The Dynamics of Household Economic Circumstances around a Birth

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Abstract

With the arrival of an infant, many households face increased demands on resources, changes in the composition of income, and a potentially heightened risk of economic insecurity. Changing household economic circumstances around a birth have implications for child and family wellbeing, women's economic security, and public program design, yet have received little research attention in the U.S. Using data from the Survey of Income and Program Participation, this study provides new descriptive evidence of month-to-month changes in household economic wellbeing and the composition of household income in the year before and after a birth. Results show evidence of significant declines in household economic wellbeing in the months around a birth, particularly for single mothers who live without other adults. Income from public benefit programs buffers but does not eliminate declines in economic wellbeing. More generous and timely income supports, as well as policies facilitating mothers' employment could boost economic wellbeing during this critical period.

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Introduction

Households may face a heightened risk of economic insecurity in the time around a birth. Pregnancy and the arrival of an infant increase demands on resources for expenses such as healthcare, childcare, clothing and other supplies for the baby (Brandrup & Mance, 2011). At the same time, mothers' earnings tend to decline, as almost all U.S. mothers take at least some time off of work in the months leading up to and following birth (Laughlin, 2011). Declines in economic wellbeing may be particularly large for households where parents have low educational attainment, and are thus more likely to face precarious employment situations and less likely to have access to paid or job-protected parental leave (Lambert, 1999; U.S. Department of Labor, 2014). Single mothers who live without a partner or other adults may also face particularly large reductions in economic wellbeing around a birth, as they lack other workers to compensate for declines in their own earnings.

On the other hand, pregnancy and the growth in household size may trigger an increase in public program eligibility and benefit levels among less-advantaged households. The Special Supplemental Nutritional Program for Women, Infants and Children (WIC) provides near-cash nutritional assistance targeted at this time period. Many other cash and near-cash safety net programs increase in generosity with the addition of a new child to an assistance unit. Among households eligible for these programs, however, it is not known if benefits increase enough around a birth to compensate for earnings declines and heightened demands on household resources.

The time encompassing pregnancy and infancy is a period when household economic security and stability are particularly important for healthy child development

(Duncan, Ziol-Guest, & Kalil, 2010; Wagmiller, Lennon, Kuang, Alberti, & Aber, 2006). In addition to level of income, income volatility may have independent detrimental effects on child and family wellbeing (Hill, Morris, Gennetian, Wolf, & Tubbs, 2013). Changes in the composition of household income in the time around a birth, particularly reductions in women's contributions of household income, also have important implications. Women's earnings are increasingly important to overall household economic security (Smith, 2015; Wang, Parker, & Taylor, 2013). Additionally, when mothers' earnings make up a greater share of total household income, their own bargaining power and ability to exit poor-quality partnered relationships is elevated, and families tend to make larger investments in children (Bittman, England, Sayer, Folbre, & Matheson, 2003; Lundberg & Pollack, 2007; Sayer & Bianchi, 2000). Low savings and assets among less-educated and single-mother households (Haveman & Wolf, 2004) may make changes in income around a birth especially difficult for these groups.

Despite the considerable implications of economic circumstances through pregnancy and early in a child's life, there is surprisingly little U.S. evidence of how household economic wellbeing fluctuates in the months leading up to and following a birth. There is also limited attention to how households' reliance on different income sources changes in this time period. This study contributes to addressing these gaps in the literature by providing descriptive evidence of the dynamics of household economic wellbeing and composition of household income around a birth.[2] Using monthly data

[2] The related relationship between individual and household economic circumstances and fertility has received considerable theoretical and empirical attention (see, for example, Blau, Ferber, & Winkler, 2010; Gibson-Davis, 2009). In this paper I focus not on the fertility decision but on household economic circumstances around a birth, conditional on a live birth.

from the Survey of Income and Program Participation (SIPP), I address the following research questions: 1) How do measures of overall household economic wellbeing change, month-to-month, in the year leading up to and following birth? 2) How do the absolute level and relative contribution to total household income of different financial resources—mother's earnings, father's earnings, other household adults' earnings, public program income, child support, and other income—change, month-to-month, in the year leading up to and following birth? I estimate these relationships at the population level and document differences by socioeconomic status, operationalized as mother's educational attainment, and by household structure.[3]

This study makes several contributions to scholarly understanding of the relationship between birth and household financial circumstances. First, this is the only research I am aware of that documents short-term, monthly changes in household-level economic wellbeing in the time around a birth. Using several measures of economic wellbeing provides insight into how alternate income sources (near-cash public programs, refundable tax credits, and income from unrelated household members) and increases in household size contribute to changes in economic wellbeing around a birth. Second, this study provides more fine-grained information than is currently available on the short-term consequences of a birth on parents' earnings, and new evidence of how households' reliance on other financial resources, including income from public benefit programs,

[3] Mother's education is a common proxy for socioeconomic status in studies of mothers' work and earnings in the period around a birth, and is preferable to a direct measure of income or earnings, which would likely be affected by the pregnancy and birth (see, for example, Han, Ruhm, Waldfogel, & Washbrook, 2008; Sigle-Rushton & Waldfogel, 2007). Because married and cohabiting partners tend to have similar levels of educational attainment, I use mother's educational attainment to stand in for the whole household (Blackwell & Lichter, 2004).

changes around a birth. Third, I present information on changes in the share of each income source relative to total household income. These analyses increase understanding of the timing and magnitude of changes in women's contributions to household income, which research suggests matters for a variety of outcomes relevant to women's and children's wellbeing. Fourth and finally, this paper pays careful attention to differences by socioeconomic status and household structure in order to document which groups are most vulnerable to declining economic wellbeing in this critical time.

Background and Theoretical Framework

Household Economic Wellbeing around a Birth

Most empirical work on the impact of birth on household finances is in the European context, where concerns over low fertility rates motivate attention to the issue. This research finds that a birth is associated with declines in several measures of economic wellbeing. Looking across several industrialized countries, Sigle-Rushton and Waldfogel (2007) show reductions in size-adjusted household income—before taxes and transfers—following a birth. Reductions remain, but are smaller in magnitude, after including government transfers (Aassve, Mazzuco, & Mencarini, 2005; Bould, Crespi, & Schmaus, 2012; Sigle-Rushton & Waldfogel, 2007). There is some evidence that gross household income, or income that has not been adjusted to account for household size, increases slightly in the period after a birth (Bould et al., 2012). This finding suggests that increases in transfer income are greater than decreases in parents' earnings, but not sufficient to compensate for increased needs. Although suggestive of potential patterns, differences between European and American social welfare policies likely limit the relevance of these findings to the U.S. context.

Evidence from the U.S. is limited and somewhat mixed. Sigle-Rushton and Waldfogel (2007) include the U.S. in their comparative study of the trajectories of household income following a birth, and find results similar to those I describe above.[4] However, these findings are limited by a reliance on cross-sectional data, a focus primarily on households at the middle of the educational attainment distribution, and no attention to gross, or unadjusted, household income.

Through analysis of events that precede poverty entry—such as job loss or changes in household structure—the U.S. literature on poverty dynamics shows an association between a birth and the likelihood and duration of experiences of poverty. Using data from 1970-1982, Bane and Ellwood (1986) find that over eight percent of all poverty spells begin with a birth, and that these spells last longer than those that begin with any other event. Stevens (2012) finds very similar results using 1968-2003 data. Using 1988-1996 data and a multivariate approach, McKernan and Ratcliffe (2005) find that, of the events that precede poverty entry, only job loss has a stronger relationship than the addition of a young child to a household with the likelihood of beginning a poverty spell. These findings suggest a connection between a birth and declines in household economic wellbeing. However, this literature does not provide information about prevalence or severity of declines in economic wellbeing around a birth among the universe of households who experience a birth.

A distinct line of relevant research focuses on identifying the causal effects of family size on measures of economic wellbeing. Using multiple births and parents'

[4] Sigle-Rushton and Waldfogel (2007) use U.S. data from the 2000 Current Population Survey, Annual Social and Economic Supplement, accessed through the Luxembourg Income Study.

preference for children of both sexes to instrument for family size, Angrist and Evans (1998) find no effect of an additional child on overall family income. Caceres-Delpiano and Simonsen (2012) use a similar analytical approach with updated data and more outcomes, and find an additional child increases risk of poverty and decreases family income, with larger negative effects among low-educated groups. This research suggests a birth will reduce household economic wellbeing, all else equal, but neither study restricts analysis to the time closely following a birth, and the instrumental variables approach may limit the generalizability of these findings (Angrist & Pischke, 2009). Overall, U.S. evidence of the dynamics of household economic wellbeing in the period leading up to and following a birth remains limited.

Composition of Household Income around a Birth

Changes in overall economic wellbeing around a birth are closely related to changes in the composition of household income during this time. Pregnancy and birth will likely lead to fluctuations in the level and share of income from both mother's and father's earnings. These changes in parents' earnings may differ by socioeconomic status and household structure, although existing research does not provide clear predictions of the magnitude and direction of differences. Changes in income from other household adults' earnings, cash and near-cash public programs, and child support are also likely, and are most relevant to less-advantaged expectant and new-parent households. Below, I discuss expectations for how key sources of household income will respond to a birth based on prior theoretical and empirical work.

Mothers' and fathers' earnings. Relevant economic and sociological theoretical perspectives as well as considerable empirical evidence suggest mothers' earnings and

share of household income will decrease around a birth, while—in households where fathers are present—the level of and reliance on fathers' earnings will increase. Effects of a birth on parents' earnings operate through changes in work, employment and wages. In addition, transitions to marriage and cohabitation, common around conception and birth (Gibson-Davis & Rackin, 2014) may also lead to increases in the contribution of fathers' earnings to household income during this time.

Mothers' and fathers' employment and work. Classic economic labor supply theory says individuals participate in paid work if earning potential exceeds the value of time in nonmarket work or leisure (Blundell & MaCurdy, 1999). This theory predicts that the birth of an infant will reduce parents' paid work hours and employment through increasing the value of time at home (Joesch, 1994, Klerman & Leibowitz 1999). Reductions in work may be smaller for less-educated and single-mother households if greater financial pressures increase the cost of time at home for these groups. However, for lower-educated households, earnings losses associated with reductions in work around a birth are smaller, so the economic incentive to return to work shortly following birth is weaker (Joesch, 1994; Klerman & Leibowitz, 1999).

This account of how a new infant affects parents' work and employment could apply to both mothers and fathers. However, economic perspectives on family labor supply suggest that in different-sex, co-residing couple households, women's comparative advantage for childrearing will allow the household to gain economically if the mother specializes in childcare while the father dedicates himself to paid work (Becker, 1985; Killingsworth & Heckman, 1986; Lundberg & Rose, 2002). This theory suggests an increasing reliance on men's earnings, and a decreasing reliance on women's

earnings following a birth, among different-sex, co-residing couple households. In single-mother households, however, the issue of gender specialization is largely irrelevant, and cohabiting couples may be less likely than married couples to increase specialization if the lower level of institutionalized commitment makes women less willing to reduce paid work hours (Han et al., 2008). Differences by socioeconomic status are also possible. Because less-educated men's wages and occupational opportunities have stagnated (Autor, 2010; Blank & Shierholz, 2006), men's comparative advantage in paid work, and couples' incentives to increase gender specialization of work following a birth should be weaker in less-educated households.

Sociological perspectives reject the idea that within-household specialization of labor arises from inherent gender differences in preferences or ability, and instead focus on institutional structures, such as the high cost of childcare, and ideology, such as cultural conceptions of mothers' and fathers' roles, that lead new mothers to decrease work and employment while new fathers increase work effort (Charles, Buchmann, Halebsky, Powers, & Smith, 2001; Glauber, 2008; Killwald, 2013; Kremer, 2007). This perspective points to additional reasons to expect variation in patterns of parents' work and employment around birth by socioeconomic status and household structure. Disparities in access to employer and public policies such as family leave, childcare, and flexible or predictable work hours make it harder for less-advantaged new mothers to combine employment and caregiving (Boushey, 2011; Lambert, 1999; O'Leary, 2007), and could drive larger reductions in mother's employment and work among low-educated households. Additionally, working-class women tend to prefer a more traditional gender division of labor (Goldberg & Perry-Jenkins, 2004), which suggests larger reductions in

women's earnings, and greater increases in men's earnings, in less-educated households. However, poor employment opportunities and high incarceration rates among less-educated men limit their ability to increase work and earnings around birth (Edin & Nelson, 2013; Kalil & Ryan, 2010; Raley, Mattingly, & Bianchi, 2006).

Empirically, there is extensive evidence that mothers' employment and work hours fall following a birth (Laughlin, 2011; Han et al., 2008), and some evidence that a birth is associated with an increase in fathers' work hours (Glauber, 2008; Killewald & Gough, 2013; Lundberg & Rose 2002). More-advantaged new mothers—those who are married, have higher levels of education, and who are older at the time of birth—are less likely to work immediately (2-3 months) following birth (Han et al., 2008). The least advantaged mothers—those with less than a high school degree, and those who are very young—are less likely than all other mothers to have returned to work in the longer-term (9-12 months post-birth), and are more likely to quit a job around birth (Han et al., 2008; Laughlin, 2011).

Mothers' and fathers' wages. Changes in men and women's wages around a birth, which operate through somewhat different mechanisms than changes in work and employment, could also contribute to fluctuations in the composition of household income in this period. Women's wages tend to fall following a birth (Budig & England, 2001; Loughran & Zissimopoulos, 2009; Lundberg & Rose, 2000). Scholars suggest a variety of factors contribute to this wage gap between mothers and childless women, including: reduced work experience due to time out of work around pregnancy and birth; increased likelihood of changing jobs, and the associated job search costs and loss of job-specific skills; lower productivity arising from increased childcare responsibilities; job

choices that sacrifice wages for improved work-family balance; potential employer discrimination against mothers; and heterogeneity between mothers and non-mothers (Becker, 1985; Budig & England, 2001; Lundberg & Rose, 2000; Waldfogel, 1998).

