Family Formation and Crime[†]

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We perform a large-scale analysis of the impact of family formation on crime. For mothers, criminal arrests drop precipitously in the first few months of pregnancy, decreasing 50 percent overall. Men show a sustained 20 percent decline in crime that begins around pregnancy, although arrests for domestic violence spike at birth. A separate design using parents of stillborn children to estimate counterfactual arrest rates reinforces the main findings. Marriage, in contrast, is not associated with any sudden changes and marks the completion of a gradual 50 percent decline in arrests for both men and women. (JEL J12, J16, J22, K42)

Social dynamics are a fundamental determinant of crime (Glaeser, Sacerdote, and Scheinkman 1996). Interactions within neighborhoods (Damm and Dustmann 2014), with potential criminal peers (Bayer, Hjalmarsson, and Pozen 2009), and with schoolmates (Billings, Deming, and Rockoff 2013) can meaningfully alter criminal trajectories, especially compared to traditional mechanisms such as the severity and immediacy of punishments (Becker 1968; Chalfin and McCrary 2017). A prominent literature argues that ties with children are critical as well. Parenthood is thought to serve as a "turning point" with the power to reduce criminal behavior through the added responsibility that comes with new social bonds (Laub and Sampson 2001; Sampson, Laub, and Wimer 2006). Indeed, parents with previous criminal justice contact frequently report in interviews that, without their children, they would be in prison or abusing drugs (Edin and Kefalas 2011; Edin and Nelson 2013; Sampson and Laub 2009).

While the connection between family formation and crime has received substantial attention in the qualitative literature, quantitative evidence is sparse. Previous studies have focused on relatively small survey samples, leaving open the possibility that criminal desistance caused childbearing instead of the opposite. And despite the ubiquity and importance of family formation events—indeed, most people eventually have children or get married—empirical research in economics on the effects of

family formation has focused on related but different questions, such as the impact of child sex (Dahl and Moretti 2008; Dustmann and Landersø 2021) or effects on gender inequality (Kleven, Landais, and Søgaard 2019) with a few notable exceptions that focus on teen pregnancy (e.g., Hotz, McElroy, and Sanders 2005).

This paper uses administrative data covering more than a million parents to take an unprecedentedly close look at how criminal behavior changes when men and women have children. We implement a novel match between Washington state administrative records covering the universe of criminal arrests, births, marriages, and divorces—the largest such study ever conducted in the United States. Our comprehensive data allow us to highlight high-frequency changes in both the timing and type of arrests, distinguishing between desistance that occurs well before a child is conceived and changes after conception, for example. The scale of our data also allows us to precisely measure differences in effects across birth order, child sex, parents' age, and other characteristics that speak to potential mechanisms and reinforce the robustness of the main results.

Several striking patterns immediately around childbirth are clear in the raw data. To carefully control for age trends in offending and provide point estimates of long-run effects, we use a difference-in-difference approach that compares mothers' and fathers' arrest rates over the three years before and after birth to arrest rates of parents at the same ages who have children when they are between one and five years older. These older parents tend to be arrested less frequently than the focal younger parents, a natural result of the fact that age at first birth is strongly correlated with overall arrest risk. We show, however, that age-crime profiles for these groups track each other closely, suggesting that older parents' arrest rates can provide a useful benchmark for counterfactual arrest rates in the absence of childbirth.

We begin our investigation with mothers. Both the raw data and age-adjusted estimates show the same patterns: drug, alcohol, and economic arrests decline precipitously at the start of the pregnancy, bottoming out in the months just before birth. Shortly after birth, criminal arrests recover but ultimately stabilize at about 50 percent below prepregnancy levels. While parenthood itself is not an explicit policy lever, comparisons to other commonly studied interventions are striking. Helland and Tabarrok (2007) find that the threat of nearly 20 years of additional prison time decreases annual felony offenses by 15–20 percent, an elasticity of 0.05; Lee and McCrary (2005) calculate a similar deterrence elasticity for juveniles reaching the age of majority. Based on the summary assessment in Chalfin and McCrary (2017), mothers' 50 percent drop in crime after birth would correspond to the impact of more than doubling the police budget or prison population.

The sharpness of the response suggests that these declines reflect the impact of pregnancy rather than the onset of a romantic relationship or other coincident life events. There is no evidence of any anticipatory decline in arrest rates. We also find similar positive long-term impacts on teen mothers, for whom the vast majority of pregnancies are unanticipated (Mosher, Jones, and Abma 2012).[1] Still, our results

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[1] Several previous studies have found no or negative effects of teen childbearing on conventional economic outcomes such as income and education (Hotz, McElroy, and Sanders 2005; Hotz, Mullin, and Sanders 1997; Fletcher and Wolfe 2009; Kearney and Levine 2012) but have not studied crime.

apply only to parents who carry their child to term and therefore appear in the birth records; offending patterns for parents who respond to a pregnancy by terminating it may differ. If the timing of pregnancy itself is unconfounded and older parents provide an appropriate counterfactual, our estimates capture the causal effects of pregnancy on couples who elect to have the child. Recent evidence suggests that even among women who experience an unintended pregnancy, the majority do not receive an abortion (Finer and Zolna 2014), suggesting this group accounts for a large share of all pregnancies. Nevertheless, we also use a simple bounding exercise to gauge the size of the unconditional effects of pregnancy when including all couples who conceive.

Mothers, however, experience physical effects of pregnancy that may change their propensity to engage in criminal activity independent of social interactions with their partners. Penalties for some criminal activities, including drug and excessive alcohol use, may be heightened while pregnant,[2] and after a child is born, mothers may be more likely to be held legally responsible for the child's welfare. It is unclear which of these potential changes best explain the reductions in mothers' criminal behavior. Fathers, on the other hand, experience none of these changes and are typically less involved in childcare (Drago 2009), making their outcomes a stronger test of how the social ties forged by family formation influence behavior. Our data provide a unique opportunity to study fathers because they are unusually well covered in Washington birth records, with 85 percent of births to unmarried mothers in our data containing the father's name and date of birth. In nationally representative data, births to unmarried mothers are twice as likely to be missing father information (Mincy, Garfinkel, and Nepomnyaschy 2005).[3]

We find that new fathers also exhibit substantial changes in criminal activity as a result of family formation. Both in the raw data and age-adjusted estimates, male arrests decrease sharply at the start of the pregnancy and remain at lower levels following the birth, with reductions of around 20 percent for property, drug, and DUI (driving under the influence) arrests. As with mothers, the timing of fathers' response suggests that pregnancy, not childbirth, is the primary inducement to decrease criminal behavior. The majority of the declines in fathers' offending occur six to seven months prior to birth, when many soon-to-be fathers may first learn that their partner is pregnant. The results align closely with prior survey research, which suggests that many low-income men respond to pregnancy by radically reshaping their activities: "[M]en such as Byron are suddenly transformed. This part-time cab driver and sometimes weed dealer almost immediately secured a city job in the sanitation department" (Edin and Nelson 2013).

Not all changes brought on by family formation are positive, however. We find that men exhibit a large spike in domestic violence arrests at birth, with monthly rates increasing from below 10 arrests per 10,000 men in the months just before pregnancy to about 15 per 10,000 just after. This represents a 50–100 percent

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[2]According to Miranda, Dixon, and Reyes (2015), Washington has prosecuted women for drug use during pregnancy, although a 1996 appeals ruling determined that drug use during pregnancy is not criminal mistreatment.
[3]In online Appendix D, we discuss a bounding exercise exploring the potential bias from missing births or fathers.

increase, depending on whether the change is compared to the lowest or highest point before birth. Of unmarried first-time fathers in our data, 8 percent are arrested for domestic violence sometime in the 2 years following birth. These effects reverse half of the overall decline in arrests from other offenses and are large relative to other known drivers of domestic violence. For example, Leslie and Wilson (2020) find that COVID-induced lockdowns increased domestic violence calls for service by 7.5 percent.

What explains these changes? For both mothers and fathers, changes in offending in response to childbirth could result from a shift in preferences—a shift in time discounting to be more forward looking, for example—or a temporary change arising from the time demands of raising young children. That men's changes persist over several years points to an important role for preferences since unmarried parents, who drive virtually all of the long-term crime declines, are highly likely to separate: five years after childbirth, only 18 percent are coresiding (Tach, Mincy, and Edin 2010). An analysis of first- versus second-time parents also supports a preferences interpretation since the large permanent drops in crime are concentrated among first-time parents. In particular, there are no long-run effects for either mothers or fathers having their second child despite short-lived declines starting with pregnancy. Though some research suggests that these effects should depend on whether the baby is male or female (Dahl and Moretti 2008; Dustmann and Landersø 2021), we find no differences in patterns of desistance for either mothers or fathers when splitting the sample based on infant sex.

To further probe the interpretation of our results, we supplement this evidence with results from an alternative strategy that isolates the effect of having a child by building a control group using records of stillbirths, which are reported if gestation exceeds 20 weeks. Though the sample size of stillbirths is small, these analyses reinforce the main findings. Relative to parents of stillborn children, fathers of live-born children have increased domestic violence following the birth, whereas mothers and fathers of live-born children show decreased arrest rates for property, drug, DUIs, and other crimes. As in the main results, unmarried parents drive the effects. This suggests that having a child—and not just making the decisions that might produce one—decreases most types of arrests and increases domestic violence.

In a final analysis, we turn to marriage, which is also a focus of the turning points literature (Sampson, Laub, and Wimer 2006). The married parents in our sample are consistently less likely to be arrested for any offense, including domestic violence. To explore the effects of marriage itself, we construct estimates that compare spouses' arrest rates around marriage to those of men and women who marry when they are older. For both sexes, crime decreases dramatically in the three years prior to marriage. This trend stops at the marriage date, after which offending is flat. Our data thus suggest that marriage marks the completion of a long relative decrease in crime, in line with the mothers quoted in Edin and Kefalas (2011) who want to settle down *before* marrying. Still, this analysis leaves open the possibility that romantic relationships more broadly construed can temper criminal behavior.

Our findings help clarify a large literature inspired by Sampson and Laub's (1990) argument that key life events can serve as "turning points" that cause desistance by increasing social bonds. Their influential work reexamined data from Glueck

and Glueck (1950), a longitudinal study of 500 delinquents in Boston, finding that spousal attachment, job stability, and economic aspiration were all associated with desistance. A large literature based primarily on smaller, selected samples builds on these results with conflicting findings, which we review in online Appendix Table A.4. Most papers find no or minimal effects of motherhood on crime. Results for fathers have been similarly mixed.[4] Though some prior work finds negative effects of marriage on crime, our result that long periods of desistance precede marriage suggests that these effects may largely capture selection.[5]

Several more recent studies have used administrative data similar to ours to study the effects of marriage and childbirth on arrests. Most closely related are Skardhamar, Monsbakken, and Lyngstad (2014) and Skardhamar and Lyngstad (2009), which use Norwegian register data and find broadly similar trends at an annual level but lack the ability to study the precise timing of the arrest reductions and address the possibility that coincident changes beyond family formation explain the observed desistance. Also related is Eichmeyer and Kent (2021), which provides complementary findings on the effects of parenthood for low-income mothers in a large county in Pennsylvania on a range of housing, healthcare, and government assistance outcomes. A smaller sample, however, limits precision and the time horizon over which effects can be measured. Compared to existing studies, a distinguishing feature is the coverage of our data, allowing for population-level estimates for a midsized state, precise evidence on the timing of desistance, estimation of long-run effects, and an alternative design with stillbirths.

The rest of this paper is organized as follows. Section I describes the data and how they are linked together. Section II presents patterns in the raw data and in the difference-in-difference estimates that adjust for aging for first-time mothers and fathers. Section III discusses interpretation of the results, including potential mechanisms and assigning causality. Section IV examines the robustness of the results. Section V analyzes domestic violence responses. Section VI provides evidence from stillbirths. Section VII analyzes arrests around marriage. And Section VIII concludes.

I. Data

Our core analysis is based primarily on two administrative data sources from Washington: the Washington State Institute for Public Policy's criminal history database, a synthesis of data from the Administrative Office of the Courts (AOC) and the Department of Corrections (DOC) (WSIPP 2015); and still- and live-birth certificates from the Department of Health (DOH) (WADOH 2018). We augment these data with Washington marriage and divorce indices acquired from the Washington State Archives (Washington State Archives 2018).

The criminal history data cover every criminal charge made from 1992 to 2015, including the date of the alleged offense, the criminal code, and the name and date

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[4]For another recent review on mothers, see Giordano et al. (2011); for fathers, see Mitchell, Landers, and Morales (2018).

[5]For a critique and detailed review of the marriage effect, see Skardhamar et al. (2015).

of birth of the defendant.[6] We refer to a record in this data as an "arrest" or "charge" interchangeably, although some events may not involve apprehension by a police officer and jail booking (e.g., a citation for reckless driving).

