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Exploring the Transition to Parenthood as a Pathway to Desistance

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Abstract

Purpose While criminologists know a great deal about how marriage and employment affect criminal behavior, scholars remain equivocal about the relationship between the transition to parenthood and desistance. This study seeks to contribute to the literature by (1) exploring gender differences in the transition to parenthood; (2) exploring how women's offending behavior varies across motherhood states (i.e., pregnancy); (3) assessing important contexts of the relationship between parenthood and desistance, such as timing, residency, and parental orientation; and (4) assessing whether these contexts work together as a "respectability package".

Methods I utilize data from The Pathways to Desistance Study, a longitudinal dataset of serious adolescent offenders, and fixed effects models to test whether the transition to parenthood is associated with periods of self-reported criminal desistance.

Results This study finds that a binary measure of parenthood is often insufficient for exploring the effects of parenthood. Rather, the contextual nature of parenthood, particularly the timing of transition, residence with a child, and being highly invested in parenthood, reduces one's odds of offending. Additionally, these contexts work together as a parenthood respectability package. However, these results vary by gender and offense type.

Conclusions The transition to parenthood, including both pregnancy and motherhood, seems to be an important factor for periods of temporary desistance among women, while the transition to fatherhood is associated with periods of aggressive offending desistance. The contexts of parenthood also work in gendered and offense-specific ways.

Keywords Life-course criminology · Transition to parenthood · Gender differences · Desistance

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Introduction

Over the last several decades, desistance research has flourished, and much of this development can be attributed to Sampson and Laub's seminal work on age-graded informal social control [50, 51]. Using a modified version of social control theory and principles from the life course perspective [11], Sampson and Laub argue that the interactions between life course transitions, situational contexts, and individual agency provide the opportunity for individuals to desist from crime. Life course transitions, such as employment, marriage, and military service, are experiences that change one's social bonds, and these bonds shape the costs and consequences, as well as the opportunity, for criminal activity. However, it is not just the transition per se that is important, but the attachment that one develops for these new relationships and obligations. Thus, high-quality marriages in which individuals feel a strong sense of attachment for their partners and stable employment matter more than merely being married or employed. There is considerable support for this perspective, as research shows robust effects of marriage and employment on criminal offending (see [53] for a review). However, what is less clear is whether transitioning to parenthood has a similar effect. Although parenthood has often been cited as a potentially significant turning point for offenders [16, 38, 53] and related research has been ongoing for over a decade, our understanding of the relationship between parenthood and crime has lagged behind that of employment and marriage.

Despite this overall lag, three relatively consistent patterns have emerged. First, quantitative studies have generally found that motherhood is associated with reductions, and even termination, of offending [4, 6, 8, 15, 18, 23, 27, 38, 47, 59]. Second, qualitative work highlights how the transition to parenthood is often accompanied by an identity shift which promotes pro-social behavioral changes, and how important the role of motherhood is to women's narratives of desistance [3, 32–34, 57]. Third, in spite of the first two patterns, there remains a "lack of inevitability" regarding the parenthood effect [16, 48], particularly among studies using nationally representative samples (i.e., [5]) and among fathers. While some inconsistent associations could be due to differences in methodologies and sample characteristics [27], it is much more likely that parenthood works in complex and gendered ways, and that certain aspects of parenthood may encourage both desistance *and* persistence. When these contexts are not accounted for, inconsistent associations across studies are more likely to emerge.

This study seeks to contribute to the developing discussion regarding the association between parenthood and criminal offending through the analysis of a longitudinal dataset of serious adolescent offenders using within-individual analysis to control for unobservable traits and potential selection effects. Drawing on insights from both quantitative and qualitative studies, this study (1) explores gender differences in the transition to parenthood and desistance; (2) explores how pregnancy influences offending behavior; (3) assesses important contexts of the relationship between parenthood and offending, such as timing, residency, and parental orientation; and (4) assesses whether these contexts work together as a "respectability package". The goal is not only to determine whether parenthood has an association with offending, but when and why parenthood matters.

Gendered Experiences and Structural Changes in the Transition to Parenthood

The transition to parenthood, beginning with pregnancy, is often experienced as a "normal crisis" [30, 46] which brings about drastic changes in the everyday lives of parents, but particularly so for the lives of women due to the gendered expectations of parenting. Women are expected to engage in "intensive mothering" practices in which she puts her children's needs before her own [21] and provides most of the primary care responsibilities. Intensive mothering does not begin once a child is born, but rather begins during pregnancy since she is physically responsible for the development of the child. For instance, concerns over the health of a child actively promotes desistance from drug and alcohol use during pregnancy [14, 25, 27, 40, 55]. Specifically, Gilchrist et al. [14] found that unmarried, adolescent mothers seriously curbed their use of cigarettes, alcohol, and illicit drugs while pregnant, and Kreager et al. [27] found that women used marijuana and alcohol less frequently and were more likely to completely desist from marijuana and alcohol while pregnant. Although both Gilchrist et al. [14] and Kreager et al. [27] note that mothers' drug and alcohol use did rebound in post-partum follow-ups, these rates remained below their pre-pregnancy rates suggesting persistent motherhood effects. Comparatively, men's drug use is generally unaffected when their partner is pregnant [55].

Pregnancy is also a time when women and men begin to anticipate how their lives will change after the child is born; however, men's anticipation and preparation for the birth of a child are quite different from women's. For example, in a study of first-time fathers and their experiences with healthcare professionals during the prenatal period, Deave and Johnson [9] found that men felt excluded from health provisions such as prenatal classes and appointments. Although excited about the arrival of their child, men reported feeling like bystanders, especially during delivery procedures, and were apprehensive about the practical aspects of caring for a baby after birth. These structural and gendered practices of health care provisions and services perpetuate gendered experiences of pregnancy and parenthood in which the anticipatory and transformative impact of parenthood center on women. Broadly, these gendered expectations and experiences likely play a key role in the conventionalizing potential that parenthood has for men and women and may explain why motherhood has been more consistently linked to desistance than fatherhood.

Pregnancy and anticipatory socialization also seem to be a precursor to other key structural changes, such as shifts in social networks and changes in routine activities. For instance, Hunt et al. [25] described the process of how 118 gang-girls accepted a motherhood identity. Although these women reported that they were initially shocked to find out that they were going to become mothers, they gradually came to accept this new role and viewed motherhood as a positive force in their lives. Upon realizing that they were pregnant, most homegirls stopped hanging out on the corner and began adopting healthier lifestyles and activities, including the cessation or reduction of alcohol consumption. During pregnancy, the girls reshaped their closest networks to include more family members, particularly their own mothers, rather than friends. After the birth of the child, the girls typically resumed drinking; yet, the context of their drinking was dramatically different. In this new adult context, drinking became more privatized, occurring at home with significant others and family members more than friends. In another study of gang girls, Fleisher and Krienert [13] did not find an overall

motherhood effect on violence; however, over 60% of their sample said that pregnancy was their initial reason for becoming inactive gang members and even among women who remained "active" members after their pregnancy reported that they stopped "hanging out, fighting, and 'being crazy'" (p. 619). Overall, it seems that pregnancy and motherhood are viable pathways out of gang networks and in some ways speed up the process of maturation [25, 39].

Parenthood has also been shown to be a potential pathway out of gang membership for men as well, although this disengagement is much more inconsistent [56]. For instance, in interviews with 91 male gang members from the San Francisco Bay area, Moloney et al. [35] found that fatherhood initiated important subjective and affective transformations that led to changes in outlook, priorities, and future orientation. The fathers in this study took great pride and highly valued their father identity. This pride even extended to fathers who did not reside with their children, and for many, these emotions provided motivation to desist. Despite this role activation and desire to move into a legitimate lifestyle, many men with criminal records, low education, and limited job training found it difficult to secure stable and legitimate work and would often supplement their legitimate income with drug sales to support their children. Those who did find ways to support themselves and their families with legal income were more likely to desist—especially when they began to limit their time on the streets. Although this "knifing off" is a key piece to desistance, it is not always easy and takes an emotional toll on fathers; they must leave behind their gang, find new sources of respect, and develop a new identity rooted in fatherhood and work. Thus, for men and women, it seems that behavioral changes, particularly regarding drug use and gang activity, do not come about *only* because of the transition to parenthood, but because the transition to parenthood is often accompanied by structural changes to social networks and routine activities.