Low-skilled mothers may be less vulnerable to wage declines from time out of work or changing jobs around a birth, suggesting smaller wage penalties (Anderson, Binder, & Krause, 2002). However, employers may be more likely to accommodate caregiving needs to retain high-skilled employees, so higher-skilled mothers may be less likely to experience job changes or long periods out of work, and the resulting wage declines (Anderson et al., 2002; Budig & Hodges, 2010). Research shows wage declines associated with transitions to mothehood are highest near the median of the earnings distribution and lowest at the ends (Killewald & Bearak, 2014). Married women experience a larger motherhood penalty than never-married and divorced women (Glauber, 2007), perhaps because the ability to rely on a spouse or partners' earnings leads to larger reductions in paid work around a birth (Glauber, 2007; Budig & Hodges, 2010).

Men's wages, in contrast, rise on average following a birth (Glauber, 2008; Killwald, 2013; Lundberg & Rose, 2000, 2002). Employer preferences for men with families, increased productivity stemming from greater household specialization, and men's conception of financial provision as a key part of the fatherhood role may help explain the tendency of men's wages to increase following a birth (Glauber, 2008; Killwald, 2013; Lundberg & Rose, 2002). However, the saliency of the fatherhood identity and provider role may be lower for fathers who are not married to the child's mother or living with the child (Killewald, 2013). Additionally, employer perceptions of

fathers as more serious and responsible may not extend to non-married or non-residential fathers, and studies find only married men experience the fatherhood wage premium (Killewald, 2013; Glauber, 2008).

Other Income Sources

In addition to mothers' and fathers' earnings, other income sources including earnings from other household adults, cash and near-cash public programs, and child support are important to the economic wellbeing of disadvantaged households with children (Kalil & Ryan, 2010; Kennedy & Fitch, 2012; Slack, Berger, Kim, & Yang, 2012). There is less theoretical and empirical attention to how these income sources change around pregnancy and birth. However, there are reasons to expect the level and relative importance of each to fluctuate in this time period.

Earnings of other adults in the household may change around a birth if these individuals increase work effort to respond to the higher demand on household resources, reduce work to help with childcare, or if pregnancy and birth precipitate changes in household structure.

Among disadvantaged households, income from public benefit programs likely increases following a birth. The WIC program targets near-cash nutritional assistance to pregnant women, new mothers, and children under six. Many other major cash and near-cash safety net programs including the Temporary Assistance for Needy Families (TANF) program, the Supplemental Nutrition Assistance Program (SNAP), the Earned Income Tax Credit (EITC) and the Child Tax Credit (CTC), either restrict eligibility to households with children, or increase benefit levels when a new child is added to the

assistance unit. Therefore, in the period around a birth, a household may become newly eligible for benefits or see benefit levels rise.[5]

Among low-income mothers of young children, SNAP and WIC participation are very common, although WIC participation rates are higher among post-partum women than among pregnant women (Hoynes & Schanzenbach, 2015; Kalil, & Ryan, 2010; Jacknowitz, & Tiehen, 2009; Slack et al., 2012). TANF use is less common, but there is evidence that TANF provides financial resources during relatively short periods of time out of the labor force for low-income new mothers (Hill, 2012; Kalil, & Ryan, 2010; Ybarra, 2013). Evidence linking EITC expansions with improvements in infant health among eligible groups suggest that this program may also be an important source of financial support for less-advantaged new-parent households (Hoynes, Miller, & Simon, 2012). However, the yearly lump-sum disbursement of the EITC at tax time means that many households will not receive EITC payments reflecting the addition of the baby to the household until well after the birth.

For single-mother households, child support income will also likely rise after a birth. The arrival of an infant makes custodial parents newly eligible for child support, or eligible for higher payments (Lerman & Sorensen, 2003; Pirog & Ziol-Guest, 2006). Research suggests this income source will be most important for less-advantaged households. Custodial parents who have low educational attainment and who have never

[5] In-kind public benefit programs including childcare subsidies, public health insurance and subsidized housing are also important sources of support for low-income families with children (Kalil & Ryan, 2010; Slack et al., 2012) and may allow families to use more of their cash and near-cash income as disposable income. In this study I consider only cash and near-cash income. However, future research should consider how receipt of in-kind benefits changes around a birth, and how this matters for household economic wellbeing.

been married are less likely than more-advantaged custodial parents to receive child support due (Grall, 2013). However, among households who receive child support, this income represents a much larger share of household total for low-income households (Grall, 2013; Pirog & Ziol-Guest, 2006; Sorensen, 2010).

With the exception of mothers' and fathers' earnings, few studies consider how the level of each of these financial resources varies in the time around a birth. Additionally, much of the research on parents' earnings focuses on longer-term effects of parenthood on economic outcomes, while the shorter-term consequences of birth for earnings are less well documented. There is also little evidence of changes in the relative importance to household income of each income source in this time period.

Data and Methods

Data

I use data from the 1996, 2001, 2004 and 2008 panels of SIPP, which cover December 1995 through July 2013. Collected by the U.S. Census Bureau, SIPP is a large national survey of the U.S. civilian, non-institutional population, with an oversample of low-income households. SIPP has a longitudinal design with panels lasting from about 2.5 to over 4 years. Information on all members of sampled households is collected in waves, which occur every four months. Income, program participation and household composition data are all available at the month level throughout each panel (U.S. Census Bureau, 2001). Detailed monthly information on level and sources of household income, unique to SIPP, allow me to assess household economic circumstances in the birth month, and in the months surrounding the birth. Potential limitations include well-know measurement error at the seam between waves, underreporting, imputation, and attrition.

Although none of these issues is unique to SIPP, it is crucial to consider how each may influence results.

Seam issue. All panel surveys have a seam issue, or the tendency of respondents to over-report transitions (for example, changes in income or program receipt) in reporting months and to under-report transitions in non-reporting months. Monthly data and frequent reporting make this issue particularly pronounced in SIPP, despite efforts by Census to address the problem (Moore, 2008). The seam issue introduces measurement error into the study dependent variables, which should not bias estimates, but will reduce precision (Cameron & Trivedi, 2005). To limit the influence of the seam issue on study results I include an indicator variable for the reference month in all multivariate analyses. This is a commonly used method to account for the seam issue in SIPP, and research suggests it performs well in comparison to alternate methods (Ham, Li, & Shore-Sheppard, 2009).

Underreporting. Like all major national surveys, SIPP experiences underreporting of income, and underreporting rates that differ by type of income and demographic group (Czajka & Denmead, 2008). SIPP collects higher and more accurate earnings information from lower-income households compared to other major national surveys, but tends to underestimate earnings of more-advantaged groups (Abowd & Stinson, 2011; Czajka & Denmead, 2008; Roemer, 2002). Underreporting of public program income is less severe in SIPP than in other major national surveys, particularly among higher-income program recipients (Czajka & Denmead, 2008; Meyer, Mok & Sullivan, 2009).

These patterns suggest that SIPP is the best data source available to understand changes in earnings around a birth for less-advantaged households. The tendency of SIPP to underestimate earnings among more-advantaged households may lead me to overstate the economic insecurity of more-advantaged groups, and understate subgroup differences. However, comparisons with administrative data show SIPP consistently collects around 90 percent of total earnings, suggesting the impact of underreporting on study results should be relatively small (Romer, 2000). Additionally, comparisons with administrative earnings data suggest SIPP may underestimate within-year variability in earnings, but not severely (Abowd & Stinson, 2011). This aspect of the data may reduce the ability to observe earnings fluctuations around a birth, leading to more conservative estimates of changes in economic wellbeing around a birth.

Data imputation. The publically available SIPP files contain no missing data. When an individual or household cannot be interviewed in a wave, or when a respondent refuses to answer an item, data are imputed. Census uses several imputation methods including logical imputation, which uses non-missing responses in a current or prior wave to infer values for missing items, and hot-deck methods, which replace missing items with data from other respondents who are similar on relevant observables (U.S. Census Bureau, 2001). Rates of imputation of income data are high in SIPP, but comparable to other major surveys (Czajka & Denmead, 2008). Research suggests imputation in SIPP inflates measures of within-household income volatility (Dahl, DeLeire, & Mok, 2012). If imputation rates vary with the timing of a birth, I may overstate changes in household economic circumstances. To assess the sensitivity of

findings to data imputation, I re-estimate all results excluding cases with over 30 percent of monthly observations with any imputed household earnings data.

Attrition. Like all longitudinal surveys, SIPP experiences growing rates of attrition within panels, and rates of nonresponse and attrition have increased across panels (U.S. Census Bureau, 2015). All analyses use SIPP household weights produced by Census to account for attrition and for the complex sample design.

Despite each of these potential limitations, SIPP is the only large, nationally-representative dataset that provides month-level information on the amount and sources of household income, making SIPP the best available dataset to provide fine-grained evidence of the dynamics of economic wellbeing and composition of household income around a birth.

Sample

The study sample includes all households with births during SIPP data collection where the infant's biological mother is present in the household in the birth month. I exclude cases where the mother is absent in the birth month, as these households are very rare in SIPP. Observations with inconsistent information on the infant's birth month or mother's identification, and where the mother is over 45 in the birth month are also dropped, following previous work (Yelowitz, 2002). Additionally, some infants (<1-year-olds) in SIPP are first observed two or more months after their birth month, despite being biological children of a mother who is observed in the birth month. When the infant does not appear in the household until four or more months after the birth month, I do not include the birth in the sample.

I construct a household-birth-month-level file including monthly observations on the household the mother resides in for the 12 months before and after the birth month. This time period provides several pre-pregnancy months to give a sense of the baseline level of each outcome, and encompasses the time period following birth when the majority of U.S. mothers return to work (Laughlin, 2011). The sample includes 11,615 births and 226,836 household-birth-month observations. Because a birth can occur at any point in the SIPP study timeframe, sample sizes are largest in the birth month and fall as distance from the birth month increases.

Measures

Dependent variables. I construct three measures of household economic wellbeing. *Income-to-needs* is the ratio of total income to the official federal poverty threshold. A value of 1.5, for example, indicates monthly income at 150 percent of the federal poverty level (FPL). Following the official U.S. Census Bureau definition of poverty, the calculation of total income used as the numerator of this measure includes pre-tax money income from all household members who are related by birth or marriage (Short, 2014).[6] SIPP provides a variable indicating the official poverty threshold in the reference month, which is the denominator of this measure. The official poverty measure

[6] Census uses data from the Current Population Survey (CPS) to produce official poverty estimates. There are some minor differences in how total family income is measured between the CPS and the SIPP. First, SIPP includes lump sum or one-time payments such as inheritances, while CPS only includes income received in a regular or periodic manner. Additionally, SIPP includes gross income from self-employment, while CPS uses net self-employment income (U.S. Census Bureau, 2001, 2011). Finally, starting in the 2004 panel, SIPP includes an estimate of the cash value of other food assistance and clothing assistance in the total family income variable, which would not be included in the CPS measure (J. J. Hisnanick (U.S. Census), personal communication, September 3, 2014). Because SIPP is more successful at collecting income information from those at the bottom of the income distribution, poverty estimates using SIPP data find fewer poor people that than the official estimates using the CPS (Short, 2014b).

has many, well-documented shortcomings as an indicator of economic wellbeing (Blank & Greenberg, 2008; Meyer & Sullivan, 2012; Short, 2014). Yet its policy relevance endures as it continues to be used to determine eligibility for many means-tested public programs, and is still widely used in research.

Next, *alternative income-to-needs*, adjusts the *income-to-needs* measure to account for resources from near-cash public programs, refundable tax credits and unrelated household adults. To create this measure, I make three additions to the calculation of income used in *income-to-needs*. First, I add the cash value of SNAP and WIC benefits, both provided in the SIPP.[7] Because SIPP does not have direct measures of taxes and tax credits, I use the National Bureau of Economic Research TAXSIM Model to estimate the value of the EITC and CTC (Feenberg & Coutts, 1993).[8] I include income from refundable tax credits in the February following the tax year, based on administrative data showing over half of EITC refunds are paid in this month (LaLumia, 2013). Finally, I include the income of non-related household members, including

[7] SIPP respondents report the dollar value of monthly SNAP benefits. For WIC, respondents report WIC receipt, and Census provides an estimate of the monthly dollar value of the benefit based on program information from the Department of Agriculture. The amount used for 2009 was $42.41 per recipient (Short, 2014b).

[8] Using SIPP data, I estimate the filing status, annual earned income of the mother and spouse (if applicable), and the number and ages of dependents. For households where I do not observe the full tax year, I estimate annual income based on the average monthly earned income during the portion of the year that I do observe. Following Hoynes et al. (2012), I assign dependents to be the number of children (18 and under) in the household at the end of the tax year. Using this information, TAXSIM provides estimates of the amount of EITC and CTC the household is eligible for. This method may underestimate refundable tax credit income for households where another taxpayer in the household (a grandparent or the unmarried partner of the mother) claims the children as dependents to maximize credit amounts. Additionally, this method assumes 100 percent of eligible households receive these credits. This assumption should lead to only modest overestimates of tax credit income as most studies show take up of these credits is high, between 80-90 percent (Hotz & Scholz, 2003).

cohabiting partners. I divide this calculation of total household income by the federal poverty threshold, scaled up to account for the additional non-related individuals added to the resource-sharing unit. *Alternative income-to-needs* gives a more holistic account of household economic wellbeing, and provides insight into the extent to which near-cash public programs, refundable tax credits and income from unrelated household adults bolster economic wellbeing in the period around a birth.

The final measure of economic wellbeing, *gross household income*, is the numerator of *alternative income-to-needs*—total pre-tax money income, plus near-cash public program income, refundable tax credits and income from unrelated household members—unadjusted for the change in household size. Examining changes in gross household income in the period around a birth will provide evidence of the extent to which changes in the first two measures of household economic wellbeing are driven by changes in income or by the additional needs created by the increase in household size.

To explore changes in composition of household income around a birth I construct several additional outcome measures. *Mother's earnings* and *father's earnings* include monthly total wage, salary, and self-employment income. *Other adults' earnings* measures the total earned income of any household adults other than the parents of the newborn. *Public program income* sums the dollar value of major cash and near-cash safety net programs and refundable tax credits, again including tax credit income in February. *Child support* gives the monthly amount of child support and child support pass-through income received. The residual category, *other income*, captures all other sources of income reported by the household including investment and property income,

many forms of retirement income, income from private charities and from relatives or friends.

