Teen Parenthood and Adult Civic Engagement: New Evidence from the NLSY97

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Abstract

Using data drawn from the National Longitudinal Surveys of Youth 1997 (NLSY97), we examine the relationship between teen parenthood and four measures of adult civic engagement: charitable giving, volunteerism, political awareness, and voting. Ordinary least squares (OLS) and propensity score matching (PSM) estimates suggest that teen parenthood is associated with a sharp reduction in the probability of each of the outcomes under study, with larger estimated effects for women as compared to men. Family fixed effects estimates show estimated associations that are smaller in magnitude, but do not rule out adverse civic engagement effects, particularly for charitable giving by women who were teen mothers. Finally, when we compare adult civic engagement of teen mothers to women who became pregnant, but miscarried as teens, we continue to find that teen motherhood is negatively related to charitable giving, volunteerism, and voting. Our findings suggest that diminished leisure time and adverse income effects of teen motherhood may have important adverse consequences for civic engagement.

Keywords: teen fatherhood, civic engagement, charitable giving

JEL: I12; J13

I. Introduction

The socioeconomic and health-related consequences of teen parenthood have been widely studied by both economists and sociologists (Geronimus & Korenman, 1992, 1993; Hoffman et al 1993; Bennett et al.,1995; Levine & Painter, 2003; and Ribar,1999; Ribar, 1994; Rindfuss et al., 1980; Klepinger et al., 1995, 1999; Marini, 1984; and Olsen & Farkas, 1989; Hotz et al. 2005, Fletcher and Wolfe, 2009; Ashcraft and Lang, 2006; Hoffman 1998; Webbink et al., 2008; Fletcher 2011; Covington et al., 2011). Much of the attention in this body of work has focused on the theoretical reasons to expect that teenage parenthood will negatively impact human capital acquisition, labor market performance, and health. However, given that teen parenthood is concentrated among those with higher propensities to engage in risky or delinquent behaviors, could early parenthood lead some teens and young adults to adopt more mature behaviors than they otherwise would?

Recent work by Edin et al. (2001; 2004), Edin (2004), and Eggebeen and Knoester (2001) suggests that early parenthood may transform the lives of some young individuals, particularly fathers, leading them to adopt more adult roles and avoid delinquent behaviors. But evidence of improved behavioral outcomes is not limited to fathers. For instance, using miscarriages as an instrument, Hotz et al. (2005) finds that teenage motherhood is associated with an increase in labor market attachment and with no increase in long-run dependence on public assistance programs. Using a similar approach, Fletcher (2011) finds that teenage motherhood has few adverse consequences on risky health behaviors and may, in fact, be protective against smoking and substance use. While not conclusive, these studies suggest that

maturing mechanisms could be at work in deterring delinquent behaviors and encouraging more "pro-social" behaviors among at least some subset of youths who become parents at early ages.[1]

While teen childbearing may be a civilizing force in deterring some delinquent behaviors, its effects on community involvement and civic engagement remain largely unexplored. The effect of teen parenthood on civic involvement is theoretically ambiguous. If the "maturing" process associated with parenthood leads some youths to take on more mature adult roles, they may be more likely to engage their community via volunteerism, give to charity, and engage the political process than their non-parent youth counterparts. Moreover, time spent in these activities may be an important input in the production of children. For instance, a child who begins attending school may draw parents into more community- and school-based organizations.

However, because children are time-intensive goods, particularly for mothers, time constraints may induce parents to be less engaged in their communities. Moreover, if teenage parenthood is associated with a reduction in educational attainment and earnings (see, for example, Hoffman et al 1993; Bennett et al.,1995; Levine & Painter, 2003; Klepinger et al., 1995, 1999; Hofferth 1998; Fletcher and Wolfe, 2009; Covington et al., 2011), these represent other pathways through which teen parenthood could diminish civic engagement. For instance, if charitable giving is a normal good (see, for example, Auten et al. 2002; Kingman 1989), then the adverse earnings effects of teen parenthood may reduce such donations; in addition, if teen parenthood diminishes educational attainment, which is positively related to civic engagement (Wiepking 2009; Kingman 1989), then behaviors such as voting, political involvement, and volunteerism may also be reduced.

[1] An alternative explanation for the above-mentioned findings on substance use could be that teen parenthood has adverse earnings effects, which reduce the demand for cigarettes, alcohol, and illegal drugs.

Moreover, there are a number of reasons to expect the effect of teen parenthood on civic engagement to differ for males and females. Because women are more likely to be the primary caretakers of children, they may have larger opportunity costs of time than fathers, many of whom are likely to be non-resident. Thus, women may have less time to devote to such activities such as volunteerism and political involvement. And if the adverse earnings and education effects of teen parenthood are larger for women than men because men are able more easily able to avoid the costs of parenthood, then we might expect the civic consequences of parenthood to be larger for women. On the other hand, increases in child support enforcement policies have decreased the ability of men to avoid their responsibilities, which result in relatively small gender-specific differences.

