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Does Unconditional Cash during Pregnancy Affect Infant Health?

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Abstract

This paper examines how cash transfers that are not conditional on employment affect infant health. Leveraging variation in the amount of pandemic-era stimulus and child tax credit payments that families received based on household composition, I find that an additional $100 in transfers reduces the prevalence of low birthweight by 2-3 percent. Effects are larger for payments received later in pregnancy, but are of a similar magnitude across the population. These additional resources increased prenatal care and improved maternal health in ways that are consistent with families both increasing investments in children's health and improving the prenatal environment.

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Conditions in early life and *in utero* have lasting consequences for individuals' health and well-being (Barker, 1990). This environment can be shaped by families' economic circumstances for at least two reasons. First, financial stressors related to low and volatile incomes can negatively affect adult decision-making processes, as well as mental and physical health (Mani et al., 2013; Schneider and Harknett, 2019). These stressors to parents in the prenatal period may be carried through to children and negatively affect infant health. Second, to the extent that children are normal goods, greater family income is expected to increase expenditures on goods and services that directly improve children's health. Examining the role of resources on infant health is particularly important since the early stages of life are a critical period of development that shape outcomes into adolescence and adulthood, with lasting consequences for the next generation (Barker, 1990).

Numerous policies have been put forth in an effort to improve birth outcomes and health at young ages. Some of these policies target health directly, like health insurance (Currie and Gruber, 1996; Goodman-Bacon, 2018) or nutritional assistance (Almond, Hoynes and Schanzenbach, 2011; Bitler and Currie, 2005; Currie and Moretti, 2008; Hoynes, Page and Stevens, 2011). However, policies that do not explicitly include a health component, namely cash transfers in the months leading up to birth, have also been shown to improve infant health. To date, however, existing work on the relationship between additional income in early childhood and *in utero* health in the US context has focused largely on cash assistance that varies with employment in the formal labor market, namely the Earned Income Tax Credit (EITC), cash welfare programs (AFDC/TANF), or the Negative Income Tax experiments (Barr, Eggleston and Smith, 2022; Currie and Cole, 1993; Hoynes, Miller and Simon, 2015; Kehrer and Wolin, 1979). However, by combining families' incomes with changes in employment incentives, the effects of these programs conflate any changes in income health due to income with changes that are due to parental employment (Kuka and Shenhav, 2020). More recently, some localities have piloted small-scale guaranteed income programs that are not conditional on employment. To date, however, there is no empirical evidence on the effect of these payments on the next generation. Looking beyond the United States, many

Conditional Cash Transfer (CCT) programs provide families with income conditional on satisfying health or educational requirements without labor force contingencies, but it is unclear whether the documented large positive effects of these programs on infant health (Amarante et al., 2016) and mortality (Barber and Gertler, 2008; Barham, 2011) generalize to more modest payments in high-income countries.

This paper leverages a series of policy reforms to fill two gaps in the existing literature: first, how large-scale unconditional cash transfers affect infant health and second, the relative efficacy of payments received later versus earlier during pregnancy. In doing so, it analyzes a series of unique policy changes that occurred between April 2020 and December 2021 in which the US federal government provided substantial, tax-based cash assistance to families in a generalized difference-in-differences framework. The overwhelming majority of families — especially lower-income populations — were eligible to receive these funds, as the benefits phased out at high levels of income and were not conditional on labor force participation.

The amount and types of payments took different forms over the course of the pandemic. In April 2020, the Treasury issued the first round of lump-sum Economic Impact Payments (EIPs) of $1,200 per adult and $500 per child. This initial stimulus was followed by smaller per-capita transfers of $600 in late December 2020 to early January 2021, and a third round of $1,400 per person in March 2021. Following these lump-sum payments, the structure of assistance moved to monthly payments of $250-$300 per child (based on age) in the last 6 months of 2021 through the Child Tax Credit (CTC) expansion. These benefits were not conditional on employment or earnings (up to the earnings maximum) and with the exception of the highest-income households, all families received payments based on family size, and the amount received during pregnancy depending on the date of conception and delivery.

The timing of these payments and the statutory parameters generate rich variation in the amount that families were eligible to receive each month based on family structure and the age of children, illustrated for four example family types in Figure 1. I map the amounts of each credit families were eligible to receive during pregnancy based on reported marital status and number of previous live births to administrative birth records for the universe of births born to native-born mothers residing in the US between January 2020 and December 2021. I then employ a generalized difference-in-differences framework that compares differences in health among infants born in the same county and the same month to parents within narrow demographic cells on the basis of educational attainment, age, marital status, and race/ethnicity, but whose families were likely eligible to receive different amounts during their mothers' pregnancy based on the number and ages of their older siblings. and parental marital status at the time of birth. I report results for the full population and separately by parental marital status, as well as several low-income subpopulations.

The pandemic-era policy environment provides an appealing natural experiment to examine the role of additional household resources on infant health for at least three reasons. First, the program parameters were announced with relatively little advance notice: the legislation introducing each round of EIPs was announced less than a month before the first payments went out, and the legislation introducing the CTC expansion was announced less than 4 months prior to the initial payment. This timing indicates that nearly all conception decisions among families who gave birth in 2020 and 2021 occurred before each legislation and payment amounts were announced.[2] Second, the amount that the Treasury disbursed to families was based on household composition in a previous calendar year and did not include births that occurred in the current calendar year. The automatic disbursement through the Treasury Department also resulted in high take-up rates, particularly compared to other social assistance programs.

My results are threefold. First, cash payments *in utero* improve infant health, with eligibility for an additional $100 reducing the prevalence of low birthweight by about 0.2 percentage points (2.0 to 3.4 percent). This improvement is of similar absolute magnitude for married and unmarried parents and the full population versus lower-income groups, pointing to the broad-based nature of these benefits. Scaling these results by estimated take-up rates

[2]Some fertility decisions for infants born in 2021, however, could have been shaped by the general pandemic environment and payments prior to conception. While I find larger benefits for payments received during 2021, the completely unanticipated first EIP also substantially improved birth outcomes, even in first eight months of the pandemic (Appendix Table A7.

implies a reduction of 2.1-4.0 percent for each additional $100 in resources, magnitudes that are again similar between the full population and lower-income populations and larger than the effect of annual tax-based payments that are conditional on employment.

Second, the timing of payments is important. Although transfers throughout the gestational period improve infant health, benefits grow over the course of pregnancies: payments received during the third trimester confer at least twice the benefit of those received in earlier months. These patterns are consistent with an immediate short-term spending response to the credits, as well a large body of work showing that conditions in the third trimester are particularly important for birth weight.

Finally, I investigate the potential mechanisms underlying these patterns by examining maternal health conditions and behaviors associated with high-stress environments, as well as use of medical services. This analysis provides evidence consistent with greater family resources improving infant health through two channels. First, greater resources alleviate some patterns that are correlated with household financial pressures, namely reducing maternal smoking during the late stages of pregnancy (e.g.: after payments were received). Second, the payments also increased investments in children, measured by the number of prenatal visits. In contrast, the findings are not due to changes in other program participation: insurance coverage and WIC participation did not substantially change.

This paper contributes to a literature examining how early-life interventions during pregnancy shape infants' health outcomes (for recent summaries of this literature, see Almond and Currie (2011) and Almond, Currie and Duque (2018)). Much of the existing research in the US context, however, focuses on changes in family resources that are conditional on employment, such as expansions in the Earned Income Tax Credit (EITC). Therefore, while the EITC reduces the prevalence of low-birthweight or increases infant weight (Hoynes, Miller and Simon, 2015; Markowitz et al., 2017; Strully, Rehkopf and Xuan, 2010), and improves maternal health (Evans and Garthwaite, 2014), these results combine any changes in health due to income with any changes that are due to greater incentives to enter paid employment. Moreover, the EITC is issued as an annual lump-sum payment after families file their taxes, and accordingly, the use of the credit to smooth consumption might differ from more regular payments.

This paper builds upon the existing literature by examining the implementation of cash transfers that are not conditional on work. These findings have direct policy implications, since the design of the payments examined in this paper — especially the CTC expansion — is similar in nature to many proposed income guaranteed programs. However, since the CTC applied to nearly all families with children, external validity and general equilibrium concerns are less paramount in the CTC setting than in small-scale pilots.

This paper also relates to a burgeoning literature that examines the effect of pandemic-era payments on household well-being. Although families reported using the EIP and CTC payments in slightly different ways, both alleviated economic hardship. Several working papers find that the EIP and CTC payments disbursements coincided with lower poverty rates and material hardship (Pilkauskas et al., 2022; Parolin et al., 2022*a*,*b*), improved mental health (Batra, Jackson and Hamad, 2023), and reported food hardship (Bauer et al., 2022; Shafer et al., 2022). In addition, closely related to this paper, several papers have examined how the credits affected families' consumption patterns. Higher-income households tended to save the EIP amounts and low-asset and low-income households were more likely to spend the first credit on essential items, such as food, rent, and utilities (Baker et al., 2020; Chetty et al., 2020; Cox et al., 2020; Parker et al., 2022*b*; Kochhar and Sechopoulos, 2020; Perez-Lopez and Bee, 2020). As the pandemic continued into 2021, the marginal propensity to consume the third payments fell for households across the asset distribution (Parker et al., 2022*a*). Similar to the patterns of consumption documented for low-income families in response to the EIP payments, families used the CTC to pay for routine expenses and to reduce credit card spending (Hamilton et al., 2022). Looking more broadly to how guaranteed income programs affect household consumption, Gennetian et al. (2022) find that an unconditional cash transfer increased spending on child-specific goods and educational activities. These patterns indicate that additional transfers reduced economic hardship and improved the financial position of families which is expected to benefit the short-term outcomes of children.

This paper complements the existing literature by examining the effects of the credits on an objective, administrative measure of well-being that is not subject to mismeasurement or reporting biases from household surveys (Celhay, Meyer and Mittag, 2022) and focusing on a younger population – new births – for whom changes in health can have long-term implications.

The rest of this paper proceeds as follows. Section 1 describes the EIP and expanded CTC payments. Section 2 overviews the data and empirical framework. Section 3 presents results and Section 4 concludes.

1 Institutional background

Economic Impact Payments (EIP): In spring 2020, the US economy underwent the sharpest contraction on record following the onset of the COVID-19 pandemic and introduction of stay-at-home orders. In order to provide immediate financial support to families, the first Economic Impact Payments (EIP, also called stimulus checks or "Recovery Rebates") were issued in April 2020 as part of the Coronavirus Aid, Relief, and Economic Security (CARES) Act. These payments provided families with children earning less than $112,500 ($150,000 for married couples) in 2019 a cash payment of $1,200 per adult and $500 per child younger than 17. The second round of EIPs were legislated in December 2020 and issued in early January 2021, providing households with $600 per person. The third and final EIPs were issued in March 2021, and provided $1,400 per household member. Appendix Figure A1 panel a illustrates the timing of when these payments were disbursed, showing sharp spikes in mid-April 2020, early January 2021, and early-March 2021. These payments built upon prior experience during the Great Recession of issuing lump-sum stimulus payments to households through the tax system, but relative to previous experiences, were disbursed more quickly– more than half of all payments were issued within the first two weeks (Ruffini and Wozniak, 2021).[3] Important for this analysis, the amount of payments initially distributed to families

[3]Later payments tended to go to elderly, non-filer households that received retirement or disability benefits through the Social Security Administration.

were based on household composition in the 2019 calendar year and did not include children born during 2020 (Appendix Table A1).[4] Figure 1 displays the maximum amount that four example family types were eligible to receive over the 2020-2021 period.