To estimate changes in households' relative reliance on each income source, I construct an additional series of outcome variables that divide each income source by *gross household income.* These measures put each source of income in the context of the actual household total, providing slightly different information than the level measures. The Appendix provides details on the sources of income included in each of the study dependent variables.

Independent variable. The main independent variable is the length of time before or after the birth, measured with a series of indicators for the birth month and each month in the year before and after the birth month.

Moderating factors: Socioeconomic status and household structure. Mother's educational attainment—measured with indicators for less than high school, high school, some college, and a bachelor's degree or above—serves as a proxy for household socioeconomic status. Household structure is measured with four dummy variables indicating if the mother is single (including never married, widowed, divorced, separated, and married, spouse absent) and living without other adults (18 and older); single and living with other adults; cohabiting; or married and living with her spouse. I identify a cohabiting household when the mother is single and the father of the focal child is present in the household, or when the mother is designated as the unmarried partner of the household reference person, or is designated as the household reference person, and an unmarried partner of the reference person is present in the household. Both educational attainment and household structure likely change for some women during the year before

and after a birth, and may be affected by pregnancy and birth. Because I conceptualize these factors as moderators, I restrict these variables to be fixed at the birth month value within each birth observation.

Analytic Approach

First, I present weighted mother and household characteristics in the birth month, for the full sample and for each subgroup. Next, I report the weighted mean of each study outcome in the month one year (12 months) prior to the birth month, which is used throughout the analysis as a pre-pregnancy baseline.

I address the first research question by estimating month-to-month changes in each of the three measures of household economic wellbeing in the year before and after the birth month. To facilitate comparisons across subgroups at different levels of economic wellbeing, I estimate the mean percent change in each economic wellbeing measure from the pre-pregnancy level. I adapt this method from a recent study of household income dynamics around divorce (Tach & Eads, 2015). I regress the log transformation of each outcome on the indicators for distance from the birth month, using the observation twelve months prior to the birth month as the reference category. Because some households have zero or negative values on the measures of economic wellbeing, and the log function is undefined for values at or below zero, I replace the outcome with $1 (or the numerator of the outcome with $1 in the case of *income-to-needs* and *alternative income-to*-needs) if it is equal to or below zero. I report sensitivity of study results alternate versions of the log transformation in the robustness checks section.[9]

[9] Negative values on income may be related to investment and self-employment income, are more likely among higher socioeconomic status individuals, and are often dropped in studies of low-income populations (see, for example, Shaefer & Edin, 2013). Research

To address the second research question, I document month-to-month changes in the composition of household income in the year before and after a birth. In these analyses, instead of the monthly percent change, I estimate the mean monthly level of each of the composition of household income outcomes (level and share of household income, by source). While the mean percent change is easier to interpret and increases the ability to compare across subgroups when assessing overall household economic wellbeing, estimates of the mean level of each outcome are more meaningful when assessing changes in composition of household income. I produce these estimates by regressing the level of each composition of household income outcome on the indicators for distance from the birth month, again with the month one year before the birth month as the excluded category.

The general form for the mean percent change models is given in equation (1) and the general form for the mean level models is given in equation (2):

$$(1) \qquad \ln (y_{it} + 1) = \alpha + \Sigma_{(-11, \ldots, 12)} \beta_t M_{it} + \gamma_t + SEAM_{it} + \varepsilon_{it}$$

$$(2) \qquad y_{it} = \alpha + \Sigma_{(-11, \ldots, 12)} \beta_t M_{it} + \gamma_t + SEAM_{it} + \varepsilon_{it}$$

where α is the intercept, M_{it} are the series of binary variables indicating each of the months from the month 11 months before the birth month to the month one year (12 months) following the birth month, γ_t is a year fixed effect, and $SEAM_{it}$ is an indicator for the reporting month. The year fixed effect controls for nationwide trends in the study outcomes over the study time period (1995-2013), and the indicator for the reporting

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suggests that while some zero income observations in survey data are cases of misreporting, many actually represent households with no income, of the types included in the measure (Nichols & Zimmerman, 2008). I provide more detail on experiences of zero and very low income around a birth in the robustness checks section.

month should reduce the influence of the seam issue in SIPP on study results (Ham et al., 2009).[10]

In equation (1), the coefficients on the month indicators, β_t, give estimates of the mean monthly percent change in each of the study outcomes relative to the pre-pregnancy baseline level. It is common to interpret the coefficients on binary independent variables in log dependent variable models as giving the percent change in the dependent variable as the indicator goes from zero to one. However, more precisely, the transformation ($100 \times [(e^{\beta})-1]$) gives the estimated percent change (Giles, 2011). Coefficients and standard errors in all tables and figures presenting results from equation (1) are transformed in this way, and can be interpreted as estimates of the mean percent change in each outcome, from the pre-pregnancy baseline. Coefficients on the month indicators in equation (2) estimate the mean level change in the outcome from the pre-pregnancy baseline. In figures reporting results from equation (2), I add the weighted mean of the outcome in the baseline month to each estimate to present the monthly mean of each outcome, adjusted for macro trends and the seam issue in SIPP. Results from equation (1) are reported in tables and as figures. Results from equation (2) are reported as figures, but are not reported in table form to conserve space. Full results tables are available by request.

[10] Supplementary analysis showed some differences by SIPP panel (indicating differences over time) in level of income from different sources. Fathers' earnings and gross household income are lower in the 1996 and 2008 panels than in the 2001 and 2004 panels. Mothers' earnings are lower and more responsive to birth in 1996 and 2001 panels than in the later panels, and public program income is higher in the 2008 panel than in the three earlier panels. These differences are likely explained by changes in macroeconomic context, public policies, and norms around employment of mothers of young children. Although beyond the scope of this study, future research should explore changes over time in the dynamics of household economic wellbeing and composition of household income around a birth. In all multivariate analyses presented in this paper, year fixed effects remove level trends in the outcome variables.

Standard criteria for statistical significance of OLS regression coefficients provide tests of significant changes in each outcome relative to the month one year before the birth month. In all multivariate models, standard errors are clustered at the state level, which accounts for the complex survey design as well as the fact that households with more than one birth during SIPP data collection appear in the data as separate household-birth observations. All analyses are weighted with SIPP household weights constructed by Census to account for oversampling and attrition (U.S. Census Bureau, 2001).

To assess whether results vary by socioeconomic status and household structure, I first conduct the described analyses for the full sample, then estimate separate models for subsamples defined by mother's educational attainment and household structure. I test for significant differences across subgroups by pooling the data and including interactions between the month indicators and the subgroup indicators. The t-statistics on the interactions test for significant differences in each monthly estimate, across the subgroups. In tests for significant differences by mother's educational attainment, high school is the reference category; and in tests for significant differences by household structure, married, spouse present is the reference category.

Results

Table 1 reports weighted estimates of mother and household characteristics in the birth month. SIPP provides a national sample. So as expected, the distribution mother's age, race and ethnicity, and birth order for the full sample are roughly similar to national estimates using vital statistics data over the same time period (Martin, Hamilton, Osterman, Curtin, & Matthews, 2015). The share of births to unmarried women (28.2 percent) is somewhat lower than expected given that vital statistics show the share of

births to unmarried women has risen from 32.2 percent in 1995 to 40.6 percent in 2013 (Martin et al., 2015). This discrepancy may be explained by differential rates of nonresponse and/or by study sample selection criteria. The most likely implication of the over-representation of married women in the study sample is that results may overestimate household economic wellbeing, particularly in the full sample, leading to more conservative estimates.

Table 1 also reports mother and household characteristics by subgroup. In households where the mother has lower levels of education, households tend to be larger and are more likely to include grandparents, and mothers are younger, less likely to be white, non-Hispanic and more likely to have a higher-order birth. In households where the mother is single and living with other adults, mothers are younger and a large majority (75 percent) live with parents. Single mothers are less likely that married and cohabiting mothers to be having a first birth, and single mothers living without other adults are disproportionately Black, non-Hispanic.

Household Economic Wellbeing

Table 2 gives the mean of the three measures of household economic wellbeing as well as the level and share of household income from each source in the month one year before the birth month. This month is used as a pre-pregnancy baseline in analyses of changes in households economic wellbeing around birth. Looking at the first two economic wellbeing measures, across all subgroup, *alternative income-to-needs* is higher than *income-to-needs*, showing that near-cash public program income, refundable tax credits, and earnings from unrelated household adults improve household economic wellbeing in the pre-pregnancy period. This improvement in economic wellbeing after

accounting for additional income sources is greater for less-advantaged households. Cohabiting households see the greatest percent increase in economic wellbeing after adding the additional income sources (61.6 percent increase from *income-to-needs* to *alternative income-to-needs*). This large gain is expected as, by definition, cohabiting households include unrelated adults. Also as expected, *gross household income* is highest for households where mothers have a bachelor's or greater and married-couple households, and lowest for households where mothers have less than a high school degree, and single mother households without other adults.

Income-to-needs. Tables 3-5 present the results of the regressions of the log transformation of each of the three measures of economic wellbeing on the month indicators, or equation (1). Figure 1 presents the same findings graphically. These results address the first research question by providing estimates of the mean monthly percent change in each measure of household economic wellbeing relative to pre-pregnancy levels. Table 3 and the first row of Figure 1 report results for *income-to-needs*.

On average, households experience significant declines in *income-to-needs* that begin three months before the birth month, reach the lowest levels—around 34 percent lower than the pre-pregnancy baseline—in the first and second months of the infant's life, and do not recover to pre-pregnancy levels in the year following the birth. Households where mothers have high educational attainment (some college, or bachelor's and above) experience declines in *income-to-needs* that start later in pregnancy and that are less severe in magnitude than households where mother's educational attainment is lower. Cohabiting households and single-mother households with no other adults experience major declines in *income-to-needs* around birth (roughly 85 and 65 percent declines from

pre-pregnancy to the birth month, respectively). These drops in economic wellbeing are significantly larger than declines experienced by married-couple households. Significant differences start during pregnancy and continue through the year following birth for cohabiting households, and through the infant's tenth month for single mothers living without other adults.

Alternative income-to-needs. Table 4 and the second row of Figure 1 report results for the second measure of household economic wellbeing, *alternative income-to-needs*, which adds income from near-cash public programs, refundable tax credits and unrelated household adults to the income-to-needs calculation. On average, all households experience significant declines in *alternative income-to-needs* from pre-pregnancy, starting in the month before the birth and without a full recovery by the end of the year following the birth. In the full sample, declines start later in the pregnancy and are smaller in magnitude compared to declines in *income-to-needs*, suggesting that these additional sources of income, on average, buffer declines in economic wellbeing associated with a birth. Subgroup differences are also attenuated and become insignificant, except for the finding that households where the mother has a bachelor's degree or above experience significantly larger declines in *alternative income-to-needs* in the fourth through eight months following the birth month compared to households with lower-educated mothers. This finding suggests the additional income sources primarily benefit less-advantaged households. Similarly, the dramatic declines in economic wellbeing among households where the mother is cohabiting or single and living alone become much smaller in magnitude, although still significant, after accounting for income from near-cash public programs, refundable tax credits, and unrelated household

adults. Among married-couple households, declines are similar in magnitude using both the *income-to-needs* and the *alternative income-to-needs* outcomes.

Gross household income. Table 5 and the last row of Figure 1 report results for the final measure of household economic wellbeing, *gross household income*, which measures total household income without accounting for the higher demands on resources associated with the increase in household size. On average, *gross household income* falls around the birth month. Significant declines from the pre-pregnancy baseline begin two months before the birth and reach a maximum of 10.4 percent lower than pre-pregnancy levels in the birth month. By the fourth month following the birth month the difference in *gross household income* from pre-pregnancy levels becomes insignificant. The smaller but still significant declines in economic wellbeing using this measure suggest that some of the reduction in *income-to-needs* and *alternative income-to-needs* following birth is attributable to increased household size, but that households do experience significant declines in available resources in the months around the birth.

Point estimates of percent change in gross household income from pre-pregnancy to the birth month suggest households with very low and very high levels of education experience the largest percent reductions in *gross household income* around a birth. Percent declines in *gross household income* are significantly larger for cohabiting households in the early months of pregnancy compared to married-couple households. Results show mothers who are single and living with no other adults experience large declines in *gross household income*, starting during pregnancy and reaching a low of 41.8 percent below pre-pregnancy levels in the birth month.

Composition of Household Income

Level of income by source. Table 2 reports the weighted mean level of each income source in the month one year before the birth month for the full sample and for each subgroup. Higher mother's educational attainment is associated with higher pre-pregnancy earnings for both mothers and fathers. In cohabiting households, father's pre-pregnancy earnings (mean = $1,586) are higher than mother's earnings but much lower than father's earnings in married-couple households (mean = $4,376). Higher mother's educational attainment is associated with lower income from other household adults' earnings and public programs and higher levels of other income. Income from each of these three sources is highest in households where the mother is single and living with other adults. Child support income is low overall in the pre-pregnancy month, but highest for households where the mother is single and living along or cohabiting (mean = $83, $69, respectively), and in households where the mother has a high school degree (mean = $47).

Figures 2a-2c report the mean level of income from each source, in each of the months in the year before and after the birth month, estimated using equation (2). These results address the second research question, providing insight into how the composition of household income changes in the time around a birth. In the full sample (Table 2a), women's earnings decline throughout pregnancy and reach the lowest point in the month following the birth month. In the third month after the birth month, mother's earnings, on average, begin to rise, but remain lower than the pre-pregnancy level a full year following the birth month. Father's earnings, on average, increase steadily throughout the two years around the birth, but with small declines in the birth month and the three months following the birth month. Income from other household adults' earnings declines

steadily. On average, public program income increases significantly in the birth month, and peaks in the infants' fifth month. Child support income increases steadily starting in the birth month, but changes are small and insignificant in the full sample. Other income rises slowly through the pregnancy, peaks around the birth, returns to pre-pregnancy levels by the year following the birth.