The current study is the first to explore whether teen parenthood affects adult civic engagement. Using data drawn from the 1997 National Longitudinal Survey of Youth (NLSY97) and a variety of econometric strategies designed to control for difficult-to-measure individual and family background characteristics, we examine the relationship between teen parenthood and the probability of giving to charitable causes, volunteerism, acquiring knowledge of political affairs, and voting. Ordinary least squares estimates (OLS) and propensity score matching (PSM) estimates show consistent evidence that teenage childbearing is associated with a reduction in the probability of charitable giving, volunteerism, political awareness, and voting among young adults. The magnitudes of the associations are generally larger for female as opposed to male teen parents. After controlling for unobserved family background characteristics common to siblings via family fixed effects, the estimated effects are generally smaller in absolute magnitude, but the precision of estimates do not allow us to rule out the possibility of adverse civic engagement consequences. Moreover, our results suggest that even

after controlling for family-level heterogeneity common to siblings, teen motherhood is associated with a 33 percent reduction in the probability of making charitable contributions. For males, however, there is little evidence that teen fatherhood impairs charitable giving.

Finally, in an attempt to address the role of individual heterogeneity, we exploit recent evidence that, conditional on a set of observable health behaviors, miscarriages among pregnant teen females may be exogenous to economic and behavioral outcomes (Hotz et al. 2005; Fletcher and Wolfe 2009). Our findings suggest that teen mothers are 6.8 percentage-points less likely to give to charity as adults, 12.6 percentage-points less likely to volunteer, and 5.3 percentage-points less likely to vote than their counterparts who miscarried as teenagers. We conclude that teen motherhood may have important adverse consequences for civic involvement.

II. Background

Exploring the consequences of early parenthood on subsequent risky or delinquent behaviors has received increased interest among sociologists and economists. While a number of researchers have noted that those teenagers who become parents are more likely to engage in delinquent behaviors even prior to their child's birth, fewer studies have explored the consequences of teenage births on behavioral outcomes such as crime or community engagement.

There are a number of theoretical reasons to expect that teen parenthood could diminish civic involvement. As noted above, children may diminish time and income, which could impede involvement in one's community and time devoted to the accumulation of political knowledge. These effects may be particularly large for teen mothers, who are more likely to devote time to child care and experience adverse earnings effects than teen fathers.

On the other hand, there are some theoretical reasons why teen parenthood could enhance civic engagement. The birth of a child could draw young parents into their communities as they become more involved in schools, child care arrangements with other parents, or religious-based charitable organizations. For instance, Perks and Haam (2011) find that greater involvement in religious organizations, such as those that provide services to unwed mothers, is associated with an increase in adult volunteering and community organization membership. Moreover, tastes for public redistribution programs may awaken interest in politics.

There is also recent evidence that parenthood may "transform" some young parents. Work by Eggebeen and Knoester (2001) and Edin et al. (2001; 2004), Popenoe, 1996 and Fletcher (2011) finds that early childbearing, particularly when accompanied by marriage or cohabitation, may be a civilizing force for some young men, reducing future criminal activity among a group of individuals that are at greater risk for prior delinquent behavior. There may also be protective adult behavioral effects for women (Fletcher 2011; Hotz et al. 2005), particularly for labor market attachment and health. This work, which suggests that teen parenthood may protect against some behavioral vices, could suggest that teen parenthood could induce some virtuous behaviors.

To our knowledge, the current study is the first to explore the consequences of early parenthood on civic engagement, to compare differential effects for teen mothers and fathers as well as differential effects of non-marital versus marital childbearing, and to carefully address the role of difficult-to-measure individual and family background characteristics that could be associated with both teen childbearing and the outcomes under study.

III. Data and Measures

Data. The NLSY97 is a large national data set comprised of 8,984 men and women born between 1980 and 1984. When weighted, these data are nationally representative of those in the U.S. born in this age cohort. Respondents were first interviewed in 1997 when they were ages 12 through 17 and were interviewed annually since that time. Oversamples of African Americans and Hispanics were also obtained in the data collection process. We draw on data from the 2004-2008 waves of the NLSY97 to generate our sample. We find that 91.6 percent of the sample interviewed in 2004 was also interviewed in round 2008, when respondents are ages 24 to 28. Our final sample sizes for our main models consist of 19,721 females and 20,316 males with non-missing information on teen fertility and the outcomes under study.

The NLSY97 is a useful data source to address our research questions for a number of reasons. First, the data contain detailed fertility histories and household rosters to measure teen fertility. While the quality of data on teen motherhood is quite good, a number of prior studies have found both under-reporting of teen fatherhood in a number of national data sets (Rendall et al. 1999; Cherlin and Griffith 1998). These studies also suggest that underreporting is more likely for those who fathered children outside of marriage. However, in comparing fertility reports of males and females in the NLSY97 with vital statistics, Joyner et al. (forthcoming) find the degree of underreporting of fertility data in the NLSY97 is not large (see Peters et al, 2006; Rendall et al, 2006), even for men. Furthermore, improving the quality of fertility data, particularly male fertility data, in the NLSY97 has been underway for a number of years (Mott and Gyrn 2001).[2]

A second advantage of the NLSY97 data are that these data are longitudinal, which allow us to measure several indicators of civic engagement following a teen birth, mitigating at least

[2] We use variables available in the public-use NLYS79 data to create best estimates of women's age at first birth and data compiled by Mott and Gyrn (2001) for male fertility that includes his best estimate of the date of each birth.

some reverse causality concerns. Finally, the household sampling frame resulted in 1,759 households with one or more siblings, which will permit sibling comparisons via family fixed effects models.