An early body of work finds that these payments bolstered consumer spending among households with limited account balances and low incomes, whereas higher-income households tended to save the payments (Baker et al., 2020; Chetty et al., 2020; Cox et al., 2020; Parker et al., 2022*b*). Lower-income families tended to spend a larger share of their first EIP payment in a fairly short period of time; for example, Cox et al. (2020) find that households with limited savings spend 30 percent of the initial payment within ten days of receipt, Parker et al. (2022*b*) find that those with less than $3,000 in assets spent 11 percent of the payments on food and 32 percent on all goods and services within three months, and Perez-Lopez and Bee (2020) document that low-income families spent the first payment on essential items, such as food, rent, and utilities. Spending behavior also slightly changed over time. As the pandemic continued into 2021, the marginal propensity to consume the third EIP was lower than previous payments for all income groups (Parker et al., 2022*a*). Overall, the spending evidence points to the potential of the EIP payments in improving infant health outcomes by providing families with additional resources that they used to procure essential goods and services, as well as alleviating financial stressors, especially for low-income populations.

Expanded Child Tax Credit (CTC): The Child Tax Credit (CTC) was first issued in 1998 as a non-refundable tax deduction equal to $500 per child per year. Over the following decades, the CTC was expanded to and made partly refundable under the 2001, 2003, 2009, and 2017 tax reforms. Prior to the 2021 expansion, the CTC provided an annual credit of up to $2,000 per child younger than 17 to single parents earning up to $200,000 (married couple earning $400,000) when families filed their federal income taxes the following calendar year. With the exceptions of the very lowest- and highest-income households, and unlike the related Earned Income Tax Credit (EITC), the CTC is available to most families with

[4]The third EIP pertained to the 2020 calendar year for families that had filed 2020 taxes before payments were disbursed. However, as most payments were automatically made by the Treasury Department in January 2021, few families had filed 2020 taxes prior to the initial payment date.

children because the income level at which the benefit is phased out occurs relatively high in the income distribution.[5]

The 2021 expansion passed as part of the March 2021 American Rescue Plan Act (ARPA) legislation temporarily changed the credit in four fundamental ways for the 2021 tax year: First, the credit was expanded so that families received up to $3,000 for each child ages 6 and older and $3,600 for each younger child up until family income reached $112,500 (unmarried, $150,000 married taxfilers (MFJ)). Families earning above $112,500 ($150,000 MFJ) continued to receive the $2,000 per child benefit until their income reached $200,000 ($400,000 MFJ), after which the credit phased out. Second, the credit became fully refundable, so that families were entitled to the full credit amount even if they had no labor market earnings. This change to full-refundability lowered the return to employment for families that were previously located in the credit's phase-in region; however, existing work does not find a robust reduction in employment (Ananat et al., 2022). Third, from July through December 2021, 50 percent of the payment amounts (up to $300 per child) were disbursed on a monthly basis by default, rather than received as an annual lump-sum amount after families had filed their taxes.[6] Finally, the 2021 credit amount that families received was linked not just to the number of children in a family, but also the age of the children. Therefore, each child who was born on or after January 1, 2016 – that is, those that had not yet turned 6 by December 31, 2021 received a monthly payment of $300 and those that had turned 6 by the end of the 2021 calendar year received monthly credit of $250 for the last six months of 2021.

Similar to the method used to calculate amounts for the EIPs, the IRS used income and family composition from the previous (2020) tax year in order to determine the number of children who were younger than age 6 at the end of 2021 in order to prospectively calculate each family's expected credit (Congressional Research Service, 2022). Therefore, these calculations did not include additional payments for children born during the course of 2021.

[5]Prior to the 2021 reform, about 89 percent of all families with children claimed the credit (Congressional Research Service, 2022).

[6]Families could opt out of the advance payment and instead receive a single annual payment. In the case of married couples, this required both parents opting out on the IRS web portal. Approximately 6 percent of families reported doing this, according to survey data (Hamilton et al., 2022). For families that did not choose the annual payment, payments were made on the 15th of each month (Appendix Figure A1 panel b.

Families reported using the CTC amounts in similar ways to the EIPs in financing essential goods and improving their financial position. Most families used the funds to cover routine expenses (housing, clothing, food), and about 40 percent paid off debt (Hamilton et al., 2022). Accordingly, families reported less material hardship following credit receipt (Pilkauskas et al., 2022). While much of the existing tabulations focus on all families with children, Appendix Table A4 verifies the patterns of CTC utilization are also present among families that have children younger than school-age using data from the Census Bureau's Household Pulse Survey (HPS).[7]

Eligibility and receipt Both the EIP and CTC had no employment requirement or minimum income level: therefore, families were eligible for the full amount of each credit until their income reached a threshold of $112,500 for a single parent ($150,000 for married couples), after which the payments phased out. Both payments had a wide reach, but since both payments were administered through the IRS and automatically disbursed to taxfilers, households that previously did not file federal income taxes did not receive the payments on the first scheduled disbursement date.[8] In total, an estimated 83.2 percent of families with children in the bottom income quintile received the monthly CTC payments, compared to 92.0 percent overall (Congressional Research Service, 2022). For EIPs, national-level estimates of receipt by income and presence of children are not available, but work indicates that an estimated 75 percent of low-income California residents automatically received the payments (Augustine, Davis and Ramesh, 2021). Other estimates indicate that about 12 million (of about 300 million) non-filers would need to proactively claim the EIPs in order to receive payments (Marr et al., 2020). Data from the Current Population Survey provide much higher estimates of take-up based on model estimates: that about 97 percent of households earning less than $52,000 a year, and 83 percent of all households, were eligible to receive EIPs (Kochhar and Sechopoulos, 2022).

In addition to reaching the overwhelming majority of households, survey data also indi-

[7]The HPS does not enquire about children's exact ages.

[8]These households could claim each credit using the IRS Non-Filer online tool, but payment receipt was delayed and the date of receipt depended on the date of completing the tool.

cate that the salience of each payment was high. By July 2020, 84 percent of respondents in the Census Household Pulse Survey reported receiving or expecting to receive an EIP (Kochhar and Sechopoulos, 2020), and in 2021, about 60 percent of families with children reported receiving an expanded CTC payment (Kids Count, 2021). Altogether, these patterns indicate that the overwhelming majority of Americans received payments over the 2020-21 period and that these payments were noticed on their household balance sheets.

2 Data and empirical framework

2.1 Vital Statistics birth records

In order to evaluate the effects of unconditional cash transfers on infant health, I use restricted-use, administrative birth record data from Vital Statistics for calendar years 2020 and 2021. These data include information on every birth born in the United States, including parental demographic characteristics and county of residence, birth parity (e.g.: number of previous births plus one), time since the last live birth, and measures of infant health such as birth weight, 5-minute Apgar scores, and gestational length. I focus on births that were born to native-born mothers who were residing in all 50 states and the District of Columbia, and exclude non-singleton births, as well as observations with a previous birth that is now deceased, since the birth order of the deceased individuals and the time since these births is not reported.[9]

Importantly, throughout 2020 and 2021, the amount and timing of cash assistance was determined with relatively little notice. For example, each EIP payment was signed into law less than a month before disbursements began. Likewise, the expanded CTC was included in the ARPA legislation, which was first introduced on February 24, 2021 and became law on March 11, 2021. Therefore, nearly all conception decisions for births born in 2020 and

[9]Legal permanent residents were eligible for EIP payments, and guardians with either an SSN or ITIN were eligible for the expanded CTC as long as the children had an SSN. Therefore, while many immigrants received payments, I omit this group as the birth data do not include immigration status and take-up of means-tested benefits is lower in mixed-status families (Alsan and Yang, 2022).

2021 occurred before the final bill language was passed. Appendix Table A1 summarizes the timing of the legislation, eligibility, and payment amounts, and Appendix Table A2 shows the number of gestational months following each payment, by birth month (based on a 9-month pregnancy).

Both the CTC and EIP payments were defaulted to be based on family structure in the tax years 1-2 years prior (e.g.: 2019 for the EIP payments and 2020 for the CTC payments).[10] Therefore, families received retrospective credits for children born within the year after filing federal income taxes in the subsequent (2021 or 2022) calendar year (Congressional Research Service, 2022). For example, the monthly CTC payment amount received during 2021 was based on the number of older siblings each 2021 birth had and the EIP payments were based on family structure in 2019.[11]

These policy parameters provide rich variation in the amount of payments issued to each family by household composition and size, as well as the timing of pregnancy. I calculate the total maximum EIP and CTC payment amount each family was eligible to receive during each pregnancy i based on maternal marital status, number of older siblings $(p-1)$, age of next-oldest sibling (a), month (m) and year (y) of birth, and gestational length as:

$$CTC_{i(mypa)} = \sum_{j=7}^{12}((y = 2021) * (gest \leq j) * (birth > j) * (250 * (p-1)) + 50 * \mathbb{1}(a < 6))_i \tag{1}$$

$$EIP_{i(mypa)} = EIP_{1i} + EIP_{2i} + EIP_{3i} \tag{2}$$

$CTC_{i(mypa)}$, the total CTC payment amount, is the monthly CTC amount each family was eligible for between the months following conception but preceding birth in the July 2021 through December 2021 window. The monthly amount is the base amount ($250) multiplied by the number of older siblings (parity minus 1, $p-1$) plus a $50 top-up if the next-oldest

[10]Families could update this information proactively through the IRS website, but even in these cases, additional children could not be claimed until after birth.

[11]Families received any adjustments for family size upon filing taxes for the 2020 and 2021 tax years (e.g.: in early 2021 and 2022, respectively)).

sibling was younger than 6 at the end of the 2021 calendar year.[12]

The total EIP payment received, $EIP_{i(mypa)}$, is the sum of EIP amounts across the three payments. The first payment is $EIP_{1i} = 1200 + 1200 * married_i + 500 * (p_i - 1)$ for births conceived prior to and born after April 2020, the second, $EIP_{2i} = 600*(1+married_i+(p_i-1))$ for births conceived prior to and born after January 2021, and the third, $EIP_{3i} = 1400 * (1 + married_i + (p_i - 1))$ for births conceived prior to and born after March 2021.

The effect of additional resources could affect high- and low-income families differently for at least three reasons. First, as described in Section 1, how families used the EIP and CTC payments varied across the income distribution, with lower-income groups tending to spend the credit on necessities or pay off debt, and higher-income households saving the credits (Appendix Table A4, see also Parker et al. (2022*b*)). Second, even if families used the credits in similar ways, the effect of assistance may be especially beneficial for lower-income populations given the negative association between infant health and family income (Cutler, Lleras-Muney and Vogl, 2011; Currie, 2009). Finally, as the amount of both the EIP and CTCs phased out at relatively high levels of income, lower-income populations are more likely to be eligible for the full credit amount.