Results suggest that changes in the composition of household income around a birth differ by socioeconomic status (Figure 2b) and household structure (Figure 2c). Households where the mother has under a high school education see levels of mother's earnings fall earlier in pregnancy but recover sooner and more thoroughly following birth. When compared to married mothers, the earnings of both single-mother subgroups decline later in pregnancy and recover faster following birth. Unlike in the other educational attainment subgroups, in households where mothers have a high school education, father's earnings do not decline around birth. The increase in father's earnings during pregnancy is particularly steep in households where the mother is cohabiting, and other adults' earnings decline to the birth month in households where mothers are single and living alone. Because household structure is measured in the birth month, these patterns suggest changes in household structure during pregnancy. Increases in public program income are largest in magnitude and longest lasting in households where mother's educational attainment is high school, and in households where the mother is single and living without other adults. Only single mothers see significant increases in child support income following a birth.

Share of income by source. The final rows of Table 2 give the weighted mean of the share of each income source, relative to gross household income, at the pre-pregnancy

baseline. Figures 3a-3c present the monthly mean share provided by each income source in the year before and after a birth. These analyses put each income source in the context of household total and give additional insight into changes in the composition of household income around a birth. In the full sample (Figure 3a), mother's share of gross household income decreases more than the level of mother's earnings, and father's share increases more. The contribution to household income of public programs and the increasing importance of this income following the birth is considerably higher than the results for the level of income by source (Figure 2a) suggest. Notably, these patterns of differences in results between the share and the level results is similar across subgroups (Figures 3b-3c). Increases in the gap between mother's and father's share of household income following a birth are similar in magnitude across mother's educational attainment. However, the gap increases slightly more in households where mother's educational attainment is less than high school, and slightly less for households where mothers have some college but less than a bachelor's degree. Among single-mother households with no other adults, public program income surpasses mother's earnings as the largest contributor to household income in mid-pregnancy, and contributes over half of gross household income in the birth month.

Robustness Checks

The findings described above are substantively unchanged in specifications that remove year fixed effects, that include state fixed effects, that drop negative income observations, and that use versions of the mother's educational attainment and household structure variables measured at the month level (in the preferred specification these variables are fixed at the birth month value). To assess the sensitivity of findings to data

imputation in SIPP, I re-estimate results excluding births with over 30 percent of monthly observations with any imputed household earnings data. Dropping these cases had few substantive effects on findings. Changes that did occur were attributable to the fact that households with a high percentage of imputed earnings data are also more likely to be disadvantaged on observable demographic characteristics.

To test robustness to treatment of zero income cases I re-estimate study results using two alternative versions of the log transformation: setting zero and negative income observations to $500, and then to the 10^{th} percentile of the outcome. Both alternative transformations attenuate post-birth declines in economic wellbeing and reduce subgroup differences. These results suggest that zero and negative income observations do not wholly drive study findings, but do have some influence. To allow these cases to contribute to results, I prefer the specification that replaces zero and negative income observations with $1.

Supplementary analyses suggest that experiences of zero and very low income around a birth are common, and can be protracted. Among the full sample, about 4.5 percent of household-birth-month observations have zero income (0.6 percent after accounting for near-cash public program income, refundable tax credits and income from unrelated household adults). Observations with very low income (defined as less than 25 percent of the FPL, or under 0.25 on the study *income-to-needs* outcome) are more common (Table 6). The likelihood of experiencing zero or very low income around a birth is related to socioeconomic status and household structure in the expected directions (Table 6), and risk is elevated in the months around the birth (Figure 4). If spells of zero or very low income around a birth are brief, they may be less worrisome. However, for

households that experience zero income in the birth month, the mean length of the zero income spell is over six months. Spells are shorter after adding near-cash public program income, refundable tax credits and income from unrelated household adults, but spells of very low income that encompass the birth month tend to be longer than spells of zero income (Table 7).

Discussion and Conclusions

This study documents the dynamics of household economic wellbeing and the composition of household income in the year before and after a birth among a nationally-representative sample of U.S. households. Subgroup analyses explore differences by socioeconomic status and household structure. Results show that, on average, households experience significant declines in economic wellbeing—measured as income as a percent of the FPL—in the time around a birth. Declines in economic wellbeing are smaller in magnitude but still significant after adding income sources not included in the official poverty measure: near-cash public programs, refundable tax credits and income from unrelated household adults. Declines in gross household income, unadjusted for the increased resource needs associated with the arrival of a baby, are smaller and less long-lasting, but still significant. After adding the additional income sources, I show few significant differences in percent change in economic wellbeing by mother's educational attainment. However, I find that single mothers who live without other adults face particularly large declines in economic wellbeing around a birth, by all measures.

These findings are in line with U.S. research suggesting a relationship between the birth of a child and economic insecurity (Angrist & Evans, 1998; Bane & Ellwood, 1986; Caceres-Delpiano & Simonsen, 2012; McKernan & Ratcliffe, 2005; Stevens, 2012)

and with European studies showing significant pre- to post-birth drops in measures of household income that adjust for household size (Aassve et al., 2005; Bould et al., 2012; Sigle-Rushton & Waldfogel, 2007). However, in European countries unadjusted household income tends to rise following a birth (Bould et al., 2012). In contrast, I find significant declines in gross household income around a birth. Differences in the generosity of public programs serving families with young children likely explain variation in results across contexts.

Results documenting changes in the composition of household income in the year before and after birth conform to expectations based on theory and previous research. I find women's earnings fall around a birth. In households where fathers are present, men's earnings rise, and the growing gap between mother's and father's earnings is larger when measured as share of household income than when measured as levels of each income source. These findings are in line with prior research on men and women's employment, work and wages following a birth, as well as with economic and sociological theories predicting an increase in gender specialization in work following a birth (Becker, 1985; Charles, et al., 2001; Joesch, 1994; Lundberg & Rose, 2000).

I began with ambiguous predictions for how these changes in parents' earnings around birth would differ by socioeconomic status and household structure. Results suggest low-educated new mothers' earnings fall earlier in pregnancy, consistent with existing research showing an association between low levels of education and earlier work exits and higher likelihood of quitting a job during pregnancy (Han et al., 2008; Laughlin, 2011). Results also show earnings among low-educated and single mothers begin to recover more quickly following birth, suggesting these mothers may be

motivated by financial pressures to return to work shortly following birth. I find minimal subgroup differences in the extent to which mother's and father's contributions to household income diverge around birth.

In line with expectations, I find public programs and other household adults make significant contributions to household income around birth among less-advantaged households. Public program income increases following birth, and makes up a particularly large share of household income among single mothers living without other adults. Income from other household adults decreases through the study time period among all subgroups, suggesting pregnancy and birth lead parents to prefer to live without other adults, or other household adults reduce work to help with childcare.

This study has several limitations. First, all study results present average outcomes. Subgroup analyses provide some information on the heterogeneity of household financial circumstances around a birth. However, even within subgroups I estimate average effects, which limits the ability to document the range of households' experiences. Next, in the analysis of economic wellbeing around birth, percent changes are used to increase the ability to compare the magnitude of declines across subgroups at very different income levels. While the percent change analysis has this advantage, it is also possible that a change in economic wellbeing of the same percent magnitude may have different meanings for households at different levels of economic wellbeing.

A related limitation is that this study uses only cash and near-cash income to measure household economic wellbeing. In more-advantaged households, assets and savings may buffer changes in cash and near-cash income around a birth, and in less-advantaged households in-kind benefits such as subsidized housing and public medical

insurance may play a similar role. Future research should consider the contribution of these resources to household economic wellbeing in the time around a birth. Finally, this study is limited by its descriptive nature. Although theory suggests potential mechanisms, the analysis does not provide evidence of what drives the changes in economic wellbeing and composition of household income documented in this study. Future research should consider what factors help explain the likelihood, magnitude and duration of declines in household economic wellbeing around a birth.

Despite these limitations, this study provides valuable new information on households' economic circumstances around a birth, showing evidence of average declines in economic wellbeing and decreases in women's share of household income around a birth. These changes have implications for child health and development as well as for women's economic security and equality (Lundberg & Pollack, 2007; Sayer & Bianchi, 2000; Wagmiller, et al., 2006).

Many U.S. social safety net programs serve households with young children based on both moral and economic arguments for investing in children's development (see, for example, Heckman, 2006 and Waldfogel, 2010). The economic arguments for investing during this period of life are based on strong empirical evidence that economic circumstances during childhood are associated with cognitive, health, and behavioral development, and with long-term effects on school achievement and economic success in adulthood (Duncan, et al., 2010; Wagmiller, et al., 2006). This study suggests that existing social safety net programs help buffer declines in overall economic wellbeing around birth, but could do more. Increases in the generosity of these programs, particularly for households with very young children, could boost economic wellbeing in

this critical period. Timeliness may also be an issue. Households may not receive benefits disbursed once a year during tax time (the EITC and CTC) until well after the birth. A child benefit policy, common in other industrial nations, could provide more timely income support. Additionally, policies supporting mothers' employment such as paid family leave and childcare subsidies could increase both women's contributions to household income and overall household economic wellbeing around a birth (Blau, 2003; Waldfogel, 2009). This study expands the knowledgebase available to researchers, practitioners and policy makers interested in understanding and improving economic wellbeing during the critical time around a birth.

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Table 1. Mother and Household Characteristics in Birth Month, by Mother's Educational Attainment and Household Structure

		Mother's educational attainment				Household structure			
	Full sample	Less than HS	HS	Some college	BA or above	Single, no other adults	Single, with other adults	Co-habiting	Married, spouse present
Proportion of full sample	1.00	0.153	0.237	0.300	0.310	0.090	0.102	0.091	0.718
Mother characteristics									
Age (in years)	28.33	24.44	26.43	28.24	31.79	27.07	21.91	25.44	29.77
White, non-Hispanic	0.635	0.356	0.565	0.664	0.797	0.37	0.37	0.60	0.71
Black, non-Hispanic	0.118	0.152	0.157	0.135	0.053	0.43	0.32	0.10	0.05
Hispanic	0.181	0.444	0.219	0.144	0.058	0.14	0.25	0.25	0.17
Other race/ethnicity	0.067	0.048	0.059	0.057	0.091	0.06	0.06	0.05	0.07
First birth	0.333	0.207	0.284	0.336	0.429	0.23	0.16	0.58	0.34
Second birth	0.347	0.263	0.339	0.369	0.373	0.33	0.30	0.22	0.37
Third or higher birth	0.321	0.530	0.376	0.296	0.198	0.44	0.55	0.20	0.29
Household characteristics									
Total number of persons	3.67	4.44	3.87	3.56	3.25	2.77	4.72	3.71	3.63
Number of other adults (18+)	0.34	0.78	0.50	0.27	0.07	0.00	1.94	0.34	0.15
Mother's mother present	0.09	0.22	0.14	0.07	0.02	0.00	0.75	0.04	0.02
Mother's father present	0.05	0.11	0.08	0.05	0.01	0.00	0.40	0.02	0.01
N	11,615	1,928	2,906	3,451	3,330	1,009	1,382	1,145	8,079

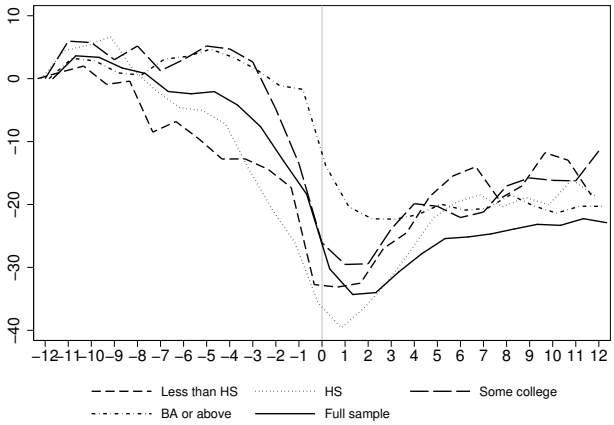
Notes. Means (continuous variables) and proportions (dichotomous variables) are weighted using SIPP household weights. Number of observations is unweighted. Other adults include all household members 18 and over other than the focal child's mother and father.

Table 2. Mean Pre-Pregnancy Outcome (12 Months before Birth Month), by Mother's Educational Attainment and Household Structure

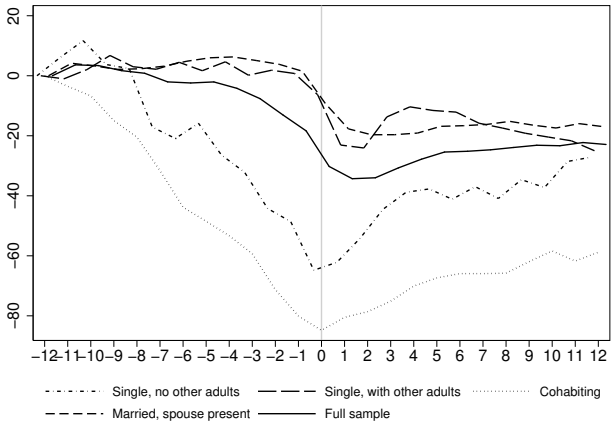
		Mother's educational attainment				Household structure			
	Full sample	Less than HS	HS	Some college	BA or above	Single, no other adults	Single, with other adults	Co-habiting	Married, spouse present
Measures of economic wellbeing									
Income-to-needs	3.67	1.47	2.21	3.16	6.05	1.28	2.16	1.64	4.39
Alternative income-to-needs	3.87	1.75	2.47	3.38	6.14	1.51	2.36	2.65	4.49
Gross household income	6,318	3,566	4,444	5,578	9,399	2,357	4,714	4,540	7,205
Composition of household income, level									
Mother’s earnings	1,873	396	1,061	1,585	3,302	1,078	684	1,275	2,199
Father’s earnings	3,331	1,158	1,807	2,952	5,611	37	4	1,586	4,376
Other household adults’ earnings	691	1,337	1,036	672	202	570	3,093	1,138	321
Public program income	255	551	361	221	87	498	650	387	157
Child support	33	32	47	45	13	83	55	69	20
Other income	135	92	130	104	184	92	228	87	133
Composition of household income, share									
Mother’s earnings	0.28	0.12	0.24	0.30	0.36	0.41	0.13	0.29	0.28
Father’s earnings	0.46	0.28	0.39	0.47	0.57	0.01	0.00	0.32	0.59
Other household adults’ earnings	0.11	0.28	0.17	0.09	0.02	0.11	0.56	0.18	0.04
Public program income	0.10	0.26	0.15	0.09	0.02	0.36	0.23	0.16	0.05
Child support	0.01	0.02	0.02	0.02	0.00	0.06	0.02	0.02	0.00
Other income	0.03	0.03	0.03	0.02	0.03	0.03	0.04	0.02	0.03
N	6,744	1,064	1,580	2,002	2,098	604	775	575	4,790

Notes. Dollar amounts are monthly and expressed in 2013 dollars. Means are weighted using SIPP household weights. Number of observations is unweighted. Father’s earnings (other household adults' earnings) are non-zero in single (single, no other adults) subgroups because household structure is defined in the birth month and statistics in table are reported in the month 12 months before the birth month, when household structure may have been different.