These changes in networks and routine activities, particularly unstructured socializing, seem most likely to occur when parents live with their children. Residing with children, particularly young children, introduces a variety of structured activities that nearly always take place in the home and center on taking care of the child (feeding, cleaning, playing, etc.). Thus, studies that take the residential status of parents into account find that being a resident parent is associated with reductions in offending [8], increases both temporary and long-term desistance [61], and reduces drug use for both men and women [55]. While the statistical gendered patterns of residency on offending are not yet robust (neither [8] nor [61] explored gender comparisons), one would expect that women's daily activities would be more impacted than men's because women are expected to do more care-taking tasks than men, and because when parents are not living together, children typically reside with mothers rather than fathers.

Cognitive Changes and the Transition to Parenthood

Although such changes in social networks and routine activities may occur "by default" once a child is born, many respondents in qualitative studies report that they actively *choose* to make these changes because they are transitioning to parenthood. Thus, behavioral change is likely predicated on role attachment and agency: individuals change their behavior when they choose to fulfill the new role's expectations. This means that an individual must care about—be attached to—the new role and

purposefully choose to enact that role. Across qualitative work, respondents highlight how they began to think about their behavior differently as they transitioned into parenthood. In particular, becoming a parent made individuals realize that they were responsible for another person and that their actions were not limited only to themselves. They began to reflect on their past behavior and recast it as inappropriate or no longer worthwhile [16]. Thus, offenders use transitions, such as parenthood, as "hooks for change" [16], moments to reflect on their prior behavior and change their internal narrative to focus on a future self that is more conventional [19, 60]. These cognitive shifts appear important for both mothers and fathers [10, 16, 35, 45, 49]; however, due to gendered expectations of parenthood and an overall focus on women during this transition period, particularly during pregnancy, this cognitive shift may occur more frequently or quickly among women than men. This emphasis on motherhood rather than fatherhood can help to explain why some men only come to think of themselves and accept responsibilities as fathers after having multiple children [35].

Although the qualitative evidence of cognitive shifts appears robust, there is always the risk that these narratives suffer from retrospective bias. Thus, some studies have attempted to quantitatively capture cognitive shifts by using the wantedness of pregnancies and the attending behavioral changes of women [15, 22]. For instance, Hope et al. [22] found that adolescent girls who gave birth and raised their child compared to those who miscarried, aborted, or placed their child up for adoption, experienced dramatic declines in smoking and marijuana use. With the exception of those who miscarried, this study was built to compare those who *chose* to become mothers to those who *chose* not to be; this choice to become a mother suggests that a cognitive shift occurred among these women. Furthermore, Giordano et al. [15] found that the prosocial effect of parenthood is conditioned upon the wantedness of pregnancy, such that a wanted pregnancy brings about more prosocial behavior than an unwanted pregnancy. Although the mechanism itself is unmeasured, it can be argued that women who wanted a pregnancy were cognitively ready to accept a parental role and were more open to make prosocial behavioral changes. That there are so few quantitative studies that attempt to capture cognitive change is likely due to existing data limitations, as well as challenges with conceptualization and operationalization.

The Transition to Parenthood as a Risk Factor

Despite the assumptions that parenthood is one of the most rewarding and joyful experiences of a person's life (see [20] on folk theories of happiness and parenthood), qualitative research indicates that it is also one of the most stressful. This general stress of parenthood, related to strains on multiple types of resources (time, money, and energy), paired with highly gendered expectations of mothers and fathers, may actually work to promote initiation or persistence in offending rather than desistance, particularly among those with "mistimed" transitions and those with a history of offending or substance use. In these ways, the transition to parenthood may operate more as a risk factor than a protective factor.

For instance, Carbone-Lopez and Miller's [7] qualitative interviews highlight the complex and varied pathways between methamphetamine use and early adult role

adoption. Mistimed or precocious entry into parenthood and other adult roles was associated with onset, as well as persistence, of offending. In their interviews with young female methamphetamine users, Carbone-Lopez and Miller [7] demonstrate that while precocious entry into adult social roles can stem from deviance and drug use, it is also common for precocious entry into adult social roles, such as early motherhood, to function as a mediator which precipitates the onset of methamphetamine use. For some of these young women, drug use provided a means of coping or rebelling against the responsibilities of motherhood. In another recent study using the Pathways to Desistance Study, Na [41] used a matched sample of men and structural equation modeling to test for the timing effects of fatherhood. Since these men were included in the sample due to their previous offending history, Na [41] tests for fatherhood's impact on the persistence rather than onset of offending. He found that men who transitioned into fatherhood during adolescence increased their exposure to dangerous lifestyles, delinquent peer associations, and subsequent offending while men who transitioned into fatherhood during early adulthood had higher aspirations and expectations for success, reduced unstructured socializing with peers, and reduced exposure to violence. Although becoming a father in early adulthood was associated with reductions in offending, these results did not reach statistical significance; however, significant associations with positive mediators were found. Although qualitative interviews are at risk of retrospective bias, and matched sampling cannot account for unobserved bias which may mean that men differentially select into early or late fatherhood, these results suggest that timing matters, and when individuals transition into parenthood before they are developmentally ready, they are more at risk for onset or continuation of offending rather than desistance.

Moreover, when parents do persist in offending, their offenses are often shaped by their commitment to familial obligations as well as the gendered expectations of mothers and fathers. For instance, due to the gendered expectations of fathers to be providers for their children, activating the role of "parent" may encourage income-driven crimes (such as drug selling and property crimes). Persistence is particularly likely for former offenders if they do not have access to legitimate and well-paying employment opportunities. For instance, Edin et al. [10] explored how fatherhood and incarceration could act as potential turning points in the criminal careers of unskilled men. Their interviews with approximately 200 low-income noncustodial fathers demonstrated that children are among the most valued resources these fathers had and used their role as a father to exit criminal offending and become legitimate workers in the formal economy. However, due to unstable or part-time work in the formal economy, some fathers occasionally participated in criminal activities in order to supplement their income (also see [35]). Thus, persistent offending is one way for fathers to fulfill the "breadwinner" role and be a "good" father.

Similarly, motherhood may necessitate criminal behavior, especially for those who are already involved with the criminal justice system or have a history of substance use. For example, Michalsen [33, 34] detailed how formerly incarcerated women who reunite with their children found their roles as mothers to be important but also extremely stressful since they had to balance their motherhood obligations at the same time as dealing with their own personal issues, such as sobriety. Ferraro and Moe's [12] work also highlights the structural difficulties of being good mothers for women who have been involved in the criminal justice system. In their interviews with 30 women

incarcerated in jail, Ferraro and Moe found that the gendered expectations of childcare, combined with economic marginality and domestic violence, led some women to choose drug dealing or economic crimes as alternatives to hunger and homelessness. In these cases, women resorted to crime in order to provide for their children and to make up for the lack of their own financial resources.

Mothers in Ferraro and Moe's [12] study also highlight the conflicts between work, childcare, and probation requirements that often lead to reincarceration for minor probation violations. For instance, a woman named Alicia described how her probation requirements put her child in physical risk. If her daughter were to have an asthma attack in the middle of the night, she would have to wait for approval from her probation officer before going to the hospital, otherwise she would be violating her probation; thus, many women were forced to weigh the requirements of good mother-hood against those of the criminal justice system. While most women's initial crimes were motivated by a desire to provide for their children, it was minor violations of probation terms that caused the greatest problems for them. In the end, complying with probation requirements, or drug court requirements, placed tremendous demands on the already strained resources of single mothers, and fulfilling their motherhood obligations often increased their risk of violating these probation requirements.