I explore this potential heterogeneity by focusing on several subgroups that are likely to have lower-incomes based on family characteristics and receipt in other programs: births born to mothers with no more than a high school education, births covered by Medicaid, and births receiving WIC.[13] Appendix Table A3 presents summary statistics for each population and confirms these "lower-income" subsamples are less advantaged than the full sample, based on maternal age, parental marital status, and parental racial/ethnic identities.

Each of the three low-income populations is of interest for slightly different reasons. First, individuals with no college education have been a focal group for much of the EITC literature

[12]The birth record data only include time since the last birth, therefore some births might have multiple siblings under the age of 6. This measurement error leads to a lower estimated CTC payment amount and will therefore overstate the value of CTC payments. In order to address this issue, Appendix Table A5 limits the main results to births of parity 1 or 2 (e.g.: those with no more than one older sibling) and shows a reduction in low birthweight that is at least twice as large as the main effect, indicating that any measurement error in CTC payments is small relative to effect of the payments on a per-household member basis.

[13]The birth records do not include information on family income.

(Eissa and Liebman, 1996; Hoynes, Miller and Simon, 2015; Meyer and Rosenbaum, 2001). Therefore, comparing the results of universal credits to the EITC for this population is a helpful benchmark to compare the two forms of assistance. The other two groups, Medicaid and WIC recipients, have low incomes by definition (Medicaid income limits range between 142 and 380 percent of the federal poverty line depending on state (Kaiser Family Fund, 2022) and WIC limits are set at 185 percent of the federal poverty line), but a potential concern is that receipt of these income-assistance programs might be affected by EIP or CTC receipt. While questions of how the pandemic-era payments affected participation in existing safety net policies has not been extensively studied to date, Appendix Figure A2 shows that the share of births in each subgroup follows a similar pattern over time. The share of infants in each group is relatively flat throughout 2020 and decreases in early 2021. This decrease corresponds to conception decisions that occurred during the early months of the pandemic. Each share then reverses trend and climbs upward in late 2021. While relative birthrates fluctuated over the course of the pandemic for lower-income groups, these figures do not show disproportionate changes in WIC or Medicaid utilization among mothers with less than a college education.

Appendix Table A3 also shows imperfect overlap across the 3 low-income groups: only about half of the low-education and 57 percent of Medicaid recipients are enrolled in WIC and 67 (77) percent of the low-education (WIC) group receives Medicaid. Other demographic characteristics are broadly similar across the three groups, although the low-education group contains a larger share of non-Hispanic, white parents.

Finally, Appendix Table A3 highlights important features about each credit. First, most births in the sample (born January 2020 through December 2021) received at least some EIP payment during pregnancy. Since the CTC expansion occurred towards the end of the sample and was only disbursed to families that had children in the household in 2020, fewer births (only higher-order parities born August 2021 and later) received these payments. Finally, it is worth noting that the total size of EIP payments tends to be 3-4 times larger than the average CTC payment. Figure 2 shows the entire payment distribution of the combined credits (panel a) and separately by credit (panel b) amongst the families that received any credit. Panel a shows that most families were eligible to receive between \$300 and \$5000 during pregnancy, but some families were eligible to receive up to \$10,000. Panel b highlights that variation in credit amounts occurs in both CTC and EIP payments, and that in general, the EIP payments tended to provide larger transfers to families.

2.2 Empirical framework

The variation in cash assistance is based on parity and age of older siblings, household structure, and birth month as documented in Section 1 and calculated in Equation 1. The statutory parameters result in births that were born in the same month receiving different cumulative credit amounts *in utero*. In addition, children born to similar families received different credit amounts based on timing of conception, which occurred before the legislative details of each were announced. Leveraging these two sources of variation, I compare outcomes between births in similar families before and after the expanded credit in a generalized differences-in-differences set-up on the individual-level birth records. Specifically, the main estimating equation takes the form:

$$y_{icmyxpa} = \beta(CTC + EIP)_{i(mypa)} + \phi_{mycx} + \nu_{xp} + \gamma_{a<6} + \psi_{dow} + \varepsilon_{icmyxpa} \quad (3)$$

for outcome y of infant i born in month m and year y in county c of parity p born to parents with demographics x.[14] I focus on the prevalence of low birthweight, defined as whether a child was less than 2,500 grams at birth, as low birthweight is highly predictive of adverse health and developmental outcomes later in childhood and adulthood (Black, Devereux and Salvanes, 2007; Hack, Klein and Taylor, 1995; Almond and Currie, 2011). While strongly correlated with long-term outcomes, low birth weight does not necessarily capture all measures of infant health, therefore, I also investigate whether additional cash transfers affect gestational length (preterm births), 5-minute Apgar scores, and very-low birth weights (less

[14]Demographics are defined as cells for maternal race/ethnicity, educational attainment, age (10-year age bins), presence of father, paternal race/ethnicity, educational attainment, and age (10-year age bins).

than 1,500g). Finally, in order to explore mechanisms explaining the relationship between additional family income and infant development, I also present results for maternal health and the prenatal environment, including maternal smoking during pregnancy, the amount of prenatal care, and WIC and Medicaid receipt.

ϕ_{mycx} is a county-by-time-by-demographic fixed effect in order to account for changes in local conditions that affected infant health over time, such as revised hospital protocol during the pandemic, and that may have affected demographic groups differently. ν_{xp} is a demographic-by-parity cell that accounts for level differences in birth outcomes across different birth parities, and allows these differences to vary across demographic groups. $\gamma_{a<6}$ is a fixed effect for whether the next-oldest sibling is younger than 6 at the end of the calendar year, and ψ_{dow} is a day-of-week fixed effect to capture any changes in birth outcomes across days of the week.[15]

The narrowly-defined fixed effects by month of birth, geography, and demographic characteristics, ϕ_{mycx}, in combination with parity-by-demographic ν_{xp} fixed effects, means that, for example, I only compare births to non-Hispanic, white, unmarried mothers with a high school diploma in Manhattan to other non-Hispanic, white, unmarried mothers with a high school diploma in Manhattan that were born in the same month but who have a different number of older siblings, while controlling for general parity differences. On an intuitive level, this set-up requires that without cash assistance, trends in infant health would have been similar across different birth parities born to mothers in the same county in the same month who share similar demographic characteristics, but allows level differences in outcomes across birth parities.[16]

$(CTC_{i(mypa)} + EIP_{i(mypa)})$ is the calculated maximum combined amount of CTC and EIP benefits distributed during pregnancy described in Equation 1. In order to ease interpretability, I divide payment amount by 1,000 so the coefficient of interest, β, can be interpreted as

[15] All specifications are run at the individual-level, rather than the demographic-cell average as in (Hoynes, Miller and Simon, 2015). These approaches will yield equivalent results when the demographic-cells are weighted by the number of observations in each cell.

[16] Appendix Figure A3 provides a specification curve analysis as in Simonsohn, Simmons and Nelson (2020), indicating that the improvements in birthweight are robust to more disaggregated fixed effects, as well as other modifications of the empirical framework.

the percentage point change for an additional $1,000 in credit eligibility during pregnancy.

The baseline results pool assistance received through both credits combined throughout pregnancy for parsimony and as a benchmark to much of the existing literature. However, conditions in the third trimester are particularly important for birthweight, and accordingly, the relative value of payments may vary over the course of a pregnancy (Almond, Hoynes and Schanzenbach, 2011; Carlson, 2015; Painter, Roseboom and Bleker, 2005). In order to investigate whether payments received earlier versus later in pregnancy have differential effects for infant health, I take two complementary approaches. First, I disaggregate payment amounts into the amount of combined CTC and EIP payments received in each trimester t of pregnancy:

$$y_{icmyxpa} = \sum_{t=1}^{3} \left(\beta_t CTC + EIP_{i(mypa)} \right) + \phi_{mycx} + \nu_{xp} + \gamma_{a<6} + \psi_{dow} + \varepsilon_{icmyxpa} \tag{4}$$

Second, I present results from an event study analysis where event time, t, is defined as the number of gestational months following receipt of any payment (so that a family giving birth in $t-1$ gave birth a month prior to the first EIP disbursement). In order to leverage the continuous nature of the payments, each event-time coefficient is scaled by the total payment amount the family was eligible to receive through the ninth month of pregnancy (families that received payments) or the amount had a family given birth 9 months later (families giving birth prior to payment issuance):[17]

$$\begin{aligned} y_{icmyxpa} = & \sum_{t=-3}^{-1} \beta_t \mathbb{1}\{ym = t\} * (CTC + EIP)_{i((my+9)pa)} \\ & + \sum_{t=0}^{9} \beta_t \mathbb{1}\{ym = t\} * (CTC + EIP)_{i(mypa)} \\ & + \phi_{mycx} + \nu_{xp} + \gamma_{a<6} + \psi_{dow} + \varepsilon_{icmyxpa} \end{aligned} \tag{5}$$

[17]Appendix Table A2 shows that the second EIP disbursement occurred less than 9 months after the first EIP. Therefore, nearly all births from mid-April 2020 received some payment and the pre-treatment coefficients are identified primarily off of births that occurred between January and March 2020.

Equations 3, 4, and 5 are intent-to-treat (ITT) designs that measures how infant health changes as a result of the availability of pandemic-era cash assistance. This approach is well-suited to the available data as the birth records data do not include information on family income or tax filing status. The approach of leveraging the statutory parameters to determine payment amounts, rather than the amount that families actually receive based on income, is also standard in much of the literature that examines the effect of tax credits in situations where the payment amount is a function of earned income and varies over time and by family composition (see for example, Bastian and Michelmore (2018), Bastian and Lochner (2022), Hoynes and Patel (2018)).

This ITT "statutory parameters" approach is useful in this setting for at least two reasons. First, by defining payment amounts based on non-mutable characteristics (household composition), rather than earnings responses, this approach leverages a source of variation in household income that does not include employment decisions. Second, the ITT is a critical parameter for policymakers who are interested in the effects of a reform that confers broad-based eligibility, but does not require participation.

Nonetheless, policymakers may be interested in the effects of actually receiving payments on infant health – that is, the treatment on the treated (TOT). Scaling the ITT estimates by the take-up rate for each population will provide an estimated TOT; however, as noted in Section 1, there are a range of estimates on take-up rates for each credit and different populations. Taking the lower-bound estimates of take-up found in existing work indicate dividing the ITT by 0.83 (full population, (Congressional Research Service, 2022)) or 0.75 (low-income subpopulations, as in Augustine, Davis and Ramesh (2021)) uncovers an upper-bound for the TOT. A more conservative estimate of the TOT would scale the ITT by higher estimates of take-up based on eligibility, 0.95 for the full population (Marr et al., 2020) and 0.97 for low-income groups (Kochhar and Sechopoulos, 2022).

3 Results

3.1 Cash Assistance and Low Birth Weight

Table 1 shows how an additional $1000 in cash through lump-sum Economic Impact Payments or monthly Child Tax Credit payments affects the prevalence of low birthweight across different populations. Column 1 panel a shows that an additional $1000 in cash assistance reduces the overall prevalence of low birthweight by 1.7 percentage points (27 percent). The magnitude of this reduction is similar for married and unmarried parents, but since low birthweight is more prevalent among births born to unmarried parents, the percentage change is larger for births born to married parents (33 vs. 23 percent).

