser degree, Food Stamp use and housing assistance. It is not true for cash assistance from welfare. This pattern is consistent with the analysis above of the impact of the sample composition differences, in which adding observations from the younger cohorts in their mid-30s typically yielded smaller positive impacts.

Figure 2 shows the differential impact of an early teen birth on the probability of graduating from high school, earning a GED, or acquiring some post-secondary schooling. The results in both HMS and in my full-sample analysis showed a negative effect on high school completion, but an offsetting positive effect on obtaining a GED of either equal or greater magnitude. That pattern of effects holds for the women born between 1957 and 1960: a teen birth reduces the proportion completing high school by 5.6 percentage points, but increases the proportion with either a high school degree or a GED by almost five percentage points. For the younger cohort of women, however, the effects are more negative and not offsetting. A teen birth reduces the proportion completing high school by almost 16 percentage points and the proportion completing high school or obtaining a GED by more than nine percentage points. Differences in the effect of a teen birth on post-secondary schooling are very large - essentially zero for the earlier cohort and -18.8 percentage points for the later cohorts. Most of these educational effects are statistically reliable.

The life-cycle impact of a teen birth on a woman's earnings is shown in Figure 3. HMS found a large positive impact that averaged about $4,000 per year when the women were in their late 20s and early to mid 30s. The cumulative impact from age 18 to 34 was just under $44,000. My estimates for the full sample are smaller than this: I find a maximum positive effect of approximately $1,000 at ages 28-34 and a cumulative positive effect of $6,000. For the women in the older cohorts, the effects are similar to the full sample estimates, but somewhat larger. For these women, a teen birth initially decreases their earnings, but they catch up by age 22 and do better thereafter. By their mid-30s, they earn an average of about $2,100-$2,500 more per year than if they had delayed their first birth. The total cumulates to more than $13,500 from ages 18-34, considerably less than the total in the HMS estimates, but still substantial. For the teen mothers in the later birth cohorts, the impact of a birth is quite different. I find that a teen birth reduces earnings by more than $1,000 at ages 18-20. The negative effect declines steadily through their mid-20s, but then increases again, exceeding $1,000 at age 32 and rising to more than $1,700 at age 34. At no age is the estimated effect positive. The cumulative impact on a teen mother's earnings from age 18 to 34 is -$13,000 than if she had delayed her first birth, an average of about $750 annually.

The estimates of the impact of a teen birth on the earnings of a spouse are the most dramatically different by birth cohort (see Figure 4).[7] Spouse earnings are set equal to $0 for single women, so the estimate combines the impact of a teen birth on the timing and stability of marriage with its impact on spouse earnings, conditional on marriage. For the teen mothers who were born between 1957 and 1960, I find an impact much like what was found by HMS and in my own analyses. For these women, the impact of a birth increases with age and exceeds $10,000 annually by the time the women are in their mid-30s. The cumulative impact is large, approximately $85,000, a figure very similar to what they find ($96,000). In contrast, the teen mothers born between 1961 and 1964 did not benefit in this way. As shown in the figure, the impact of a teen birth on spouse income is much smaller for them and is negative overall. These women receive slightly more income from their spouses at ages 20-28 (an average of $1,045), a finding that might reflect higher early marriage rates. But then the impact turns negative, exceeding $4,000 annually by the time the women are in their mid-30s. The cumulative effect is a decrease of just under $16,000 – a swing of more than $100,000 relative

[7] I truncated annual spouse earnings at $200,000; this affects a few very conspicuous outliers with incomes in excess of $575,000 at quite young ages.

to the experience of the older cohorts of teen mothers. It is possible that this life-cycle pattern reflects later marriage by the women who delayed their first birth.

Differences between the two cohorts in the effect of a teen birth on welfare assistance are very small. If anything, it appears that the later birth cohort receives less in welfare assistance by the time they are in mid 20s and 30s than did the earlier cohort. This could reflect the more restrictive welfare environment of the mid to late 1990s when the younger NLSY women were in their 30s. Differences by cohort in Food Stamp use and housing assistance are just a bit larger. The earlier birth cohort of teen mothers used Food Stamps for a total of 1.4 years less from age 18 to 34, compared to -.54 years less for the later cohort. The earlier cohort received housing assistance for .25 additional years, while the later cohort received this assistance for .59 additional years.