Measures. Our key independent variable is *TeenBirth*, which measures whether the respondent has reported a birth prior to his or her 20th birthday. By 2005 (round 9), the year that all respondents were age 20 and older, 395 males and 829 females had reported having a teen birth.

We generate four measures of civic engagement from our data. Our first measure, *Charity*, is a dichotomous variable generated from the following questionnaire item, measured at rounds 9 (2005) and 11 (2007), when respondents were ages 21 to 27:

> "In the last 12 months, have you donated money to a political, environmental, or community cause?"

Respondents who answered "yes" were coded as 1 and those who answered "no" were coded as 0. We also experimented with generating a measure of dollars of charitable contributions in the last year, conditional on *Charity* equal to 1.

Our second measure of civic engagement is *Volunteer*, a dichotomous variable obtained using responses to the following NLSY97 item, asked in rounds 9 (2005) and 11 (2007) when respondents were ages 21 to 27.

> "In the last 12 months, how often did you do any unpaid volunteer work, including activities aimed at changing social conditions, such as work with educational groups, environmental groups, landlord/tenant groups, or other consumer groups, women's groups or minority groups?"

Those who answered “never” were coded as 0 and those who reported a positive number of volunteer experiences were coded as 1.

Our final two measures capture the respondent’s political participation and awareness. First, we generate a dichotomous variable, *Aware*, using responses to the following questionnaire item, measured in 2004, 2006, and 2008 when respondents were ages 20 to 28:

> “Some people seem to follow what's going on in government and public affairs most of the time, whether there's an election going on or not. Others aren't that interested. Would you say you follow what's going on in government and public affairs most of the time, some of the time, only now and then, or hardly at all?”

Those who responded “most of the time” or “some of the time” were coded as 1 and those who reported “only now and then” or “hardly at all” were coded as zero. Finally, we measure whether the respondent had voted in the most recent election:

> “Let's talk about [the recent election/the election last November]. In talking to people about elections, we often find that a lot of people were not able to vote because they weren't registered, they were sick, or they just didn't have time. Which of the following statements best describes you:”

Responses included “I did not vote (in the election [this/last] November, “I thought about voting this time, but didn't,” “I usually vote, but didn't this time,” and “I am sure I voted.”

Respondents who answered "I am sure I voted" were coded as 1 and those who chose any other options were coded as 0.

In Table 1, we produce means of the outcomes, by gender, for the full samples and then by whether the respondent reported a teen birth. For the full sample (columns 1 and 4), we find that females are more likely to donate to charity (0.307 vs. 0.230), volunteer (0.634 vs. 0.567), and vote (0.375 vs. 0.292) than males. There is also evidence that rates of civic engagement among those who report a teen birth is lower than those without a teen birth. For instance, females with a teen birth are 10.1 percentage-points less likely to give to charity (0.230 vs. 0.331) in young adulthood, 23.3 percentage-points less likely to volunteer (0.688 vs. 0.455), 4.4 percentage-points less likely to follow public affairs (0.424 vs. 0.380), and 10.5 percentage-points less likely to vote (0.397 vs. 0.292); for males, the mean differences between teen fathers and non-fathers operate in the same direction as females. However, while the magnitudes of the differences are generally similar to females for the political participation outcomes, the differences are much smaller for volunteerism and charitable giving. For example, teen fathers are only 0.5 percentage-points less likely to give to charity than their non-father counterparts (0.226 vs 0.231) and 10.9 percentage-points less likely to volunteer (0.471 vs 0.580).

IV. Methods

We begin our empirical strategy by estimating whether the civic engagement differences by teen birth status observed in Table 1 are statistically different from each other. Specifically, we estimate a bivariate regression in the form of a linear probability model:

$$C_i = \alpha + \delta_1 TeenParent_i + \varepsilon_i \qquad (1)$$

where C_i is an indicator variable equal to 1 if respondent *i* engages in the civic behavior in young adulthood and 0 otherwise. However, because the individual and family background factors that influence the likelihood of being a teen parent are also correlated with the probability of civic engagement, it is unlikely that our estimate of δ_1 will be unbiased.

Next, we examine the sensitivity of the estimate of δ_1 to control for a parsimonious set of plausibly exogenous individual and family background characteristics $\mathbf{X}_i$:

$$C_i = \alpha + \delta_1 TeenParent_i + \delta_2' \boldsymbol{X}_i + \varepsilon_i \qquad (2)$$

where $\boldsymbol{X}_i$ includes controls for age, race, AFQT score, parental educational attainment, parental marital status, parental income, religious affiliation, and urbanicity. Importantly, note that we exclude controls for endogenous pathways through which teenage parenthood could affect civic engagement, most notably educational attainment and earnings.