The remaining columns of Table 1 focus on subpopulations that tend to have lower income than the overall population: mothers with no more than a high school diploma (column 2), Medicaid recipients (column 3), or WIC recipients (column 4). The point estimates indicate that an additional $1000 of assistance reduces the prevalence of low birthweights by 1.6 to 2.0 percentage points (20-2.8 percent). These percentage point reductions are again similar for married and unmarried families.

The similar ITT effect across the populations does not account for lower take-up rates among lower-income populations (Congressional Research Service, 2022; Augustine, Davis and Ramesh, 2021; Marr et al., 2020). Scaling by 1/10 and dividing by lower- and upper-bounds of each population's estimated take-up rate provides the estimated effect of an additional $100 on families that received the payments. With this adjustment, a $100 payment reduced low-birthweight by 0.18-0.20 percentage points for the full population (2.9-3.3 percent) and approximately 0.18-0.26 percentage points among low-income groups (2.2-2.8 percent). That the benefits to low-income populations are similar to those of the overall population indicates that expanding tax-based benefits has broad-based benefits, even among populations that were less likely to immediately spend the credit. Given similarities by marital status, in the remaining results, I pool married and unmarried families.[18]

[18]Equation 1 relies on time since the last live birth in order to determine whether a family was eligible for a $300 or $250 per child CTC payment for the second-oldest child. Since timing between births is not reported for higher-order births, this calculation provides a lower-bound of the CTC payments that families received, and could therefore overstate the value of CTC payments. Appendix Table A5 limits the main results to births of parity 1 or 2 (e.g.: those with no more than one older sibling) for whom this measurement

The results presented in Table 1 have the advantage of comparing births across families with similar demographic characteristics living in the same areas that only vary in their credit amounts by the number and ages of older siblings. The demographic-by-county-by-time fixed effects, however, are demanding of the data and require that at least two births occur in a county-month across parental education, marital status, and race/ethnicity, which is less likely to occur in less-populated and rural counties. Less granular controls, such as separate demographic cells, time, and county fixed effects, or separate controls for each demographic characteristic, can relax these demands, but rely on stronger identifying assumptions by comparing health across more dissimilar families. In order to probe robustness to alternative specifications, Appendix Figure A3 plots results from specifications that use a combination of state versus county, demographic cell versus separate demographics, and demographic cell with and without location (and time) interactions in a specification curve analysis (Simonsohn, Simmons and Nelson, 2020). Across all populations, additional resources generate improvements in infant health and even the most conservative estimates can rule out an additional $1000 reducing low birthweight by less than 0.12 percentage points with 95 percent confidence.

The focus on low birthweight is motivated by the strong predictive power low weight at birth and adverse health outcomes throughout development in childhood and adulthood (Black, Devereux and Salvanes, 2007; Hack, Klein and Taylor, 1995; Hack et al., 2002, 2005). While this relationship holds across settings, it is nonetheless a single measure that does not necessarily capture all components of infant health. In order to probe the relationship between unconditional cash assistance and infant health, Table 2 examines other health dimensions that medical evidence suggests might be affected by maternal stress and the prenatal environment. Namely, Apgar scores summarize overall infant health 5 minutes after birth based on a child's breathing effort, heart rate, muscle tone, reflexes, and skin color. Preterm delivery (gestational length less than 37 weeks) can arise from persistent

error is not an issue. This population experiences reductions in low birthweight that are at least twice as large as the main effect, indicating that any measurement error in CTC payments is small relative to effect of the payments on a per-household member basis.

maternal stress that affects hormone regulation during pregnancy, resulting in slow fetal growth rates (Weinstock, 2005). Finally, very-low birth weight (less than 1500g) is a more extreme measure of birthweight than the 2500g threshold captured in Table 1.

Across all measures of infant health, additional resources during pregnancy improve outcomes, with an additional $1000 increasing Apgar scores 0.02 points, reducing very low birthweight by at least 0.6 percentage points, and reducing preterm births by approximately 3 percentage points. Again, these improvements are similar across different definitions of low-income populations.

The magnitude of these results is sizable compared to other interventions that directly target health outcomes but that occurred several decades ago. For example, Currie and Gruber (1996) find that a 10 percentage point increase in Medicaid eligibility for low-income families during the 1980s reduced low birthweight by 2.6 percent, approximately the same reduction as an additional $100-$130 cash transfer during pregnancy (in 2021 dollars). Almond, Hoynes and Schanzenbach (2011) find that the prevalence of low birthweight to low-income black women fell 0.7 to 1.5 percentage points with the introduction of food stamps – approximately equivalent to $400-$890 over the course of a 2020-21 pregnancy. There are several reasons why these results may not be directly comparable. First, willingness to pay for in-kind transfers is often less than the gross cost of these programs (Finkelstein, Hendren and Luttmer, 2019). Second, the context today is different than fifty years ago – rates of low birthweight have fallen, especially among low-socioeconomic groups (Aizer and Currie, 2014) and the 2020-21 payments augmented a safety net that was more robust than that in the 1970s. Counteracting these positive trends, however, the EIP and CTC payments occurred during a global pandemic in which reported financial hardship and poor mental health substantially increased above pre-pandemic levels (Bitler, Hoynes and Schanzenbach, 2020; Panchal et al., 2021).

In comparison to more recent cash transfers, Hoynes, Miller and Simon (2015) find that an additional $1,400 in EITC transfers (in 2021 dollars) reduces low birthweight among births to low-educated mothers by 0.17 to 0.43 percentage points, the same magnitude as implied by \$100-240 of EIP and CTC payments. There are several reasons why the EIP and CTC might have a larger effect than annual lump-sum payments. First, the effect of cash receipt during an economic downturn amidst a global pandemic might be different than during a prolonged economic expansion, as noted above. Second, as calculated in Hoynes, Miller and Simon (2015) receipt of the annual EITC payments occurs between 2 and 13 months before birth. High-frequency transaction data show a sizable increase in retail spending in the 2 weeks following EITC receipt that quickly dissipates over the following weeks (Aladangady et al., 2022). Therefore, if families exhaust the additional resources quickly, any benefits for children born up to a year later will be dampened. In contrast, the EIP and CTC payments occurred throughout the year, allowing for the short-term consumption response documented in Cox et al. (2020) to benefit children born each month. I turn to this point in Section 3.2.

3.2 Payment timing

The baseline results in Section 3.1 aggregate payments over the course of a pregnancy. However, certain periods may be especially pivotal for infant health, and payments during these periods are expected to have especially pronounced benefits. In particular, the existing literature finds that the third trimester is a particularly important period for birthweight (Almond, Hoynes and Schanzenbach, 2011; Carlson, 2015; Painter, Roseboom and Bleker, 2005), and therefore, payments received towards the end of pregnancy are expected to yield especially large benefits.

In order to shed light on these dynamics and whether the timing of payments generates differential benefits, I take two complementary approaches. First, Table 3 disaggregates payments into dollars received in each trimester. Consistent with existing work, payments throughout pregnancy improve infant health, but the benefits of these payments is larger during the later stages of pregnancy: an additional \$1000 in the third trimester reduces low birthweights by approximately 3.8 percentage points, compared to 0.8 percentage points in the first trimester, and approximately 1.8 percentage points in the second trimester.

Second Figure 3 presents an event study under the approach in Equation 5. Consistent with Table 3, Figure 3 shows a sharp improvement in birth outcomes that coincides with very short-term receipt of the payments. That is, benefits received in the last 2 months of pregnancy have particularly large benefits and the value of payments in the first and second trimesters is more muted.

The event study analysis can also shed light on the plausibility of the parallel trends assumption underlying Equation 3: that birthweight between births of different-order parities born in the same area would have followed a similar trajectory in the absence of EIP and CTC payments. Figure 3 shows pre-treatment coefficients economically close to zero, with no discernible trend in the months leading up to when the first payments were issued. While subsequent payments were sufficiently spaced so that nearly all births after mid-April 2020 received *some* payment (Appendix Table A2, Figure 3 indicates that pre-pandemic infant health outcomes were not differentially trending across different family types in ways that were correlated with the eventual credit payments.

3.3 Mechanisms

Consumption patterns and financial resources: As outlined in the introduction, there are several mechanisms by which additional resources during pregnancy could affect infant health. First, families could use the resources to purchase goods and services that directly improve child health, such as improved nutrition or greater prenatal care. Second, even if consumption patterns do not change, additional resources could benefit infants by reducing parental stress, and therefore improving fetal development. The existing literature finds evidence to support both mechanisms: over the period in which EIP and expanded CTC payments were made, eligible families experienced improved nutrition, paid down debt, and reported fewer economic hardships (Hamilton et al., 2022; Karpman et al., 2021; Pilkauskas et al., 2022). At the same time, the CTC payments did not significantly affect employment among parents (with children of all ages) in the last six months of 2021 (Ananat et al., 2022; Hamilton et al., 2022).

In order to examine whether families used the additional assistance in ways that would be beneficial to children, Appendix Table A4 reports how families reported using the payments, using data from the Census Bureau's Household Pulse Survey (HPS). The HPS began asking more information about the ages of children beginning in July 2021; therefore information on EIP receipt and use predated this question. In order to focus on families that are closest to the target population of this paper given these data limitations, the EIP patterns are limited to households with children and the CTC patterns only include households with at least one child younger than 5. This table shows that about 58 percent of families report receiving an EIP payment, and a slightly higher share (65 percent) report receiving a CTC payment. As about 75 to 95 percent of families were issued payments, this gap reflects imperfect awareness about payment receipt. Amongst the families that report receiving payments, upwards of 70 percent reported using some of the resources to purchase basic necessities (clothing, food, housing, and utilities). About 23-34 percent of households report using the payments on consumption, and between 38-57 percent report using the payments to pay down debt. The reported use of the EIP payments to primarily pay down debt is larger than CTC payments, both overall and across low-income subpopulations. Combined, this survey evidence suggests that one way the payments could have improved infant health is by alleviating household financial stress and providing families with greater resources to procure basic necessities.

Maternal health and healthcare: A separate, but not mutually exclusive channel could arise if the payments affected other features of the *in utero* environment, such as maternal health or household stress. Previous analyses of the Household Pulse Survey indicate self-reported symptoms of anxiety and depression fell among parents eligible for the credit in the months after disbursement (Batra, Jackson and Hamad, 2023). Table 4 provides additional evidence of how eligibility for the credits affected parental stress examining dimensions of the *in utero* environment that are reported in the Vital Statistics data.

Looking first to insurance coverage, the availability of payments during pregnancy led to a statistically significant increase in Medicaid receipt for low-income populations and a reduction in insurance coverage for the full population. However, it is important to note that both of these changes are small in magnitude (0.1-0.2 percentage points from an additional

$1,000, relative to a base receipt rate of 68-94 percent). One possible explanation is that the additional resources provided by the EIP and CTC allowed parents to reduce their earned income or labor force attachment, thereby losing access to employer-sponsored coverage or gaining access to Medicaid. Existing work does not find substantial reductions in employment (Ananat et al., 2022; Hamilton et al., 2022), but these studies largely focus on relatively broad types of families, rather than those expecting a new child. As the birth records data do not collect information on employment or earnings, it is possible that families of the youngest children spent more time out of the labor force in the months leading up to birth.