The birth certificates span 1980 to 2009. The data include the names and dates of birth of the mother and father, their races, the residential zip code of the mother, and an indicator for whether the mother was married at birth. An average of 75,000 births happen every year in the sample period for about one million births in total. To ensure that arrests are observed for a sufficiently long period before and after birth, we restrict to births after 1996. We also restrict to births when fathers and mothers are between 15 and 40 years old to focus on parents who are likely to be criminally active around the birth. Parents up to age 45 are used to estimate counterfactual arrest rates in the difference-in-difference strategy described below.

Washington is unusually good at recording fathers because it was one of the first states to implement in-hospital voluntary paternity establishment for unmarried mothers (Rossin-Slater 2017). However, fathers' information is still missing in about 5 percent of the birth certificates in the sample.[7] We drop records without fathers' names and dates of birth since they cannot be matched to arrest data. In the primary analyses, we also restrict to the parent's first birth as measured by matching parents within the birth records using the father's full name and date of birth and the mother's full (maiden) name and date of birth as reported on the birth certificates. Since the birth certificates begin in 1980, this means we will mislabel births as first births if someone in our sample had their first child in 1979 or earlier, implying a 17-year gap between births.

We also acquired separate records on stillbirths (i.e., fetal death certificates) from the Washington DOH covering the years 1997 to 2010. Stillbirths happen late in pregnancy and are only recorded if there were 20 weeks or more of gestation, after which hospitals are legally required to report them. There are about 500 stillbirths each year in our data, with an average estimated gestation of 29 weeks. These records include the full names and birth dates of the parents, allowing us to match them to the arrest data. However, some information reported on live birth records is missing for stillbirths, such as parent race and Medicaid enrollment status. Importantly for our purposes, stillbirth records have strong coverage of the fathers' names and dates of birth, which are only missing from 9 percent of observations.

We match arrest records to still and live birth records by implementing a fuzzy name match across parents and arrestees with the same date of birth. Records are considered as matched if the cosine similarity of three-gram TF-IDF vectorizations of name strings is above 0.9.[8] Mothers are matched based on both their maiden and

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[6]We also have access to a dataset covering all fingerprinted arrests from the Washington State Patrol's Computerized Criminal History Database. Results change little when using this data instead or the union of the two sources, though the State Patrol data contain less information on arrests and have known coverage issues (Washington State Auditor's Office 2015).

[7]Similar data in Michigan are missing the father in 16.5 percent of birth certificates (Almond and Rossin-Slater 2013).

[8]TF-IDF stands for Term Frequency Inverse Document Frequency, a measure of how often a particular group of letters appears in the overall string or document. Traditional Levenshtein distance matching performs similarly but is substantially slower than the TF-IDF approach, which can be computed efficiently using sparse matrix multiplication. Identical strings have a similarity of one, while strings with zero three-grams in common have similarity zero.

legal names. We drop parents who are matched to multiple people in the arrest data, which tends to exclude a handful of very common names, but we include parents who have no matches at all. The never-arrested sample is kept to help identify age trends in the difference-in-difference analysis and so that the count results presented below can be interpreted as approximate population averages. The dropped records with ambiguously matched names constitute less than 10 percent of the birth certificates with fathers listed.

Finally, we combine state marriage and divorce records with our sample by merging them to birth certificates using a fuzzy string match of the combined names of the spouses. This match comes with the caveat that only couples who at some point have a child together will be included. Since the marriage certificates do not contain birth dates, married couples cannot be linked to the arrest data without first linking to the birth certificates. When analyzing marriages, we use similar basic sample restrictions as in the analysis of births: marriages must fall between 1997 and 2010, and age at marriage must be between 15 and 40.

Table 1 provides summary statistics on the main analysis samples of live and stillbirths for first-time fathers and mothers. Most parents are White, but Hispanic and Asian parents comprise about 10 percent of births each.[9] The average mother is 27 years old at birth, while the average father is about a year older. Over 70 percent of mothers are married at birth (the data do not specify whether they are married to the father). Parents of stillborn children have similar average ages to parents of live-born children. They live in zip codes with marginally lower median incomes but are less likely to be on the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Fathers are more likely to be arrested than mothers, with 34 percent (versus 19 percent) acquiring at least one criminal charge in our sample period.

Online Appendix Tables A.1 and A.2 show how these sample characteristics change as we impose the restrictions mentioned above, starting with the entire sample of births in column 1. Column 2 restricts to parents aged 15 to 40; column 3 restricts to births where the parent is clearly matched (or not matched at all) to the arrest data; and column 4 adds the restriction that the birth is the parent's first child. The final samples of first births are similar to the population of all births, though about two years younger on average. Omitting parents who are ambiguously matched to arrest records naturally decreases arrest rates.

The crimes represented in the data range from traffic infractions to murder. In most analyses, we focus on mutually exclusive groups of arrests based on categories constructed by the Washington State Institute for Public Policy. The main results focus on four groupings of crime categories: arrests that we call economic consist primarily of property crimes such as third-degree theft, second-degree burglary, trespassing, and forgery; drug crime categories include furnishing liquor to minors and possessing a controlled substance; DUI, the most common arrest in the data, is treated as its own category; and destruction includes vandalism and property damage more broadly. In many analyses, we simply consider an indicator for arrest for a crime in any of these four main categories.

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[9] Birth records record Hispanic as a distinct racial category as opposed to a separate measure of ethnicity.

TABLE 1—DESCRIPTIVE STATISTICS FOR ANALYSIS SAMPLES

	First birth		Stillbirth	
	Mothers (1)	Fathers (2)	Mothers (3)	Fathers (4)
Demographics				
White	0.69	0.65		
Black	0.04	0.05		
Hispanic	0.13	0.13		
Asian	0.10	0.08		
Other or missing	0.04	0.09		
Age	26.73	28.23	27.13	28.01
	(5.75)	(5.52)	(6.11)	(5.79)
Birth				
Low birth weight ($< 2{,}500$ g)	0.06	0.06	0.59	0.60
Twins+	0.02	0.02	0.05	0.06
Male infant	0.51	0.51	0.53	0.53
Marital				
Mother married at birth	0.71	0.70	0.65	0.60
Midpregnancy marriage	0.05	0.05	0.05	0.05
Divorce if married	0.18	0.18	0.22	0.22
Economic				
Median zip code income	59,944	59,577	58,331	57,864
	(18,110)	(17,924)	(17,906)	(17,544)
Mother on Medicaid	0.35	0.36		
WIC	0.34	0.35	0.25	0.27
Crime				
Any arrest	0.19	0.34	0.10	0.27
Father ever incarcerated	0.04	0.03	0.04	0.04
Father ever on probation	0.07	0.06	0.08	0.06
Observations	532,790	502,900	3,579	3,417

Notes: This table presents key descriptive statistics for the primary analysis samples of first live- and stillbirths. Each column shows averages of parent and birth characteristics, with standard deviations for nonbinary variables shown in parentheses. Column 1 presents descriptives for the mother's first-birth sample, while column 2 reports statistics for the father's first-birth sample. Columns 3 and 4 report descriptives for the stillbirth sample for mothers and fathers, respectively. Median zip code income is for the years 2006–2010 from the American Community Survey (ISR 2019). WIC is an indicator for being on the Special Supplemental Nutrition Program for Women, Infants, and Children at the time of birth.

    Domestic violence arrests are analyzed separately because, as we show below, these offenses have distinct patterns around childbirth. These arrests are most commonly fourth-degree assault, which is the least severe assault charge. We also omit a small share of other arrests that reflect ambiguous types of underlying activity. These include assaults coded as not related to domestic violence—since the coding appears to be unreliable—and obstruction of a police officer. We also separate driving-related offenses not related to DUIs since these arrests are more likely related to levels of driving and commuting activity than criminal behavior. Online

Appendix Figure A.1 shows that these restrictions are unlikely to substantively affect the results by plotting how arrest rates around birth change after successively removing these categories of crimes.

II. Patterns for First-Time Parents

A. *Raw Averages*

We begin by plotting raw 30-day arrest rates for mothers and fathers in the three years before and after the birth of their first child using the main analysis samples described above. In this setup, $t = 0$ marks the 30-day period beginning with the date of birth. Both this and all subsequent analyses use the date of the alleged offense, not the date of arrest, as the date of the criminal event. This partially addresses the concern that the offending patterns could be confounded if law enforcement officers are less likely to make an arrest in the case of a visible pregnancy.

Figure 1, panel A shows arrest rates for mothers for our four primary categories of crimes. All series drop sharply during pregnancy and rebound slightly after birth. More specifically, they depict three consistent patterns: flat or slight positive trends leading up to the approximate date of the pregnancy (i.e., nine months before birth), large declines concentrated in the first few months of pregnancy, and a sharp rebound in arrests following the birth. Property and drug arrests are lower than the prepregnancy averages three years after the birth, while DUI and property destruction arrests show less of a long-term decline.

Arrests related to alcohol and drugs show little evidence of anticipation ahead of the pregnancy. There are small declines in $t = -8$, when many mothers learn they are pregnant, and the largest decline is in $t = -7$, by which time almost all mothers know (Branum and Ahrens 2017). One reason could be that, based on self-reporting, pregnancy intention itself does not predict alcohol cessation (Terplan, Cheng, and Chisolm 2014). However, another explanation is that not all pregnancies are intended, and, as we explore below, these pregnancies likely drive our results.

Figure 1, panel B shows the average monthly arrest rate of first-time fathers for the same four crime categories. Arrest rates for fathers are substantially higher than mothers' arrest rates but show similar patterns.[10] There are large drops in these raw averages after conception, especially for drug arrests. Between pregnancy and three years after birth, monthly drug arrests fall from over 20 to roughly 15 for every 10,000 men. Arrest rates remain substantially lower longer after birth. Economic (i.e., property) crimes show similar patterns. Arrests for DUI and destruction crimes, which include property vandalism and damage, are more rare but follow similar trends.

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[10] According the Federal Bureau of Investigation's Persons Arrested report, men accounted for 77 percent of all arrests, 69 percent of arrests for property crimes, and 82 percent of arrests for drug abuse violations nationally in 2002, approximately the midpoint of our sample (Federal Bureau of Investigation 2002, Table 42). The numbers in Figure 1 suggest slightly lower male shares of arrests, for example, about 66 percent for property crimes and 74 percent for drug crimes. The discrepancy could be due to several factors, including conditioning on parenthood and appearance on the birth record, our age restrictions, or the fact that our outcome is an indicator for *any* arrest within the month.
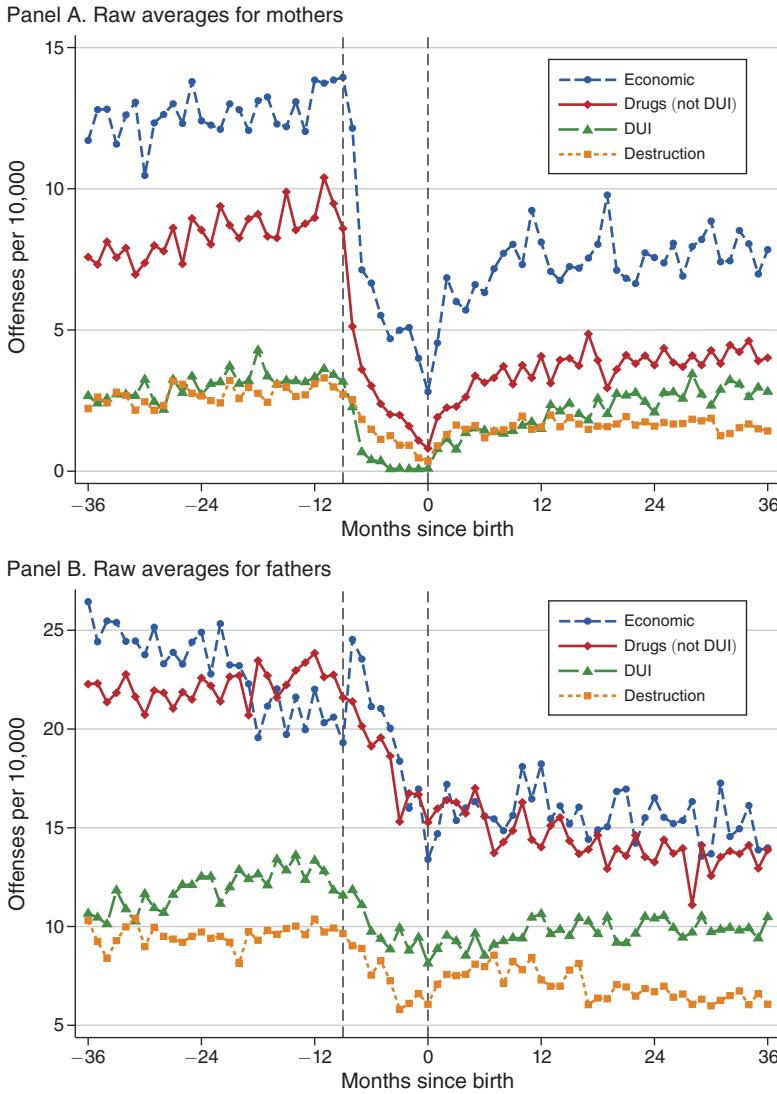
FIGURE 1. MONTHLY ARREST RATES AROUND BIRTH FOR FIRST-TIME MOTHERS AND FATHERS

Notes: This figure plots unadjusted arrest rates over the three years before and after first birth for mothers and fathers. The outcomes in both panels are the average of an indicator for any offense from the specified category. Panel A includes the primary sample of 532,790 mothers. Panel B includes the primary sample of 502,900 first-time fathers. Economic arrests include theft, burglary, trespassing, and forgery. Drug arrests include primarily furnishing liquor to a minor and possession. DUI stands for driving under the influence. Destruction includes vandalism and property damage. In both panels, the vertical dashed lines mark nine months before the birth and the month of birth.