Figure 1: Mean Percent Change in Economic Wellbeing from Pre-Pregnancy Level, by Distance from Birth Month



Income-to-needs



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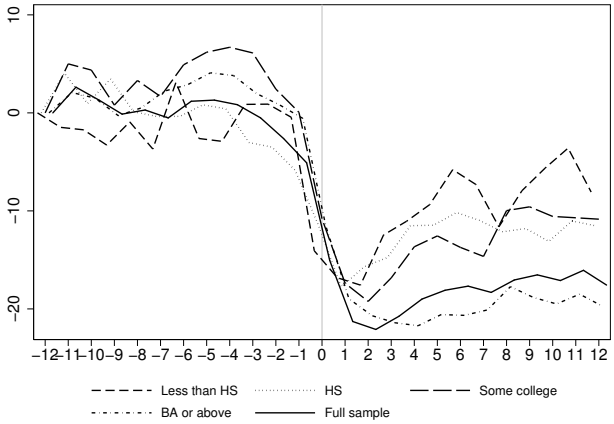
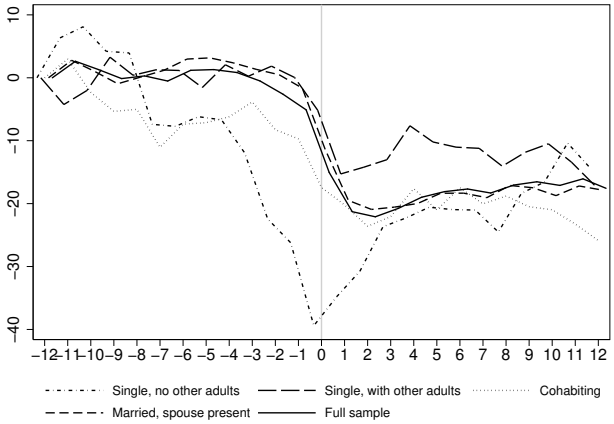
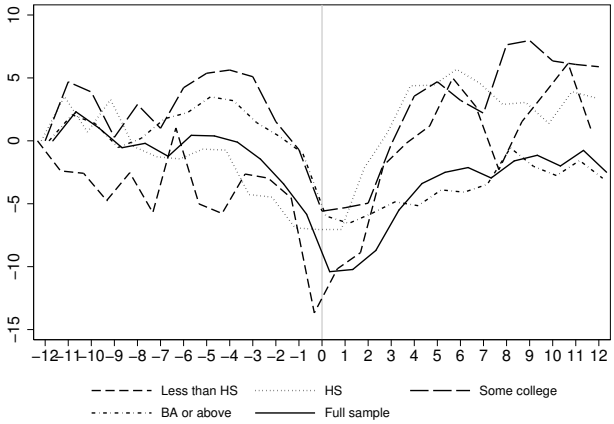


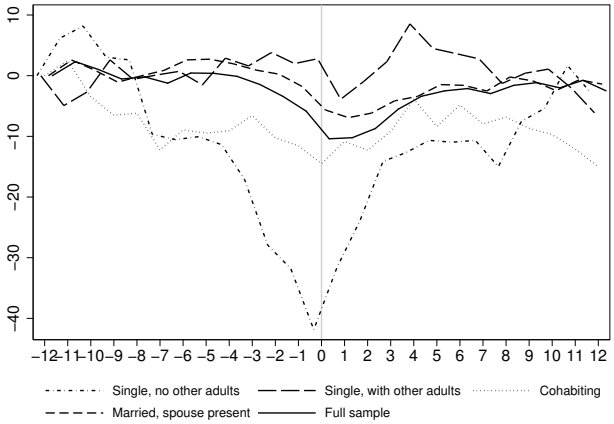
Alternative Income-to-needs



Alternative Income-to-needs



Gross household income



Gross household income

Notes. Figures display coefficients from equation (1) in text, reported in Tables 3-5, and can be interpreted as the mean percent change in the outcome from pre-pregnancy level (measured in the month one year before the birth month). The measure of economic wellbeing used is listed below each sub-figure. Details of the specification included in text.

Table 3. Mean Percent Change in Income-to-Needs from Pre-Pregnancy Level, by Distance from Birth Month

		Mother's educational attainment				Household structure			
	Full sample	Less than HS	HS	Some college	BA or above	Single, no other adults	Single, with other adults	Cohabiting	Married, spouse present
-11	3.63**	1.02	4.47	5.96***	3.24*	6.05	-1.03	-3.53	4.16**
	(1.59)	(6.13)	(3.88)	(2.18)	(1.94)	(8.55)	(5.18)	(5.58)	(1.66)
-10	3.39**	2.00	5.28	5.74**	2.82	11.70	2.06	-6.71	3.25*
	(1.61)	(6.14)	(5.38)	(2.52)	(2.46)	(9.63)	(5.59)	(9.48)	(1.73)
-9	1.70	-0.91	6.66	3.01	0.91	3.75	6.75	-14.95	2.13
	(2.33)	(7.15)	(6.06)	(5.02)	(2.29)	(11.31)	(6.27)	(10.30)	(2.25)
-8	0.83	-0.39	1.39	5.19	0.57	2.39	3.01	-20.45**	2.33
	(2.36)	(8.69)	(5.57)	(4.94)	(2.92)	(11.33)	(6.46)	(10.21)	(2.27)
-7	-2.04	-8.50	-1.99	1.26	3.11	-17.11*	2.16	**-31.63*** **	3.18
	(2.41)	(8.58)	(5.06)	(4.76)	(2.69)	(9.93)	(5.73)	**(9.22)**	(2.28)
-6	-2.41	-6.82	-4.63	3.03	3.54	-20.90**	4.47	**-43.80*** **	4.85**
	(2.57)	(9.28)	(4.78)	(4.82)	(3.13)	(9.71)	(6.93)	**(8.10)**	(2.44)
-5	-2.06	-9.59	-5.07	5.19	4.68*	-15.85	1.68	**-48.52*** **	5.99**
	(2.40)	(8.30)	(4.62)	(4.73)	(2.80)	(11.08)	(6.68)	**(6.57)**	(2.58)
-4	-4.18*	-12.77	-7.26	4.72	3.38	**-26.44*** **	4.65	**-53.32*** **	6.28**
	(2.29)	(8.28)	(4.65)	(4.35)	(2.82)	**(9.88)**	(8.30)	**(6.30)**	(2.48)
-3	-7.62***	-12.76	-14.41***	**2.64**	**1.43**	**-32.17*** **	0.19	**-59.30*** **	5.09**
	(2.25)	(8.75)	(4.55)	**(3.81)**	**(2.84)**	**(8.56)**	(7.28)	**(5.27)**	(2.16)
-2	-13.08***	-14.42*	-20.75***	**-4.85**	**-1.12**	**-44.25*** **	1.84	**-71.27*** **	3.81*
	(1.95)	(7.77)	(3.80)	**(3.28)**	**(2.74)**	**(8.23)**	(7.83)	**(3.64)**	(2.26)
-1	-18.36***	-17.32***	-26.13***	**-13.51*** **	**-1.70**	**-48.61*** **	0.75	**-80.07*** **	1.52
	(1.96)	(6.46)	(4.00)	(3.50)	**(2.20)**	**(7.60)**	(7.28)	**(2.44)**	(2.64)
0	-30.23***	-32.73***	-35.63***	-26.10***	**-13.89*** **	**-64.81*** **	-6.33	**-84.83*** **	-9.24***
	(1.85)	(5.12)	(3.86)	(3.51)	**(1.98)**	**(5.56)**	(7.24)	**(1.72)**	(2.37)
1	-34.31***	-33.13***	-39.60***	-29.53***	**-20.39*** **	**-62.17*** **	-23.10***	**-80.51*** **	-17.70***
	(1.82)	(4.91)	(3.58)	(3.60)	**(1.63)**	**(5.85)**	(6.65)	**(2.33)**	(2.35)
2	-34.00***	-32.50***	-36.43***	-29.43***	**-22.28*** **	**-54.21*** **	-24.07***	**-78.62*** **	-19.66***
	(1.97)	(5.54)	(4.11)	(3.57)	**(1.65)**	**(6.29)**	(6.43)	**(2.99)**	(2.36)
3	-30.71***	-26.98***	-32.31***	-23.90***	**-22.34*** **	**-44.50*** **	-13.72**	**-75.11*** **	-19.64***
	(2.02)	(5.88)	(4.28)	(3.75)	**(1.86)**	**(6.73)**	(5.90)	**(3.43)**	(2.22)
4	-27.80***	-24.50***	-27.37***	-19.87***	-21.60***	**-38.82*** **	-10.37*	**-70.09*** **	-19.09***
	(2.13)	(6.44)	(4.59)	(4.03)	(2.08)	**(7.66)**	(6.18)	**(3.98)**	(2.37)
5	-25.42***	-18.74***	-22.10***	-20.29***	-19.95***	**-37.71*** **	-11.57*	**-67.36*** **	-16.85***
	(2.41)	(6.69)	(4.63)	(4.21)	(1.89)	**(7.99)**	(6.51)	**(4.11)**	(2.45)
6	-25.16***	-15.48**	-19.63***	-22.07***	-20.90***	**-41.14*** **	-12.11*	**-65.94*** **	-16.63***
	(2.16)	(7.81)	(4.35)	(3.98)	(2.35)	**(6.71)**	(6.66)	**(4.42)**	(2.29)
7	-24.67***	-14.00	-18.48***	-21.21***	-20.61***	**-36.97*** **	-15.83**	**-65.94*** **	-16.22***
	(2.57)	(9.03)	(4.91)	(4.36)	(2.11)	**(7.69)**	(7.59)	**(4.35)**	(2.70)
8	-23.89***	-19.17**	-20.35***	-17.06***	-18.46***	**-40.90*** **	-17.41**	**-65.79*** **	-15.20***
	(2.63)	(8.85)	(5.12)	(3.90)	(2.23)	**(8.90)**	(8.11)	**(5.06)**	(2.75)
9	-23.16***	-17.06**	-18.90***	-15.78***	-20.21***	**-34.62*** **	-19.16**	**-61.95*** **	-16.46***
	(2.79)	(8.39)	(5.80)	(4.15)	(1.94)	**(9.54)**	(8.56)	**(5.82)**	(2.91)
10	-23.32***	-11.78	-20.05***	-16.17***	-21.37***	**-37.25*** **	-20.43**	**-58.39*** **	-17.41***
	(2.46)	(8.72)	(5.64)	(3.44)	(2.29)	**(9.79)**	(8.47)	**(6.64)**	(2.71)
11	-22.25***	-12.96*	-16.04***	-16.24***	-20.28***	-28.56***	-21.67**	**-61.75*** **	-15.95***
	(2.57)	(7.66)	(5.61)	(4.49)	(2.32)	(10.92)	(9.41)	**(6.72)**	(2.84)
12	-22.90***	-18.49**	-18.59***	-11.49**	-20.29***	-27.16**	-24.99**	**-58.83*** **	-16.92***
	(2.85)	(8.07)	(5.89)	(5.30)	(2.30)	(12.04)	(10.73)	**(7.09)**	(2.82)
N	226,836	36,713	55,614	67,548	66,961	19,415	25,885	20,777	160,759

Notes. Table reports coefficients from equation (1) in the text. Bold indicates significant difference from high school (mother's educational attainment) or married, spouse present (household structure) at $p < 0.05$ level. Analyses are weighted using SIPP household weights. Standard errors are clustered at the state level. All models include year fixed effects and an indicator for the reporting month. Coefficients and standard errors are transformed as described in the text.
*** p<0.01, ** p<0.05, * p<0.1

Table 4. Mean Percent Change in Alternative Income-to-Needs from Pre-Pregnancy Level, by Distance from Birth Month