While more informative than bivariate regressions, estimates of δ_1 from equation (2) may still be biased if there is insufficient common support on observables. Thus, we next move to a propensity score matching approach. We begin by estimating a probit model of the following form:

$$\Pr(TeenBirth_i = 1) = 1 - \Phi(-\beta_0 - \boldsymbol{\beta'_1 X_i}). \qquad (3)$$

After obtaining predicted probabilities, we use nearest-neighbor matching to pair treated individuals with untreated individuals who have the same or similar propensity scores (i.e., individuals who are comparable across all observable controls). The effect of the treatment can

then be estimated as the difference between the average outcomes of the two groups. This estimate depends on the assumption that outcomes are independent of the treatment conditional on the observable controls – essentially, that the matching produces a valid counterfactual group. Another limitation to propensity score matching is that it can only tell us about the treatment's effect on observations within the common support region. Standard errors for the kernel matching estimate are bootstrapped standard errors using 100 replications following Galiani et al (2005).

While a propensity score matching approach will assure common support on observables, there may still be important unobserved family background characteristics that are associated with both teen parenthood and civic engagement. Thus, we next restrict the sample to sibling pairs and estimate family fixed effects models of the following form:

$$C_{ij} = \alpha + \delta_1 TeenParent_i + \delta_2' \boldsymbol{X}_i + \kappa_j + \varepsilon_i \qquad (4)$$

where j indexes the family and κ_j is a vector of family fixed effects.[3] This approach has the advantage of eliminating bias in the estimate of δ_2 due to unobservables at the family level, but also has well-known disadvantages. First, the identifying variation is limited to siblings in the sample with discordant teen parenthood histories. In our NLSY97 sample, there are 226 females and 195 males with discordant teen birth histories. Second, if the effect of teen parenthood on civic engagement differs by whether the respondent is an only child, the findings may not be generalizable. And finally, a family fixed effects approach will not eliminate bias due to individual heterogeneity.

[3] Appendix Table 1 shows these same mean differences for the sibling pairs sample, reflecting a similar pattern of results.

To address this third drawback, we attempt two tacks to address individual heterogeneity. While the NLSY97 is longitudinal, we cannot estimate individual fixed effects models because teens are not asked civic engagement questions prior to age 20. In addition, voting is not legal for respondents under the age 18. However, we do have some proxies for taste for civic engagement prior to a teen birth. Specifically, respondents are asked the share of their friends that volunteer for a charitable organization and the share that are members of organizations that have a civic component. The NLSY97 questionnaire asks:

> "What percentage of kids [in your grade /in your grade when you were last in school] [do /did] volunteer work?"

Responses were coded as follows: 1 for "Almost none (less than 10%)," 2 for "About 25%," 3 for "About half (50%)," 4 for "About 75%," and 5 for "Almost all (more than 90%)." For the question regarding church attendance, the NLSY97 questionnaire inquires:

> "What percentage of kids [in your grade /in your grade when you were last in school] [go /went] to church or religious services on a regular basis?"

The responses were coded exactly the same as above (i.e. the coding for the question about peer volunteer participation).

We then restrict our sample to those respondents who reported no teen birth or a teen birth at ages 16 to 19 and add a control to the vector $\mathbf{X}_i$ for tastes for civic engagement prior to any birth. This is designed to better control for fixed individual predispositions toward civic involvement.

Our second approach is to replicate the approach taken by Hotz et al. (2005) and Fletcher and Wolfe (2009). We exploit the "natural experiment" of miscarriages among pregnant females and compare civic engagement outcomes of those who had a teen birth with those who miscarried as teenagers and did not have a teen birth. An advantage of this approach is that teen mothers and teenagers who had miscarriages likely share many unobservable characteristics. To the extent that miscarriages are random, assigned, the two groups of women can plausibly be considered as comparable, differing only in whether or not they became teen mothers. Still, the natural experiment is imperfect. For instance, the probability of miscarrying may be correlated with risky health behaviors such as cigarette consumption and alcohol use, each of which may be correlated with unobserved determinants of civic engagement. Thus, we carefully examine the robustness of our estimates using this reduced form instrumental variables (IV) approach to controls for background characteristics and risky health behaviors. However, another important disadvantage of this approach is that because teen fertility histories for men in the NLSY97 do not include miscarriages of female partners (as in Fletcher 2011), we cannot compare male outcomes using this method.

V. Results

Tables 2 through 7 present our main results. While the findings we present focus on the key coefficient of interest (δ_1), estimated coefficients on the control variables for equation (2) are available in Appendix Table 2. Heteroskedasctity robust standard errors corrected for clustering on the individual are presented for all models.