Columns 4-6 examine other dimensions of health behaviors and investments in children during pregnancy. Mothers with access to an additional $1,000 in credits during pregnancy received more prenatal care (0.1 more visits, or a 0.9 percent increase) and were less likely to smoke during the third trimester of pregnancy.[19] In contrast, there is no economically or statistically significant change in WIC coverage. Taken together, these results provide evidence consistent with greater resources reducing household stressors (reduced smoking) and increasing consumption on services directly linked to child health (prenatal care). They are also consistent with patterns in maternal smoking and prenatal care, as well as general improvements in maternal health, found in the EITC literature (Evans and Garthwaite, 2014; Hoynes, Miller and Simon, 2015; Markowitz et al., 2017; Strully, Rehkopf and Xuan, 2010).

Composition of births: Bailey, Currie and Schwandt (2022) document that fertility among U.S.-born mothers increased during the pandemic, particularly among first-time mothers and relatively young women. These changes do not present a threat to the internal validity of the results, as all specifications are reported at the individual-level and include controls for age, educational attainment, and other demographic characteristics. That is, the results are representative of the births that occurred during the pandemic. A separate consideration, however, is that the types of families who gave birth during the pandemic dif-

[19] I focus on the third trimester of pregnancy and limit this outcome to families that received a payment in the first or second trimester since smoking in earlier trimesters could pre-date receipt or expected receipt of the credit.

fered in ways from families that would have otherwise given birth, and therefore, the results for 2020 and 2021 may not generalize to other settings.

In order to examine whether we would expect similar improvements in infant health among populations that gave birth outside the pandemic, I replicate the analysis of Table 1 using the composition of births born in 2019. Specifically, using data from the 2019 through 2021 birth records, I calculate the number (n_{dcpt}) and share (p_{dcpt}) of all births in a narrow cell defined by county; birth parity; and parental marital status, educational attainment, race and ethnicity, and age group. Then for births in the main analysis sample (those born in 2020 and 2021), I weight each observation by $\frac{p_{dcp2019}}{n_{dcpt}}$ so that each birth in 2020 and 2021 has a weight that is consistent with their expected share of the 2019 birth cohort.[20]

Appendix Table A6 provides results under this approach. Across all populations, the estimated improvements on infant health are larger than the main results in Table 1. This pattern indicates that fertility changes over the course of the pandemic favored births that were less responsive to changes in family resources. Had the composition of births remained unchanged from its pre-pandemic levels, we would expect even larger improvements in infant health.

Pandemic and Stay-at-Home Orders: If the pandemic affected infant health differently across family types, this only presents a shortcoming to the analysis if these changes are correlated with payment amounts. With each payment, families with more children received higher payments than families with fewer children, and in the case of the EIPs, married couples received higher payments than did single-parent households. Differential changes across family type are most likely in the early months of the pandemic, when states issued stay-at-home orders that closed schools, childcare, and workplaces. During these orders, many hospitals discharged patients more quickly and some placed restrictions on support partners (Greene et al., 2020; Handley et al., 2022). County-by-time fixed effects account for macro trends that affected all births in a locality the same in a particular month, but

[20]As some demographic cells have no births in either 2019 or the current year, the raw weights sum to less than one. Using analytical weights in the estimating equations renormalizes the weights so that they sum to one.

do not account for the possibility that some families might have been more or less affected. For instance, the presence of young children at home could have placed additional stress on families with multiple children, but shorter hospital stays and restrictions on support partners could have alleviated the need to assemble childcare arrangements. The nature and stringency of stay-at-home orders and hospital guidance varied across states (and in some cases, by locality or hospital), but were generally tightest between March and May 2020 shortly before and after the first EIP disbursement.

In order to examine whether the main results are capturing the effect of stay-at-home orders, Appendix Table A7 panel a replicates the main results omitting births that occurred during the March-May 2020 period of restrictive stay-at-home orders. Omitting these months yields effects that are nearly identical to the main results, indicating the improvements in infant health are not driven by the first months of the pandemic.[21] The rest of Appendix Table A7 further disaggregates the main results by the first EIP payment (panel b) and later payments (panel c).[22] In each panel, the sample is restricted to families that gave birth either after the credit disbursement or 4 months prior and did not receive a later (panel b) or earlier (panel c) credit. Comparing the benefits across the credits shows that $1000 during 2021 provided greater benefits than $1000 earlier in the pandemic, and for low-income subgroups, these benefits were more than twice as large. These results further indicate that the main results are not driven by other changes that occurred early in the pandemic.

4 Conclusion

This paper finds that increased resources during pregnancy improve child well-being, and that unconditional cash transfers have large effects on infant health. Payment timing is also important: resources received during the final months of a pregnancy yield a greater health benefit than those received earlier on. Finally, patterns in prenatal care and maternal health

[21]Similarities to the main results can also be seen in Appendix Figure A3.

[22]As shown in Appendix Table A2, the second and third EIP and the expanded CTC were spaced so that nearly all 2021 births received multiple credits, precluding a clear disaggregation across the later payments. Therefore, panel c combines the second and third EIP and the expanded CTC.

suggest that these benefits to infants accrue through both investments in children as well as improvements in the prenatal environment.

Millions of families experience financial stress: by some estimates, 35 percent of adults would be unable to cover a $400 emergency expense prior to the pandemic, a rate that has improved little over time (Federal Reserve, 2021). The payments issued to families during the pandemic were large in comparison: the average EIP was 8.5 times — and the average CTC more than twice — this amount. Therefore, the resources afforded by the credits could make a meaningful impact on households' financial circumstances. The improvements in infant health documented in this paper are consistent with previous work showing that families used the payments on essential goods and services and to improve their financial position. It builds on this literature by showing that these improvements in material hardship benefited the next generation in ways that are expected to yield long-term benefits. These findings are particularly relevant as dozens of US cities are piloting guaranteed income programs and policymakers contemplate a permanent expansion of the federal Child Tax Credit.

In order to quantify the magnitude of the improvements in infant health relative to the cost of administering a universal transfer program, I apply the estimates from the fixed effects specification in Almond, Chay and Lee (2005) of the excess cost of low birthweights due to initial hospitalization costs. By these estimates, a transfer of $100 to families is expected to result in approximately $26 savings in hospitalizations shortly after birth. These effects are large relative to previous estimates of annual transfers that are conditional on employment, and do not include any longer-term benefits in terms of educational attainment, health, or labor market outcomes.

The period covered by this study coincided with a global pandemic that resulted in elevated levels of mental health and financial distress. However, the improvements in infant health are not driven by the periods during the pandemic with the most restrictive stay-at-home policies and the improvements in infant health are consistent with health improvements following cash transfers implemented in different countries (Amarante et al., 2016; Barber and Gertler, 2008; Barham, 2011) and in periods of strong economic growth (Hoynes, Miller and Simon, 2015; Markowitz et al., 2017; Strully, Rehkopf and Xuan, 2010), but larger in magnitude. Therefore, with this context in mind, the results in this paper speak to the potential benefits of investments at the earliest stages of development, particularly during times of economic hardship.

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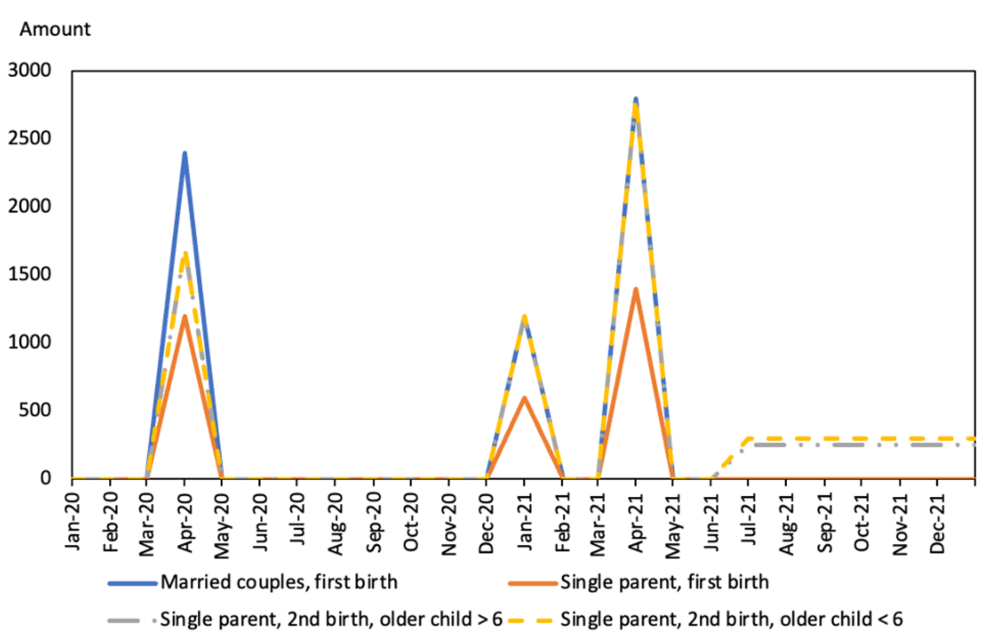
5 Figures

Figure 1: Amount of EIP and CTC payments, by family type

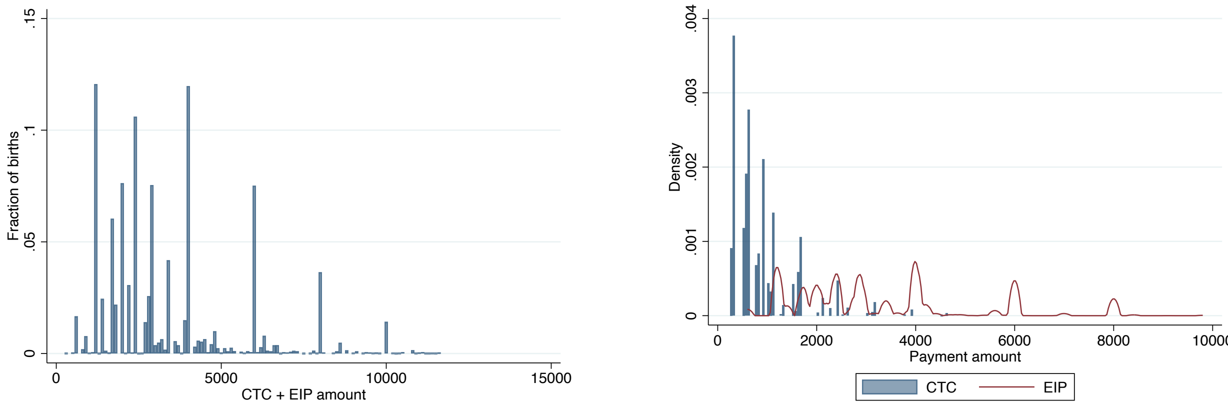


Notes: Figure shows the maximum amount each family received in EIP and CTC payments over the analysis period.