B. *Accounting for Aging*

The simple raw averages provide clear evidence that pregnancy coincides with sharp changes in crime, but it is difficult to gauge long-run changes without accounting for the fact that women and men may be maturing independently

of childbirth due to aging. We use a simple differencing strategy that compares parents' arrest rates around childbirth to older parents' arrest rates at the same ages to adjust the raw patterns presented in the previous subsection for general aging trends in crime.

The first panel of Figure 2 illustrates the approach using mothers. The solid blue line plots monthly arrest rates for any crime in the four categories shown in Figure 1 over the three years before and after childbirth, averaging all mothers without adjustment. The remaining lines plot average arrest rates of older mothers at the same ages as the focal mothers in the blue line. For example, for mothers who have a child at age 21, the mothers line would plot their arrest rates over ages 18 to 24. The one-to-two-years series would plot the arrest rates of mothers who have a child when 22–23 years old over the same ages with zero on the x-axis still corresponding to their arrest rates at 21. The two-to-three-years line plots the same for mothers who have a child at ages 23–24, the three-to-four-years line for mothers at ages 24–25, and so on. Each comparison line stops nine months prior to when the youngest mother in the group would have a child themselves, ensuring that the means plotted represent a balanced sample of older mothers prepregnancy. We construct these comparisons for each age-at-birth cohort of mothers and take the weighted average to produce the figure.[11]

Figure 2, panel A shows that focal mothers are arrested more often than older mothers, as should be expected given that women who give birth at older ages generally have lower arrest rates.[12] Despite level differences in arrest rates between mothers and older mothers, trends over age track closely across groups, especially for groups that give birth when closest in age. Nine months before birth, mothers see sudden drops in arrests not shared by older mothers. Arrest rates then rebound sharply, but a year after birth, they converge to that of women who have a child when two to four years older. In other words, childbirth shifts mothers' age-crime profile down to match that of women who have their first child when they are two to three years older.

Because older mothers can only be used to adjust for age trends before they become pregnant themselves, obtaining longer-run estimates requires using groups of mothers who give birth increasingly later in life and who are thus potentially more different from the focal mothers. Nevertheless, Figure 2 shows that overall age trends for older comparison mothers are similar to focal mothers' trends, despite larger level differences. To obtain estimates of long-run effects up to three years after birth, women who give birth when at least three years and nine months older must be included as potential comparisons. Although effects could be estimated by making comparisons to these women alone, we use all women who give birth when one to five years older than focal mothers for precision. Results change little using alternative subsets of older mothers.

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[11] The weights are equal to the number of mothers in each specific age-at-birth cohort. This ensures that the lines in the "Older mothers" series give the overall average counterfactual for the focal mothers.

[12] Arrest rates are higher than the levels in Figure 1 because the outcome is an indicator for arrest for *any* of the four main crime categories.

Panel A. Mothers versus older mother counterfactuals
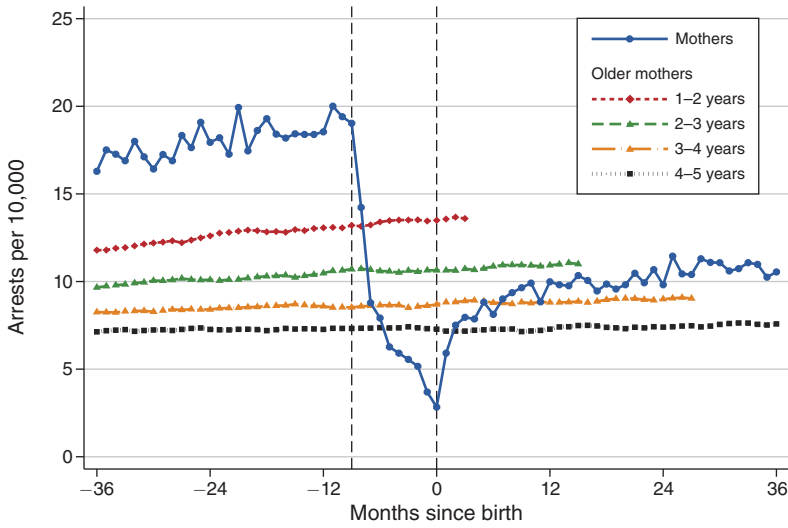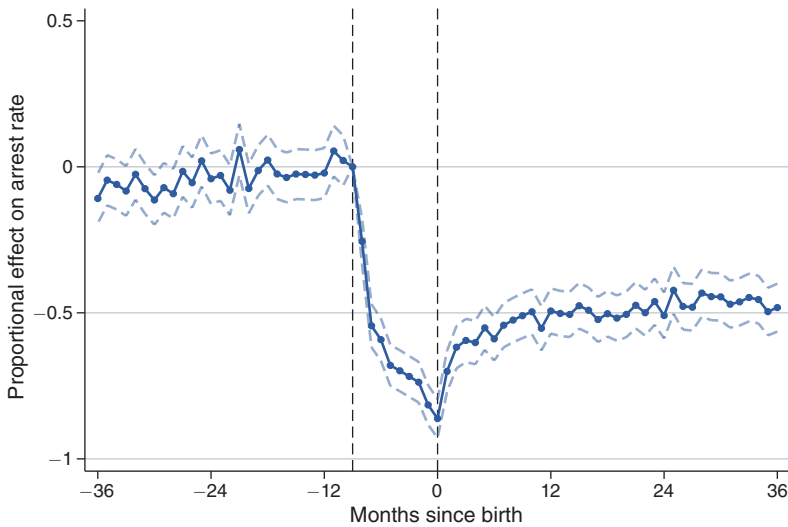

Panel B. Difference-in-difference estimates

FIGURE 2. EFFECTS FOR FIRST-TIME MOTHERS

Notes: This figure shows difference-in-difference estimates of the effects of childbirth for mothers. Panel A shows average monthly arrest rates around childbirth for mothers and several comparison groups. The outcome is an indicator for any arrest for the crime types plotted in Figure 1. The solid blue line plots mothers' arrest rates in the three years before and after their first child is born. The other lines plot arrest rates over the same ages for women who have their first child one to five years later. For example, if restricted to the set of women who have their first birth at age 22, the blue line would plot arrest rates from ages 19 to 25. The red dashed line would plot arrest rates over the same ages for women who have their first child between ages 23 and 24. Separate comparisons are constructed for each age-at-birth cohort of mothers in the data and averaged, weighting by cohort size. Outcomes for members of each comparison group are included until nine months before the first birth in the group, where each line stops. Panel B plots difference-in-difference estimates, which measure effects of births relative to these counterfactuals. Regression effects are divided by the average arrest rates of mothers nine months before birth to show proportional effects. In both panels, the vertical dashed lines mark nine months before the birth and the month of birth.

To construct point estimates of effects implied by these comparisons, we use a simple difference-in-difference estimator. Specifically, for each age-at-birth cohort c and month relative to birth k, we estimate

$$(1) \quad \delta_{k,c} = \underbrace{E\big[Y_{i,c+k}\big|age\_at\_birth = c\big] - E\big[Y_{i,c-9}\big|age\_at\_birth = c\big]}_{\text{Difference relative to age at conception for parents}}$$
$$-\Big(E\big[Y_{i,c+k}\big|age\_at\_birth \in (c + \max\{k+9, 12\}, c+60)\big]$$
$$\underbrace{-E\big[Y_{i,c-9}\big|age\_at\_birth \in (c + \max\{k+9, 12\}, c+60)\big]\Big)}_{\text{Difference relative to same ages for } future \text{ parents}},$$

where $Y_{i,k}$ is an indicator for arrest at age k for parent i. The max operator in the second difference selects the appropriate set of future parents who give birth when one to five years older and for whom age $c + k$ is at least nine months prior to birth, as pictured in Figure 2, panel A.

We then repeat this data construction procedure for every age-at-birth cohort (measured in months) and average the $\hat{\delta}_{kc}$ estimates for each k, weighting by the number of focal parent in each cohort c.[13] This approach follows similar designs from other recent work (Fadlon and Nielsen 2019, 2021; Golosov et al. 2021; Bhuller et al. 2022). Because it is constructed as an average of simple two-by-two difference in difference estimates comparing treated to not-yet-treated units, it avoids potential complications with some conventional two-way fixed effect estimators.[14] We show in the online Appendix, however, that alternative methods for adjusting for age yield nearly identical estimates.

C. Age-Adjusted Effects on Mothers

Panel B of Figure 2 plots our primary estimates for first-time mothers, normalized by the mean arrest rate nine months before birth so that effects can be interpreted as proportional changes. Consistent with the patterns in panel A, mothers see flat arrest rates until nine months before birth, when arrests drop precipitously by nearly 100 percent. There is a slight rebound after birth, and arrests eventually stabilize at levels 50 percent lower than rates 9 months prior to birth. Arrest rates then remain depressed for the next three years.[15]

The magnitudes of arrest declines around childbirth are large compared to the effects of any known policy intervention. Causal evidence on most interventions has rarely estimated effects for men and women separately (Loeffler and Nagin 2022). In combined samples, Rose and Shem-Tov (2021) find that an additional year of

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[13] In practice, we stack the datasets of focal and comparison mothers for every cohort and estimate the average $\delta_{k,c}$ in a single, saturated specification. Standard errors are clustered over i, allowing us to account for the fact that mothers appear repeatedly in the stacked data.

[14] For surveys covering these issues, see Roth et al. (2022) and de Chaisemartin and D'Haultfœuille (2023).

[15] Online Appendix Figure A.2, panel A presents the results from a more traditional event study specification that includes indicators for the 36 months before and after birth and additive controls for age. These estimates show similar patterns to the main effects, although prepregnancy increases are slightly more pronounced.

incarceration decreases the likelihood of any new offense within five years by 13 percent and cumulative new offenses by 14 percent. Chalfin and McCrary (2017) estimate the elasticity of property crime with respect to police manpower at −0.2, although estimates vary. In some of the largest effects in the literature, Heller et al. (2017) finds a 28–35 percent decrease in arrests for disadvantaged youth participating in a cognitive behavioral therapy program. A successful pregnancy appears to rival all of these interventions, consistent with the evidence from prior qualitative work.[16]

Online Appendix Figure A.3, panel A reports the difference-in-difference estimates for the four main categories of crime underlying the main effects in Figure 2. The largest declines in pregnancy and in the long run occur for the the most common types of arrests—those for economic and drug crimes. Drug arrests show a particularly striking pattern; relative to the raw means in Figure 1, postbirth declines reflect decreases on the order of 50 percent. This echoes Eichmeyer and Kent (2021), who show that treatment for drug abuse increases in the months during and after pregnancy. DUI and destruction arrests show similar patterns but smaller pregnancy decreases and long-run differences in arrest rates—consistent with their overall lower prepregnancy prevalence.

## D. *Age-Adjusted Effects on Fathers*

While mothers' arrests show striking changes around pregnancy, many of these shifts may reflect the immediate physical effects of pregnancy, as well as changes in potential legal and social sanctions for drug and alcohol abuse while pregnant. Fathers' responses might better isolate the social or psychological changes that result from parenthood since they are less affected by pregnancy both physically and legally.

Figure 3 presents age-adjusted estimates for all first-time fathers. Panel A shows that, as was the case with women, men who have children when they are younger generally have higher arrest rates than men who have children when they are slightly older. On average, men experience relatively stable or slightly decreasing arrest rates over the ages before childbirth, and older fathers show similar changes in arrest rates over the same ages. Despite the level differences, fathers' and older fathers' arrest rates track each other closely, suggesting the latter may provide an appropriate counterfactual for arrest rates in the absence of childbirth. Pregnancy triggers sharp declines in arrests not shared by older fathers at the same ages. There is a slight rebound after birth, but the net effect of pregnancy is to knock fathers' age-crime profile down to the same level as men who have children when they are one to two years older.