OLS Estimates. OLS estimates of the relationship between teenage childbearing and civic engagement are shown in Table 2. The results in column (1) show that the differences in

rates of civic engagement by teen birth status observed in Table 1 for females are all statistically significantly different. The addition of our parsimonious set of individual and family background characteristics reduces the magnitude of the effect of each of the outcomes by 29.5 to 37.7 percent but, nonetheless, still suggests a negative association between teen motherhood and civic engagement. Specifically, teen childbearing is associated with a 29.1 percent (0.067/0.230) reduction in the probability of charitable giving, a 36.7 percent (0.167/0.455) reduction in the probability of volunteerism, an 8.7 percent (0.033/0.380) reduction in the probability of knowledge of public affairs, and a 19.2 percent (0.056/0.292) reduction in the probability of voting. Thus, OLS estimates, at least, do not provide evidence in support of the hypothesis that teen motherhood leads to greater community attachment or community involvement. Instead, the negative association is consistent with adverse income or education effects of teen motherhood, as well as tight time constraints for mothers of young children.

For men, we find no evidence that teen fathers are any more likely to donate to charity as young adults than their counterparts who were not teen fathers (row 1, columns 3 and 4). One explanation for this result is that teen motherhood may have larger adverse earnings effects for teen mothers as compared to teen fathers (Fletcher and Wolfe 2009), leading to less disposable income for females to donate to charity relative to males. For remaining outcomes under study, the magnitudes of the estimated effects for males are not statistically different from those obtained for females. Conditional on observables, teen fatherhood is associated with a 22.1 percent (0.104/0.471) reduction in the probability of volunteerism, a 16.6 percent (0.055/0.331)reduction in the probability of knowledge of public affairs, and a 31.4 percent (0.060/0.191)reduction in the probability of voting. Thus, OLS estimates provide little evidence in support of the hypothesis that teen fatherhood increases civic engagement.

PSM Estimates. Our next set of estimates explores the sensitivity of our estimates to assuring common support on observables. In Table 3, we show propensity score matching estimates. The results continue to show evidence of adverse civic engagement effects for teen parents. For instance, for females, teen childbearing is associated with a 91.7 percent (0.211/.230) reduction in the probability of charitable giving, a 57.8 percent (0.263/0.455) reduction in the probability of volunteerism, an 29.5 percent (0.112/0.380) reduction in the probability of knowledge of public affairs, and a 76 percent (0.222/0.292) reduction in the probability of voting.. For males, teen fatherhood is associated with a 38.4 percent (0.181/0.471) reduction in the probability of volunteerism, a 58.9 percent (0.195/0.331) reduction in the probability of knowledge of public affairs, and a 141 percent (0.269/0.191) reduction in the probability of voting.

Taken together, OLS and PSM estimates generally point to a negative relationship between teen childbearing and adult civic engagement. But could these associations be driven by difficult-to-measure characteristics at the family or individual levels? Our next set of estimates explores this possibility.

Family Fixed Effects Estimates. In Table 4, we restrict our sample to biological siblings and present family fixed effects estimates. In addition, we present OLS estimates on the siblings sample for comparison. OLS estimates produce estimates that are qualitatively and quantitatively similar to those shown in Table 2. Controlling for family fixed effects appears to reduce the magnitude of the effect of teen parenthood on civic engagement, suggesting that unmeasured family background characteristics may upwardly bias estimates of the civic engagement effects of teen parenthood. However, even after controlling for family level heterogeneity common to siblings, we still find that adult females who gave birth to children as

teenagers are less likely to give to charity than their non-teenage parent sisters. For males, however, there is little evidence of any relationship between teen fatherhood and any measure of civic engagement.

While intriguing, family fixed effects models may also produce null results because of limited identifying variation or measurement error exacerbated by fixed effects. Moreover, this approach will not control for individual heterogeneity. Next, we present results from our two methods of dealing with individual heterogeneity.

Conditioning on Pre-Birth Predisposition for Civic Involvement. While our data do not allow for the estimation of individual fixed effects model to control for fixed individual heterogeneity, we can condition on prior predisposition for civic involvement. Table 5 presents the results of this exercise. The results suggest that OLS and family fixed effects estimates are generally unchanged from the inclusion of controls for pre-birth predisposition for civic engagement.

Reduced Form IV. In Table 6, we take the approach of Hotz et al. and compare teen mothers to teenagers who had miscarriages and didn't become teen mothers. The identifying assumption of this approach is that miscarriages among pregnant teenagers are exogenous to the civic engagement outcomes under study. Mean differences between pregnant women who miscarry and pregnant women who give birth show (column 4) that teen mothers are 44.3 percent (0.102/0.230) less likely than to give charitably, 41.8 percent (0.190/0.455) less likely to volunteer, 17.4 percent (0.066/0.380) less likely to be politically aware and 29.8 percent (0.087/0.292) less likely to vote than their counterparts who miscarry. These findings persist after controlling for our basic individual and family background characteristics (column 5) as

well as risky health behaviors associated with miscarriages (column 6), providing evidence in support of the hypothesis that teen miscarriages are be exogenous to civic engagement outcomes.