		Mother's educational attainment				Household structure			
	Full sample	Less than HS	HS	Some college	BA or above	Single, no other adults	Single, with other adults	Cohabiting	Married, spouse present
-11	2.62**	-1.48	4.07	5.00***	2.08	6.34	-4.25	2.98	2.78*
	(1.09)	(3.03)	(3.03)	(1.86)	(1.90)	(5.34)	(3.21)	(2.45)	(1.47)
-10	1.30	-1.73	0.95	4.37**	1.50	8.11	-2.02	-2.32	1.02
	(1.25)	(3.64)	(3.38)	(1.96)	(2.35)	(5.22)	(4.98)	(4.16)	(1.69)
-9	-0.13	-3.28	3.46	0.79	-0.28	4.21	3.27	-5.34	-0.95
	(1.95)	(4.39)	(3.89)	(4.02)	(1.92)	(6.89)	(5.43)	(5.53)	(2.12)
-8	0.29	-0.92	0.11	3.30	0.51	3.95	0.40	-5.01	0.12
	(2.12)	(4.81)	(3.56)	(4.30)	(2.72)	(7.81)	(6.33)	(4.58)	(2.26)
-7	-0.52	-3.69	-0.37	1.67	2.22	-7.40	1.27	-11.05*	1.18
	(2.03)	(4.81)	(3.28)	(4.27)	(2.59)	(6.22)	(5.81)	(5.81)	(1.92)
-6	1.19	3.11	-0.36	4.91	2.87	-7.72	1.16	-7.38	2.97
	(2.19)	(6.08)	(3.19)	(4.16)	(3.37)	(7.67)	(5.91)	(4.86)	(2.16)
-5	1.30	-2.61	0.82	6.19	4.09	-6.19	-1.55	**-7.14***	3.16
	(2.16)	(5.29)	(3.39)	(4.60)	(3.27)	(7.51)	(4.83)	**(3.79)**	(2.16)
-4	0.83	-2.90	0.42	6.69	3.81	-6.68	2.07	-6.19	2.38
	(2.11)	(4.60)	(3.77)	(4.21)	(3.06)	(6.63)	(5.89)	(4.70)	(2.06)
-3	-0.50	0.86	-3.03	6.11	1.97	-11.92*	0.25	-3.84	1.35
	(1.86)	(4.89)	(3.47)	(3.79)	(2.86)	(6.66)	(5.62)	(4.80)	(1.93)
-2	-2.62	0.89	-3.49	2.43	0.81	**-22.42*****	1.84	-8.25*	0.48
	(1.82)	(4.84)	(3.08)	(3.62)	(2.88)	**(6.36)**	(5.59)	(4.65)	(2.04)
-1	-5.09***	-0.45	-5.85	0.06	-0.56	**-26.23*****	0.05	-9.71*	-1.64
	(1.94)	(4.65)	(3.64)	(4.07)	(2.40)	**(5.83)**	(5.29)	(5.64)	(2.17)
0	-15.05***	-14.08***	-11.39***	-10.80***	-11.55***	**-39.40*****	-5.15	-17.45***	-11.45***
	(1.87)	(3.86)	(3.27)	(3.62)	(2.03)	**(5.31)**	(4.65)	(5.57)	(1.97)
1	-21.28***	-16.82***	-17.77***	-17.38***	-18.96***	**-34.77*****	-15.28***	-20.21***	-19.49***
	(1.80)	(3.96)	(2.95)	(3.73)	(1.74)	**(5.84)**	(3.66)	(4.87)	(2.06)
2	-22.09***	-17.57***	-15.69***	-19.23***	-20.69***	**-30.73*****	-14.21***	-23.61***	-20.93***
	(1.76)	(3.66)	(3.03)	(3.54)	(1.72)	(6.14)	(3.94)	(4.74)	(1.87)
3	-20.76***	-12.46***	-14.77***	-16.84***	-21.41***	-23.67***	**-13.02*****	-22.07***	-20.56***
	(1.76)	(3.55)	(3.22)	(3.77)	(1.80)	(6.39)	**(3.93)**	(4.77)	(1.88)
4	-19.00***	-11.05***	-11.51***	-13.66***	**-21.72*****	-22.27***	**-7.63***	-17.63***	-19.98***
	(1.89)	(4.06)	(3.55)	(3.80)	**(2.10)**	(6.57)	**(4.34)**	(5.46)	(2.02)
5	-18.10***	-9.36**	-11.46***	-12.55***	**-20.58*****	-20.57***	-10.21**	-21.00***	-18.35***
	(2.08)	(4.28)	(3.45)	(4.06)	**(1.92)**	(6.47)	(4.76)	(5.51)	(2.15)
6	-17.68***	-5.80	-10.17***	-13.73***	**-20.66*****	-20.95***	-11.03**	-17.48***	-18.34***
	(1.93)	(4.75)	(3.18)	(3.94)	**(2.32)**	(6.03)	(4.95)	(4.79)	(2.01)
7	-18.32***	-7.30	-10.97***	-14.64***	**-20.11*****	-21.02***	-11.21**	-20.04***	-19.05***
	(2.31)	(5.42)	(3.25)	(4.25)	**(1.98)**	(6.01)	(4.85)	(5.01)	(2.23)
8	-17.05***	-11.62**	-12.13***	-9.97***	**-17.73*****	-24.51***	-14.06***	-18.80***	-17.12***
	(2.06)	(5.23)	(3.45)	(3.71)	**(1.98)**	(5.53)	(4.56)	(4.86)	(2.28)
9	-16.53***	-7.94	-11.80***	-9.58**	-18.83***	-18.37***	-11.84**	-20.49***	-17.48***
	(2.14)	(5.22)	(3.57)	(3.84)	(1.85)	(6.60)	(4.93)	(4.82)	(2.42)
10	-17.11***	-5.64	-13.11***	-10.57***	-19.49***	-16.57**	-10.49**	-20.98***	-18.73***
	(2.15)	(5.20)	(3.81)	(3.60)	(2.37)	(7.68)	(5.06)	(5.18)	(2.41)
11	-16.06***	-3.60	-11.03***	-10.70***	-18.49***	-10.37	-13.40**	-23.25***	-17.20***
	(2.17)	(5.00)	(3.83)	(4.14)	(2.33)	(8.69)	(5.64)	(5.54)	(2.43)
12	-17.57***	-8.08	-11.51***	-10.85**	-19.74***	-14.42*	-17.07***	-25.88***	-17.85***
	(2.27)	(5.46)	(3.62)	(4.43)	(2.07)	(8.54)	(6.36)	(5.66)	(2.41)
N	226,836	36,713	55,614	67,548	66,961	19,415	25,885	20,777	160,759

Notes. Table reports coefficients from equation (1) in the text. Bold indicates significant difference from high school (mother's educational attainment) or married, spouse present (household structure) at $p < 0.05$ level. Analyses are weighted using SIPP household weights. Standard errors are clustered at the state level. All models include year fixed effects and an indicator for the reporting month. Coefficients and standard errors are transformed as described in the text.

*** p<0.01, ** p<0.05, * p<0.1

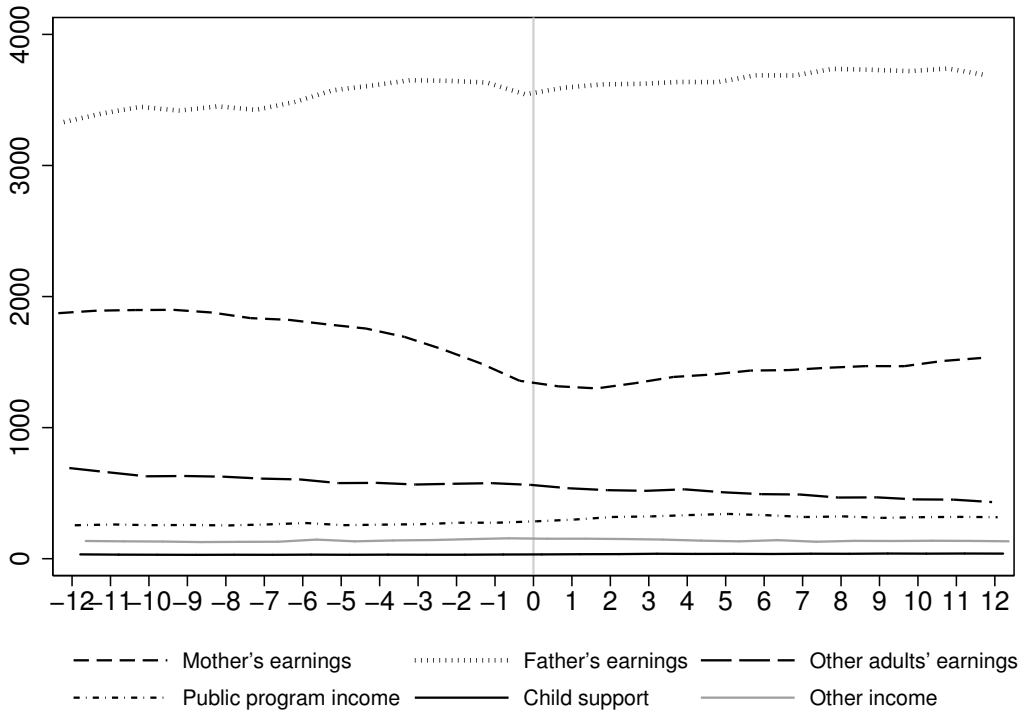
Table 5. Mean Percent Change in Gross Household Income from Pre-Pregnancy Level, by Distance from Birth Month

		Mother's educational attainment				Household structure			
	Full sample	Less than HS	HS	Some college	BA or above	Single, no other adults	Single, with other adults	Cohabiting	Married, spouse present
-11	2.31**	-2.39	3.53	4.69**	2.07	6.19	-4.93	2.52	2.58*
	(1.07)	(3.17)	(3.26)	(1.85)	(1.93)	(5.59)	(3.54)	(2.48)	(1.46)
-10	1.02	-2.58	0.70	3.88**	1.38	8.17	-2.70	-3.51	0.92
	(1.24)	(3.83)	(3.51)	(1.97)	(2.33)	(5.38)	(5.61)	(4.24)	(1.69)
-9	-0.55	-4.74	3.28	0.28	-0.53	3.05	2.59	-6.51	-1.07
	(1.95)	(4.58)	(4.05)	(4.12)	(1.93)	(6.66)	(5.96)	(5.51)	(2.17)
-8	-0.20	-2.54	-0.45	2.88	0.20	2.59	-0.60	-6.18	-0.05
	(2.16)	(5.04)	(3.72)	(4.43)	(2.74)	(8.00)	(6.75)	(4.87)	(2.29)
-7	-1.23	-5.70	-1.27	1.00	1.75	-9.67	0.10	**-12.23****	0.87
	(2.05)	(4.99)	(3.38)	(4.44)	(2.62)	(6.17)	(6.19)	**(5.68)**	(1.90)
-6	0.44	1.02	-1.44	4.22	2.24	-10.54	0.72	**-8.94***	2.60
	(2.20)	(6.11)	(3.35)	(4.31)	(3.42)	(7.67)	(6.36)	**(5.05)**	(2.13)
-5	0.39	-5.01	-0.66	5.37	3.50	-10.06	-1.53	**-9.46****	2.72
	(2.18)	(5.19)	(3.52)	(4.71)	(3.34)	(7.50)	(5.35)	**(3.88)**	(2.16)
-4	-0.10	-5.77	-0.74	5.63	3.19	-11.36*	2.88	**-9.07****	1.97
	(2.12)	(4.49)	(4.01)	(4.23)	(3.10)	(6.57)	(6.26)	**(4.37)**	(2.10)
-3	-1.46	-2.64	-4.27	5.10	1.45	**-17.11*****	1.61	-6.59	0.92
	(1.85)	(4.85)	(3.66)	(3.79)	(2.93)	**(6.62)**	(6.04)	(4.43)	(1.95)
-2	-3.42*	-2.96	-4.48	1.52	0.34	**-27.92*****	3.81	**-10.25****	0.24
	(1.81)	(4.76)	(3.19)	(3.65)	(2.95)	**(6.31)**	(5.96)	**(4.48)**	(2.08)
-1	-5.84***	-4.55	-6.91*	-0.71	-0.99	**-31.79*****	1.99	-11.53**	-1.79
	(1.88)	(4.77)	(3.71)	(4.03)	(2.39)	**(5.76)**	(5.84)	(5.88)	(2.15)
0	-10.40***	-13.68***	-7.05**	-5.59	-5.97***	**-41.84*****	2.79	-14.50**	-5.64***
	(1.90)	(4.33)	(3.58)	(3.83)	(2.20)	**(5.48)**	(5.41)	(6.15)	(2.06)
1	-10.23***	-10.17**	-7.05**	-5.31	-6.56***	**-31.65*****	-3.89	-10.83*	-6.92***
	(2.04)	(4.49)	(3.50)	(4.33)	(2.11)	**(6.53)**	(4.73)	(5.70)	(2.41)
2	-8.71***	-8.89**	-2.15	-4.96	-5.76***	**-23.89*****	-0.94	-12.30**	-6.17***
	(2.02)	(4.13)	(3.72)	(4.16)	(2.06)	**(7.32)**	(4.90)	(5.79)	(2.22)
3	-5.51***	-1.96	0.64	-0.29	-4.85**	-14.14*	2.30	-9.16	-4.16*
	(2.04)	(3.97)	(4.09)	(4.53)	(2.28)	(7.90)	(4.93)	(5.82)	(2.27)
4	-3.39	-0.17	4.37	3.55	-5.15**	-12.67	**8.53**	-3.85	-3.42
	(2.22)	(4.75)	(4.64)	(4.57)	(2.58)	(7.83)	**(5.52)**	(6.22)	(2.43)
5	-2.50	1.18	4.42	4.70	-3.90	-10.66	4.48	-8.36	-1.47
	(2.38)	(4.95)	(4.44)	(4.80)	(2.41)	(7.88)	(5.87)	(5.87)	(2.59)
6	-2.12	4.99	5.68	3.22	-4.08	-10.97	3.63	-4.83	-1.59
	(2.21)	(5.42)	(4.07)	(4.68)	(2.89)	(7.16)	(6.20)	(5.52)	(2.47)
7	-2.95	2.73	4.59	2.20	-3.46	-10.66	2.77	-7.96	-2.52
	(2.67)	(5.79)	(4.06)	(5.09)	(2.41)	(7.20)	(6.01)	(5.72)	(2.73)
8	-1.60	-2.29	2.89	7.63*	-0.56	**-14.99****	-1.28	-6.84	-0.22
	(2.36)	(5.95)	(4.22)	(4.35)	(2.46)	**(6.50)**	(5.68)	(5.49)	(2.80)
9	-1.15	1.53	3.05	7.97*	-2.03	-7.53	0.41	-8.68	-0.87
	(2.45)	(5.89)	(4.62)	(4.49)	(2.25)	(8.18)	(6.13)	(5.69)	(2.99)
10	-2.00	3.82	1.38	6.35	-2.76	-5.40	1.08	-9.71*	-2.46
	(2.46)	(6.05)	(5.03)	(4.21)	(2.88)	(9.38)	(6.06)	(5.83)	(2.92)
11	-0.76	6.15	3.90	6.07	-1.56	1.66	-2.05	-12.09*	-0.68
	(2.47)	(5.78)	(4.80)	(4.84)	(2.89)	(10.69)	(6.84)	(6.48)	(2.91)
12	-2.49	0.87	3.43	5.89	-2.98	-2.80	-6.13	-15.02**	-1.39
	(2.62)	(6.04)	(4.64)	(5.20)	(2.56)	(10.48)	(7.71)	(6.61)	(2.88)
N	226,836	36,713	55,614	67,548	66,961	19,415	25,885	20,777	160,759

Notes. Table reports coefficients from equation (1) in the text. Bold indicates significant difference from high school (mother's education) or married, spouse present (family type) at $p < 0.05$ level. Analyses are weighted using SIPP household weights. Standard errors are clustered at the state level. All models include year fixed effects and an indicator for the reporting month. Coefficients and standard errors are transformed as described in the text.