Panel B of Figure 3 plots estimated proportional effects on arrests based on these comparisons. The pregnancy decline constitutes a roughly 30 percent decrease in arrest rates. Arrests remain roughly 20 percent lower than prepregnancy levels over

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[16]Unmarried mothers interviewed by Edin and Kefalas (2011), for example, frequently report that children changed their lives for good. "My kids, they've matured me a lot . . . I've always stayed off of drugs for them" (130).

Panel A. Fathers versus older father counterfactuals
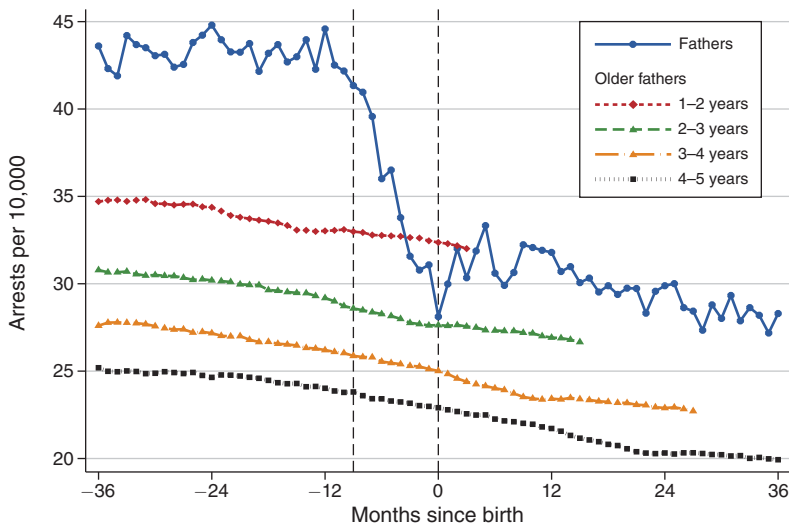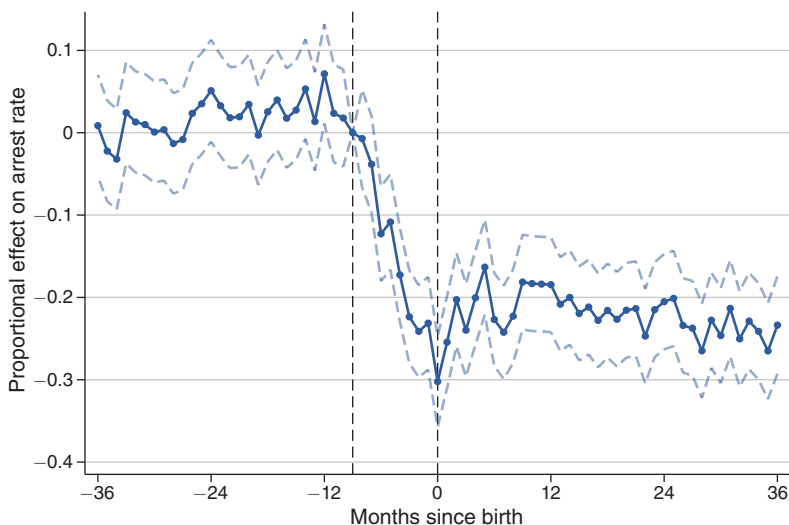

Panel B. Difference-in-difference estimates

FIGURE 3. EFFECTS FOR FIRST-TIME FATHERS

Notes: This figure shows difference-in-difference estimates of the effects of childbirth for fathers. Panel A shows average monthly arrest rates around childbirth for fathers and several comparison groups. The outcome is an indicator for any arrest for the crime types plotted in Figure 1. The solid blue line plots fathers' arrest rates in the three years before and after their first child is born. The other lines plot arrest rates over the same ages for men who have their first child one to five years later. For example, if restricted to the set of men who have their first birth at age 22, the blue line would plot arrest rates from ages 19 to 25. The red dashed line would plot arrest rates over the same ages for men who have their first child between ages 23 and 24. Separate comparisons are constructed for each age-at-birth cohort of fathers in the data and averaged, weighting by cohort size. Outcomes for members of each comparison group are included until nine months before the first birth in the group, where each line stops. Panel B plots difference-in-difference estimates, which measure effects of births relative to these counterfactuals. Regression effects are divided by the average arrest rates of fathers nine months before birth to show proportional effects. In both panels, the vertical dashed lines mark nine months before the birth and the month of birth.

the next 3 years. As with mothers, the results show little evidence of any anticipatory responses. There are small declines in $t = -8$ and larger declines in $t = -7$ and $t = -6$ when many men may learn from their partners that they are expecting.[17] Online Appendix Figure A.3, panel B reports the difference-in-difference estimates for the four main categories of crime underlying the main effects in Figure 3. The largest declines are for drug offenses, which decrease sharply during pregnancy and continue to decline afterward. All other arrest categories show similar patterns, despite their large differences in baseline arrest rates shown in Figure 1. In terms of proportional effects, therefore, the smallest impacts are for economically motivated crimes, perhaps suggesting that income generation remains a priority for newly minted fathers.

Men's declines in arrests compare favorably to the deterrent effects of exceptionally harsh punishments. For example, under California's three-strikes law, offenders with two strikes faced almost 20 years of additional prison time and exhibited a decrease in annual felony offenses of 15 to 20 percent (Helland and Tabarrok 2007). In Italy, Drago, Galbiati, and Vertova (2009) find that an increase in expected sentences among recently released prisoners by 25 percent would decrease rearrests in 7 months by 18 percent. Our results on arrest rates are not directly comparable to estimates of recidivism for people recently released from prison. However, the probability of any arrest in a longer period shows the same large decline: among all of the first-time fathers in our sample, the share arrested for any drug offense goes from 1.7 percent in the year before pregnancy to 1.2 percent in the year after birth.

III. Potential Mechanisms

The patterns documented in the previous section are consistent with three broad explanations. First, childbirth could spark a permanent change in preferences. For instance, having a child could cause people to derive less utility from drug use or crime or make them more future regarding. An alternative explanation is that childbearing affects crime purely through changes in parents' circumstances and effects on time and resource budgets. The presence of a young child could create a temporary incapacitation effect due to childcare or housework, or force parents to reallocate activity in order to support them. Finally, it remains possible that crime declines reflect either the endogenous *choice* to become pregnant or other coincident life events, such as the formation of a new romantic relationship, rather than the impacts of pregnancy itself. In this section, we discuss several exercises that investigate which of these explanations is most consistent with our results.

A. *Pregnancy as Cause versus Effect*

The previous section documents substantial crime declines around pregnancy and childbirth for both mothers and fathers. Does this change reflect the impacts

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[17] Online Appendix Figure A.2, panel B presents the results from a more traditional event study specification that includes indicators for the 36 months before and after birth and additive controls for age. Results change little, although long-run declines are marginally larger.

of pregnancy on crime? Or is pregnancy itself caused by other changes in people's lives that simultaneously generate crime declines? One piece of evidence in favor of the former interpretation is the sharpness of the responses documented in Figure 2 and Figure 3. Both figures show no evidence that pregnancy is anticipated by other arrest-reducing life changes. If, for example, pregnancy coincides with changes in employment and social context that both bring couples together and reduce crime, we might have expected a decrease in crime ahead of pregnancy as mothers and fathers begin this process. Instead, decreases in arrests coincide exactly with the onset of pregnancy.

The sharpness of the responses also implies that it is unlikely that the effects reflect the *decision* to try to become pregnant rather than pregnancy itself. If decisions were an important time-varying omitted factor, we would expect at least some decided couples to fail to become pregnant immediately, generating dips in arrests before $t = -9$. Moreover, survey evidence suggests that the majority of births to unwed parents—who, as we show below, drive our results—are unplanned (Mosher, Jones, and Abma 2012). For these populations, the exact timing of pregnancy is very likely a surprise, supporting the attribution of drops in arrest rates to the effects of pregnancy.

Taken together, the results for first-time parents suggest large positive changes concentrated exclusively after conception—and thus most likely the result of conception itself as opposed to other confounds. While new to the quantitative literature, this result is consistent with a large body of qualitative research asking at-risk fathers how they reacted when they learned about a partner's child. Edin and Nelson (2013) note that "Men are drawn in—usually after the fact of conception . . . [and] usually work hard to forge a stronger bond around the impending birth" (203). Fathers interviewed say they would "probably be in jail" or "out getting high" without their children (74). Even in the case of unplanned pregnancies, men respond to the news with happiness. The researchers asked young, low-income fathers how they responded to the news of the pregnancy. "Unadulterated happiness—even joy—was by far the most common reaction" (68).

B. *Married versus Unmarried Parents*

Investigating differences in effects by marital status helps to further establish the causal role of conception and to distinguish between potential mechanisms. The descriptive statistics in Table 2 show clear differences in the probability of arrest and incarceration across the married and unmarried parents. Unmarried fathers are twice as likely to have ever been arrested and seven times as likely to have had an incarceration spell. Since married couples are already less prone to crime, the additional effect of childbirth may have a less stabilizing effect. On the other hand, single and cohabiting mothers experience a large negative shock to their income-to-needs ratio (Stanczyk 2020), which could increase economic offenses similar to effects found for individuals who have exhausted food stamps (e.g., Carr and Packham 2019).

Figure 4 presents age-adjusted estimates of the effect of family formation while splitting parents by the marital status reported on the birth certificate. We scale effects to correspond to arrests per 10,000 parents and add the omitted-period average to

TABLE 2—MARRIED VERSUS UNMARRIED PARENTS

	Married		Unmarried	
	Mothers (1)	Fathers (2)	Mothers (3)	Fathers (4)
Demographics				
White	0.72	0.72	0.63	0.48
Black	0.03	0.04	0.06	0.07
Hispanic	0.10	0.10	0.19	0.19
Asian	0.12	0.10	0.06	0.05
Other or missing	0.03	0.04	0.06	0.21
Age	28.27	29.60	22.95	25.08
	(5.17)	(4.97)	(5.33)	(5.45)
Birth				
Low birth weight ($<2,500\,\mathrm{g}$)	0.05	0.05	0.06	0.06
Twins+	0.02	0.02	0.01	0.01
Male infant	0.51	0.51	0.51	0.51
Marital				
Mother married at birth	1.00	1.00	0.00	0.00
Midpregnancy marriage	0.06	0.07	0.00	0.00
Divorce if married	0.18	0.18		
Economic				
Median zip code income	62,028	61,714	54,8023	54,657
	(18,819)	(18,676)	(15,043)	(14,941)
Mother on Medicaid	0.22	0.22	0.65	0.66
WIC	0.23	0.24	0.61	0.62
Crime				
Any arrest	0.11	0.25	0.39	0.56
Father ever incarcerated	0.01	0.01	0.10	0.07
Father ever on probation	0.03	0.03	0.17	0.14
Observations	378,936	350,401	153,854	152,499

Notes: This table reports average parent and birth characteristics for married or unmarried first-time parents. Each column reports means, with standard deviations for nonbinary variables shown in parentheses. Column 1 shows descriptives for the married mothers' first birth, while column 2 reports statistics for married fathers' first birth. Columns 3 and 4 show descriptives for unmarried mothers and fathers, respectively. Median zip code income is for the years 2006–2010 from the American Community Survey (ISR 2019). WIC is an indicator for being on the Special Supplemental Nutrition Program for Women, Infants, and Children at the time of birth.

help make the stark level differences between married and unmarried parents clear. While both groups show pregnancy declines, the size of the drops for unmarried fathers and mothers dwarfs married parents' changes. Moreover, arrest rates for married parents return to similar levels as before the birth after several years, while unmarried parents see permanent declines.