Figure 2: Distribution of EIP and CTC payments, by family type

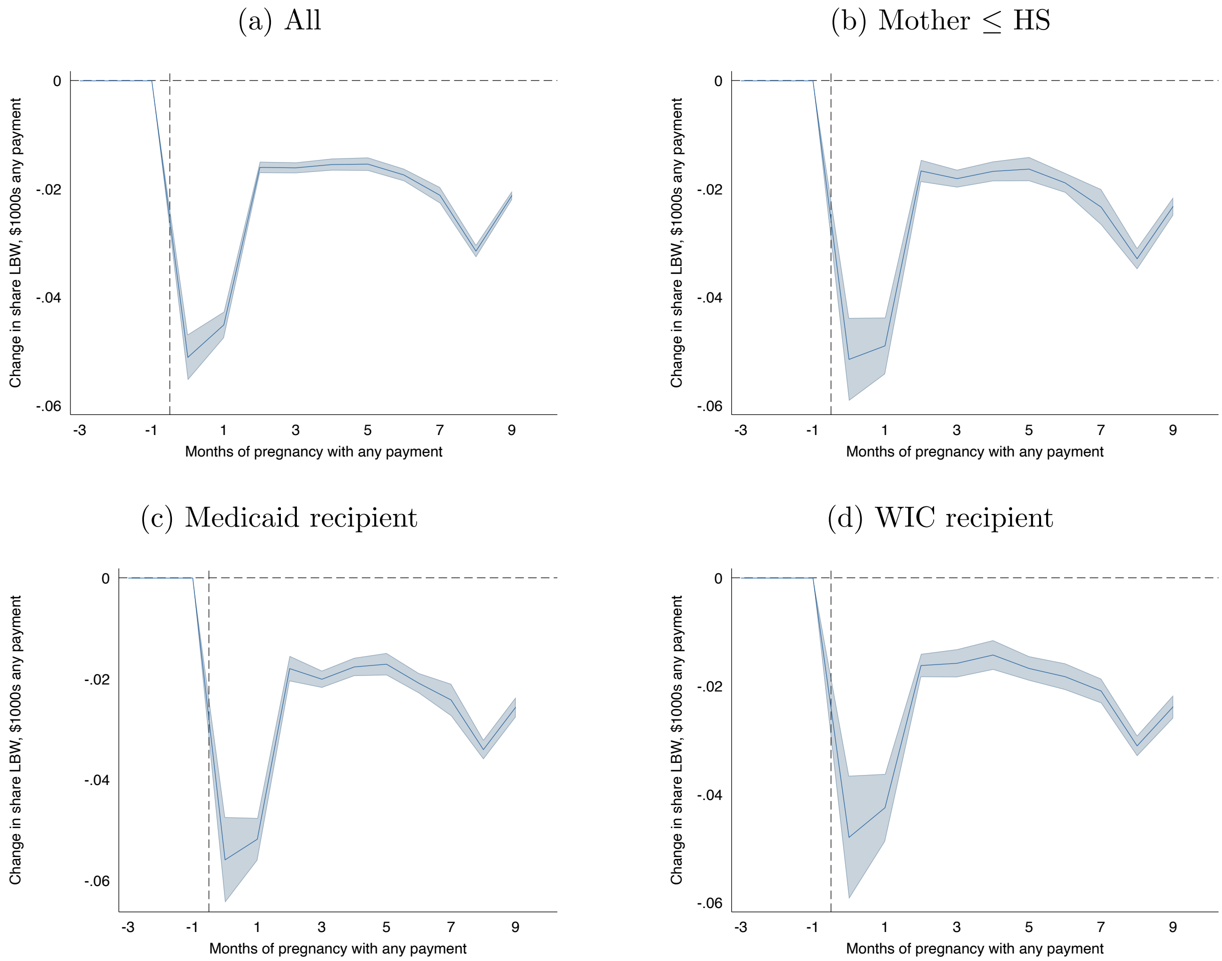
(a) Combined credits

(b) By credit type



Notes: Figure shows the empirical distribution of payment amounts received during pregnancy for births born in calendar years 2020 and 2021. Panel a combines amounts received through EIP and CTC payments; panel b disaggregates by credit type. Families that received $0 are excluded for visualization purposes.

Figure 3: Months of pregnancy following first payment and low-birthweight



Notes: Figure shows effect of additional $1,000 during pregnancy on the prevalence of low-birthweight (<2500g). Horizontal axis indicates the months of pregnancy following first receipt of either an EIP or CTC payment. Sample includes all births (panel a), mothers with no more than a high school education (b), Medicaid recipients (c), and WIC recipients (d). All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. Shaded area denotes 95 percent confidence intervals.

Table 1: Additional income during pregnancy and low-birthweight

	(1)	(2)	(3)	(4)
	All	Mother $\leq$ HS	Medicaid	WIC
Panel a: All births				
$CTC + EIP$ (\$1000s)	-0.0172***	-0.0185***	-0.0197***	-0.0179***
	(0.0003)	(0.0006)	(0.0006)	(0.0006)
N	2570780	764295	731166	495657
DV mean	0.0635	0.0878	0.0925	0.0855
$AverageCTC + EIP \mid (anyCTC \mid EIP)$	3.4279	3.1890	3.0924	2.8884
Panel b: Married parents				
$CTC + EIP$ (\$1000s)	-0.0156***	-0.0157***	-0.0180***	-0.0183***
	(0.0004)	(0.0010)	(0.0015)	(0.0012)
N	1478579	201861	128418	82420
DV mean	0.0466	0.0593	0.0656	0.0639
$AverageCTC + EIP \mid (anyCTC \mid EIP)$	4.0521	4.5528	4.6861	4.5125
Panel c: Unmarried parents				
$CTC + EIP$ (\$1000s)	-0.0197***	-0.0199***	-0.0202***	-0.0177***
	(0.0006)	(0.0007)	(0.0008)	(0.0007)
N	1092201	562434	602748	413237
DV mean	0.0863	0.0981	0.0983	0.0898
$AverageCTC + EIP \mid (anyCTC \mid EIP)$	2.5751	2.6952	2.7489	2.5609

Notes: Table shows effect of additional \$1,000 during pregnancy on likelihood of birthweight below 2,500g. Sample includes all births (panel a), births to married parents (panel b), and births to unmarried parents (c) All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2: Additional income during pregnancy and additional measures of infant health

	(1)	(2)	(3)	(4)
	All	Mother $\leq$ HS	Medicaid	WIC
Panel a: 5-minute Apgar score				
$CTC + EIP$ (\$1000s)	0.0241***	0.0254***	0.0258***	0.0249***
	(0.0008)	(0.0013)	(0.0016)	(0.0016)
N	2561236	760370	727703	493595
DV mean	8.7831	8.7645	8.7612	8.7687
$AverageCTC + EIP\|(anyCTC\|EIP)$	3.4269	3.1857	3.0905	2.8869
Panel b: Very-low birthweight (<1500g)				
$CTC + EIP$ (\$1000s)	-0.0061***	-0.0072***	-0.0076***	-0.0067***
	(0.0002)	(0.0002)	(0.0003)	(0.0003)
N	2570780	764295	731166	495657
DV mean	0.0092	0.0130	0.0136	0.0115
$AverageCTC + EIP\|(anyCTC\|EIP)$	3.4279	3.1890	3.0924	2.8884
Panel c: Pre-term birth (gest. < 37 weeks)				
$CTC + EIP$ (\$1000s)	-0.0341***	-0.0369***	-0.0389***	-0.0369***
	(0.0008)	(0.0010)	(0.0010)	(0.0015)
N	2570791	764080	731004	495684
DV mean	0.0974	0.1254	0.1313	0.1209
$AverageCTC + EIP\|(anyCTC\|EIP)$	3.4279	3.1888	3.0922	2.8884

Notes: Table shows effect of additional $1,000 during pregnancy on having a 5-minute Apgar score (panel a), birthweight below 1,500g (panel b), and pre-term birth defined as a gestational length less than 37 weeks. All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 3: Additional income during pregnancy and low-birthweight, by trimester

	(1)	(2)	(3)	(4)
	All	Mother $\leq$ HS	Medicaid	WIC
Panel a: All births				
$CTC + EIP_{tri1}$ (\$1000s)	-0.0076***	-0.0069***	-0.0074***	-0.0067***
	(0.0003)	(0.0005)	(0.0006)	(0.0005)
$CTC + EIP_{tri2}$ (\$1000s)	-0.0178***	-0.0189***	-0.0196***	-0.0174***
	(0.0004)	(0.0007)	(0.0007)	(0.0008)
$CTC + EIP_{tri3}$ (\$1000s)	-0.0382***	-0.0423***	-0.0453***	-0.0409***
	(0.0006)	(0.0010)	(0.0012)	(0.0012)
N	2570780	764295	731166	495657
DV mean	0.0635	0.0878	0.0925	0.0855
$AverageCTC + EIP_{tri1} \| (anyCTC \| EIP)$	1.0758	1.0300	1.0013	0.9352
$AverageCTC + EIP_{tri2} \| (anyCTC \| EIP)$	1.1615	1.0836	1.0520	0.9748
$AverageCTC + EIP_{tri3} \| (anyCTC \| EIP)$	1.1905	1.0754	1.0391	0.9785

Notes: Table shows effect of additional \$1,000 during each trimester of pregnancy on likelihood of birthweight below 2,500g. All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 4: Additional income during pregnancy, prenatal health, and health care access

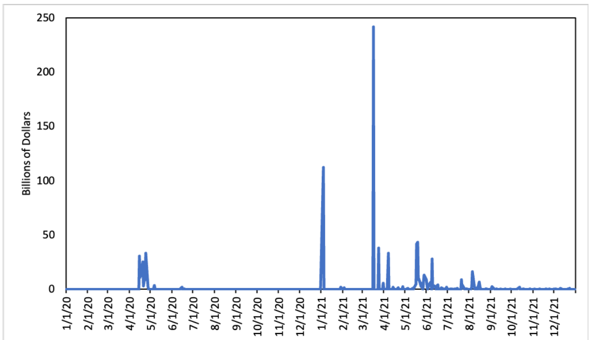
	(1)	(2)	(3)	(4)	(5)	(6)
	Hospital birth	Medicaid	Any insurance	# pre-natal visits	Any smoking 3rd tri-mester	WIC
Panel a: All						
$CTC + EIP$ (\$1000s)	-0.0031***	0.0002	-0.0017***	0.1011***	-0.0007***	-0.0000
	(0.0003)	(0.0003)	(0.0003)	(0.0054)	(0.0001)	(0.0003)
N	2571648	2552777	2552777	2518788	2553973	2549519
DV mean	0.9779	0.3392	0.9429	11.2943	0.0368	0.2516
$AverageCTC + EIP \| (anyCTC \| EIP)$	3.4279	3.4263	3.4263	3.4324	3.4301	3.4287
Panel b: Mother $\leq$ HS						
$CTC + EIP$ (\$1000s)	-0.0017***	0.0012**	0.0002	0.0977***	-0.0013***	0.0006
	(0.0002)	(0.0006)	(0.0003)	(0.0069)	(0.0003)	(0.0007)
N	764545	758951	758951	745621	756262	756313
DV mean	0.9759	0.6776	0.9327	10.4399	0.0858	0.4965
$AverageCTC + EIP \| (anyCTC \| EIP)$	3.1891	3.1875	3.1875	3.1934	3.1912	3.1891
Panel c: Medicaid						
$CTC + EIP$ (\$1000s)	-0.0005***			0.0926***	-0.0014***	0.0015
	(0.0002)			(0.0077)	(0.0004)	(0.0010)
N	731362			712239	723274	724103
DV mean	0.9934			10.4885	0.0857	0.5968
$AverageCTC + EIP \| (anyCTC \| EIP)$	3.0924			3.0963	3.0935	3.0926
Panel d: WIC						
$CTC + EIP$ (\$1000s)	-0.0004**	0.0014*	0.0009**	0.0955***	-0.0009*	
	(0.0002)	(0.0008)	(0.0004)	(0.0090)	(0.0005)	
N	495752	493155	493155	483415	491677	
DV mean	0.9947	0.7989	0.9659	10.8786	0.0738	
$AverageCTC + EIP \| (anyCTC \| EIP)$	2.8885	2.8876	2.8876	2.8921	2.8894	