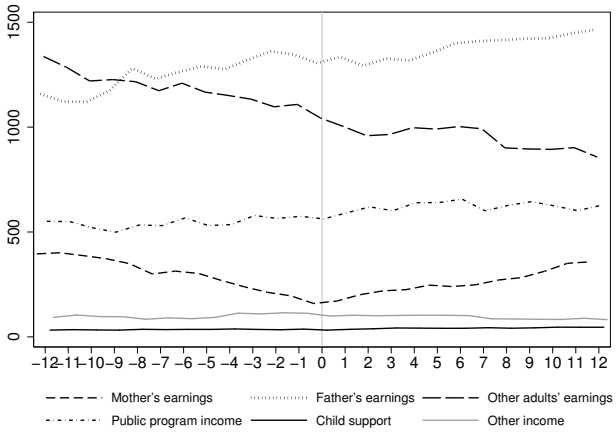
*** p<0.01, ** p<0.05, * p<0.1

Figure 2a: Level of Income, by Source and Distance from Birth Month, Full Sample

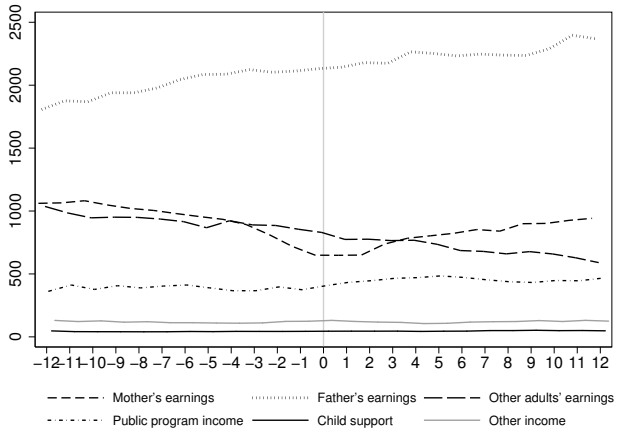


Notes. Figures display coefficients from equation (2) in text (added to the weighted mean of each income source in the month one year before the birth month and reported in tables A1a-A1f), and can be interpreted as the mean monthly level of each income source. All income expressed in 2013 dollars. Details of the specification included in text. Sample size: 226,836 (Full sample)

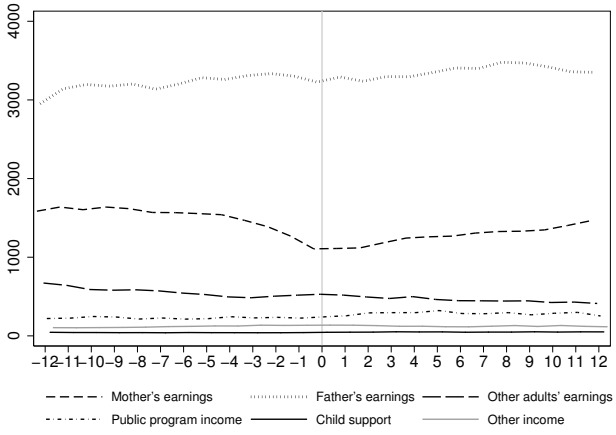
Figure 2b: Level of Income, by Source and Distance from Birth Month, Mother's Educational Attainment Subgroups



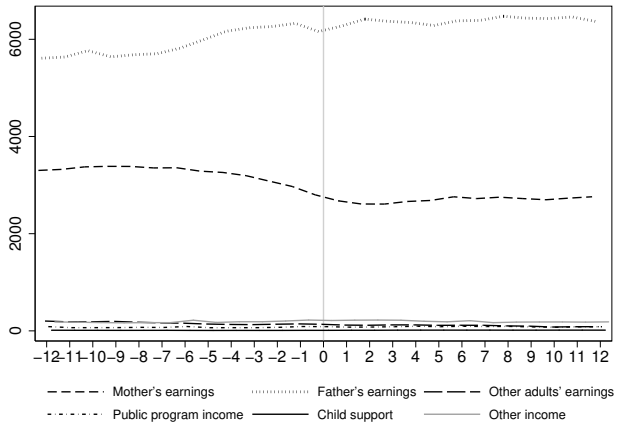
Less than high school



High school



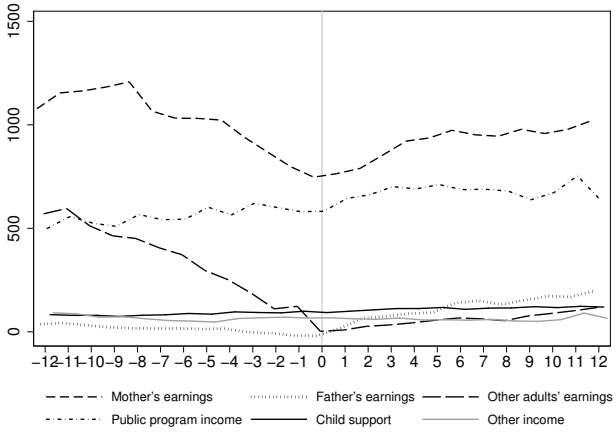
Some college



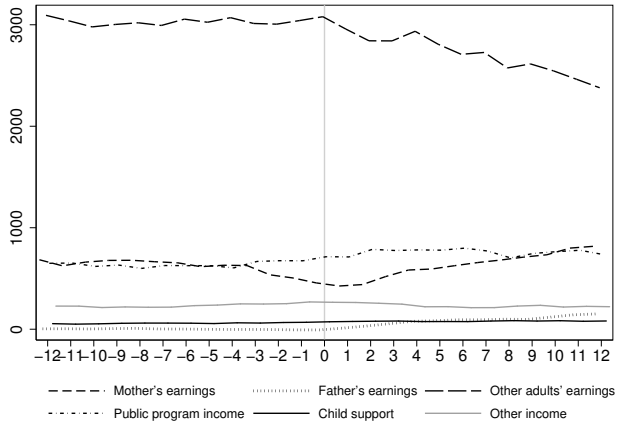
BA or above

Notes. Figures display coefficients from equation (2) in text (added to the weighted mean of each income source in the month one year before the birth month and reported in tables A1a-A1f), and can be interpreted as the mean monthly level of each income source. All income expressed in 2013 dollars. Sample listed below each sub-figure. Details of the specification included in text. Sample size: 36,713 (Less than HS); 55,614 (HS); 67,548 (Some college); 66,961 (BA or above)

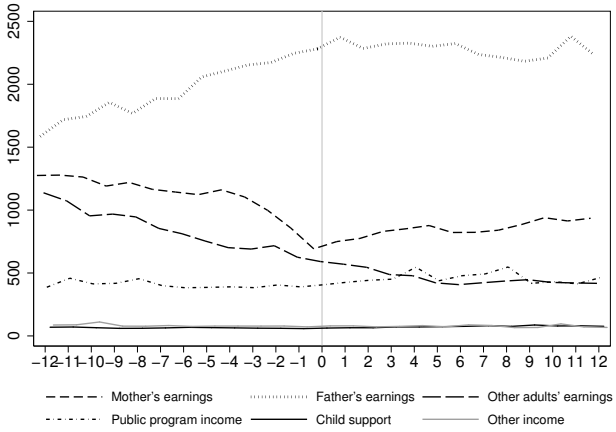
Figure 2c: Level of Income, by Source and Distance from Birth Month, Household Structure Subgroups



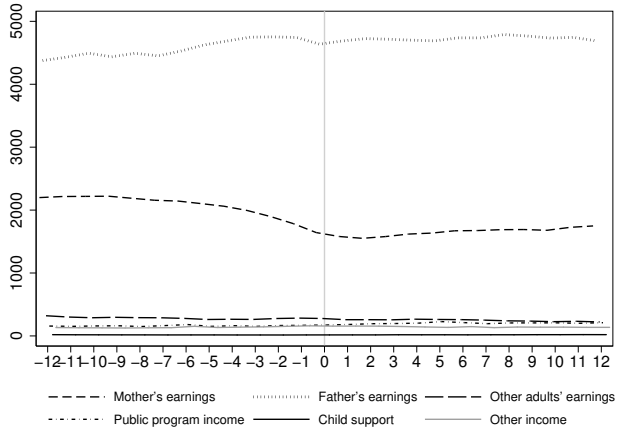
Single, no other adults



Single, with other adults



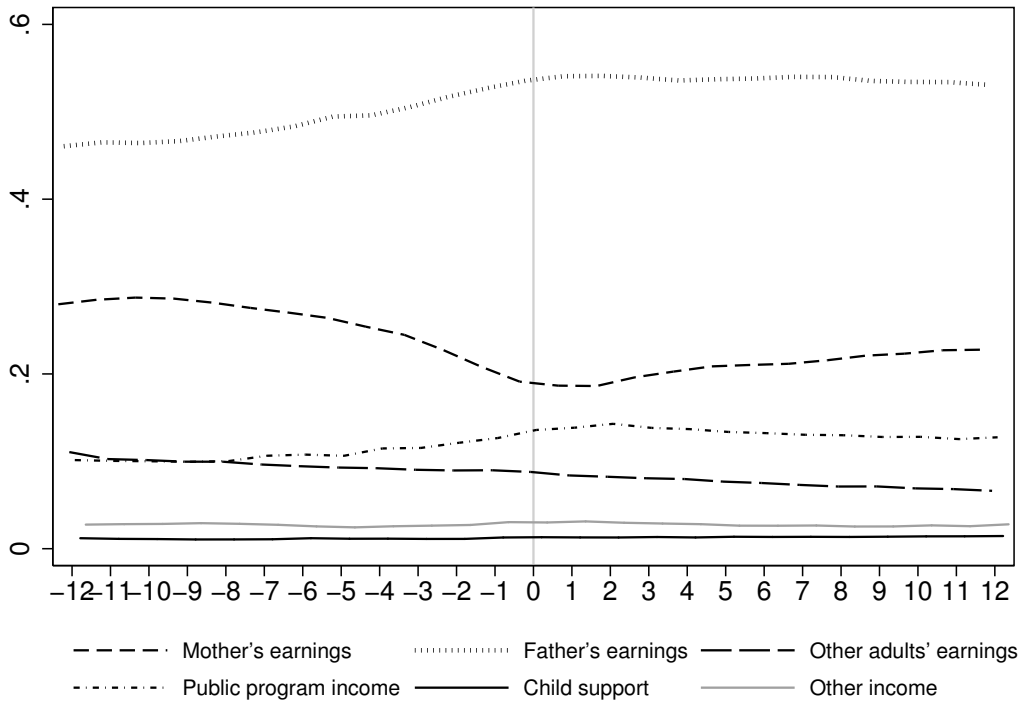
Cohabiting



Married, spouse present

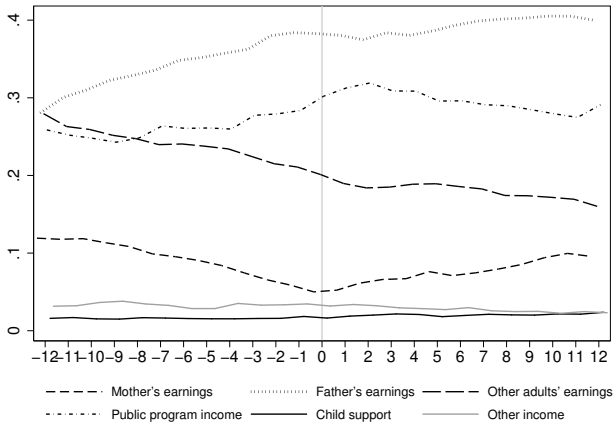
Notes. Figures display coefficients from equation (2) in text (added to the weighted mean of each income source in the month one year before the birth month and reported in Tables A1a-A1f), and can be interpreted as the mean monthly level of each income source. All income expressed in 2013 dollars. Sample listed below each sub-figure. Details of the specification included in text. Father's earnings (other household adult's earnings) are non-zero in some months in single (single, no other adults) subgroups because household structure is defined in the birth month. Sample size: 19,415 (Single, no other adults); 25,885 (Single, with other adults); 20,777 (Cohabiting); 160,759 (Married, spouse present)

Figure 3a: Share of Gross Household Income, by Source and Distance from Birth Month, Full Sample

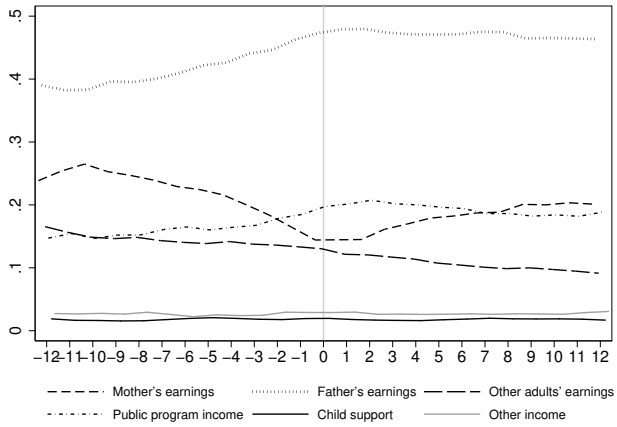


Notes. Figures display coefficients from equation (2) in text (added to the weighted mean of each outcome in the month one year before the birth month and reported in Tables A2a-A2f), and can be interpreted as the mean monthly contribution of each income source to gross household income. Details of the specification included in text. Sample size: 226,836 (Full sample)

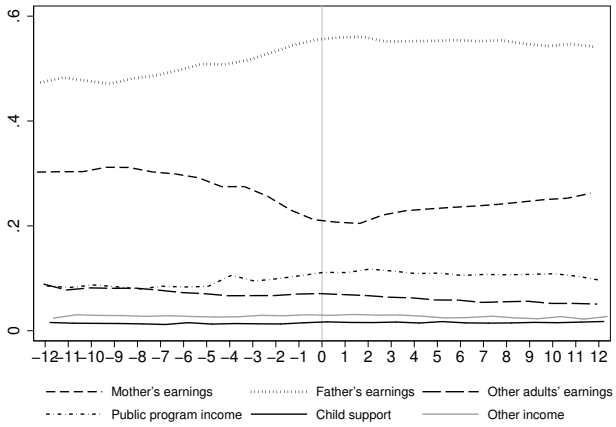
Figure 3b: Share of Gross Household Income, by Source and Distance from Birth Month, Mother's Educational Attainment Subgroups