As in the main results, there are no signs of anticipation ahead of the pregnancy for either group. This might be expected for unmarried parents, where more than half of all births are unintended. However, for married parents, only 23 percent of births are unintended (Mosher, Jones and Abma, 2012, Table 2), and many couples spend months trying to conceive (Keiding et al. 2002). The patterns in Figure 4 can thus

Panel A. Difference-in-difference estimates for mothers
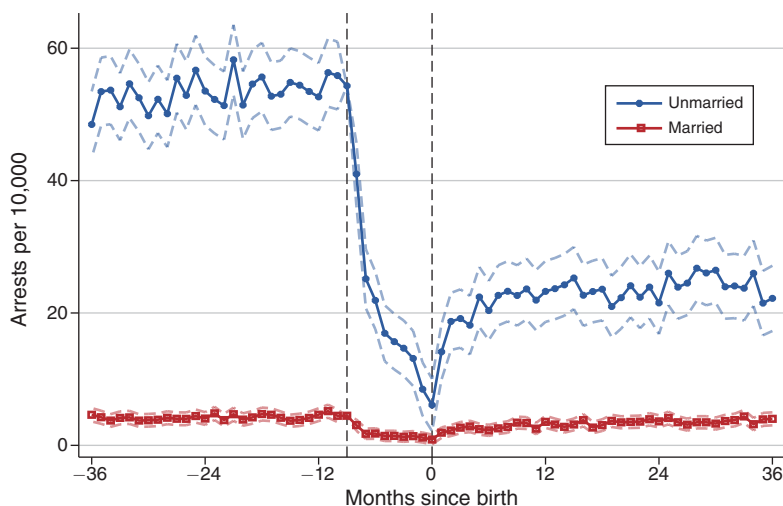
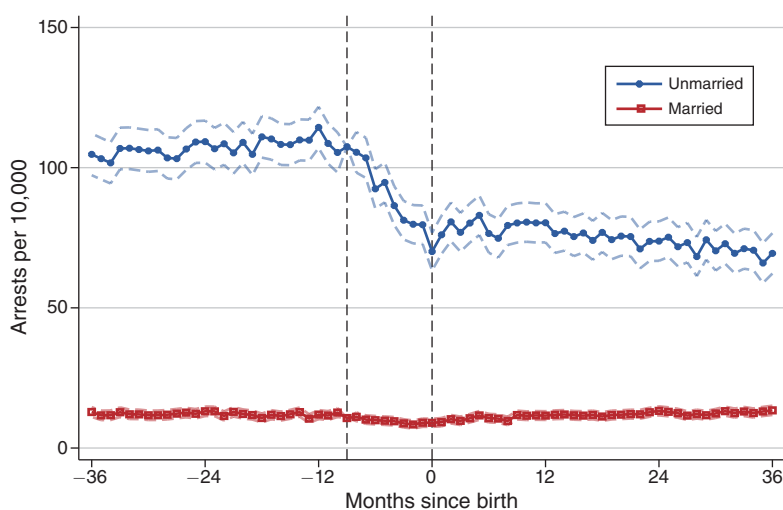Panel B. Difference-in-difference estimates for fathers

FIGURE 4. HETEROGENEITY BY MARITAL STATUS

Notes: This figure shows heterogeneity in arrest rates and childbirth effects by parents' marital status. Each panel shows difference-in-difference estimates from splitting the data by marital status at birth for mothers (panel A) and fathers (panel B). Estimates are scaled to reflect effects on arrests per 10,000 people. The outcome is an indicator for any arrest for the crime types plotted in Figure 1. Dots show point estimates, and dashed lines show 95 percent confidence intervals based on standard errors clustered at the person level. The omitted period is nine months before birth, and the arrest rate in the omitted period is added to the coefficients to show average arrest rates. The vertical dashed lines mark nine months before the birth and the month of birth.

be viewed as further evidence that the decision to have a child does not influence criminal activity. However, it could also be that the criminally active married women who drive the estimates are much more likely to have unintended pregnancies.

The fact that unmarried men exhibit sustained lower arrest rates is even more surprising in light of the fact that unmarried parents are highly likely to separate; five

years after childbirth, only 18 percent are coresiding (Tach, Mincy, and Edin, 2010). As coresidence declines, fathers may be less economically tied to their children and shoulder fewer child-rearing responsibilities. As we show in online Appendix C, men surveyed by the American Time Use Survey who have a child living outside their home report spending less than half an hour per day on primary childcare duties. Despite this, we see no increases in arrest rates. This finding supports the view that having a child shifts preferences over criminal activity rather than simply causing temporary incapacitation effects, acting instead as a persistent turning point for crime.

C. *First versus Second Births*

Another simple way to attempt to discriminate between the drivers of crime declines is to compare the effects of first births to the effects of second births. A preferences-based explanation predicts that most changes should be concentrated in the first birth, while a transitory time and budget shocks channel could suggest similar effects regardless of birth order.

In Figure 5, we construct the same difference-in-difference estimates described above—splitting the sample by first versus second birth. In order to use a consistent set of parents in both figures, the underlying data retain all mothers and fathers whose first and second children are both born in the sample period. Older parent counter-factuals are constructed exactly as above, except that older parents also must have at least two births in the sample window. When examining effects of second births, construct counterfactuals using parents who have a second birth when between one and five years older without conditioning on the timing of their first birth.

The results show that, for both mothers and fathers, the bulk of desistance happens at the first birth. Three years after their second birth, mothers are arrested at levels similar or slightly higher to before pregnancy. Fathers experience a brief decrease after second birth that is not sustained compared to a permanent 25–30 percent decrease after the first birth. The lack of any long-run changes after a second birth for fathers is especially notable due to the fact that some men only start investing in children for later births, while this is less common for women (Edin and Nelson 2013). Taken together, however, the results for both fathers and mothers are more consistent with the idea that becoming a parent permanently changes preferences. In the words of one recent father, "When I found out she was pregnant, everything changed" (Edin and Nelson 2013, 53).

D. *Boys versus Girls*

A preference-based explanation might also suggest that the effects of childbirth depend on the sex of the child. Previous studies have shown the importance of son preference for fathers (Dahl and Moretti 2008), including in the degree of criminal desistance (Dustmann and Landersø 2021).[18] We replicate this analysis in our data by studying the cumulative offending rates of fathers and mothers split by sex in

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[18] Another interesting dimension of the birth is the health condition of the infant. Corman et al. (2011) show that, conditional on crime before having children, fathers to infants with severe health issues show an increase in

Panel A. Difference-in-difference estimates for mothers
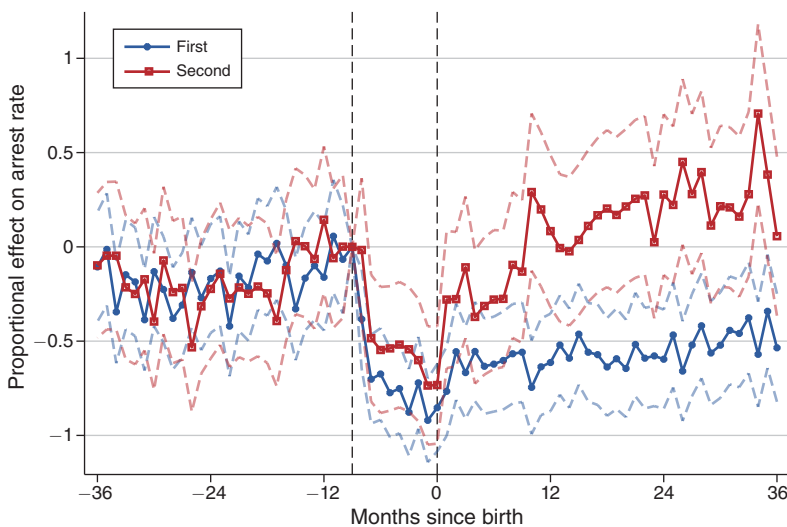
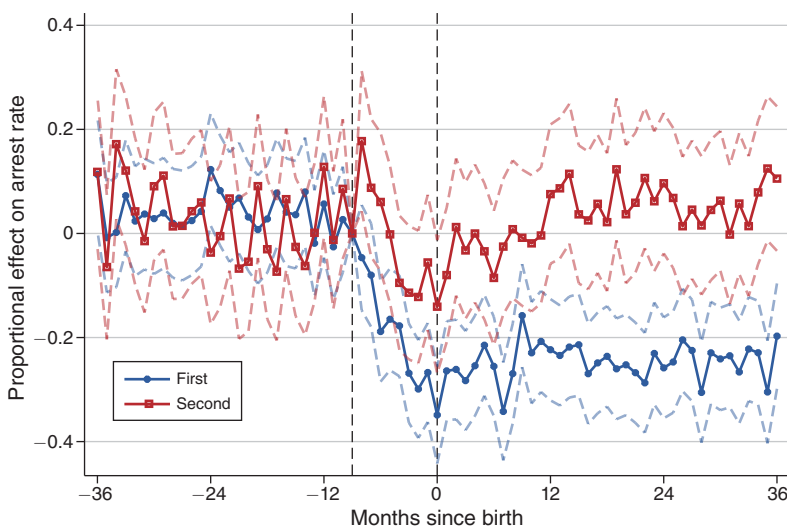Panel B. Difference-in-difference estimates for fathers

FIGURE 5. FIRST VERSUS SECOND BIRTHS

Notes: This figure compares estimated effects of first versus second births. Each panel shows difference-in-difference estimates for mothers (panel A) and fathers (panel B). The sample includes all parents in the primary samples with at least two births. Estimated effects for second births come from analogous comparisons to those used to measure effects of first births; parents' outcomes before and after their second birth are compared to outcomes at the same ages for parents who have a second child when one to five years older. The outcome is an indicator for any arrest for the crime types plotted in Figure 1. Estimates are divided by mean arrest rates nine months before birth, which serves as the omitted period, to measure proportional effects. Dots show point estimates, and dashed lines show 95 percent confidence intervals based on standard errors clustered at the person level. The vertical dashed lines mark nine months before the birth and the month of birth.

offending. If these health issues weaken social bonds, the comparison provides evidence for one prediction from turning points ideas.
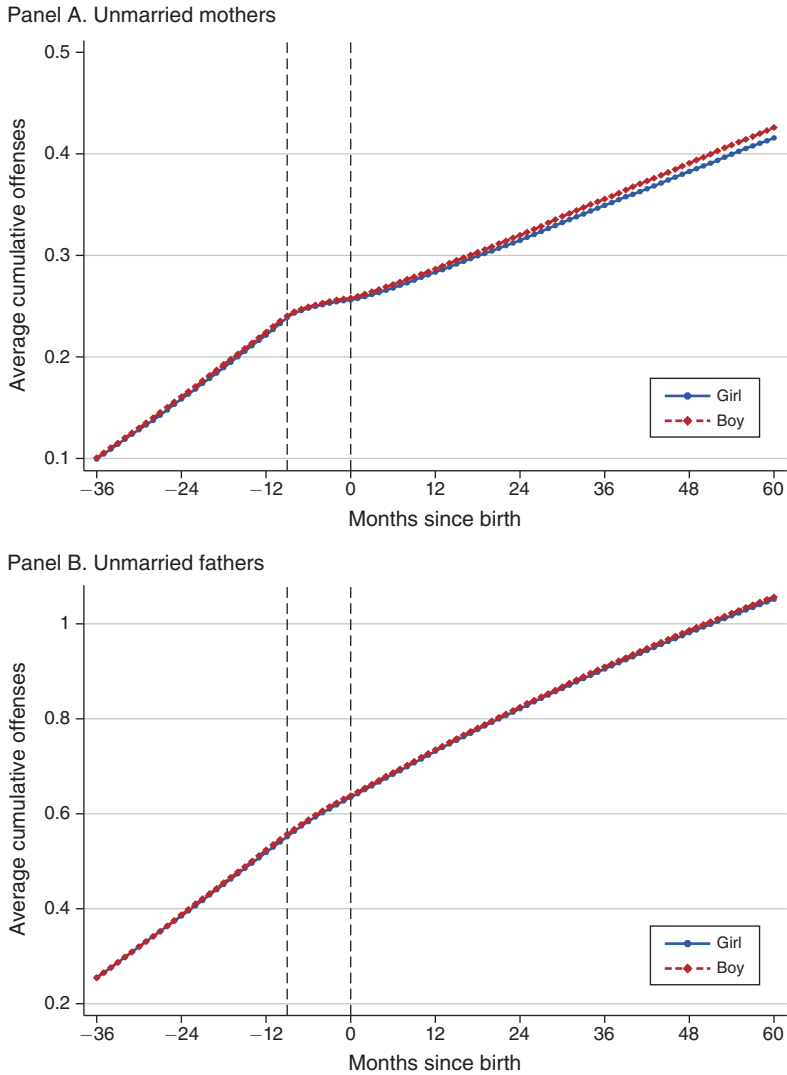
Panel A. Unmarried mothers

Panel B. Unmarried fathers

FIGURE 6. EFFECTS OF INFANT SEX AMONG UNMARRIED FIRST-TIME PARENTS

Notes: This figure tests for differences in the effects of childbirth by child sex. The samples include the 152,499 unmarried first-time fathers and 153,854 unmarried first-time mothers in the primary samples. Both plots show the monthly averages of a cumulative count of an offense indicator, equal to 1 if the mother or father committed a drug, DUI, economic, or property destruction offense in a given month, beginning five years before birth.

Figure 6. We focus on unmarried parents since they showed the largest response in the preceding heterogeneity analyses; the results are very similar for married parents, however.

Panel A shows cumulative arrest rates beginning five years before birth for mothers—split by infant sex and using a monthly indicator for any of the four main offending categories from Figure 1 as the crime outcome. A slight visual difference is present between mothers to daughters compared to sons: at 36 months after the

birth, mothers to male infants have 0.006 more cumulative months with offenses, a 1.7 percent increase compared to the average of 0.349 for mothers to daughters. However, this difference is small and insignificant.

Panel B shows the same series for fathers to sons compared to daughters. The trends are nearly identical. At 36 months, fathers to sons have 0.909 cumulative months with offenses compared to 0.905 among fathers to daughters. These similarities persist when we study more at-risk subsamples, such as fathers under the age of 20 (as in Dustmann and Landersø 2021), and with other outcomes, such as domestic violence. Taken together, this suggests that the infant's sex has no bearing on the mother's or, perhaps more surprisingly, the father's criminal desistance. The change in preferences sparked by childbearing thus does not appear to hinge on the sex of the child itself.