Notes: Table shows effect of additional \$1,000 during pregnancy on prenatal health and behaviors, insurance, and location of delivery. All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

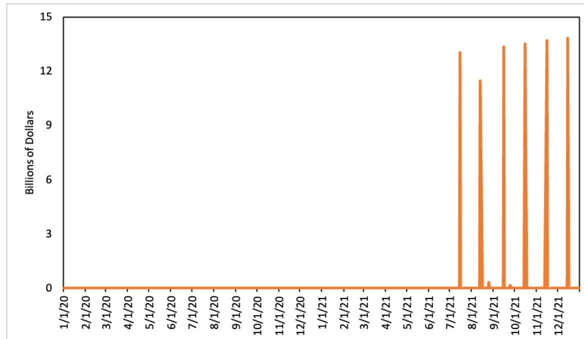
A Appendix

Appendix Figure A1: Timing of EIP and CTC Disbursements

(a) EIP disbursements

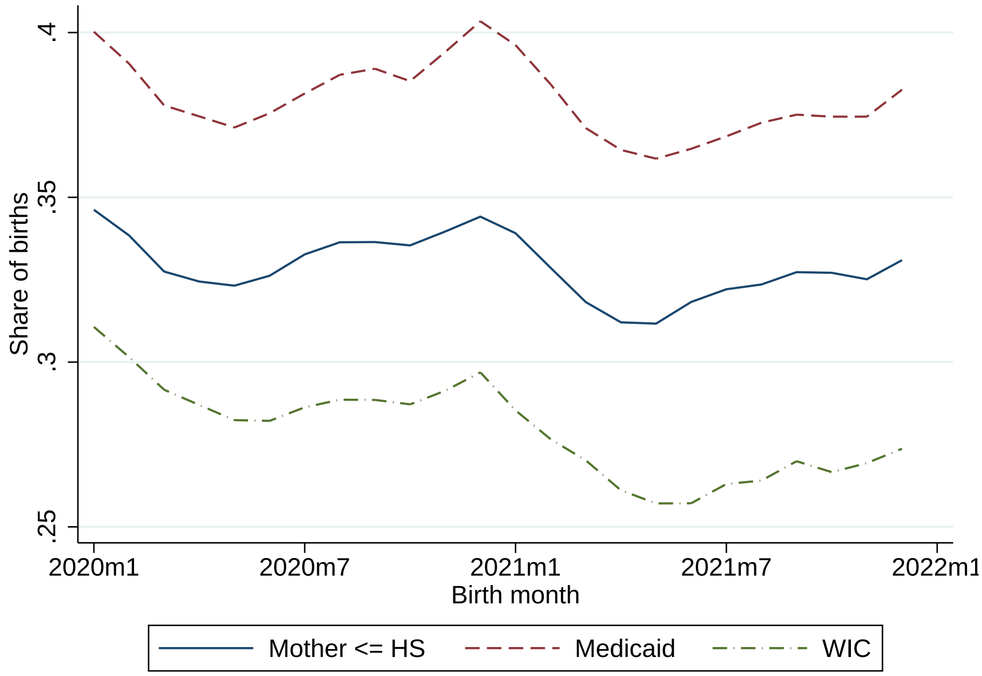


(b) Expanded CTC disbursements



Notes: Figure shows the amount of EIP (panel a) and Expanded CTC (panel B) payments disbursed by the Treasury each day. Data from Daily Treasury Statements.

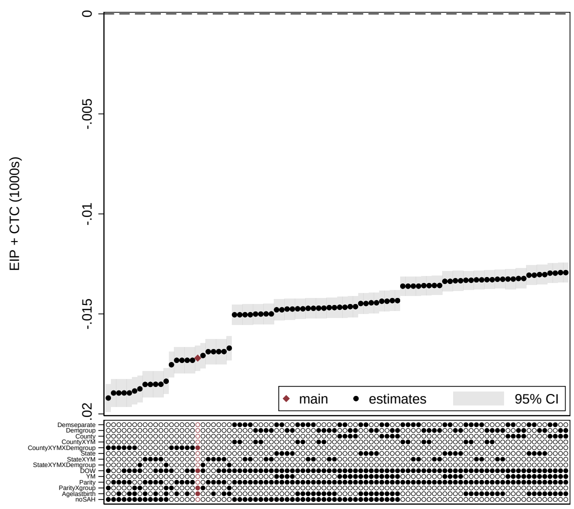
Appendix Figure A2: Share of Births in Low-income Subpopulations



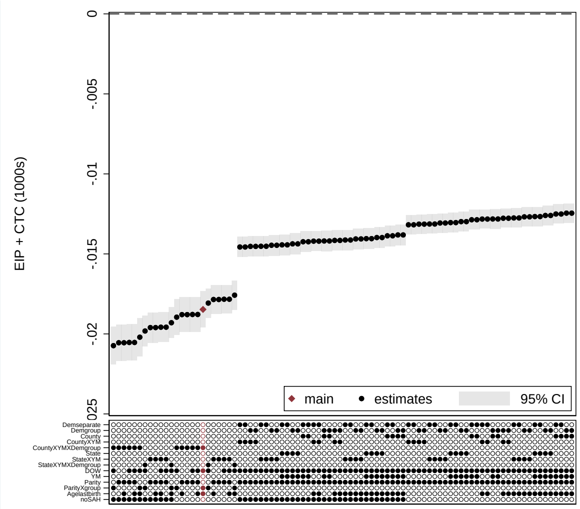
Notes: Figure shows the share of births in the analytical sample in each low-income subgroup by month of birth.

Appendix Figure A3: Low-birthweight, robustness to alternative specifications

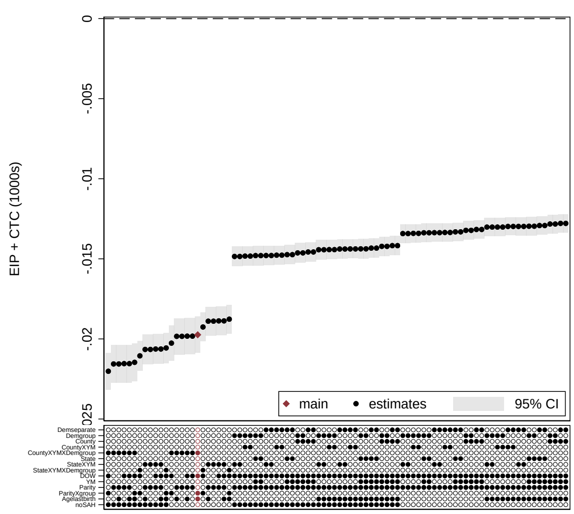
(a) All



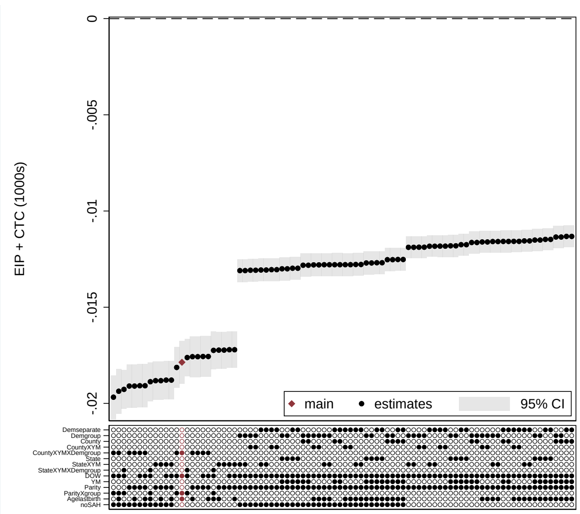
(b) Mother ≤ HS



(c) Medicaid recipient



(d) WIC recipient



Notes: Figures show the point estimate for an additional \$1,000 on low-birthweight under various functional forms and sample restrictions as in (Simonsohn, Simmons and Nelson, 2020). "Demseparate" denotes parental demographic characteristics entered separately; "demgroup" denotes parental demographic cells, "County" and "State" are the county and state of residence, respectively; "YM" is the year and month of birth; "DOW" is day of the week the birth occurred; "Agelastbirth" is an indicator for whether the next-oldest sibling was younger than 6 at the end of the calendar year; "NoSAH" omits births that occurred during the stay-at-home orders between March and May 2020. Main specification from Table 1 shown as red triangle. Gray bars show 95 percent confidence intervals with robust standard errors clustered by county.

Appendix Table A1: Legislation Summary and Timing

Payment	Authorizing legislation	Legislation 1st introduced	Passed	1st Payments Disbursed	Payment amount	Max AGI for Full Amount	Phase-out rate
EIP 1	Coronavirus Aid, Relief, and Economic Security Act (CARES)	3/6/20	3/27/20	4/13/20	$1200 adult, $500 child	Single $75,000, MFJ, $150,000, HOH $112,500	5%
EIP 2	Consolidated Appropriations Act (CAA)	12/21/20	12/27/20	1/4/21	$600, adult and child	Single $75,000, MFJ $150,000, HOH $112,500.	5%
EIP 3	American Rescue Plan Act (ARPA)	2/24/21	3/11/21	3/12/21	$1,400 adult and child	Single $75,000, MFJ $150,000, $112,500. HOH $112,500.	Varies by type. Phase out $80,000 single, $160,000 MFJ, $120,000 HOH
Expanded CTC	American Rescue Plan Act (ARPA)	2/24/21	3/11/21	Monthly on the 15th, beginning 7/15/21	$250/mo per child ≥ 6, $300/mo per child < 6.	Single $75,000, MFJ $150,000, HOH $112,500.	5% until $2,000/child, then prior law.

Appendix Table A2: Month of pregnancy 1st payment occurred

	EIP1	EIP2	EIP3	CTC began
Jan-20	0	0	0	0
Feb-20	0	0	0	0
Mar-20	0	0	0	0
Apr-20	0	0	0	0
May-20	1	0	0	0
Jun-20	2	0	0	0
Jul-20	3	0	0	0
Aug-20	4	0	0	0
Sep-20	5	0	0	0
Oct-20	6	0	0	0
Nov-20	7	0	0	0
Dec-20	8	0	0	0
Jan-21	9	0	0	0
Feb-21	0	1	0	0
Mar-21	0	2	0	0
Apr-21	0	3	1	0
May-21	0	4	2	0
Jun-21	0	5	3	0
Jul-21	0	6	4	0
Aug-21	0	7	5	1
Sep-21	0	8	6	2
Oct-21	0	9	7	3
Nov-21	0	0	8	4
Dec-21	0	0	9	5

Notes: Table shows the number of months of pregnancy after each payments were received (EIPs) or payments began (CTC) based on a 9-month pregnancy. Blue shaded cells denote payments in the third trimester (fewest gestational months), green cells denote payments in the second trimester, and yellow cells denote payments in the first trimester.