Other scholarly work illustrates how women symbolically reconstruct what it means to be a good mother so that they can reconcile their ongoing criminal behavior with traditional intensive mothering expectations. For example, Baker and Carson's [2] work described how mothers rationalize their substance use and its impact on their children. Their sample included 17 substance-abusing mothers in treatment programs. Based on cultural standards, the authors argue that any substance-abusing mother is "bad," for it is assumed that the search for, and the use of, substances, makes her inattentive, self-indulgent, and negligent rather than single-mindedly focused on her children's needs. The mothers in their sample were indeed aware of how their substance use negatively affected their children—by exposing them to danger, making themselves unavailable (physically, financially, and emotionally) due to drugs, and failing to provide proper discipline to their children; however, they also detailed several ways in which they were good mothers, even when they were using drugs. For instance, if a substance-using mother can take care of her children's practical needs, such as food, cleanliness, and education, she is a good mother. If she can protect her children from harm or cope with everyday struggles without losing her temper, she is a good mother. In fact, all the women in their study perceived themselves as good mothers, in some aspect or another, even when they were using. The mothers in Opsal [42] were also able to claim their status as "good mothers" by recasting their previous "bad" mothering practices. They argued that even though they were not "good" mothers in the past, their poor behavior likely benefited their children by making them resilient and tough. Perhaps most surprising in this literature is that some women claim the good mother role even when they abscond from the role itself. For instance, some of the mothers in Michalsen's [33] study felt that *not* reuniting was the best decision for their children since it often meant children were able to remain in stable living situations. Thus, they enacted the good mother role by putting their children's needs before their own even when that means not being with their children.

Collectively, these findings indicate how complex the structural and cognitive mechanisms of parenthood can be. Selection into mistimed parenthood may act as its own risk factor for later offending, and parents' cognitive investment in parenthood

may lead them to persistent criminal behavior in order to fulfill their familial obligations. Consequently, it may be important to account for both structural and cognitive mechanisms collectively, in a kind of parenthood "respectability package" [16]. For parenthood to have a prosocializing impact, cognitive investment may need to be paired with the appropriate structural opportunities that make desistance possible, such as reductions in unstructured socializing, a safe and stable living environment in which parents live with children, legitimate work opportunities, and freedom from romantic antisocial pressure [31, 37, 44]. Indeed, some evidence suggests that a family respectability package (marriage and parenthood) has more prosocial impacts on behavior than marriage or parenthood alone [62]; however, most studies assess marriage, cohabitation, and/or parenthood as independent transitions rather than combined respectability packages (for example [61]).

The Current Study

As evidenced here, desistance is a flourishing topic in criminology, and while we know a great deal about how marriage and employment affect criminal behavior, we know much less about whether, and in particular *how*, the transition to parenthood affects offending. Equivocal findings among quantitative studies may be due to differences in methodology, as well as their inability to control for important contexts and mechanisms of parenthood. Furthermore, detailed, long-term longitudinal datasets on criminal behavior and parenthood are few and far between which makes quantitative assessment difficult.

This study seeks to overcome some of the limitations described above and add to our knowledge about parenthood and criminal offending. First, it uses the Pathways to Desistance Study [52], a longitudinal dataset which began data collection in 2000. This dataset is unique because it includes individuals most likely to benefit from parenthood—namely, those who are engaged in serious and frequent offending. Additionally, using a prospective quantitative dataset is a strength of this study and overcomes the possibility of retrospective bias—a common limitation among qualitative studies. Second, both adolescent men and women are included in the sample, which allows for detailed gender comparisons. Third, offending is disaggregated into aggressive and income offenses which allows for an analysis of how parenthood may be differently associated with particular criminal behaviors. Fourth, this dataset has been relatively unexplored in regard to parenthood (but see [41]) although it has detailed measures of family and life transitions, such as pregnancy and parenthood status, parental orientation, and relationship characteristics. Using this rich detail, this study adds nuance to the transition to parenthood by accounting for changes in behavior that occur during pregnancy separately from changes in behavior after children are born. Fifth, it investigates several important contexts and mechanisms through which parenthood may work, including timing of parenthood transition, residency with children, parental orientation, and changes in routine activities. Parental orientation taps into how strongly a person identifies as a parent as well as how important and central parenthood is to the respondent. This measure captures the cognitive change that is highlighted in qualitative studies but infrequently included in quantitative tests. Furthermore, it is among the few studies that attempts to assess a parenthood respectability package by exploring the combined influence of timing, residency, and parental orientation. Additional control measures, such as the antisocial behavior of one's peers and antisocial influence of

one's romantic partner are also included in order to isolate the effects of parenthood. Finally, this study follows the example of scholars such as Kreager et al. [27] by using fixed effect models to estimate parenthood's effect on criminal behavior. Although a variety of methods can be used to study change over time, fixed effects methods are useful when there is concern that unobserved heterogeneity between individuals may differently influence them to experience transitions such as parenthood. Because individuals are used as their own controls, all unmeasured individual time-stable traits are held constant, which assists in controlling for issues of self-selection [17].

Data and Methods

This study uses the public use files for The Pathways to Desistance Study, a longitudinal dataset that followed 1354 serious adolescent offenders over 7 years [52]. Youths were enrolled from two locations, Phoenix, Arizona and Philadelphia, Pennsylvania. These two locations were chosen due to (a) high enough rates of serious crime committed by juveniles; (b) a diverse racial/ethnic mix of potential participants; (c) a sizable enough number of female offenders; (d) a contrast in the way the systems operate; (e) political support for the study and cooperation from the practitioners in the juvenile and criminal justice systems; and (f) the presence of experienced research collaborators to oversee the data collection. Youth were selected for potential enrollment after a review of court files in each locale revealed that they had been adjudicated of a serious offense. Eligible crimes included all felony offenses with the exception of less serious property crimes, as well as misdemeanor weapons offenses and misdemeanor sexual assault. Drug offenses constitute a large proportion of all offenses committed by youth, and males comprise the vast majority of youth who are charged with drug offenses. Therefore, the study instituted a capped proportion of males with drug offenses to 15% of the sample at each site. This cap was not instituted for females, and all females who met the age and adjudicated crime requirements, or any youth whose case was being considered for trial in the adult court system, were eligible for enrollment regardless if the charged crime was a drug offense.

During the enrollment period (November 2000 to January 2003), 10,461 individuals who met the age and petitioned charge criteria were processed in the court systems in Philadelphia and Phoenix. In 5382 of these cases (51%), the youth was found not guilty or had the charges reduced below a felony-level offense at adjudication. Another 1272 cases were dropped (12%) from consideration because the court data were insufficient to determine the person's eligibility status at adjudication. Of the remaining 3807 eligible cases, 1799 (47%) were excluded from consideration due to potential case overload of the local interviewer or the 15% threshold of drug offenders was close to being breached. This resulted in 2008 youths who were approached for inclusion into the study. Of those youths who were approached, 1354 consented and participated (67%). For the first 3 years, follow-up interviews were conducted every 6 months, and then yearly. Including the baseline interview, there are 11 total waves. Depending on when the respondent was enrolled, the final follow-up survey was collected between 2007 and 2010. The Pathways to Desistance Study has an impressive retention rate with 84% of the original sample participating in the final interview of the study, and almost 80% having completed at least 9 of 10 possible follow-up interviews.

For those in the juvenile justice system, the baseline interview was conducted within 75 days after their adjudication, and for those in the adult system, the baseline interview was conducted within 90 days after their decertification hearing in Philadelphia or adult arraignment in Phoenix. The baseline as well as the follow-up interviews tapped several dimensions of the youths' lives including (a) background characteristics (e.g., demographics, academic achievement, psychiatric diagnoses, offense history, neurological functioning, psychopathy, personality), (b) indicators of individual functioning (e.g., work and school status and performance, substance abuse, mental disorder, antisocial behavior), (c) psychosocial development and attitudes (e.g., impulse control, susceptibility to peer influence, perceptions of opportunity, perceptions of procedural justice, moral disengagement), (d) family context (e.g., household composition, quality of family relationships), (e) personal relationships (e.g., quality of romantic relationships and friendships, peer delinquency, contacts with caring adults), and (f) community context (e.g., neighborhood conditions, personal capital, social ties, and community involvement).

Table 1 presents the time-stable demographics of the baseline sample. As with most criminological studies, the baseline sample is predominantly male. Blacks are the largest race category in the sample (41.43%), followed by Hispanics (33.53%), whites (20.24%), and a small percentage of other races (4.80%). There is a slightly larger percentage of respondents from Philadelphia (51.70%). Table 1 also presents the demographics of the analytic sample; overall, the analytic sample is very similar to the baseline. The analytic models are based upon 625 men and 123 women who completed all waves of interviews (baseline and all ten follow-up interviews) and are not missing data on predictor variables. Additionally, these analytic models excluded individuals who reported having "lost" any children. Individuals could potentially report fewer children at a later wave than an earlier wave if they broke up with a partner who had children, if a previously reported child died, or if the parent terminated parental rights. This decision led to the exclusion of 76 men and 5 women.