E. *Teen Mothers*

As a final exploration of potential mechanisms, we turn to teen mothers. These results are informative because 78 percent of teen mothers report that their births resulted from unintended pregnancies (Mosher, Jones, and Abma 2012), mitigating potential concerns that effects reflect the endogenous choice to become pregnant rather than pregnancy itself. The impact of teen pregnancy itself, which is uniquely high in the United States compared to peer countries in Europe (Hoffman 2008; Kearney and Levine 2012), is also independently interesting. Influential research using miscarriage as an instrument finds minor negative and even some positive effects of teen childbearing (Hotz, McElroy, and Sanders 2005; Hotz, Mullin, and Sanders 1997; Ashcraft, Fernández-Val, and Lang 2013).[19] However, Fletcher and Wolfe (2009) use a similar empirical design with different data and find strictly negative effects on education and income, leading to a recent summary that the "[n]egative consequences of teen childbearing are well documented" (Yakusheva and Fletcher 2015, 29).

We estimate the effects of childbirth on teen mothers, defined as women who give birth before turning 20, using the same strategy as above. We plot the coefficients from the difference-in-difference specification for the four main crime categories in online Appendix Figure A.6, where the coefficients are normalized by the prepregnancy average to give the fractional change in arrest rates. Motherhood remains a large driver of desistance for this subgroup. As in the full sample, there is limited evidence of any anticipatory changes in behavior. Arrests show a sharp and largely sustained decrease to half of the prepregnancy levels. The results provide perhaps the clearest evidence so far that childbearing is a turning point even for very young women, at least as measured through criminal behavior.

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[19] For an overview of the causal effects of teen childbearing, see Kearney and Levine (2012), who conclude that "most rigorous studies on the topic find that teen childbearing has very little, if any, direct negative economic consequence" (abstract).

IV. Robustness

This section explores the robustness of the main results to several potential threats, including elective pregnancy termination and migration out of Washington.

A. *Pregnancy Termination*

Our findings only apply to pregnancies that are carried to term. However, many pregnancies end with abortions. During our sample period, around 20 percent of pregnancies are estimated to have ended in abortion (Finer and Henshaw 2006). This share is higher for younger, low-income women and for unintended pregnancies. However, recent evidence suggests that even among women who experience an unintended pregnancy, the majority do not receive an abortion: in 2008, 51 percent of pregnancies were unintended, and 41 percent of unintended pregnancies resulted in termination (Finer and Zolna 2014).

Criminal offending patterns for couples who elect to terminate their pregnancy may differ from the patterns for the mothers and fathers in our sample. Although the decision to carry a pregnancy to term is endogenous, we view timing of the pregnancy itself as plausibly exogenous given the lack of anticipation in the difference-in-difference estimates and the survey evidence on intendedness. Removing age effects, the before–after comparison implicit in our estimates therefore identifies the causal effect of childbearing for couples who elect not to terminate a pregnancy. It remains appropriate to describe this effect as the causal effect of family formation on this subpopulation since one cannot form a family without first becoming pregnant (or adopting).

A natural question, however, is what the effects of pregnancy might look like on the *full* population of couples, including those who terminate the pregnancy. In online Appendix D, we conduct a simple bounding exercise to help address this question. The results suggest that even if 50 percent of potential parents are missing due to elective termination, men who conceived at $t = -9$ would still show an over 10 percent long-run proportional decline in crime. Women would still show a sustained 35 percent decline at the same rate of missingness.

B. *Migration*

An important potential confound in our setting is migration in or out of Washington. Defining our sample by conditioning on a birth in Washington implies parents are most likely to be physically present in Washington around the time of conception. Since our data only cover arrests in Washington, it is possible that postbirth declines reflect migrations out of the state—and therefore unobservable attrition.[20] The most immediate argument against this threat is the clear increase in domestic violence following the births that we discuss further below. For migration to explain the decrease in other arrests, the men accounting for the

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[20] Incarceration poses an analogous attrition problem, as men in our sample are least likely to be in prison ten months before the birth; results using only never-incarcerated fathers are identical, however.

spike in domestic violence would need to have a much lower propensity of being arrested for other offenses. However, arrests are correlated across offense types: men with more drug arrests tend to have more domestic violence arrests as well, for example.

As a more direct test of robustness to outmigration concerns, we estimate the effects on men with greater attachment to the state in the postbirth period by restricting the sample to the 69,900 fathers who commit a DUI or traffic offense in the endpoints of our sample, that is, four to five years after the birth. In panel A of online Appendix Figure A.11, we show that this sample, which should be much less contaminated by migration attrition, shows a similar 20 percent decrease in drug arrests. Panel B shows that we also find very similar effects on the sample of first births for men who have a second child in Washington. If migration were driving the results and fathers physically present in Washington had stable levels of arrest rates post-birth, we would expect the decrease for both these groups to be substantially smaller.

Similarly, it is possible that migration into Washington affects our estimates of arrest rates before pregnancy. Online Appendix Figure A.12 explores this concern by estimating effects on two subsamples with preexisting activity in Washington that we expect to be less affected by potential in-migration: men who, according to a match within the birth records, were born in the state (panel A) and men who have a juvenile offense recorded in our data (panel B). Both sets of results show similar patterns to the main effects, with flat pre-trends in the lead-up to conception and sharp declines during pregnancy that are sustained for several years after birth.

C. *Alcohol Offenses*

Unlike the other three categories of crime, the raw averages of DUI arrests in Figure 1, panel A eventually return to prepregnancy levels. This appears to be due to the fact that women are more likely to be driving after having their first child. Partial evidence for this idea is that more innocuous arrests related to driving, such as driving without a license, increase steadily over the sample period (see online Appendix Figure A.4). But what can we say about drinking behavior independent of the propensity to drive? For more insight on this question, we turn to the most common alcohol-related arrests for people under the age of 21: alcohol possession. We perform our difference-in-difference analysis for women who become mothers at or before the age of 20, which brings the sample size down to 69,539 mothers.[21] The plot of difference-in-difference effects on these alcohol arrests is shown in online Appendix Figure A.5. Similar to the nonalcohol drug arrests in the previous plot, the figure suggests a sharp, largely sustained desistance at the beginning of pregnancy. Thus, at least for this subgroup where we have a measure of drinking that is unconfounded with driving, there is a clear decline.

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[21] As above, we continue to use mothers who have children later to define a counterfactual. However, all comparisons in our strategy are made between arrest rates of women who are the same age and thus subject to the same alcohol laws.

V. Domestic Violence

We next turn to a critical caveat to the previous turning points findings that, to our knowledge, has not received any explicit mention in the host of quantitative studies on crime and family formation. The decline in economic, drug, and DUI arrests for men around childbirth coincides with a large increase in domestic violence.

Figure 7, panel A shows raw averages of domestic violence arrests among fathers in the full first-birth sample along with arrest rates for older father counterfactuals. Domestic violence arrests increase up until the start of the pregnancy, decrease sharply, and then markedly spike in the month of the birth. The increase leading up to $t = -9$ may reflect conditioning on childbirth at $t = 0$, as relationships and hence opportunities for domestic violence increasingly form ahead of the pregnancy. Figure 7, panel B shows the difference-in-difference estimates of equation (1) with patterns mirroring the raw averages.

The decrease during pregnancy appears consistent with norms against assaulting pregnant women when violence may also harm the developing fetus (Currie, Mueller-Smith, and Rossin-Slater 2018). Finally, the spike at birth might help explain why recent studies found ambiguous effects of fatherhood on overall arrest rates (e.g., Mitchell, Landers, and Morales 2018). In online Appendix Figure A.8, we show, also using the raw averages, that a similar spike is visible around marriage.[22]

Our data measure arrests with a high degree of accuracy, but the connection between arrests and violent behavior over the sample period is less certain if the propensity to report domestic violence changes after pregnancy and childbirth. Victimization surveys, which may more accurately track changes in behavior compared to measures based on law enforcement involvement, confirm the qualitative finding that domestic violence is more likely after the pregnancy than during: in a nationally representative survey, 1.7 percent of mothers reported physical violence during the pregnancy compared to 3.1 percent in the first postpartum year (Charles and Perreira 2007).[23] Even if some share of the arrest spike is driven by changes in reporting, the results clearly show that pregnancy generates large increases in criminal justice contact due to domestic violence complaints, itself an important policy outcome.

Other results suggest changes in behavior and not simply reporting drive these estimates, however. In particular, domestic violence is strongly linked to the likelihood of subsequent divorce. Online Appendix Figure A.9, panel A shows fathers' domestic violence arrests split by divorce status five years later, normalized by prepregnancy means to account for large level differences between the two groups.

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[22] Online Appendix Figure A.7 plots mothers' domestic violence arrests around childbirth. Women are around four times less likely to be arrested for this crime in the three years after childbirth. Nevertheless, mothers show a drop to near-zero arrest rates around childbirth that rebound to prepregnancy levels shortly afterward.

[23] Further, in an interview, a Seattle police officer said that the presence of children would not affect the likelihood of an arrest due to Washington's strict mandatory arrest law. However, the evidence here is indirect, and a recent meta-analysis concluded that "the research community still does not know for sure whether pregnant women are at higher or lower risk of being physically abused" (DeKeseredy, Dragiewicz, and Schwartz 2017, 62).

Panel A. Fathers versus older father counterfactuals
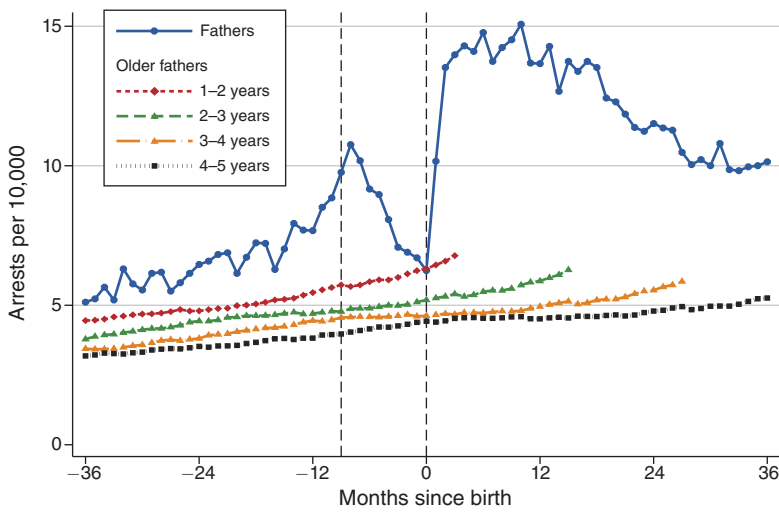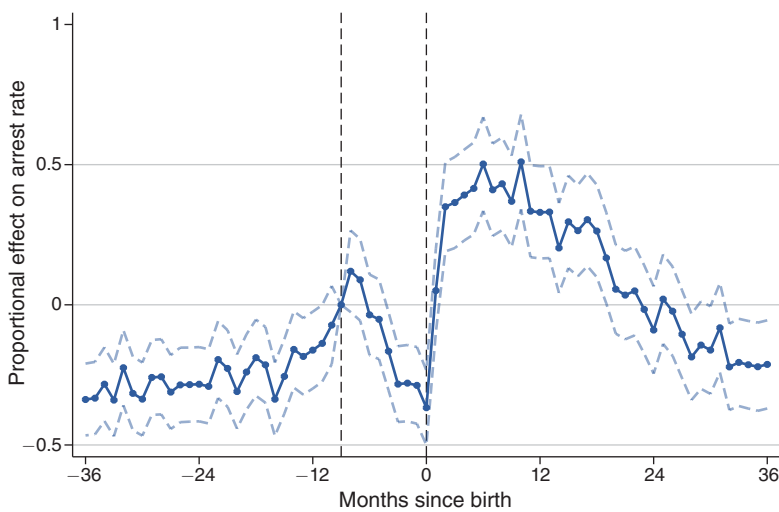

Panel B. Difference-in-difference estimates

FIGURE 7. FATHERS' DOMESTIC VIOLENCE

Notes: This figure shows effects of childbirth on father's domestic violence arrests. Panel A shows average monthly arrest rates around childbirth for fathers and several comparison groups. The outcome is an indicator for any domestic violence arrest. Fathers' and older fathers' outcomes are constructed as in Figure 3. Panel B plots difference-in-difference estimates, which measure effects of births relative to these counterfactuals. Regression effects are divided by the average domestic violence arrest rates of fathers nine months before birth to show proportional effects. Dots show point estimates, and dashed lines show 95 percent confidence intervals based on standard errors clustered at the person level. In both panels, the vertical dashed lines mark nine months before the birth and the month of birth.