VI. Conclusions

Using data drawn from the NLSY97, we estimate the relationship between teen parenthood and civic engagement using a variety of econometric strategies designed to control for unobserved heterogeneity at the family and individual levels. Across OLS, PSM, FFE, and reduced form IV models, our findings show that teen motherhood is negatively related to the probability of adult charitable giving. For males however, there is little evidence that teen fatherhood impedes adult charitable giving. This finding is consistent with evidence that the earnings consequences of teen parenthood are larger for females than males.

For our other outcomes under study, there is some evidence that teen parenthood may reduce volunteerism and the probability of voting, consistent with the hypothesis that children are time-intensive goods, which diminish civic engagement. The effects are generally larger for females than males, consistent with evidence that females are the primary caretakers of children.

Our results provide the first evidence that teen parenthood may not just have important private costs to mothers and fathers, but also spillover to the local community, diminishing social involvement. This suggests that teen parenthood may impede the development of social capital and reduce social cohesion.

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Table 1. Descriptive Statistics

	Females			Males		
	Full Sample	No teen birth	Teen birth	Full Sample	No teen birth	Teen birth
Outcomes:						
Charitable Giving	0.316	0.341	0.232	0.238	0.239	0.226
Volunteerism	0.648	0.702	0.464	0.577	0.594	0.443
Political Awareness	0.283	0.292	0.251	0.299	0.307	0.234
Vote	0.241	0.257	0.185	0.196	0.205	0.124
Controls:						
Age	24.109	24.091	24.174	24.120	24.107	24.225
Black	0.263	0.235	0.366	0.253	0.233	0.419
Hispanic	0.211	0.192	0.276	0.212	0.205	0.275
Mom < HS degree	0.222	0.181	0.374	0.219	0.200	0.375
Mom > HS degree	0.380	0.428	0.204	0.378	0.400	0.198
Step Family	0.071	0.072	0.069	0.061	0.061	0.062
Single Parent Family	0.415	0.376	0.554	0.403	0.383	0.565
No Parent Family	0.068	0.054	0.117	0.059	0.056	0.088
Urban	0.825	0.829	0.812	0.823	0.826	0.796
Oldest Child	0.449	0.457	0.419	0.437	0.438	0.437
Mother Working (age 14)	0.638	0.668	0.528	0.642	0.652	0.559
Family Income	16,578	16,639	16,354	17,072	17,258	15,577
Church attendance	3.025	3.042	2.967	2.650	2.667	2.520
N	21,540	16,890	4,650	22,735	20,240	2,495

Notes: Data from NLSY97 waves between 2004 and 2008. Cohort was born between 1980 and 1984.

Table 2. OLS Estimates of the Relationship between Teen Parenthood and Civic Engagement

	Females		Males	
	No Controls	Controls in *Xi*	No Controls	Controls in *Xi*
Charitable Giving	-0.104***	-0.067***	-0.014	-0.008
	(0.013)	(0.014)	(0.016)	(0.016)
	[7,113]	[7,113]	[7,160]	[7,160]
Volunteerism	-0.237***	-0.167***	-0.161***	-0.104***
	(0.025)	(0.026)	(0.032)	(0.032)
	[7,078]	[7,078]	[7,114]	[7,114]
Political Awareness	-0.053***	-0.033***	-0.080***	-0.055***
	(0.008)	(0.008)	(0.010)	(0.011)
	[19,711]	[19,711]	[20,305]	[20,305]
Vote	-0.083***	-0.056***	-0.089***	-0.060***
	(0.008)	(0.008)	(0.010)	(0.010)
	[17,639]	[17,639]	[18,390]	[18,390]

Notes: Each regression has a different sample size because the outcome variables were not available in each wave of the NLSY97. All of the standard errors are clustered at the individual level. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3. Propensity Score Matching Estimates of the Relationship between Teen Parenthood and Civic Engagement

	Females		Males	
	Unmatched Sample	PSM	Unmatched Sample	PSM
Charitable Giving	-0.108***	-0.063***	-0.007	0.003
	(0.015)	(0.021)	(0.019)	(0.026)
	[5,466]		[5,399]	
Volunteerism	-0.248***	-0.133***	-0.175***	-0.109***
	(0.028)	(0.039)	(0.037)	(0.052)
	[5,499]		[5,378]	
Political Awareness	-0.063***	-0.034***	-0.095***	-0.070***
	(0.009)	(0.014)	(0.013)	(0.018)
	[14,424]		[14,540]	
Vote	-0.099***	-0.049***	-0.103***	-0.077***
	(0.010)	(0.013)	(0.012)	(0.016)
	[12,743]		[12,984]	

Notes: Unmatched sample results come from a probit regression. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4. Family Fixed Effects Estimates of the Relationship between Teen Parenthood and Civic Engagement