Table 1 Baseline and analytic demographics

	Baseline		Analytic sample	
Race	N	%	N	%
White	274	20.24	182	24.33
Black	561	41.43	262	35.03
Hispanic	454	33.53	274	36.63
Other race	65	4.80	30	4.01
Gender				
Male	1170	86.41	625	83.56
Female	184	13.59	123	16.44
Location				
Philadelphia	700	51.70	336	44.92
Phoenix	654	48.30	412	55.08

Measures

Dependent Variables

Delinquency The Self-Reported Offending (SRO) measure [24] was adapted for this study to measure the adolescent's account of involvement in antisocial and illegal activities. SRO consists of 24 items that elicit the respondent's involvement in different types of crime. Three measures of delinquency are used in the following analyses: *any*, *aggressive*, and *income offending*. Each is a binary outcome of whether the respondent engaged in any of the 24 acts listed in the self-report battery during the recall period, any of the 11 aggressive offenses, and any of the ten income offenses during the recall period. All analyses utilize dichotomous measures of offending per wave rather than how many times they committed an offense due to concerns about the validity of offending in the baseline interview.[1] Thus, all outcomes are coded 0 (no offenses for the recall period) and 1 (at least one offense during the recall period). The full list of offenses in each measure is available in Appendix A.[2]

Independent Variables

I use several variables related to respondents' pregnancies and children to explore the transition to parenthood as well as the context of parenthood. First parenthood status is a binary measure for whether the respondent had at least one child (1) or none (0) for each wave. I also capture periods in which women and men report pregnancies. For female respondents, a binary indicator identifies whether they were either currently pregnant or were pregnant in the recall period (1-yes, 0-no), and for male respondents, a binary indicator identifies whether they had a girlfriend who was currently pregnant (1-yes, 0-no).[3]

This study tests several important contexts and mechanisms of parenthood as well. These measures include timing of the transition to parenthood, residency with a child, parental orientation, and routine activities. Respondents were coded as teen parents if they had their first child before the age of 20 and coded as adult parents if they had their first child at age 20 or older. These categories are mutually exclusive regardless of additional childbearing. For example, a respondent who had a first child when he or she was 16 is coded as a teen parent even if they had an additional child at age 23.

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[1] This validity concern stems from a potential coding error for frequency of offending during the baseline interview. The research team realized that some interviewers recorded the number of times the youth made a sale versus the number of days that the subject sold drugs which inflated the baseline counts for some offenses (personal correspondence with Carol Shubert).

[2] Due to conceptual overlap in the offending items, two of the items (taking something by force with or without the use of a weapon) are included in both the aggressive offending and income offending measures (see http://www.pathwaysstudy.pitt.edu/codebook/sro-sf.html).

[3] Several additional dummy variables were created to capture the "embeddedness" of motherhood for women and men as well. These dummy variables capture entry into first pregnancy, motherhood, and motherhood with an additional pregnancy. For fathers, dummies captured having a pregnant girlfriend with no other children, fatherhood, and fatherhood with a pregnant girlfriend. All of these dummy categories used non-parenthood (waves in which women and men reported no pregnancies or children) as the reference group. Supplemental analyses were consistent with those reported here, thus not presented (available upon request).

Residential parenthood is also measured as a set of two dummy variables for whether a respondent was currently living with a child (or had during the recall period) or had not lived with a child (currently or in the recall period); both of these dummy variables use non-parent waves as the reference group. Parental orientation is a 6-item scale that asks participants to rank from 1 to 4 (disagree strongly to agree strongly, respectively) the degree that each statement corresponds to their view of parenthood, with higher scores indicating greater parental orientation. The six items were adapted from Silverberg and Steinberg's [54] subscale of Adult Role Orientation, and are: when spending time with friends or neighbors, I talk mostly about my child/children; parenting takes up more of my time than I would really like it to (reverse coded); I tend to think about my child/ children when I am not with them; fathers/mothers my age should devote most of their time and energy to rearing their child/children; the satisfaction I get from life comes mostly from my role as a parent; doing a good job as a parent is one of the most important things to me now. Individuals only answered these questions if they reported having a child (individuals who are pregnant with no other children did not skip into these questions). According to the Pathways to Desistance codebook (http://www.pathwaysstudy.pitt.edu/codebook/parental-orientation-sf.html), a one-factor CFA model did not produce a satisfactory fit; therefore, measurement errors were allowed to covary (baseline values: alpha: .68; NFI: .90; NNFI: .98; CFI: .99; RMSEA: .03). I use this variable in analyses that explore the context of parenthood; thus, non-parent waves act as the reference group and are compared to waves in which the individual has a low parental orientation (scores < 3), moderate parental orientation (scores 3 to 3.4), and high parental orientation (scores from 3.5 to 4).[4]

Timing, residency, and parental orientation are also combined in order to test for a possible respectability package association. Respondents conceptually "have" the respectability package when they make an adult transition to parenthood, reside with a child, and have at least a moderate level of parental orientation.[5] The routine activities measure was drawn from the "Monitoring the Future Questionnaire" [43] and was used to assess the frequency of unstructured socializing. The scale contains four items to which participants respond on a 5-point Likert scale ranging from *never* (0) to *almost every day* (5). Higher scores indicate a greater involvement in unstructured activities. The Pathways Study Team computed a mean score for each individual (data must have been available on at least three of the four items in order to receive a computed mean) and found the scale to be internally consistent across the first four waves of the study (see the Pathways to Desistance Study website for more details on internal consistency). It is this mean score that is used in the following analyses.

I also include other relevant controls, such as age, antisocial influence of romantic partner, antisocial behavior of peers, and exposure time. Age dummies were included

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[4] Supplemental analyses were completed using the continuous measure of parental orientation as well. Results are consistent with those that use the dummied measures (results available upon request). I present these dummy categories rather than the continuous measure because it is a measure of the *strength* or *attachment* to the parenthood role rather than the general direction of this relationship that is theoretically more meaningful [28, 29].

[5] Although restricting the respectability package to only waves in which respondents report a high parental orientation would be the strongest test of a respectability package, the number of person-waves for women who meet all of these requirements is quite small and made estimates unreliable. Thus, I broadened the respectability package to include waves in which parental orientation was at least a score of 3 (agree) or higher.

and based on potentially important transition points. Specifically, these transition points align with certain ages that extend one's rights or abilities. For instance, at age 16, one can legally drive a car, at 18, one can vote, and at 21, one can legally buy alcohol. These age dummies are: 14–15 (reference group), 16–17, 18–20, and 21–26.[6] To test the influence of romantic relationships, I use a measure for partner's antisocial influence. This measure is a scale based on a subset of items used by the Rochester Youth Study [58] to assess the degree of antisocial influence of the respondent's romantic partner. An example item is "Has X suggested that you should sell drugs?". This variable is a count of 7 items, and a higher score indicates greater antisocial influence from the respondent's romantic partner. I used this measure to create three dummy variables: single, in a relationship with a "good" partner (i.e., one that exerts no antisocial influence), and in a relationship with a "bad" partner (i.e., one that does exert antisocial influence). Antisocial peer behavior is a preconstructed measure based on a subset of questions used by the Rochester Youth Study [58] to assess the degree of antisocial activity among the adolescent's peers (e.g., "During the recall period how many of your friends have sold drugs?"). The scale contains 19 items to which participants respond on a 5-point Likert scale ranging from *none of them* (0) to *all of them* (5). Finally, exposure time captures the available time that one has to commit crimes and is calculated as the proportion of time spent in the streets during the recall period minus the proportion of time spent in secure settings (those with no community access; i.e., drug/alcohol, psychiatric, jail/prison, detention center, YDC/ADJC,[7] contracted residential general and mental health facilities). Although proportion of time in the streets is not available for the baseline, I follow Monahan and Piquero [36] and set this proportion to 1 for all individuals. Key demographics, such as gender and race, cannot be included as stand-alone variables in fixed effects models since they are time-stable traits. However, models are presented separately for men and women in order to explore possible gender differences that may be obscured if the sample were analyzed as a whole. Table 2 presents the summary statistics for these predictor variables in person-waves for the 123 women and 625 men.