SUMMARY

When I use a data set very much like the one used by HMS, I find impacts of a teen birth on economic outcomes that are similar to, though somewhat smaller than, what they report. This is especially true for the corrected estimates featured in the revised edition of *Kids Having Kids*. The sample used to generate these estimates is heavily weighted toward the experience of the oldest women in the NLSY79 sample, especially at older ages. The women who were younger in 1979 and who had teen births in the late 1970s and early to mid 1980s are not appropriately represented in their data. When I expand the sample to allow all women in the sample to reach age 35, I find consistently weaker positive effects (earnings and spouse earnings) or stronger negative effects (post-secondary schooling); estimates of the impact on welfare income are unchanged.

When I go further and examine separately the impact of a teen birth on educational attainment, earnings, and income received from a spouse for the older cohorts of women and the younger ones, I find very different impacts. For the older cohorts – the women born between 1957 and 1960 and who had first births between 1970 and 1978—a teen birth has a positive effect on own earnings and spouse income and on the probability of either completing high school or receiving a GED. These effects are consistent with the findings reported by HMS and to a lesser extent, my full sample findings. But for the younger cohorts -- the women born between 1961 and 1965 and who had first births between 1974 and 1983—the impacts are consistently negative. They are less likely to graduate from high school and the positive effect on completing a GED is small and not offsetting. Impacts on own earnings and the income of a spouse are also both negative and reasonably large. Because the samples are smaller than in the full sample analyses and, in particular, include just half as many miscarriages, these results should be interpreted cautiously. Nonetheless, they do suggest a more negative impact of a teen birth, even using the miscarriage approach suggested by HMS, for more recent teen mothers.

References

Hoffman, Saul D. “Updated Estimates of The Consequences of Teenage Childbearing For The Mothers And Their Spouses” in *Kids Having Kids, Revised Edition,* Saul D. Hoffman and Rebecca A. Maynard, eds. Washington, DC: The Urban Institute Press, forthcoming.

____________. "The Socio-Economic Effects of Teen Childbearing Re-Considered: A Re-Analysis of the Teen Miscarriage Experiment," University of Delaware Department of Economics Working Paper 2003-08, available at http://www.lerner.udel.edu/economics/WorkingPapers/2003/UDWP2003-08.pdf .

Hotz, V. J., Susan W. McElroy, and Seth G. Sanders. “The Impacts of Teen Childbearing on the Mother and the Consequences of those Impacts for Government” in *Kids Having Kid,* Rebecca A. Maynard, ed. Washington, DC: The Urban Institute Press, 1996.

___________________. “Teenage Childbearing and Its Life Cycle Consequences.” *The Journal of Human Resources*, Vol. 40, No. 3, 2005.

___________________. “The Consequences of Teenage Childbearing on the Mother and Their Spouses” in *Kids Having Kids, Revised Edition,* Saul D. Hoffman and Rebecca A. Maynard, eds. Washington, DC: The Urban Institute Press, forthcoming.

Appendix Table 1. Background Characteristics and Fertility Outcomes, Teens Pregnant at Age 17 or Earlier, NLSY79

Variable	Population Mean
Family Background Variables:	
Black	25.9%
White	65.5%
Hispanic	8.6%
In Intact Family at Age 14	18.30%
In Female-Headed Family at Age 14	72.3%
Mother's education	10.5[a]
Father's education	10.6[a]
AFQT score	31.7
Family Income (1978, in 2004 $)	$39,339
Family Income Missing	22.2%
Family Received AFDC (1978)	18.7%
Teen Fertility Outcomes:	
Birth	75.2%
Miscarriage	6.8%
Abortion	18.0%
Sample Size	
Persons	1,013
Person-years 1979-2000	15,377
Person-years 1979-1993	13,988

Source: Author's calculations from NLSY79

Note: All means weighted using adjusted NLSY weights

[a] Adjusted for Missing Data

Appendix Table 2. Estimates of the Impact of a Teen Birth on High School Completion 1979-2000, by Mother's Year of Birth