	Females			Males		
	OLS	FFE	OLS (DP)	OLS	FFE	OLS (DP)
Charitable Giving	-0.098***	-0.112***	-0.123***	-0.019	0.016	0.027
	(0.023)	(0.041)	(0.035)	(0.028)	(0.056)	(0.038)
	[2,302]	[2,302]	[685]	[2,300]	[2,300]	[565]
Volunteerism	-0.155***	-0.055	-0.129*	-0.167***	-0.092	-0.123*
	(0.046)	(0.085)	(0.060	(0.049)	(0.089)	(0.069)
	[2,299]	[2,299]	[682]	[2,293]	[2,293]	[561]
Political Awareness	-0.033**	-0.012	0.006	-0.046**	-0.017	-0.005
	(0.017)	(0.029)	(0.024)	(0.021)	(0.031)	(0.028)
	[6,075]	[6,075]	[1,817]	[6,245]	[6,245]	[1,560]
Vote	-0.080***	-0.004	-0.032	-0.059***	-0.012	-0.27
	(0.015)	(0.021)	(-0.022)	(0.016)	(0.025)	(0.022)
	[5,308]	[5,308]	[1,563]	[5,558]	[5,558]	[1,390]

Notes: Each regression includes the same controls as specified in Table 2. FFE refers to family-fixed effects. DP refers to discordant pairs of siblings, or sibling pairs in which one had a teen birth and the other did not. All standard errors are clustered at the individual level. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5. Sensitivity of OLS Estimates to Pre-existing characteristics

	Females		Males	
	OLS	FFE	OLS	FFE
Charitable Giving	-0.077**	-0.103	-0.014	-0.165
	(-0.03)	(-0.067)	(-0.04)	(-0.135)
	[1,346]	[1,346]	[1,383]	[1,383]
Volunteer	-0.151**	-0.105	-0.136*	-0.19
	(-0.061)	(-0.171)	(-0.073)	(-0.214)
	[1,347]	[1,347]	[1,377]	[1,377]
Political Awareness	-0.015	-0.065	-0.035	-0.05
	(-0.022)	(-0.053)	(-0.026)	(-0.046)
	[3,548]	[3,548]	[3,724]	[3,724]
Vote	-0.081***	-0.011	-0.047**	-0.052
	(-0.02)	(-0.052)	(-0.023)	(-0.052)
	[3,092]	[3,092]	[3,334]	[3,334]

Notes: In addition to the controls specified in Table 2, we include controls for the fraction of the respondent's peers who volunteer and the fraction of their peers who attend church. We restrict the sample to 60% of our original sample who answered these questions prior to age 16. We exclude any individuals who had a teen birth prior to age 16. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 6. Reduced Form IV Approach

	Birth	Miscarriage	Birth vs. Miscarriage	Birth vs. Miscarriage	Birth vs. Miscarriage
Charitable Giving	0.234	0.290	-0.056*	-0.071**	-0.068*
	(0.423)	(0.454)	(0.033)	(0.036)	(0.036)
	[3462]	[355]	[3,817]	[2,610]	[2,566]
Volunteerism	0.465	0.625	-0.160**	-0.133*	-0.126*
	(0.792)	(0.878)	(0.063)	(0.071)	(0.072)
	[3427]	[352]	[3,779]	[2,593]	[2,549]
Political Awareness	0.249	0.304	-0.055***	-0.031	-0.028
	(0.432)	(0.460)	(0.020)	(0.024)	(0.024)
	[9724]	[1,046]	[10,770]	[6,893]	[6,773]
Vote	0.167	0.236	-0.068***	-0.059***	-0.053**
	(0.373)	(0.425)	(0.019)	(0.022)	(0.022)
	[8689]	[917]	[9,606]	[6,057]	[5,951]
No Controls	X	X	X		
Full Set of Controls				X	X
Risky Behavior Controls					X

Notes: The results in this table are restricted to just female respondents who experience a teenage pregnancy. The two groups are mutually exclusive. The miscarriage group are girls who experienced a miscarriage but did not have a teen birth. The fifth column includes the following dichotomous controls: whether the respondent smoked tobacco, drank alcohol, or smoked marijuana within the last 30 days before the interview. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table 1. Descriptive Statistics for the Sibling Sample

	Females			Males		
	Full Sample	No teen birth	Teen birth	Full Sample	No teen birth	Teen birth
Outcomes:						
Donate	0.307	0.335	0.212	0.232	0.236	0.199
Volunteer	0.620	0.668	0.458	0.558	0.584	0.381
Public	0.282	0.290	0.256	0.285	0.292	0.240
Voted	0.234	0.251	0.172	0.179	0.189	0.110
Controls:						
Age	24.099	24.077	24.179	24.103	24.091	24.184
Black	0.251	0.214	0.384	0.258	0.232	0.444
Hispanic	0.241	0.217	0.325	0.231	0.227	0.259
Mom < HS degree	0.259	0.216	0.415	0.248	0.225	0.414
Mom > HS degree	0.345	0.396	0.162	0.358	0.381	0.192
Step Family	0.067	0.066	0.072	0.056	0.057	0.050
Single Parent Family	0.398	0.356	0.546	0.391	0.368	0.552
No Parent Family	0.051	0.043	0.080	0.042	0.038	0.067
Urban	0.832	0.824	0.858	0.821	0.826	0.787
Oldest Child	0.330	0.339	0.299	0.310	0.312	0.289
Mother Working when Child is 14	0.627	0.653	0.534	0.635	0.646	0.556
Family Income	16,317	16,452	15,810	16,609	16,657	16,268
Frequency church attendance	3.081	3.078	3.093	2.690	2.716	2.509
N	8,875	6,935	1,940	9,660	8,465	1,195

Notes: Data from NLSY97 waves between 2004 and 2008. Cohort was born between 1980 and 1984.