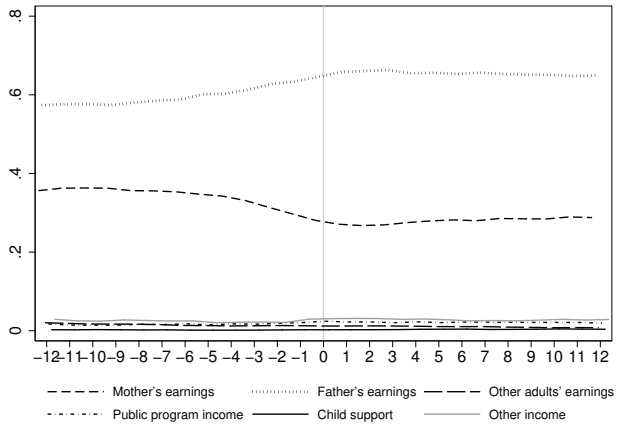
Less than high school



High school



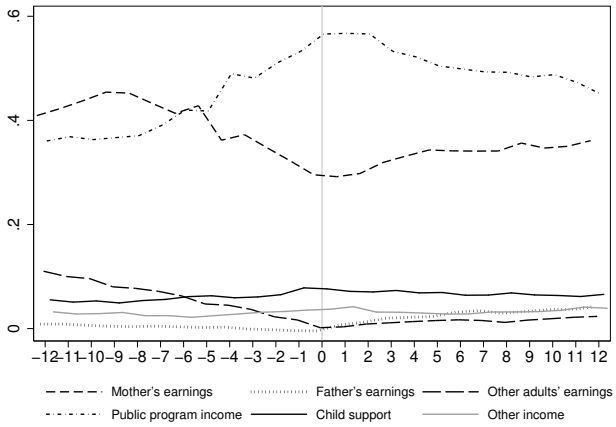
Some college



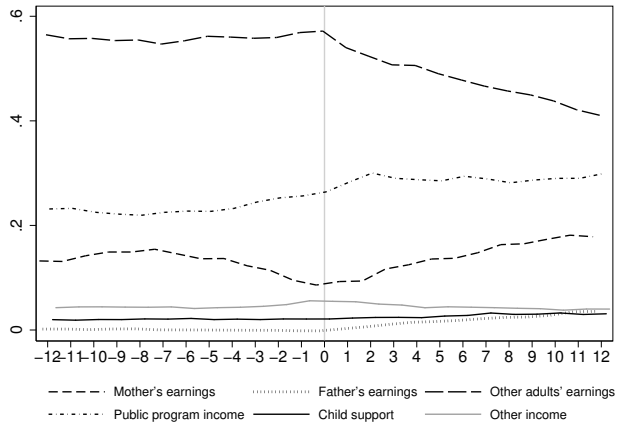
BA or above

Notes. Figures display coefficients from equation (2) in text (added to the weighted mean of each outcome in the month one year before the birth month and reported in Tables A2a-A2f), and can be interpreted as the mean monthly contribution of each income source to gross household income. Sample listed below each sub-figure. Details of the specification included in text. Sample size: 36,713 (Less than HS); 55,614 (HS); 67,548 (Some college); 66,961 (BA or above)

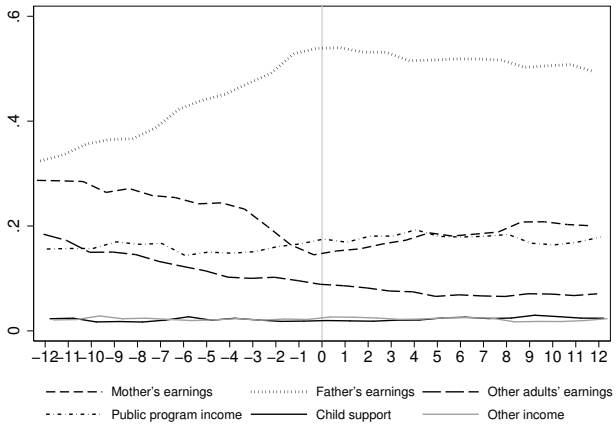
Figure 3c: Share of Gross Household Income, by Source and Distance from Birth Month, Household Structure Subgroups



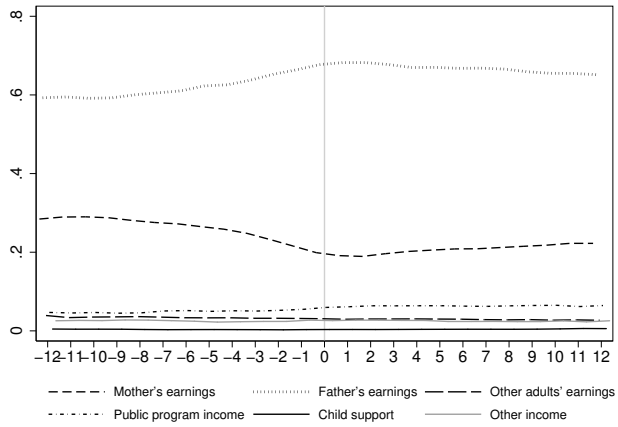
Single, no other adults



Single, with other adults



Cohabiting



Married, spouse present

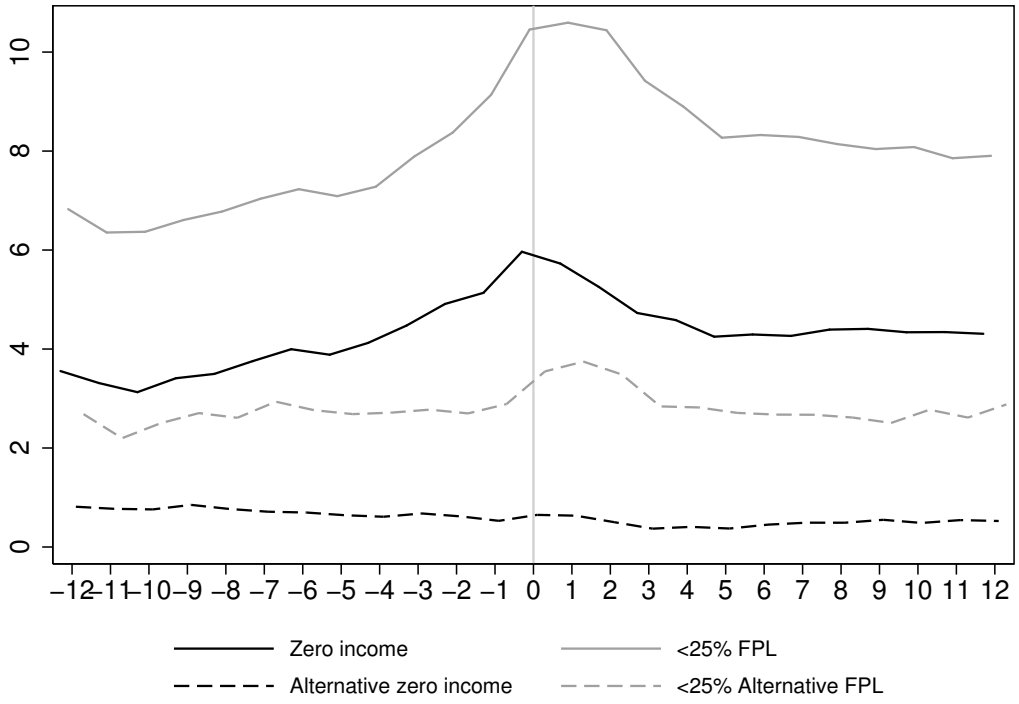
Notes. Figures display coefficients from equation (2) in text (added to the weighted mean of each outcome in the month one year before the birth month and reported in Tables A2a-A2f), and can be interpreted as the mean monthly contribution of each income source to gross household income. Sample listed below each sub-figure. Details of the specification included in text. Share of father's earnings (other household adult's earnings) is non-zero in some months in single (single, no other adults) subgroups because household structure is defined in the birth month. Sample size: 19,415 (Single, no other adults); 25,885 (Single, with other adults); 20,777 (Cohabiting); 160,759 (Married, spouse present)

Table 6. Percent of Household-Birth-Month Observations with Zero or Very Low Income, by Mother's Educational Attainment and Household Structure

	Zero income	Alternative zero income	<25% FPL	<25% Alternative FPL	*N*
Full sample	4.46	0.59	8.25	2.84	226,836
Less than high school	9.89	1.09	17.26	4.70	36,713
High school	7.18	0.75	12.31	3.64	55,614
Some college	3.68	0.57	7.32	2.93	67,548
BA or above	0.61	0.26	1.85	1.27	66,961
Single, no other adults	11.93	1.80	25.62	9.13	19,415
Single, with other adults	4.28	0.56	9.07	2.60	25,885
Cohabiting	23.42	0.51	33.54	2.91	20,777
Married, spouse present	1.35	0.46	3.09	2.13	160,759

Notes. Weighted with SIPP household weights. Sample is at the household-birth-month level (N=226,836). *Zero income* indicates a value of zero on all income included in the numerator of the study *income-to-needs* outcome variable. *Alternative zero income* indicates a value of zero on all income included in the numerator of the *alternative income-to-needs* study outcome variable, which adds near-cash public programs, refundable tax credits and unrelated household adults' earnings. *<25% FPL* indicates income below 25 percent of the federal povery level (FPL), or less than 0.25 on the *income-to-needs* study outcome variable. *<25% Alternative FPL* indicates values of less than 0.25 on the study *alternative income-to-needs* outcome variable, which adds near-cash public programs, refundable tax credits and unrelated household adults' earnings.

Figure 4: Percent of Households with Zero or Very Low Income, by Distance from Birth Month



Notes. Figures display coefficients from equation (2) in text (added to the weighted mean in the month one year before the birth month), and can be interpreted as monthly percent of households with zero or very low income. Sample is full study sample (N=226,836 mother-birth-months). *Zero income* indicates a value of zero on all income included in the numerator of the study *income-to-needs* outcome variable. *Alternative zero income* indicates a value of zero on all income included in the numerator of the *alternative income-to-needs* study outcome variable, which includes near-cash public programs, refundable tax credits and unrelated household adult's earnings. *<25% FPL* indicates income below 25 percent of the federal poverty level, or less than 0.25 on the *income-to-needs* study outcome variable. *<25% Alternative FPL* indicates values of less than 0.25 on the study *alternative income-to-needs* outcome variable, which adds near-cash public programs, refundable tax credits and unrelated household adult's earnings.

Table 7. Length of Zero or Very Low Income Spell, for Households with Zero or Very Low Income in the Birth Month

	Households with spell encompassing birth month (weighted percent)	Households with spell encompassing birth month (*N*)	Length of spell encompassing birth month (months)	
			Mean (weighted)	Range
Zero income	6.03	729	7.65	1-25
Alternative zero income	0.66	76	3.94	1-15
<25% FPL	10.47	1,284	8.47	1-25
<25% Alternative FPL	3.55	420	4.68	1-24

Notes. Analyses are weighted with SIPP household weights, where indicated. Sample is full sample at household-birth level (*N*=11,615 mother-births). The maximum spell length is truncated by the study timeframe of 25 months. *Zero income* indicates a value of zero on all income included in the numerator of the study *income-to-needs* outcome variable. *Alternative zero income* indicates a value of zero on all income included in the numerator of the *alternative income-to-needs* study outcome variable, which adds near-cash public programs, refundable tax credits and unrelated household adults' earnings. *<25% FPL* indicates income below 25 percent of the FPL, or less than 0.25 on the *income-to-needs* study outcome variable. *<25% Alternative FPL* indicates values of less than 0.25 on the study *alternative income-to-needs* outcome variable, which adds near-cash public programs, refundable tax credits and unrelated household adults' earnings.

Appendix: Sources of Income Included in Study Outcome Variables

Household Economic Wellbeing

Income-to-needs
Total pre-tax money income from all household members related by marriage or birth ÷ Official poverty threshold

Alternative income-to-needs
[Total pre-tax money income from all household members related by marriage or birth + SNAP + WIC + EITC + CTC + Total income from non-related household members] ÷ Official poverty threshold, scaled up to include non-related household members

Gross household income
[Total pre-tax money income from all household members related by marriage or birth + SNAP + WIC + EITC + CTC + Total income from non-related household members]

Composition of Household Income

Level of income, by source

Mother's earnings
Wages and salary
Income from self-employment

Father's earnings
Wages and salary
Income from self-employment

Other adults' earnings
Wages and salary
Income from self-employment

Public program income
Supplemental Nutrition Assistance Program (SNAP)
Special Supplemental Nutritional Program for Women, Infants and Children (WIC)
Earned Income Tax Credit (EITC)
Refundable portion of Child Tax Credit (CTC)
Aid to Families with Dependent Children / Temporary Assistance to Needy Families
Federal and state Supplemental Security Income
General assistance or general relief amount
Other welfare
Social Security
State unemployment compensation amount

Child support

Child support
Child support pass through

Other income
Dividend income
Interest income
Property/rental income
Food assistance
Clothing assistance
Short-term cash assistance
Railroad retirement amount
Supplemental unemployment benefits amount
Other unemployment compensation (strike pay, union benefits, Trade Adjustment Act benefits)
Veterans' compensation or benefits amount
Workers' compensation amount
State temporary sickness or disability benefits amount
Employer or union temporary sickness policy amount
Payments from a sickness, accident, or disability insurance policy purchased on own
Employer disability payment amount
Foster childcare payment amount
Alimony payment amount
Company or union pension amount
Federal civil service or other Federal civilian employee pension amount
U.S. military retirement amount
National Guard or Reserve Forces retirement amount
State government pension amount
Local government pension amount
Income from paid-up life insurance policies or annuities amount
Estates and trusts amount
Other payments for retirement, disability, or survivor amount
GI bill education benefits amount
Income assistance from a charitable group amount
Money from relatives or friends amount
Lump sum payment amount
Rent from roomers or boarders amount
National Guard or Reserve pay amount
Incidental or casual earnings amount
Other cash income not included elsewhere amount

Share of household income, by source

Income source ÷ *Gross household income*