	Completed High School (Age 20)			
	Born 1957-60		Born 1961-64	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.272	0.160	-0.172	0.179
Had Early Teen Birth	-0.056	0.097	-0.159	0.111
Pregnant at Age 16 or 17	0.182	0.043	0.094	0.044
Black	0.307	0.052	0.341	0.052
Hispanic	0.029	0.076	0.159	0.077
Family Recv'd Welfare Inc (1978)	-0.081	0.055	0.124	0.134
Family Income, $000s (1978)	0.003	0.002	0.090	0.021
Missing Family Income	-0.016	0.054	0.054	0.061
Mother's Education	0.013	0.008	0.006	0.010
Missing Mother's Education	-0.060	0.107	0.033	0.134
Father's Education	0.011	0.007	0.000	0.008
Missing Father's Education	0.000	0.088	0.005	0.098
AFQT Score	0.006	0.001	0.007	0.001
In Intact Family, Age 14	0.051	0.077	0.203	0.067
In Female-Headed Family, Age 14	0.013	0.087	0.143	0.076
Born 1964-65	--	--	-0.002	0.059
Born 1963	--	--	0.026	0.057
Born 1962			0.106	0.055
Born 1959	0.136	0.058	--	--
Born 1958	0.148	0.060	--	--
Born 1957	0.110	0.060	--	--
Number of Observations	476		494	

All estimates by IV, using teen miscarriage as instrument for teen birth.
Source: Author estimates from NLSY79

Appendix Table 3. Estimates of the Impact of a Teen Birth on Completion of High School or GED Completion 1979-2000, by Mother's Year of Birth

	High School or GED			
	Born 1957-60		Born 1961-64	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.955	0.171	-1.569	0.238
Age	0.042	0.013	0.110	0.020
Age Squared	-5.56E-04	2.41E-04	-1.94E-03	4.15E-04
Had Early Teen Birth	0.047	0.023	-0.093	0.031
Pregnant at Age 16 or 17	0.085	0.010	0.092	0.012
Black	0.241	0.012	0.266	0.014
Hispanic	0.008	0.018	0.094	0.021
Family Recv'd Welfare Inc (1978)	-0.043	0.013	0.075	0.036
Family Income, $000s (1978)	0.0043	0.0006	0.0064	0.0006
Missing Family Income	-0.033	0.013	-0.010	0.017
Mother's Education	0.023	0.002	0.012	0.003
Missing Mother's Education	-0.056	0.025	-0.028	0.037
Father's Education	0.006	0.002	0.002	0.002
Missing Father's Education	0.073	0.021	0.051	0.027
AFQT Score	0.0082	0.0002	0.0072	0.0003
In Intact Family, Age 14	0.100	0.018	0.179	0.019
In Female-Headed Family, Age 14	0.086	0.020	0.117	0.021
Born 1964-65	--	--	0.043	0.017
Born 1963	--	--	0.049	0.015
Born 1962	--	--	0.120	0.015
Born 1959	0.058	0.014	--	--
Born 1958	0.128	0.014	--	--
Born 1957	0.090	0.014	--	--
Number of Observations	7590		7787	

All estimates by IV, using teen miscarriage as instrument for teen birth.
Source: Author estimates from NLSY79

Appendix Table 4. Estimates of the Impact of a Teen Birth on Post-Secondary Education 1979-2000, by Mother's Year of Birth

	Post-Secondary Education			
	Born 1957-60		Born 1961-64	
	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.670	0.133	-0.052	0.123
Age	0.024	0.010	-0.005	0.009
Age Squared	-2.94E-04	1.73E-04	1.81E-04	1.59E-04
Had Early Teen Birth	0.011	0.017	-0.188	0.019
Pregnant at Age 16 or 17	-0.019	0.007	0.040	0.008
Black	0.166	0.009	0.158	0.009
Hispanic	0.081	0.012	0.082	0.014
Family Recv'd Welfare Inc (1978)	-0.074	0.009	0.034	0.023
Family Income, $000s (1978)	0.0028	0.0004	0.0039	0.0004
Missing Family Income	0.042	0.009	0.001	0.011
Mother's Education	0.005	0.001	0.004	0.002
Missing Mother's Education	0.049	0.018	0.089	0.023
Father's Education	0.011	0.001	-0.002	0.001
Missing Father's Education	0.122	0.015	0.024	0.017
AFQT Score	0.0041	0.0002	0.0043	0.0002
In Intact Family, Age 14	-0.021	0.013	-0.031	0.012
In Female-Headed Family, Age 14	0.029	0.014	-0.015	0.013
Born 1964-65	--	--	0.017	0.010
Born 1963	--	--	0.032	0.010
Born 1962	--	--	0.008	0.009
Born 1959	-0.022	0.010	--	--
Born 1958	0.018	0.010	--	--
Born 1957	-0.033	0.010	--	--
Number of Observations	7590		7787	