Analytic Strategy

A fixed effects model is appropriate when two or more waves of data are available and the researcher wants to measure change over time in a dependent variable and wishes to explore the effect of time-varying predictors and events on individual outcomes. In order to perform a fixed effects analysis, the data must meet two basic requirements. The first is that the dependent variable must be measured for each individual on at least two occasions so that change can be estimated. These measures must have the same metric and meaning so they are directly comparable. Second, the predictor variables of interest must change in value across multiple occasions for some substantial portion of the sample. The Pathways to Desistance Study data satisfy both of these requirements. The dependent variable, whether the respondent offended during the recall period, is

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[6] Supplemental analyses were completed using a variety of other dummy groups, and results are consistent indicating a robust and consistent pattern regardless of how age is measured in the models. Results available on request.

[7] State run training schools

Table 2 Descriptive statistics for analytic sample person-waves

	Women (N = 1280 person-waves)				Men (N = 5321 person-waves)			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Controls								
Exposure time	0.96	0.14	0.02	1	0.88	0.24	0	1
Peer antisocial behavior	1.48	0.63	1	5	1.81	0.81	1	5
14–15	0.07	0.25	0	1	0.07	0.25	0	1
16–17	0.26	0.44	0	1	0.25	0.43	0	1
18–20	0.40	0.49	0	1	0.41	0.49	0	1
21–26	0.27	0.44	0	1	0.27	0.44	0	1
Not in a relationship (single)	0.26	0.44	0	1	0.41	0.49	0	1
In relationship, no antisocial influence	0.59	0.49	0	1	0.50	0.50	0	1
In relationship with antisocial influence	0.15	0.36	0	1	0.10	0.30	0	1
Parenthood status								
Parent	0.37	0.48	0	1	0.24	0.43	0	1
Pregnant now or in recall / Has pregnant girlfriend	0.27	0.45	0	1	0.08	0.27	0	1
Parenthood context								
Teen parent	0.30	0.46	0	1	0.16	0.37	0	1
Adult parent	0.07	0.26	0	1	0.08	0.27	0	1
Residency								
Nonresident parent	0.03	0.16	0	1	0.12	0.33	0	1
Resident parent	0.34	0.47	0	1	0.12	0.33	0	1
Parental Orientation (PO)								
Parental orientation (continuous)	1.23	1.63	0	4	0.77	1.37	0	4
Low parental orientation	0.08	0.26	0	1	0.07	0.25	0	1
Moderate parental orientation	0.18	0.38	0	1	0.13	0.34	0	1
High parental orientation	0.11	0.32	0	1	0.04	0.20	0	1
Has respectability package	0.06	0.23	0	1	0.03	0.17	0	1
Does not have respectability package	0.31	0.46	0	1	0.21	0.41	0	1
Routine activities	2.81	0.97	1	5	3.21	0.96	1	5
Dependent variables								
Any offense	0.32	0.47	0	1	0.51	0.50	0	1
Any aggressive offense	0.23	0.42	0	1	0.39	0.49	0	1
Any income offense	0.16	0.36	0	1	0.31	0.46	0	1

measured at each time point (all 11 waves) and is comparable across waves. The main predictor variable, parenthood, also varies over time with 121 individuals having at least one child at the baseline interview and 619 individuals reporting having at least one child at the last follow-up wave.

In a fixed effects model, the unobserved variables are allowed to have associations with the observed variables, essentially treating the unobserved variables as

fixed parameters [1]. This means that each individual serves as his or her own control. Because each person is his or her own control, all stable (time invariant) variables that are not explicitly observed in the model or even measured in the data are controlled for as if they had been measured and included [1]. The ability to control for unobserved variables is perhaps the most attractive advantage of a fixed effects model. Other advantages include being able to handle different time intervals between waves (a characteristic of the Pathways to Desistance Study), the ability to include respondents who contributed to some, but not all, waves without added complexity, and the ability to include time differences between the waves as an independent variable in order to measure the change in the dependent variable over time [26].

Formally, the fixed effect model (for binary dependent variables) is simply a change score model. The basic model is:

$$\log\left(\frac{p_{it}}{1-p_{it}}\right) = \mu_t + \beta x_{it} + \gamma z_i + \alpha_i, \quad t = 1, 2, \ldots, T$$

in which p_{it} is the probability that the response variable is equal to 1, x_{it} is the vector of time-varying predictors, z_i is the vector of time-invariant predictors, and a_i represents the combined effects of all unobserved variables that are constant over time. For a two-period case, the change score model is:

$$\log\left(\frac{p_i}{1-p_i}\right) = (\mu_1 - \mu_2) + \beta(x_{i2} - x_{i1})$$

Because the time invariant predictors do not change over time, z_i drops from the equation. Similarly, a_i also drops from the equation since these effects, though unobserved, are constant over time. This model can be extended to multiple waves and a pooled data structure and is available through commercial statistical packages such as xtlogit in Stata.

Despite its numerous advantages, the fixed effects model does have some limitations. The first is that time-invariant variables cannot be included in the model as independent variables; however, it is possible to estimate the effects of the interaction of time-invariant and time-varying measures [1, 26]. The second limitation is that there is typically some loss of statistical power with a fixed effect model. The loss of statistical power can be attributed to the fact that the model measures within-individual change rather than between-individual change which results in discarding the information about the covariation among the variables that falls between individuals [26]. While this loss may result in less efficient estimates since they are based on a restricted amount of information, the lost efficiency will depend on several other factors, such as how much of the variation in the variables lies within and between individuals [26]. However, the gain in the ability to control for all measured and unmeasured stable individual characteristics afforded by fixed effects more than balances the loss of efficiency.[8]

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[8] A Hausman test was also performed on preliminary models and indicated that a fixed effects model was superior to a random effects model ($p < .001$).

Results

Table 3 presents initial results regarding the transition to parenthood and its influence on periods of desistance for women and are presented for each offending outcome (any offending, any aggressive offending, and any income offending). Results are presented as odds ratios and can be interpreted as a percent change since these predictor variables are binary. Thus, odds ratios lower than one represent lowered odds of the respondent

Table 3 Fixed effect logistic regressions for offense type and parenthood status, women only (odd ratios)[a]

	Any offending			Any aggressive offending			Any income offending		
	1	2	3	1	2	3	1	2	3
Exposure time	5.51*	5.56**	6.27*	5.03	5.55*	5.77*	2.87	2.86	3.02
	(3.61)	(3.98)	(4.38)	(3.57)	(4.06)	(4.20)	(1.84)	(2.34)	(2.30)
Peer antisocial behavior	3.70***	3.88***	3.74***	3.11***	3.20***	3.16***	3.53***	3.57***	3.50***
	(0.80)	(1.26)	(0.85)	(0.60)	(0.66)	(0.52)	(0.71)	(0.77)	(0.72)
16–17	0.32**	0.30***	0.33*	0.25***	0.24***	0.26***	0.36*	0.36	0.37*
	(0.11)	(0.12)	(0.11)	(0.07)	(0.09)	(0.08)	(0.17)	(0.22)	(0.20)
18–20	0.14***	0.13***	0.15***	0.11***	0.10***	0.11***	0.13***	0.13**	0.14***
	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.08)	(0.10)	(0.08)
21–26	0.16***	0.12***	0.18***	0.09***	0.09***	0.10***	0.11***	0.10***	0.12***
	(0.07)	(0.06)	(0.07)	(0.04)	(0.03)	(0.05)	(0.06)	(0.07)	(0.08)
In relationship with no antisocial influence	1.21	1.31	1.31	0.95	1.02	1.02	1.28	1.35	1.34
	(0.26)	(0.33)	(0.35)	(0.21)	(0.29)	(0.27)	(0.39)	(0.40)	(0.37)
In relationship antisocial influence	1.52	1.66	1.64	1.33	1.44	1.43	1.84	1.95	1.95
	(0.40)	(0.57)	(0.43)	(0.36)	(0.50)	(0.53)	(0.61)	(0.68)	(0.69)
Parent	0.53*		0.52*	0.73		0.70	0.80		0.78
	(0.14)		(0.19)	(0.23)		(0.22)	(0.26)		(0.26)
Pregnant now or in recall		0.58**	0.58*		0.60*	0.59*		0.64	0.64
		(0.11)	(0.12)		(0.12)	(0.14)		(0.18)	(0.17)
Log-likelihood	−377.92	−377.06	−374.36	−321.90	−319.87	−319.21	−226.75	−225.46	−225.23
Chi-square	95.28	71.28	103.02	125.27	172.43	97.86	126.66	89.65	91.08
Degrees of freedom	8	8	9	8	8	9	8	8	9
N	112	112	112	104	104	104	84	84	84
Person-waves	1165	1165	1165	1082	1082	1082	874	874	874