Appendix Table A3: Summary Statistics: Births in 2020 and 2021

	(1)	(2)	(3)	(4)
	All	Mother ≤ HS	Medicaid	WIC
Panel a: Demographics				
# older siblings	0.990	1.206	1.248	1.126
	(1.172)	(1.328)	(1.323)	(1.280)
% older sibling < 6	0.434	0.458	0.462	0.425
	(0.496)	(0.498)	(0.499)	(0.494)
Mother non-Hispanic white	0.622	0.500	0.444	0.425
	(0.485)	(0.500)	(0.497)	(0.494)
Mother non-Hispanic Black	0.147	0.213	0.251	0.251
	(0.354)	(0.409)	(0.434)	(0.434)
Mother Hispanic	0.167	0.230	0.240	0.261
	(0.373)	(0.421)	(0.427)	(0.439)
Mother age	28.97	26.08	26.72	26.45
	(5.454)	(5.184)	(5.272)	(5.300)
Mother ≤ HS	0.329	1	0.583	0.575
	(0.470)	(0)	(0.493)	(0.494)
Father present	0.531	0.297	0.245	0.242
	(0.499)	(0.457)	(0.430)	(0.428)
Father non-Hispanic white	0.544	0.372	0.316	0.303
	(0.498)	(0.483)	(0.465)	(0.459)
Father non-Hispanic Black	0.122	0.156	0.186	0.193
	(0.328)	(0.363)	(0.389)	(0.394)
Father Hispanic	0.149	0.190	0.198	0.218
	(0.356)	(0.393)	(0.399)	(0.413)
Father age	31.30	28.71	29.20	28.88
	(6.311)	(6.626)	(6.704)	(6.691)
Medicaid receipt	0.380	0.674	1	0.774
	(0.485)	(0.469)	(0)	(0.418)
WIC	0.279	0.489	0.571	1
	(0.449)	(0.500)	(0.495)	(0)

Appendix Table A3: Summary Statistics: Births in 2020 and 2021 (continued)

	(1)	(2)	(3)	(4)
	All	Mother ≤ HS	Medicaid	WIC
Panel b: EIP and CTC receipt				
% any EIP	0.844	0.839	0.839	0.834
	(0.362)	(0.367)	(0.368)	(0.372)
Avg EIP amount | any EIP	3400.1	3273.6	3243.4	3077.5
	(2197.9)	(2395.7)	(2390.3)	(2289.8)
% any CTC	0.0905	0.0972	0.101	0.0911
	(0.287)	(0.296)	(0.301)	(0.288)
Avg CTC amount | any CTC	867.3	959.5	960.3	931.9
	(643.9)	(721.9)	(715.0)	(691.6)
# months CTC | any CTC	3.480	3.487	3.495	3.493
	(1.121)	(1.121)	(1.122)	(1.122)
Panel c: Infant health				
Low birth weight	0.0671	0.0867	0.0886	0.0825
	(0.250)	(0.281)	(0.284)	(0.275)
5-minute Apgar score	8.776	8.761	8.755	8.759
	(0.770)	(0.806)	(0.805)	(0.795)
Very low birthweight	0.00961	0.0123	0.0126	0.0108
	(0.0976)	(0.110)	(0.111)	(0.103)
Preterm birth	0.102	0.125	0.128	0.119
	(0.302)	(0.330)	(0.334)	(0.323)

Notes: Table shows means (standard deviations) for each characteristic of the main analysis sample. Universe is births born in 2020 and 2021 to native-born mothers who gave birth in the U.S. Non-singleton births and births in which an older sibling is deceased are excluded.

Appendix Table A4: Payment Receipt and Use

	(1)	(2)	(3)	(4)	(5)
	All	Mother ≤ HS	Medicaid		
		All		Married	Unmarried
Panel a: Economic Impact Payments 1-2 (Households with Children)					
Share receiving EIP	0.580	0.618	0.665	0.571	0.595
	(0.494)	(0.486)	(0.472)	(0.495)	(0.491)
Primarily spent | receipt	0.226	0.213	0.226	0.235	0.212
	(0.418)	(0.410)	(0.418)	(0.424)	(0.409)
Primarily used to pay debt | receipt	0.567	0.623	0.648	0.538	0.609
	(0.496)	(0.485)	(0.478)	(0.499)	(0.488)
Spent on necessities | receipt	0.761	0.834	0.912	0.707	0.840
	(0.427)	(0.372)	(0.284)	(0.455)	(0.367)
Panel b: Expanded Child Tax Credit (Households with Children under 5)					
Share receiving CTC	0.646	0.694	0.696	0.672	0.589
	(0.478)	(0.461)	(0.460)	(0.470)	(0.492)
Primarily spent | receipt	0.342	0.329	0.341	0.347	0.330
	(0.474)	(0.470)	(0.474)	(0.476)	(0.470)
Primarily used to pay debt | receipt	0.375	0.521	0.492	0.333	0.483
	(0.484)	(0.500)	(0.500)	(0.471)	(0.500)
Spent on necessities | receipt	0.694	0.897	0.891	0.630	0.857
	(0.461)	(0.304)	(0.311)	(0.483)	(0.350)
Spend on educational activities | receipt	0.401	0.418	0.417	0.390	0.431
	(0.490)	(0.493)	(0.493)	(0.488)	(0.495)

Notes: Table shows means (standard deviations) for each credit (EIP, CTC), reported receipt, primary use, and whether any of the credit was used for necessities (food, clothing, shelter, and utilities). Universe is recipients in the Census Bureau Household Pulse survey who report receiving an EIP between April 2020 and March 2021 or a CTC payment after July 2021. Sample includes all households with children (panel a) or those with a least one child younger than 5 (panel b).

Appendix Table A5: Additional income during pregnancy and low-birthweight, parity ≤ 2

	(1)	(2)	(3)	(4)
	All	Mother $\leq$ HS	Medicaid	WIC
Panel a: All births				
$CTC + EIP$ (\$1000s)	-0.0390***	-0.0496***	-0.0511***	-0.0458***
	(0.0006)	(0.0016)	(0.0021)	(0.0022)
N	1825482	475097	435122	318564
DV mean	0.0630	0.0880	0.0920	0.0852
$AverageCTC + EIP \mid (anyCTC \mid EIP)$	2.8187	2.2642	2.1306	2.0646
Panel b: Married parents				
$CTC + EIP$ (\$1000s)	-0.0339***	-0.0377***	-0.0373***	-0.0401***
	(0.0006)	(0.0016)	(0.0020)	(0.0021)
N	1068993	108758	58306	40581
DV mean	0.0482	0.0610	0.0645	0.0619
$AverageCTC + EIP \mid (anyCTC \mid EIP)$	3.4640	3.4891	3.5187	3.4702
Panel c: Unmarried parents				
$CTC + EIP$ (\$1000s)	-0.0519***	-0.0559***	-0.0549***	-0.0473***
	(0.0025)	(0.0020)	(0.0024)	(0.0027)
N	756489	366339	376816	277983
DV mean	0.0839	0.0961	0.0962	0.0886
$AverageCTC + EIP \mid (anyCTC \mid EIP)$	1.8973	1.8973	1.9128	1.8574

Notes: Table shows effect of additional \$1,000 during pregnancy on likelihood of birthweight below 2,500g. Sample includes births of parity order 1 or 2 for all households (panel a), births to married parents (panel b), and births to unmarried parents (c) All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A6: Additional income during pregnancy and low-birthweight, 2019 composition of births

	(1)	(2)	(3)	(4)
	All	Mother $\leq$ HS	Medicaid	WIC
Panel a: All births				
$CTC + EIP$ ($1000s)	-0.0210***	-0.0217***	-0.0228***	-0.0210***
	(0.0007)	(0.0015)	(0.0016)	(0.0012)
N	1466515	380628	380802	281172
DV mean	0.0596	0.0869	0.0893	0.0824
$AverageCTC + EIP\|(anyCTC\|EIP)$	3.1902	2.7904	2.7268	2.5851
Panel b: Married parents				
$CTC + EIP$ ($1000s)	-0.0193***	-0.0175***	-0.0182***	-0.0175***
	(0.0006)	(0.0014)	(0.0020)	(0.0023)
N	908477	89229	67157	46237
DV mean	0.0443	0.0553	0.0591	0.0580
$AverageCTC + EIP\|(anyCTC\|EIP)$	34.6397	34.8912	35.1866	34.7017
Panel c: Unmarried parents				
$CTC + EIP$ ($1000s)	-0.0246***	-0.0235***	-0.0242***	-0.0220***
	(0.0016)	(0.0018)	(0.0021)	(0.0016)
N	558038	291399	313645	234935
DV mean	0.0846	0.0967	0.0958	0.0873
$AverageCTC + EIP\|(anyCTC\|EIP)$	2.2402	2.3534	2.3823	2.2567

Notes: Table shows effect of additional $1,000 during pregnancy on likelihood of birthweight below 2,500g. Sample includes all births all households (panel a), births to married parents (panel b), and births to unmarried parents (c). Each observation is weighted based on the share of the 2019 birth population with identical county; parity; and parental marital status, educational attainment, race and ethnicity, and age group. All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix Table A7: Effect of payments, separate credits

	(1)	(2)	(3)	(4)
	All	Mother $\leq$ HS	Medicaid	WIC
Panel a: Drop March-May 2020				
$CTC + EIP$ (\$1000s)	-0.0189***	-0.0202***	-0.0215***	-0.0194***
	(0.0004)	(0.0006)	(0.0006)	(0.0006)
N	2255276	672147	642773	432881
DV mean	0.0639	0.0883	0.0932	0.0860
$Average CTC + EIP \vert (any CTC \vert EIP)$	3.5374	3.2997	3.2021	2.9906
Panel b: EIP 1 only				
$CTC + EIP$ (\$1000s)	-0.0492***	-0.0585***	-0.0645***	-0.0614***
	(0.0010)	(0.0026)	(0.0033)	(0.0035)
N	1360754	413242	397573	276547
DV mean	0.0629	0.0867	0.0914	0.0845
$Average EIP \vert (any EIP)$	2.3452	2.0799	1.9926	1.9104
Panel c: No EIP 1				
$CTC + EIP$ (\$1000s)	-0.0876***	-0.1279***	-0.1429***	-0.1374***
	(0.0020)	(0.0055)	(0.0074)	(0.0109)
N	318341	93321	86755	58415
DV mean	0.0866	0.1170	0.1200	0.1084
$Average CTC + EIP \vert (any CTC \vert EIP)$	1.7143	1.5312	1.4749	1.4130

Notes: Table shows effect of additional \$1,000 during pregnancy on likelihood of birthweight below 2,500g. Panel a omits births that occurred during March-May 2020; panel b includes only those born in 2020; panel c includes only those born in October 2020 and later that did not receive the first EIP. All equations include county-by-month-of-birth-by-demographic cell, demographic-cell-by-birth-parity, and day of week fixed effects, as well as controls for whether the next-oldest child is younger than 6. Robust standard errors clustered by county of residence. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.