All estimates by IV, using teen miscarriage as instrument for teen birth.
Source: Author estimates from NLSY79

Appendix Table 5. The Impact of a Teen Birth on Own and Spouse Earnings, 1979-2000, by Mother's Year of Birth

	Own Earnings				Spouse Earnings			
	Born 1957-60		Born 1961-64		Born 1957-60		Born 1961-64	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-15530.07	17298.29	-29044.65	14913.10	-34552.51	31496.51	-10482.06	24759.54
Age	655.96	1304.71	1273.21	1148.83	2553.92	2375.61	-173.46	1907.35
Age Squared	-3.42	24.06	-9.85	21.58	-48.80	43.80	25.28	35.82
Had Early Teen Birth	-10286.53	22324.95	-15864.59	22176.74	19592.04	40649.02	-48774.10	36818.82
Early Teen Birth x Age	631.35	1682.88	1210.18	1713.53	-1900.34	3064.15	4235.36	2844.90
Early Teen Birth x Age Squared	-7.62	30.99	-23.36	32.19	49.80	56.42	-88.95	53.44
Pregnant at Age 16 or 17	-343.31	297.59	1028.88	329.14	1895.55	541.84	1541.92	546.46
Black	2638.48	362.33	37.32	391.43	-8293.13	659.73	-8001.18	649.88
Hispanic	2534.45	522.53	2900.58	578.12	914.16	951.42	-1713.81	959.83
Family Recv'd Welfare Inc (1978)	-4197.69	383.86	-2243.33	984.52	-7887.65	698.94	-4674.39	1634.54
Family Income, $000s (1978)	157.72	17.13	91.79	16.11	35.31	31.19	1.21	26.75
Missing Family Income	2523.57	373.37	-169.27	456.85	-450.89	679.83	3859.36	758.48
Mother's Education	260.41	58.36	678.56	74.74	1054.14	106.26	530.99	124.09
Missing Mother's Education	898.87	747.11	5616.36	1002.94	9242.58	1360.32	2607.23	1665.14
Father's Education	-42.20	51.89	-127.39	60.04	110.70	94.48	185.06	99.68
Missing Father's Education	686.45	627.28	-2425.29	734.59	92.68	1142.14	921.03	1219.59
AFQT Score	143.63	6.93	149.06	8.52	94.31	12.62	52.75	14.14
In Intact Family, Age 14	966.27	532.41	89.16	509.37	-1109.81	969.40	3131.85	845.67
In Female-Headed Family, Age 14	1368.60	591.60	1427.51	570.33	-5407.93	1077.17	744.48	946.89
Born 1964-65	-1049.54	406.21	2828.90	438.06	--	--	202.20	727.30
Born 1963	1820.94	414.50	910.77	409.62	--	--	872.81	680.07
Born 1962	-621.97	408.15	2718.18	403.00	--	--	1092.46	669.08
Born 1959	-826.41	319.85	--	--	3577.48	739.63	--	--
Born 1958	1433.81	326.38	--	--	-1255.48	754.72	--	--
Born 1957	-489.74	321.38	--	--	3587.75	743.16	--	--

All estimates by IV, using teen miscarriage as instrument for teen birth. Sample Sizes: N=7590 for 1957-1960 birth cohort, 7787 for 1961-64 cohort
Earnings are in 2004 dollars.