[a] Exponentiated coefficients; standard errors in parentheses

[a] Persons without variation in dependent variable are excluded from analyses

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

having committed any offense in a given wave, an odds ratio of one represents no change, and an odds ratio greater than one indicates an increased likelihood of offending in a given wave. From model 1, women's odds of committing any offense in a given wave is significantly higher when they spend more time on the streets and have many friends engaging in antisocial behavior. However, there is a general and significant pattern of lowered odds of offending at later ages (compared to when the respondent was 14–15 years old). Romantic relationships, whether with or without antisocial influence, is statistically unrelated to offending. Both parenthood variables (motherhood in model 1 and pregnancy in model 2) are statistically significant and indicate that in waves in which respondents are mothers or pregnant, their odds of committing any offense are lowered. In model 3, which controls for both motherhood and pregnancy, a woman's likelihood of offending when she is a mother decreases by 48% (calculation: $100(.52–1) = 48$) compared to periods in which she is not a mother, and decreases by 42% when is pregnant (compared to when she is not). When offenses are disaggregated into aggressive and income offending, motherhood status is no longer statistically associated with either outcome, and pregnancy is only statistically associated with aggressive offending. Specifically, when a woman is pregnant, her odds of committing any aggressive offense declines by 40% (see models 2 and 3). A woman's odds of committing any income-related offense are not statistically reduced when she is a mother or when she is pregnant (although the results are in the expected direction).

Table 4 presents the results for men. Among the male respondents, we see the same general pattern among control variables with two exceptions: exposure time is not associated with offending, and romantic relationships, both with and without antisocial influence, significantly increase men's odds of offending. Regarding parenthood, neither fatherhood nor having a pregnant girlfriend is statistically related to any offending or income offending. However, fatherhood is negatively associated with aggressive offending. Specifically, men's odds of engaging in any aggressive offense are reduced by 31% when they are fathers compared to when they are not, even when controlling for the pregnancy status of girlfriends. Taken together, these results suggest that parenthood (in particular pregnancy) operates differently for women and men and that parenthood seems more likely to influence aggressive rather than income offending.

Because parenthood is not a monolithic experience, it is important to consider important contextual aspects of parenthood including structural and cognitive changes. These changes include the timing of transition into parenthood, living with children, cognitive changes in identity, and changes to unstructured socializing. Tables 5 and 6 explore these contexts. In order to retain as much statistical power as possible and to make comparisons between different theoretically important qualities and characteristics of parenthood, dummy variables are used to compare respondents when they are not parents to the different contexts of their parenthoods.[9] For instance, changes in respondents' criminal behavior is always in reference to when they are not parents; those periods are compared to periods in which they are parents but may or may not be

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[9] Analyses were completed among parent-only sub-samples (results available on request). However, due to the loss of statistical power as well as the conceptual interest in comparing different contexts of parenthood to non-parenthood, a variety of dummy variables were used for the presented models rather than limiting analysis only to parenthood waves.

Table 4 Fixed effect logistic regressions for offense type and parenthood status, men only (odd ratios)[a]

	Any offending			Any aggressive offending			Any income offending		
	1	2	3	1	2	3	1	2	3
Exposure time	0.87	0.86	0.86	0.80	0.80	0.81	1.35	1.32	1.32
	(0.19)	(0.16)	(0.13)	(0.18)	(0.17)	(0.17)	(0.26)	(0.28)	(0.30)
Peer antisocial behavior	3.33***	3.33***	3.33***	2.74***	2.75***	2.74***	3.12***	3.12***	3.12***
	(0.27)	(0.37)	(0.27)	(0.19)	(0.17)	(0.16)	(0.28)	(0.24)	(0.27)
16–17	0.33***	0.32***	0.32***	0.33***	0.33***	0.33***	0.38***	0.37***	0.37***
	(0.06)	(0.05)	(0.05)	(0.04)	(0.06)	(0.05)	(0.06)	(0.06)	(0.07)
18–20	0.16***	0.15***	0.15***	0.14***	0.13***	0.14***	0.17***	0.17***	0.17***
	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.04)	(0.03)
21–26	0.15***	0.13***	0.14***	0.11***	0.09***	0.11***	0.15***	0.14***	0.15***
	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)
In relationship with no antisocial influence	1.30**	1.26**	1.28**	1.27*	1.24**	1.28**	1.19	1.15	1.16
	(0.11)	(0.12)	(0.11)	(0.13)	(0.12)	(0.13)	(0.13)	(0.16)	(0.13)
In relationship with antisocial influence	2.19***	2.16***	2.18***	1.54**	1.51**	1.54*	1.87***	1.83***	1.84***
	(0.36)	(0.38)	(0.43)	(0.23)	(0.24)	(0.27)	(0.29)	(0.34)	(0.29)
Parent	0.84		0.87	0.69**		0.69**	0.85		0.90
	(0.14)		(0.13)	(0.10)		(0.10)	(0.16)		(0.16)
Has pregnant girlfriend		1.20	1.16		1.05	0.95		1.29	1.26
		(0.17)	(0.19)		(0.16)	(0.13)		(0.27)	(0.18)
Log-likelihood	−1651.78	−1651.79	−1651.31	−1605.93	−1609.26	−1605.87	−1375.59	−1374.75	−1374.49
Chi-square	463.29	428.08	671.09	547.93	608.67	616.08	330.89	456.01	380.11

Table 4 (continued)

	Any offending			Any aggressive offending			Any income offending		
	1	2	3	1	2	3	1	2	3
Degrees of freedom	8	8	9	8	8	9	8	8	9
N	515	515	515	527	527	527	492	492	492
Person-waves	4623	4623	4623	4681	4681	4681	4306	4306	4306

[a] Exponentiated coefficients; standard errors in parentheses

[a] Persons without variation in dependent variable are excluded from analyses

$*p < 0.05$, $**p < 0.01$, $***p < 0.001$

residing with a child. Again, results for women and men are presented in separate tables (Tables 5 and 6, respectively) and the offenses are disaggregated. While relevant controls are still included in the analyses, for parsimony, they are not presented.

The analyses across offending type for women showcase the consistent pattern of lowered odds of offending in waves in which women are pregnant, specifically for any and aggressive offending. Although non-significant in the income models, results are in the expected direction. Model 1 for each offense includes dummy variables to account for the timing of the transition to parenthood. Women who make their transition to motherhood as adults have significantly lowered odds for any offending (OR = .26). While adult transitions are not significant in the aggressive or offending models, the general pattern for adult transitions remains consistent. Model 2 for each offending outcome introduces dummy variables for residential parenthood. For any offending, waves in which respondents lived with a child are associated with a 50% decrease in odds of offending. Although residential parenthood is significant in the any offending model, once offenses are disaggregated, there is no significant association between resident parenthood and aggressive or income offending for women. Model 3 introduces parental orientation, a measure intended to represent the cognitive investment of parenthood and its integration into self-identity. For women, waves in which one's parental orientation are low or moderate are not significantly different from when one is not a mother. However, when a woman has high parental orientation, her odds of engaging in any offense significantly decreases (by 69%). However, much like the pattern of results for timing and residency, this association between high parental orientation and offending disappears when offense type is disaggregated.

It is possible that parenthood works through very specific contexts and that timing, residency, and parental orientation work as a "parenthood package". Model 4 introduces dummy variables for whether the respondent has the respectability package or not. Although the most specific package would include adult transition, residency, and high parental orientation, the number of person-waves for women who meet these criteria is too small for reliable estimates; therefore, the respectability package here includes adult timing, residency with a child, and at least a moderate level of parental orientation. In the any offending model, a woman who has the respectability package has significantly lowered odds of engaging in any offense compared to periods in which she is not a mother. For a woman who does not have the respectability package, her odds of offending are not significantly different than when she is not a mother. Again, in the aggressive and income models, the results are consistent in direction and seem stronger for waves in which women have the respectability package, but these relationships fail to reach statistical significance.