Despite similar pre-trends, men destined for divorce show a much larger spike in domestic violence arrests following the birth. Online Appendix Figure A.9, panel B focuses on these divorced men, grouping them based on whether they divorced

one, two, three, or four years after the birth. The plot shows clearly that domestic violence spikes ahead of the divorce decree.

VI. Evidence from Stillbirths

The preceding sections provide evidence on the causal impact of childbirth assuming the onset of pregnancy does not coincide with other time-varying confounds and that older parents' arrest rates can be used to construct an accurate counterfactual. In this section, we probe the robustness of these results using an alternative design that compares parents' postbirth arrest rates to the outcomes of a sample of couples whose pregnancy ends in a late-stage miscarriage. If, in line with the previous results, the outcome of the pregnancy has a causal effect on arrests, parents of stillborn infants should show relatively higher rates of arrests postpregnancy.

Naturally, there are key caveats to this design. The strategy carries some advantages over miscarriage approaches (e.g., Hotz, McElroy, and Sanders 2005) since some evidence suggests that abortion leads positively selected women to leave the sample (Ashcraft, Fernández-Val, and Lang 2013). However, stillbirths are far less common than miscarriages and often have distinct causes affecting the health of the mother such as preeclampsia, bacterial and viral infections, other medical conditions, and possibly drug use and domestic violence (Lawn et al. 2016). Further, the experience of a stillbirth is often followed by a period of bereavement (Heazell et al. 2016). Some of the differences in arrests between parents of still- and live-born children may thus reflect the effects of losing a child rather than having one.[24]

The last two columns in Table 1 describe the differences between the stillbirth sample and our primary analysis sample, restricting to stillbirths where the parents have a clear match in the arrest data and that are the mother's or father's first birth. Mothers to stillborn babies are 6–10 percentage points less likely to be married but are otherwise positively selected on characteristics that predict arrest risk, such as receipt of WIC. Mothers in our data who experience stillbirths exhibit greater variance in age than mothers to live-born children, and the infants are more likely to be male and twins, in line with medical studies on risk factors (Lawn et al. 2016). Parents of stillborn children are also less likely to be arrested on average.

To illustrate the variation used to estimate effects, Figure 8 plots arrest rates for unmarried parents of live-born and stillborn infants around birth. We aggregate time periods to the six-month level to reduce noise in the smaller stillbirth sample. The outcomes are indicators for whether any arrest for the specified offense occurred in the six-month period. To remove level differences between the two groups, we show differences relative to the prepregnancy average. We focus on unmarried parents following the main analysis presented above, which shows that effects of childbirth are concentrated in this group of parents.

Panel A of Figure 8 shows that for fathers, arrest rates for drug, DUI, economic, and property destruction crimes in each group closely follow each other up to pregnancy and then subsequently diverge, with fathers of live-born children

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[24] We find similar effects looking at periods six or more months beyond birth when such effects may be attenuated, however.

Unmarried fathers

Panel A. Four main crimes   Panel B. Domestic violence
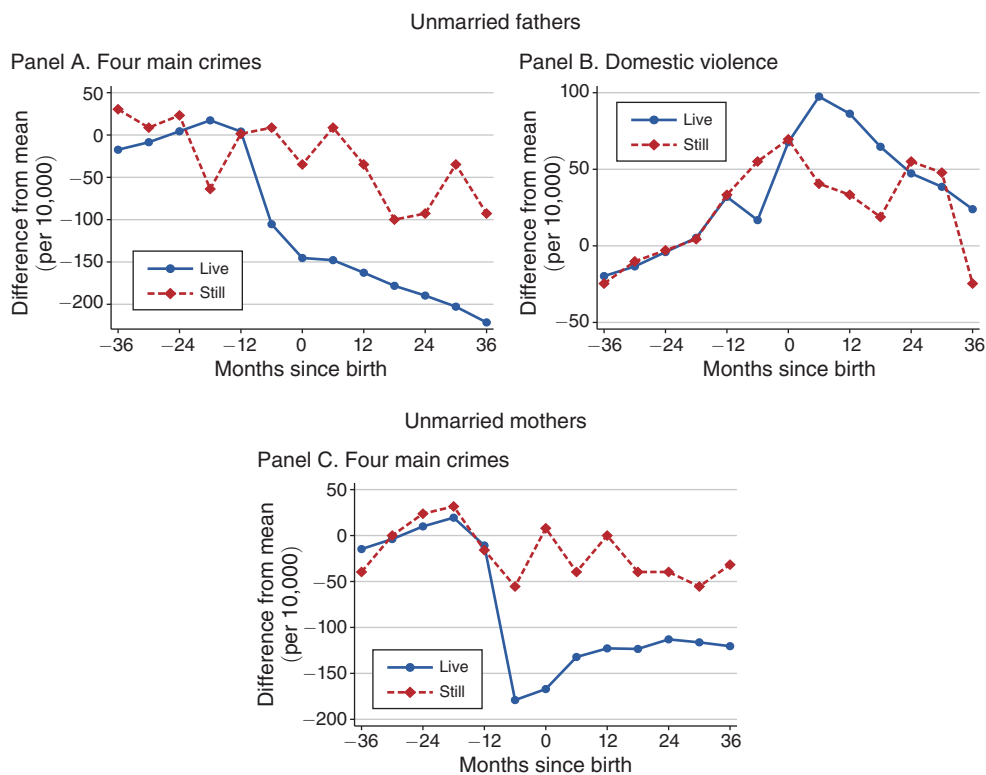

Unmarried mothers

Panel C. Four main crimes

FIGURE 8. STILLBIRTHS VERSUS LIVE BIRTHS

Notes: This figure shows arrest patterns around birth for parents of live- and stillborn children. Across panels, the data plotted are the average of an indicator for being charged with an offense in a six-month period minus the average of the indicator for that group (either live or stillbirth) in the two years before birth. For example, the point at month 24 in panel C indicates that, for every 10,000 single mothers to live-born infants, there were 40 fewer offenses compared to the prepregnancy average. We use the six-month period to compensate for the relatively small number of stillbirths and resulting noisy monthly arrest rate measures.

showing substantial declines relative to parents of stillborn children. Childbirth thus appears to cause a large decrease in arrests, consistent with the results in the primary difference-in-difference analysis. Panel B shows that domestic violence arrests also trend similarly for both groups in the lead-up to pregnancy. But they diverge afterward, with parents of live-born children showing significantly more domestic violence arrests in the months after birth. Finally, panel C shows that mothers' arrests also follow patterns consistent with the main results, with large gaps between the two groups emerging postbirth.[25]

These plots, however, capture a potential limitation: parents of live-born infants show a larger drop in crime in the six months before birth, a difference that is insignificant for fathers (panels A and B) but significant for mothers (panel C). These could reflect selection across the two samples or the fact that gestation is shorter for

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[25] Mothers' domestic violence arrests are too rare in the stillbirth sample for meaningful comparisons.

stillbirths: an average of 29.6 weeks compared to 38.9 in the full first-birth sample of mothers to live-born infants. As shown in Figure 1, panel A, the final months of pregnancy have the lowest levels of crime for mothers to live-born infants, and these months do not occur for most stillbirths.[26]

Since arrests are rare and our stillbirths sample is relatively small, we quantify these effects in a simplified difference-in-difference specification estimated on the panel of outcomes three years before and after each stillbirth and live birth collapsed to six-month periods. We estimate the following regression specification:

$$(2) \qquad Crime_{it} = \alpha_i + \sum_{k \in \{-2, -1\}} \delta_k \mathbf{1}\{t = k\} + \delta_1 AfterBirth_{it}$$
$$+ \delta_2 AfterBirth_{it} \cdot Live_i + \mathbf{X}'_{it}\beta + \epsilon_{it},$$

where $Crime_{it}$ is either an indicator for any arrest or the count of arrests in the six-month period t before/after the birth, α_i indicates person fixed effects, and the series δ_k captures the two six-month periods overlapping with pregnancy (i.e., the year before birth). We include these pregnancy effects to exclude any temporary declines during pregnancy from the pre–post comparison. $AfterBirth_{it}$ is an indicator for $t \geq 0$, and the indicator $Live_i$ is equal to 1 for normal births and 0 for stillbirths. There is no main effect for $Live_i$ because we include only first-time parents, making it colinear with the person fixed effects. The vector $\mathbf{X}_{it}$ includes a polynomial in age and dummies for being above ages 18 and 21. We scale the estimates to give the number of arrests per 10,000 people. Standard errors are clustered by person.

The results for fathers reported in Table 3 show the same patterns of offending declines as in the main results. Columns 1 and 3 report results for all first-time fathers, while columns 2 and 4 restrict to unmarried fathers. The outcome in columns 1 and 2 is a count of arrests per 10,000 people during every six-month period. In columns 3 and 4, the outcome is a binary indicator for having any arrest, also scaled by 10,000. Panel A shows that birth generates large decreases in arrests for fathers to live-born children and that this difference is especially pronounced among unmarried fathers. For instance, column 4 shows that unmarried fathers to live-born children have a roughly 1 pp relative decrease in the probability of arrest in the months after birth, about 17 percent of the outcome mean. By contrast, panel B shows that live-born fathers experience sharply elevated rates of domestic violence arrests after birth, consistent with the previous results.

Table 4 shows results of the same exercise for first-time mothers' economic, drug, destruction, and DUI arrests. The results show large postbirth declines in arrests for mothers to live-born infants, mirroring the findings in the main analysis. Across columns, both the quantity of arrests and the monthly arrest rate decline relative to mothers of stillbirth children. For instance, column 4 shows that unmarried mothers experience a relative reduction in their arrest rate of 72 per 10,000. This point

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[26] Another possibility is that domestic violence causes stillbirths. Currie, Mueller-Smith, and Rossin-Slater (2022) find indirect evidence against this as the sex ratio at birth is no different for a sample of mothers suffering assault during pregnancy. Research suggests that if miscarriage were higher among victims, the sex ratio would tilt toward females (Sanders and Stoecker 2015).

TABLE 3—STILLBIRTH RESULTS, FATHERS

	Number of charges	Number of charges, unmarried	LPM	LPM, unmarried
	(1)	(2)	(3)	(4)
Panel A. Four main crime categories				
After birth	−6.71	−21.92	−0.77	9.79
	(34.10)	(79.56)	(13.77)	(31.36)
Live × after birth	−52.33	−148.52	−30.56	−98.07
	(33.66)	(77.96)	(13.62)	(30.81)
Outcome mean	402.66	1,046.63	224.16	563.02
R^2	0.180	0.175	0.204	0.201
Observations	6,582,121	2,000,427	6,582,121	2,000,427
Panel B. Domestic violence				
After birth	45.53	141.48	26.60	79.41
	(14.84)	(33.78)	(7.49)	(16.36)
Live × after birth	26.41	50.84	15.20	31.61
	(14.42)	(32.28)	(7.35)	(15.89)
Outcome mean	51.55	123.51	34.48	80.99
R^2	0.135	0.135	0.148	0.150
Observations	6,582,121	2,000,427	6,582,121	2,000,427

Notes: These tables report estimates from the difference-in-difference specification in equation (2). Panel A uses criminal charges for drug, DUI, economic, or property destruction offenses in each six-month period as the outcome, while panel B uses domestic violence offenses. Across panels, columns 1 and 3 report results for all first-time fathers in the sample (number of men: 502,900 with normal births and 3,417 with stillbirths), and columns 2 and 4 report results restricting to unmarried fathers (N = 152,499 with normal births and 1,380 with stillbirths). The outcome in columns 1 and 2 is a count of charges per 10,000 people. In columns 3 and 4, the outcome is a binary indicator for having any of those charges in the six-month period per 10,000 people. LPM stands for linear probability model. Standard errors clustered at the person level are shown in parentheses.

estimate is slightly smaller as a fraction of the prebirth mean than the preceding estimates in Section IIC, though confidence intervals include effects as large as 40 percent of the mean. Taken together, the results for both mothers and fathers support the interpretation that changes in arrest rates around childbirth reflect the causal effects of pregnancy and family formation. However, this needs to be interpreted with caution because, as we discussed above, the experience of pregnancy is likely different for the two groups along several dimensions, which could also affect crime.