Appendix Table 6. The Impact of a Teen Birth on Food Stamp Use and Housing Assistance, 1979-2000, by Mother's Year of Birth

	Food Stamp Use				Housing Assistance			
	Born 1957-60		Born 1961-64		Born 1957-60		Born 1961-64	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Constant	-0.3160	0.5931	-0.3784	0.5393	-0.0220	0.4335	0.2010	0.3244
Age	0.0652	0.0449	0.0760	0.0422	0.0255	0.0327	-0.0120	0.0250
Age Squared	-0.0012	0.0008	-0.0014	0.0008	-0.0005	0.0006	0.0004	0.0005
Had Early Teen Birth	0.8043	0.7636	0.3752	0.8007	0.3960	0.5595	-0.4384	0.4825
Early Teen Birth x Age	-0.0591	0.0577	-0.0164	0.0628	-0.0272	0.0422	0.0480	0.0373
Early Teen Birth x Age Squared	0.0009	0.0011	0.0000	0.0012	0.0005	0.0008	-0.0011	0.0007
Pregnant at Age 16 or 17	-0.0127	0.0101	-0.0827	0.0110	-0.0190	0.0075	-0.0478	0.0072
Black	0.1348	0.0123	0.1301	0.0130	0.1041	0.0091	0.1608	0.0085
Hispanic	0.0123	0.0177	-0.0073	0.0193	-0.0370	0.0131	0.0103	0.0126
Family Recv'd Welfare Inc (1978)	0.3306	0.0130	0.2555	0.0329	0.0854	0.0096	-0.0121	0.0215
Family Income, $000s (1978)	-0.0047	0.0006	-0.0008	0.0005	-0.0013	0.0004	0.0009	0.0004
Missing Family Income	-0.0941	0.0127	-0.0372	0.0152	-0.0335	0.0093	0.0002	0.0099
Mother's Education	-0.0032	0.0020	-0.0090	0.0025	-0.0029	0.0015	-0.0063	0.0016
Missing Mother's Education	0.0086	0.0253	-0.0060	0.0335	-0.0567	0.0187	-0.0722	0.0218
Father's Education	-0.0064	0.0018	-0.0089	0.0020	-0.0089	0.0013	0.0004	0.0013
Missing Father's Education	-0.0184	0.0212	-0.0751	0.0244	-0.0814	0.0157	-0.0006	0.0160
AFQT Score	-0.0025	0.0002	-0.0029	0.0003	-0.0007	0.0002	-0.0007	0.0002
In Intact Family, Age 14	-0.0656	0.0180	-0.0461	0.0170	-0.0489	0.0133	-0.0219	0.0111
In Female-Headed Family, Age 14	-0.0337	0.0200	-0.0459	0.0190	0.0035	0.0148	0.0123	0.0124
Born 1964-65	--	--	-0.0307	0.0145	--	--	0.0064	0.0095
Born 1963	--	--	-0.0059	0.0139	--	--	0.0179	0.0089
Born 1962	--	--	-0.0211	0.0134	--	--	-0.0116	0.0088
Born 1959	-0.0174	0.0137	--	--	0.0035	0.0102	--	--
Born 1958	-0.0328	0.0139	--	--	-0.0241	0.0104	--	--
Born 1957	-0.0282	0.0139	--	--	-0.0225	0.0102	--	--

All estimates by IV, using teen miscarriage as instrument for teen birth. Sample Sizes: N=7590 for 1957-1960 birth cohort, 7787 for 1961-64 cohort

Figure 1. Life-Cycle Profiles by Cohort and Possible Effect on Estimated Teen Birth Impact