It could be argued that all of these results may be due to changes in everyday routines and especially changes in unstructured socializing. Model 5 introduces the measure for routine activities. As would be expected, more unstructured routine activities increase one's odds of engaging in any offense in a given wave (a finding well established in the literature). Impressively, the statistical relationship between having the respectability package and any offending remains significant even when routine activities are controlled. For both the aggressive and income offending models, routine activities are significantly associated with increased odds of offending. Overall, it seems that for women, transitioning into parenthood as an adult, living with children, and having a high parental orientation, promotes periods of temporary desistance; these

Table 5 Fixed effect logistic regressions for offense type for women and parenthood context (odd ratios) [a]

	Any offending					Any aggressive offending					Any income offending				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Pregnant now or in recall	0.61**	0.58**	0.59*	0.59**	0.63**	0.62*	0.59*	0.60*	0.60*	0.63*	0.67	0.62	0.64	0.64	0.71
	(0.11)	(0.12)	(0.12)	(0.11)	(0.10)	(0.13)	(0.13)	(0.13)	(0.14)	(0.15)	(0.20)	(0.16)	(0.18)	(0.17)	(0.25)
Teen parent	0.88					0.99					1.04				
	(0.26)					(0.44)					(0.52)				
Adult parent	0.26**					0.42					0.41				
	(0.12)					(0.20)					(0.32)				
Nonresident parent		1.82					1.01					4.00			
		(1.09)					(2.33)					(4.22)			
Resident parent		0.50*					0.69					0.68			
		(0.15)					(0.25)					(0.27)			
Low parental orientation			0.56					0.69					0.78		
			(0.21)					(0.35)					(1.72)		
Moderate parental orientation			0.63					0.86					1.08		
			(0.19)					(0.34)					(0.42)		
High parental orientation			0.31*					0.43					0.29		
			(0.14)					(0.24)					(0.88)		
Has respectability package				0.33*	0.36*				0.59	0.65				0.52	0.63
				(0.16)	(0.18)				(0.34)	(1.36)				(1.12)	(1.91)
				0.65	0.65				0.76	0.76				0.89	0.89

Table 5 (continued)

	Any offending					Any aggressive offending					Any income offending				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Lacks respectability package				(0.20)	(0.23)				(0.26)	(0.38)				(0.41)	(0.35)
Routine activities					1.61***					1.36*					1.86***
					(0.21)					(0.18)					(0.28)
Log-likelihood	−371.64	−372.32	−372.81	−373.38	−363.72	−318.09	−319.03	−318.03	−319.11	−315.64	−224.39	−222.02	−222.81	−224.92	−214.15
Chi-square	178.54	121.31	105.29	161.36	160.28	89.17	296.43	96.99	93.27	141.00	92.28	102.37	63.79	88.20	216.38
Degrees of freedom	10	10	11	10	11	10	10	11	10	11	10	10	11	10	11
N	112	112	112	112	112	104	104	104	104	104	84	84	84	84	84
Person-waves	1165	1165	1165	1165	1165	1082	1082	1082	1082	1082	874	874	874	874	874

[a] Additional controls not presented in the model: exposure time, peer antisocial behavior, antisocial relationship influence, and age

[a] Exponentiated coefficients; 95% confidence intervals in brackets

[a] Persons without variation in dependent variable are excluded from analyses

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

Table 6 Fixed effect logistic regressions for offense type for men and parenthood context (odd ratios) [a]

	Any offending					Any aggressive offending					Any income offending				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Has pregnant girlfriend	1.17	1.14	1.16	1.17	1.21	0.94	0.94	0.95	0.96	0.99	1.29	1.26	1.27	1.28	1.33
	(0.20)	(0.15)	(0.18)	(0.16)	(0.17)	(0.14)	(0.14)	(0.16)	(0.16)	(0.12)	(0.21)	(0.20)	(0.20)	(0.18)	(0.24)
Teen parent	1.05					0.58*					1.11				
	(0.22)					(0.14)					(0.23)				
Adult parent	0.76					0.77					0.76				
	(0.17)					(0.14)					(0.16)				
Nonresident parent		1.12					0.86					1.03			
		(0.22)					(0.12)					(0.22)			
Resident parent		0.66*					0.52***					0.75			
		(0.12)					(0.09)					(0.16)			
Low parental orientation			0.83					0.72*					0.89		
			(0.19)					(0.11)					(0.19)		
Moderate parental orientation			0.92					0.71*					0.95		
			(0.17)					(0.11)					(0.20)		
High parental orientation			0.79					0.55*					0.75		
			(0.20)					(0.14)					(0.20)		
Has respectability package				0.43***	0.52*				0.51*	0.60				0.52*	0.64
				(0.09)	(0.15)				(0.15)	(0.17)				(0.16)	(0.20)

Table 6 (continued)

	Any offending					Any aggressive offending					Any income offending				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Lacks respectability package				1.05	1.19				0.74	0.82				1.01	1.15
				(0.20)	(0.22)				(0.12)	(0.11)				(0.16)	(0.20)
Routine activities					1.52***					1.39***					1.50***
					(0.08)					(0.07)					(0.09)
Log-likelihood	−1650.43	−1646.33	−1651.02	−1645.57	−1609.75	−1605.28	−1602.04	−1605.29	−1605.00	−1583.23	−1373.52	−1373.08	−1374.12	−1372.18	−1344.13
Chi-square	562.16	505.40	481.88	599.11	639.89	515.62	692.20	779.09	622.37	677.62	365.63	301.91	321.31	299.03	384.10
Degrees of freedom	10	10	11	10	11	10	10	11	10	11	10	10	11	10	11
N	515	515	515	515	515	527	527	527	527	527	492	492	492	492	492
Person-waves	4623	4623	4623	4623	4623	4681	4681	4681	4681	4681	4306	4306	4306	4306	4306

[a] Additional controls not presented in the model: exposure time, peer antisocial behavior, antisocial relationship influence, and age

[a] Exponentiated coefficients; 95% confidence intervals in brackets

[a] Persons without variation in dependent variable are excluded from analyses

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

contexts also seem to work as a package in which adult transition, residency, and moderate to high parental orientation promote desistance even after controlling for changes in routine activities. However, these results are highly qualified as results are consistent but not significant across the disaggregated models. Pregnancy, on the other hand, is a much more robust predictor.

Let us now explore the context of parenthood for men. As Table 3 previously indicated, men's odds of offending are unaffected when they have girlfriends who are pregnant, and that finding is consistent when controlling for the additional parenthood contexts across outcome type in Table 6. When exploring the timing of the transition to parenthood, men's experiences seem quite different than those for women. Although timing is unrelated to any or income offending, it is teen parenthood that is associated with lowered odds of aggressive offending rather than adult transition (OR = .58).[10] Similar to women, however, when men live with children (compared to periods in which they are not fathers), their odds of committing any as well as aggressive offenses are significantly lower (34 and 48%, respectively), yet there is no significant relationship between residency with a child and income offending. Model 3 for each outcome introduces the parental orientation dummies. While there is no significant relationship for men in the any or income offending models, every category of parental orientation is associated with significantly lowered odds of engaging in any aggressive offending, with the largest decrease in odds when fathers have high parental orientation (OR = .55). Model 4 for each outcome indicates that when men have the respectability package (adult timing, residency with a child, and at least moderate parental orientation), their odds of engaging in any offense, any aggressive offense, as well as any income offense significantly decrease (by 57, 49, and 48%, respectively). This is particularly interesting among the income offense models since none of the other standalone contexts were significantly related to periods of income offending. However, once routine activities are included in the models, the respectability package only remains significant for any offense. Overall, for men, it seems that residence with children as well as the respectability package are key factors for periods of temporary desistance, and that aggressive offending is perhaps more responsive to the transition to fatherhood than income offenses.