Appendix Table 2. Estimated Coefficients on Control Variables from OLS Regression

	Females				Males			
	Charitable Giving	Volunteerism	Political Awareness	Vote	Charitable Giving	Volunteerism	Political Awareness	Vote
Teen Birth	-0.070***	-0.165***	-0.039***	-0.068***	0.008	-0.098***	-0.068***	-0.068***
	(0.016)	(0.030)	(0.011)	(0.010)	(0.020)	(0.038)	(0.014)	(0.012)
Age	-0.002	-0.009	0.011***	-0.001	-0.003	-0.022***	0.011***	-0.002
	(0.004)	(0.007)	(0.002)	(0.002)	(0.004)	(0.007)	(0.002)	(0.002)
Black	-0.039**	-0.071**	0.034***	0.064***	0.035**	-0.008	-0.017	0.015
	(0.018)	(0.033)	(0.011)	(0.010)	(0.017)	(0.034)	(0.011)	(0.011)
Hispanic	-0.070***	-0.168***	-0.029**	-0.038***	0.025	-0.090***	-0.024**	-0.041***
	(0.019)	(0.036)	(0.012)	(0.012)	(0.017)	(0.034)	(0.012)	(0.011)
Mother's education	0.000	-0.072**	-0.000	-0.021*	-0.014	-0.041	-0.040***	-0.062***
<high school	(0.019)	(0.036)	(0.012)	(0.012)	(0.018)	(0.037)	(0.013)	(0.012)
Mother's Education	0.065***	0.111***	0.066***	0.055***	0.033**	0.099***	0.054***	0.051***
>high school	(0.017)	(0.031)	(0.011)	(0.010)	(0.015)	(0.031)	(0.010)	(0.010)
Step Family	0.011	-0.113**	-0.018	-0.053***	-0.060**	-0.044	0.003	-0.011
	(0.029)	(0.051)	(0.018)	(0.017)	(0.027)	(0.051)	(0.019)	(0.017)
Single Family	-0.032**	-0.077**	-0.038***	-0.053***	-0.018	-0.059**	-0.011	-0.028***
	(0.016)	(0.030)	(0.010)	(0.009)	(0.014)	(0.030)	(0.010)	(0.009)
No Parent Family	-0.071**	-0.055	-0.059***	-0.082***	-0.077***	-0.145***	-0.030	-0.052***
	(0.028)	(0.055)	(0.018)	(0.018)	(0.026)	(0.054)	(0.022)	(0.020)
Urban	0.029	0.043	0.047***	0.026**	-0.023	-0.073**	0.045***	0.010
	(0.018)	(0.035)	(0.011)	(0.011)	(0.017)	(0.035)	(0.012)	(0.011)
Oldest Child	0.034**	0.002	0.016*	0.012	0.008	0.014	0.017*	0.013
	(0.014)	(0.027)	(0.009)	(0.009)	(0.013)	(0.028)	(0.009)	(0.009)
Mother Working when	-0.003	0.004	0.002	0.022**	0.017	0.002	0.001	0.009
Child is 14	(0.016)	(0.028)	(0.010)	(0.009)	(0.014)	(0.029)	(0.010)	(0.009)

Number of Times	0.018***	0.087***	0.004**	0.011***	0.025***	0.082***	0.008***	0.016***
Attending Worship	(0.003)	(0.006)	(0.002)	(0.002)	(0.003)	(0.006)	(0.002)	(0.002)
Service								
Family Income	0.000	-0.000	-0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Mother's Education	0.033	0.007	0.013	0.011	-0.024	0.001	-0.005	-0.025
Missing	(0.034)	(0.063)	(0.021)	(0.020)	(0.028)	(0.058)	(0.021)	(0.019)
First Birth Missing	-0.012	0.039	-0.008	-0.008	0.001	-0.143***	-0.028*	-0.027*
	(0.028)	(0.053)	(0.018)	(0.016)	(0.024)	(0.044)	(0.017)	(0.015)
Constant	0.298***	0.677***	0.009	0.246***	0.222**	0.996***	0.045	0.238***
	(0.094)	(0.172)	(0.048)	(0.049)	(0.088)	(0.174)	(0.049)	(0.049)
Observations	5,466	5,449	14,424	12,743	5,399	5,378	14,540	12,984
R-squared	0.029	0.072	0.016	0.028	0.021	0.056	0.017	0.030

Notes: Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$