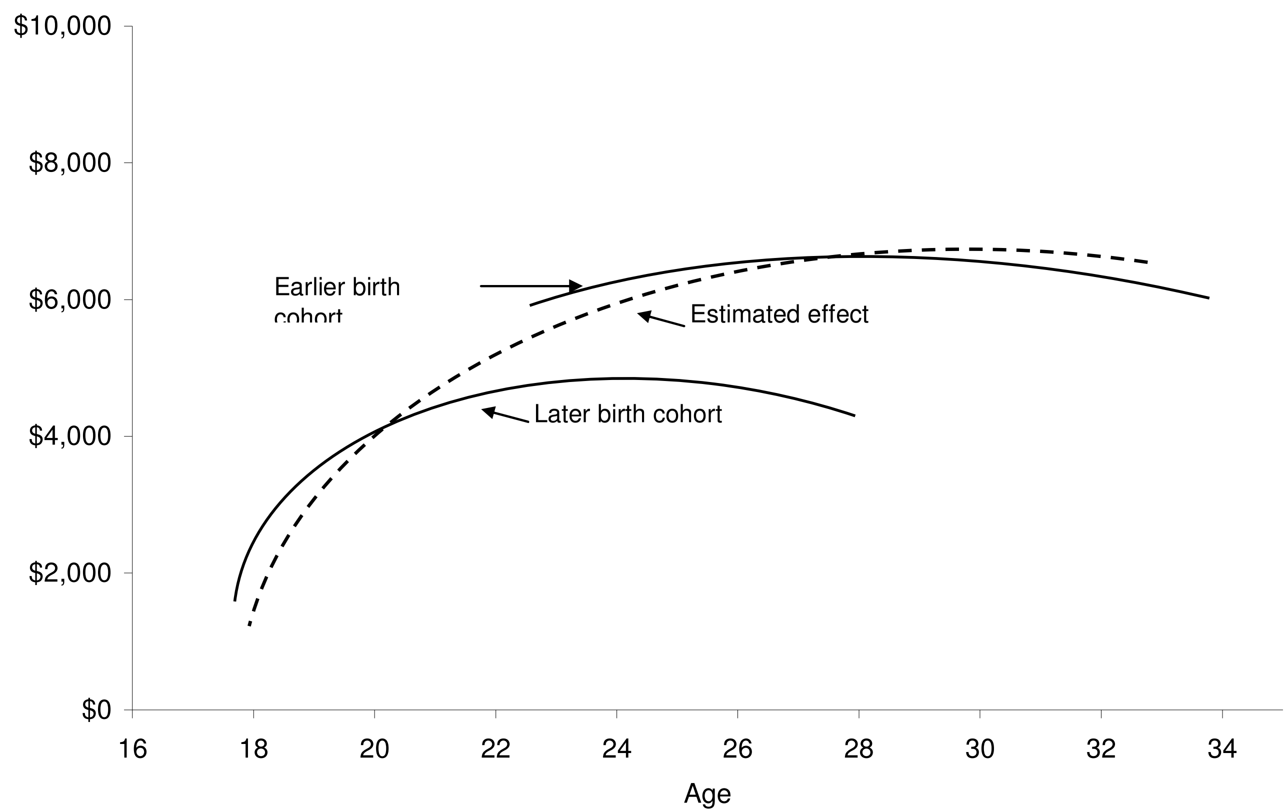

Figure 2. Impact of a Teen Birth on Educational Attainment of Teen Mothers, by Mother's Year of Birth