VII. The Role of Marriage

As noted earlier, there are large level differences in criminal arrests between parents who are married versus unmarried at birth. Marriage itself is a prominent feature of the turning points framework (Laub, Nagin, and Sampson 1998). In qualitative studies, formerly delinquent men often attribute considerable weight to marriage: "If I hadn't met my wife at the time I did, I'd probably be dead. It just changed my

TABLE 4—STILLBIRTH RESULTS, MOTHERS

	Number of charges (1)	Number of charges, unmarried (2)	LPM (3)	LPM, unmarried (4)
Four main crime categories				
After birth	−34.22	−168.14	−29.90	−101.83
	(23.90)	(33.00)	(6.41)	(15.31)
Live × after birth	−65.94	−136.81	−26.69	−72.35
	(24.24)	(31.53)	(6.29)	(14.82)
Outcome mean	158.27	453.14	96.07	270.73
R^2	0.133	0.132	0.156	0.155
Observations	6,972,797	2,016,508	6,972,797	2,016,508

Notes: This table reports estimates from the difference-in-difference specification reported in equation (2) using criminal charges for drug, DUI, economic, or property destruction offenses in each six-month period as the outcome. Columns 1 and 3 report results for all first-time mothers in the sample (number of women: 532,790 with normal births and 3,579 with stillbirths). Columns 2 and 4 report results restricting to unmarried mothers (N: 153,854 with normal births and 1,262 with stillbirths). The outcome in columns 1 and 2 is a count of charges per 10,000 people. In columns 3 and 4, the outcome is a binary indicator for having any of those charges in the six-month period per 10,000 people. LPM stands for linear probability model. Standard errors clustered at the person level are shown in parentheses.

whole life . . . that's my turning point right there" (Sampson and Laub 2009, 41). Marriage is also emphasized in some economics research. For example, a long literature debates the content of the male marriage wage premium (e.g., Antonovics and Town 2004).

To analyze criminal arrests around marriage, we take a similar approach to our analysis of childbirth. Figure 9 plots arrest rates for women and men in the three years before and after marriage along with arrest rates for older spouses over the same ages. The series are constructed exactly as in Figure 2 and Figure 3 but using date of marriage to define cohorts instead of date of first birth. Older spouses' outcomes are kept until the month of marriage, and each counterfactual line stops at the age when the earliest spouse in the group would be married. For example, the line for spouses who marry one to two years after focal spouses stops at $t = 12$, the age when those who marry when one year older than the focal spouses would celebrate their nuptials.

Both panels show that husbands and wives have similar arrest patterns in the run-up to their marriage, albeit at starkly different levels. Men are nearly three times as likely to be arrested. Though both groups exhibit similar arrest rates to future spouses over the ages three years before their marriage, roughly two years prior, a steady decline in arrests begins, bringing arrest rates ultimately below 0.05 percent for women and below 0.2 percent for men. Arrest rates then flatten out as future spouses continue their declines in anticipation of their own marriages.

We omit difference-in-difference estimates of these effects since the patterns are clear from Figure 9. Marriage itself marks the end of a long period of desistance rather than a turning point for criminal behavior. These results are consistent with reports from adults studied in the qualitative literature, where many subjects state that they
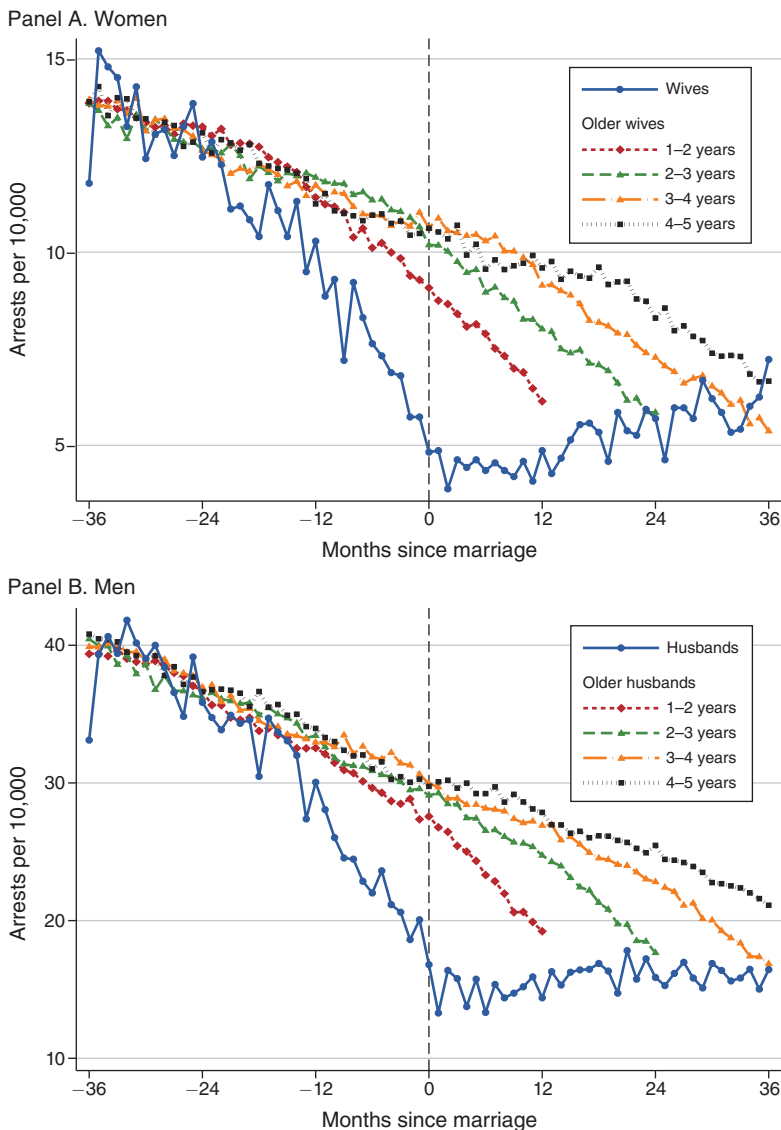
Panel A. Women

Panel B. Men

FIGURE 9. ARREST PATTERNS AROUND MARRIAGE

Notes: This figure plots arrest rates around marriage for spouses and several comparison groups of older spouses. The sample includes all fathers ($N = 243{,}570$) and mothers ($N = 254{,}708$) from the birth data who are visible in the arrest data three years after and three years before their marriage. Each graph is constructed in the same way as Figures 2 and 3, except they use age at marriage instead of age at first birth to define cohorts and potential comparison spouses. Comparison husbands and wives are included up until their month of marriage, and comparison group lines stop when the youngest spouse in the group marries. The outcome is an indicator for any arrest for the crime types plotted in Figure 1. The vertical dashed line marks the month of marriage.

view marriage as an outcome of financial success and relationship stability. In a representative comment, one subject says she would get married "[a]fter I have a house and a car and everything, and I'm financially stable" (Edin and Kefalas 2011, 93).

Surveys using larger samples find that stringent financial prerequisites for marriage are set by unwed couples (Gibson-Davis, Edin, and McLanahan 2005).

Still, some research has largely interpreted marriage effects as causal.[27] For instance, Sampson and Laub (2009) write: "Selection into marriage also appears to be less systematic than many think . . . [m]any men cannot articulate why they got married or how they began relationships, which often just seemed to happen by chance" (45). The plots suggest clearly that romantic partnerships are important, demarcating a large decrease in arrests, but the association could be either because of the relationship or other factors simultaneously decreasing crime and increasing the probability of marriage. In support of the relationship mechanism, Sampson and Laub (2009) note that some women condition marriage on men's social behaviors: "Before marriage, Leonard's wife also told him directly, 'Your friends or me'" (136).

Good Marriages, *Bad Marriages*.—Economic models going back to Becker, Landes, and Michael (1977) posit that divorces happen in response to negative information about the expected gains from the union (for a more recent example, see Charles and Stephens 2004). In sociology, a core tenet of turning points theory is that marriage itself does not guarantee desistance—relationships are salutary to the extent that they are characterized by high attachment (Sampson and Laub 1992). The turning points theory plainly predicts that desistance should be less pronounced for bad marriages. The model in Becker, Landes, and Michael (1977) implies that divorce should be preceded by some negative surprise.

To explore these ideas, we combine our data with statewide divorce data from Washington. We plot descriptive statistics for married couples and those who divorce within five years in online Appendix Table A.3. Parents who get divorced are younger, reside in poorer zip codes, and are more likely to be White or Black (and less likely to be Hispanic or Asian). Perhaps most importantly, men and women who are headed for divorce are both about twice as likely to have any arrests.

Online Appendix Figure A.10 plots arrest patterns around births for still-married and eventually divorced couples. We compare couples still married five years after birth to those who have divorced by that time. To account for level differences, we subtract and divide by the prepregnancy averages for each group. The outcome is an indicator for any of the four main categories of arrest.[28] Compared to their past levels of arrest rates, women headed for divorce have slightly higher rates of arrests postbirth, despite broadly similar trends leading up to the pregnancy. These same effects are present and much more pronounced for men.[29]

These results are consistent with the idea that for married couples, spousal attachment is pivotal to maintaining desistance, although the parallel trends leading up to the birth suggest that preparation for a child can be just as impactful for couples who will eventually divorce (Laub and Sampson 2001). The results are also broadly consistent with economic conceptions of marital dissolution as in

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[27] See Skardhamar et al. (2015) for a critical assessment, however.
[28] Results for crime-type specific arrests show similar patterns.
[29] The results are very similar using marriages as the focal event.

Becker, Landes, and Michael (1977) arguing that divorce occurs in reaction to unexpected changes to the gains from the union. Of course, unobserved variables related to crime and divorce could be driving these results. For example, a spouse could lose their job, resulting in both increased crime and marital dissolution.

VIII. Conclusion

How does someone change when they become a parent or wed? This paper establishes several novel patterns in criminal arrests around childbirth and marriage, leveraging a detailed administrative sample and a difference-in-difference strategy comparing parents and spouses to men and women who give birth and marry later. The results provide clear evidence on the degree to which these events serve as turning points for criminal behavior. For mothers of all ages, childbirth is transformative, even with the rebound in arrests that occurs after pregnancy. A significant decrease in drug, DUI, and property offenses occurs for fathers as well. However, the increase in domestic violence around both births and marriage is a significant qualifier. Marriage, meanwhile, is reserved for couples who, in the words of Edin and Kefalas (2011), have "made it" (111).

Fertility is indirectly encouraged through child tax credits and other policies, and some government programs outside the United States have directly incentivized childbearing. Evidence on the effect of child tax credits on fertility is mixed (e.g., Baughman and Dickert-Conlin 2009; Zhang, Quan, and Van Meerbergen 1994; Riphahn and Wiynck 2017). Some direct efforts to financially encourage childbearing have been successful (Milligan 2005; Cohen, Dehejia, and Romanov 2013) and may become more popular as more countries face declining fertility (Jones 2022; Brainerd 2014). Finally, policies that make it easier to have children, like maternal leave (Lalive and Zweimüller 2009) and publicly funded childcare (Mörk, Sjögren, and Svaleryd 2013), could increase fertility. Our results suggest that, depending on which groups respond to such incentives, fertility-promoting programs could also cause decreases in crime.

These findings also relate to a wide range of actions that governments take to encourage father involvement, support low-income parents, and prevent teen pregnancy. Presidents Clinton, Bush, and Obama all oversaw fatherhood initiatives meant to strengthen bonds between noncustodial fathers and their children (Tollestrup 2018). Our findings on the timing of desistance for fathers suggest that pregnancy could be a uniquely favorable time for interventions promoting additional positive changes among young men. Further, home visitation programs in the postnatal period are typically directed toward the child's welfare, but the stark patterns in domestic violence uncovered here could justify efforts to address family violence through similar means (Bilukha et al. 2005; Turnbull and Osborn 2012). Finally, all US states have received funding for education programs with a primary goal of reducing teenage childbearing (Fox et al. 2019). President Clinton referred to teen pregnancy as the country's "most serious social problem" (Clinton 1995), and it is commonly viewed as an omnibus negative signal in the social sciences (e.g., Chetty and Hendren 2018). Economists have been more ambivalent, however, about whether teen pregnancy *causes* a deterioration in other life outcomes (Kearney

and Levine 2012). Our finding of a large decrease in crime for teen mothers provides further evidence that this negative tag may not have entirely negative consequences.

In addition, our finding that drug arrests show large decreases after family formation implies that substance abuse may respond powerfully to incentives built around social bonds. While some views of addiction frame it primarily as the outcome of involuntary impulses,[30] addiction experts observe that some successful treatments, such as Alcoholics Anonymous, are based on promoting social cohesion and interdependence (Heyman 2009). Though the experience of childbearing cannot easily be synthesized in an intervention, our results suggest social ties within the family may be a particularly potent source of support for combating addiction.

Numerous efforts in the United States have also attempted to promote healthy marriages. For example, the Supporting Healthy Marriages initiative, launched in 2003 by the Department of Health and Human Services, provided free relationship counseling to low-income parents, although evaluations suggested limited positive effects and no impacts on the probability of separation (Hsueh et al. 2012; Dion 2005). Our findings suggest that marriage itself does not decrease crime, but the relationship may still play a role in driving the long period of desistance leading up to marriage. We also find, however, that childbearing, which could strengthen marital relationships by decreasing the probability of divorce (Bellido et al. 2016), has no long-run effects on crime among the already married. This leaves any potential spillovers of marriage-focused policies on crime less clear. An interesting task for future research is to more directly assess the connection between these and other policies, marriage and fertility, and crime.

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[30] For example, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) defines drug abuse as a disease: "Addiction is a chronic, often relapsing brain disease . . . [s]imilar to other chronic, relapsing diseases, such as diabetes, asthma, or heart disease."

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