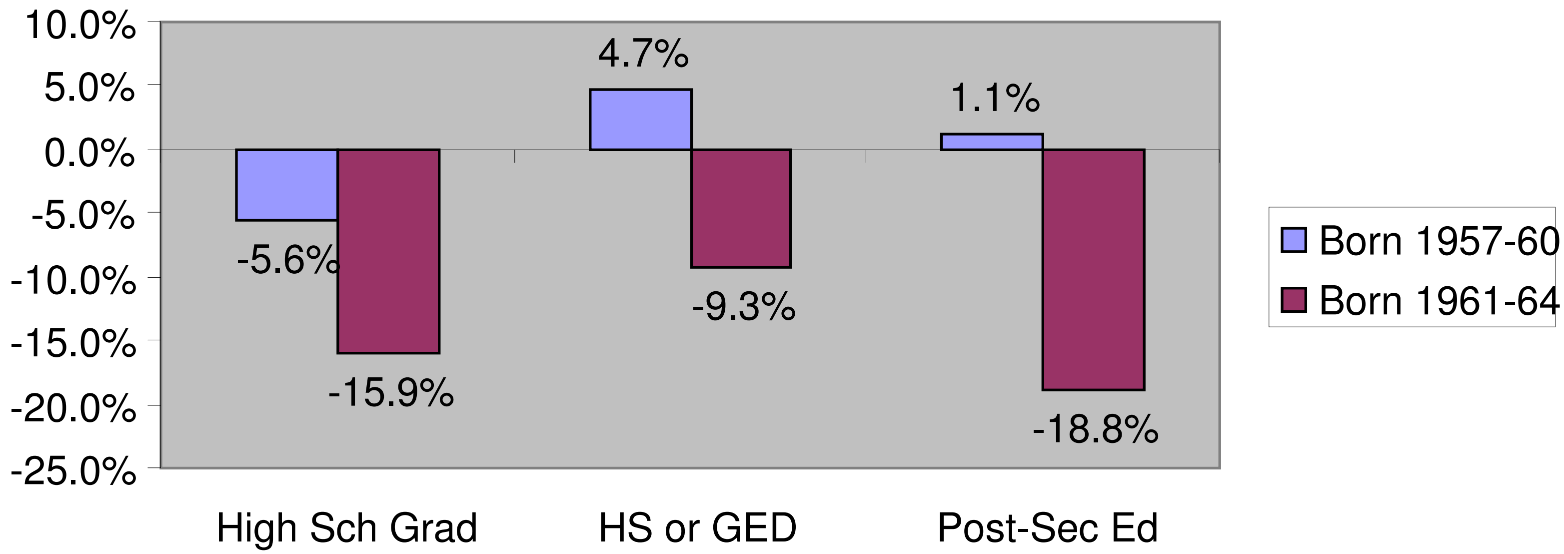

Figure 3. The Life-Cycle Impact of a Teen Birth on Average Annual Labor Market Earnings of Mothers, by Mother's Year of Birth

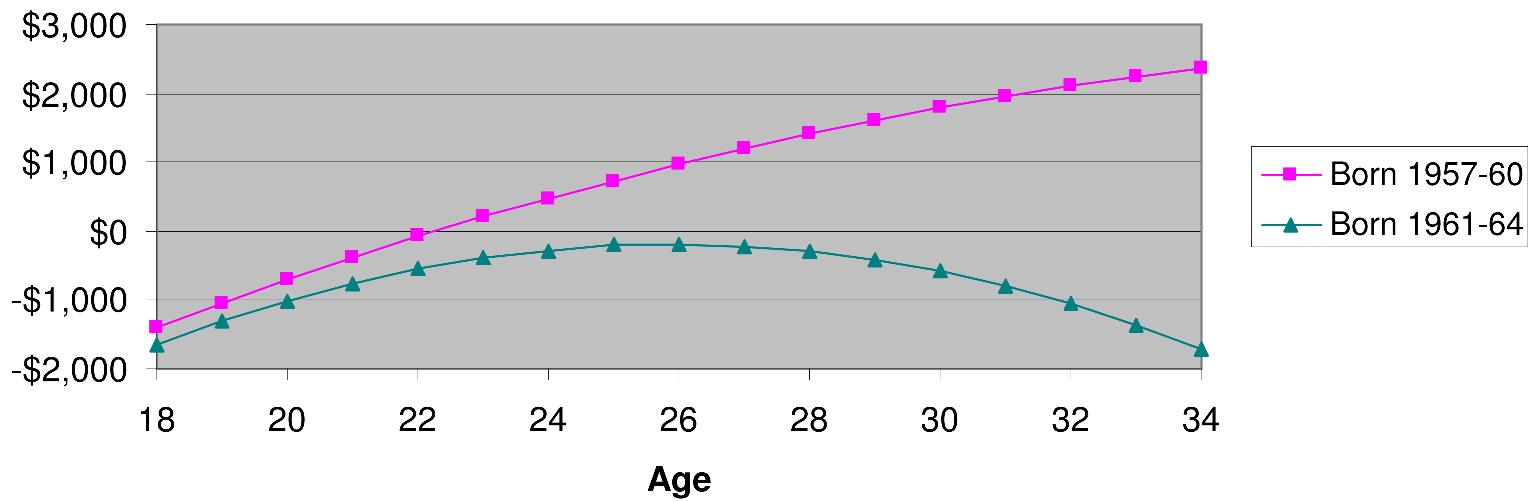

Figure 4. The Life-Cycle Impact of a Teen Birth on Average Annual Income of Spouse by Mother's Year of Birth