Discussion and Conclusion

Age-graded informal social control theory has provided the theoretical foundation for a variety of studies exploring the association between offending and important life course transitions, such as work and marriage, and while these studies suggest robust effects of these transitions, much less is known about how the transition to parenthood influences offending. This study contributes to the developing parenthood-crime relationship literature by quantitatively assessing how parenthood as well as pregnancy influences offending and how these transitions may operate differently for men and women.

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[10] This finding is surprising given that Na [41] found adolescent transition to parenthood to be a risk factor that increased subsequent offending. This difference in finding could be due to two methodological choices. First, we use different outcomes: I use a measure of temporary desistance (no offending) whereas Na uses an offending variety score (a measure that captures the variety of offending one engages in). Second, we use different analytical strategies: I use fixed effects which account for unobserved heterogeneity whereas Na uses a matched probability sampling method. While men can be relatively well matched on a variety of indicators, matching cannot account for unobserved heterogeneity and potential selection into teen fatherhood.

Additionally, it assesses a variety of theoretically important contexts of the transition to parenthood, specifically timing of transition, residential parenthood, and parental orientation, and offers one of the few tests of a parenthood respectability package.

Overall, I find support that the transition to parenthood operates in different ways for men and women and differently influences types of offending. In the models which use a simple binary measure of parenthood status, I find that being a mother and being pregnant is significantly associated with periods of desistance from any crime, and once offense type is disaggregated, pregnancy (but not motherhood) significantly reduces the odds of aggressive offending. However, for men, fatherhood only reduces the odds of aggressive offending. None of the parenthood status indicators are significantly associated with periods of desistance from income offending for men or women. It may be that periods of desistance from income offenses are unrelated to parenthood because those offenses may serve to meet children's needs whereas aggressive offenses do not. Moreover, while pregnancy seems to be a key experience for women, having a pregnant girlfriend is consistently unrelated to offending behavior for men. This pattern highlights how behavior is likely bound with women's physical concerns or limitations during pregnancy whereas men are not similarly impacted.

Beyond this binary measure of parenthood and pregnancy status, it is apparent that the contextual nature of parenthood is also important. First, like the binary measure of parenthood, the timing of transition to parenthood matters in gender- and offense-specific ways. While an adult transition to motherhood promotes temporary periods of desistance for any offending, this pattern for women does not hold when offenses are disaggregated into aggressive or income offending. For men, it is a *teen* transition to parenthood that is associated with lowered odds of aggressive offending only. Second, residency with children significantly reduces the odds of any offending for both women and men, and significantly reduces the odds of aggressive offending for men. Third, in waves in which mothers express high parental orientation, they are significantly less likely to engage in any offending (compared to waves in which they were not mothers), and fathers are least likely to engage in aggressive offending when they express high parental orientation (compared to waves in which they were not fathers). Fourth, when timing, residency status, and degree of parental orientation are combined into a parenthood respectability package, there are associated decreases in odds of any offending for men and women, and this association remains once routine activities are controlled. However, the respectability package does not have consistent effects on aggressive and income offending, especially once routine activities are included.

These results offer several theoretical implications for the study of the parenthood-desistance relationship. First, these results suggest that parenthood in this sample operates differently for women and men and is differently related to offense types. Motherhood is associated with temporary desistance from any offending while fatherhood is associated with desistance from aggressive offending. It is a bit surprising that motherhood is not a stronger predictor for either disaggregated offense despite odds ratios being in the expected direction. This may signal that motherhood influences less serious offending more than serious offending since some of the measures included in any offense are not represented in either aggressive or income offense categories (see Appendix). If these patterns are being driven by this relationship, it would further highlight how contextual and complex parenthood is and may speak to why inconsistent results across studies are so frequent. Second, as these results and as other scholars have suggested, cognitive change

appears to be both a theoretically and empirically important aspect of the parenthood-desistance relationship. However, it has yet to be thoroughly conceptualized or empirically tested among quantitative samples. Although some studies use wantedness of pregnancy to capture desire or commitment to become a parent, parental orientation, as measured here, taps into pervasiveness of the parent role which bleeds into other relationships and becomes a dominant identity. The results suggest that the strength of this pervasiveness is important, and measures of cognitive investment or identity need to be developed and consistently included in future studies. Third, this study speaks to the theoretical importance of identifying and testing a parenthood respectability package. Parenthood is a complex experience and should not be measured as a simple status change from non-parenthood to parenthood. Rather, parenthood seems most effective in lowering odds of offending when individuals make on-time transitions to parenthood as adults, live with their child(ren), and have at least a moderate level of parental orientation.

Despite these contributions, the analyses are limited in several ways. First, while the parental orientation measure used in this study is a potential improvement over wantedness since it captures the pervasiveness of the parent role once individuals have made the transition into parenthood rather than the desire to become a parent, neither of these measures effectively capture individuals' intent to change or what respondents consider "good parenting" to be. Thus, we have yet to quantitatively capture the meaning of parenthood for individuals or how they conceptualize their obligations to their child(ren). These understandings, as well as gender attitudes, may be an underlying reason that fathers' parental orientation consistently reduces odds of aggressive but not income offending. For example, it may be that gendered expectations—of women and men generally, as well as mothers and fathers specifically—are at work here. Violent behavior is broadly discouraged for women generally, thus violent behavior may be less susceptible to change upon making the transition to motherhood. However, violence and toughness are often rewarded among men, but is discouraged for fathers; this difference in expectations may account for the consistent reductions in aggressive offending in fatherhood. Comparatively, income offenses, particularly those committed in the name of one's familial obligations, may fall directly in line with gendered mother- and fatherhood expectations of providing for one's family. Until the meanings of parenthood are incorporated into cognitive measures of identity change, it will be difficult to determine when parenthood is a protective factor or risk factor.

These analyses are also limited since they are unable to determine time-order effects, particularly for the context of parenthood, like residency and parental orientation. Although the binary transition to parenthood analyses account for a degree of time-order control since parents remain parents once the transition is made, the contexts of parenthood co-occur and a change in one may bring about changes in another. Additionally, although fixed effect models control for unobserved heterogeneity among individuals, these models assume that all necessary time-varying measures are included in the model. To this end, it is important to consider that there are no measures that capture cognitive preparation or intention to become parents in these models (or in this dataset); thus, if individuals in these analyses did cognitively choose to pursue or prepare for parenthood before beginning the actual transition to parenthood, the models would be mis-specified. Considering both the missing measures of intentionality, as well as the fact that most individuals in these analyses make their transition to parenthood in adolescence and that adolescent parenthood is often an outcome of other risk factors, it is impossible to determine whether these transitions are an intentional result of or unintentional motivator for cognitive and behavioral changes.

Furthermore, this study relies on a measure for antisocial influence of one's romantic partner to capture relationship effects but does not take into account periods of cohabitation or marriage.[11] While theoretically relevant [29, 62], given the young age of this sample and the fact that there has been a growing acceptance of non-marital childbearing and cohabitation (i.e., the "second demographic transition" in the USA), it is unlikely that this sample is experiencing marriage at an appreciable rate and that when cohabation does occur it is not necessarily an indicator of a stable relationship or one that is progressing toward marriage. Moreover, it is likely that the respectability package may include other important aspects, such as the quality of the relationship between parents, time investment with children, and related transitions into marriage or stable work opportunities which are not included here. Finally, it is important to remember that all parents here were coded and retained for analysis if they did not "lose" any children (whether through a break up with a partner who had children, the death of a child, or termination of parental rights). In some ways, this decision makes this analysis a "best-case scenario" among those who become parents.

These limitations suggest a variety of future research opportunities that will further expand our understanding of the parenthood-crime relationship. Perhaps most pressing, a measure of parental identity and importance should be developed. This measure should capture the pervasiveness of the parent role, normative expectations regarding behavior of parents, reflected-appraisals of behavior from significant others (particularly one's co-parent), and emotional investment and commitment to children. Developing such a measure is likely to be difficult due to social desirability and the norms surrounding parenthood, especially for women, but it will be necessary if we seriously wish to explore the interplay between role transitions, identity, and behavior. Second, this dataset offers the opportunity to explore how parenthood works for those who fall outside of this best-case scenario; specifically, what leads individuals to terminate their parental rights and what are the consequences of losing children, either legally or through death? How does this loss impact parental orientation and offending? Finally, researchers should explore offending in a much more detailed manner. As demonstrated here, exploring the association of parenthood on an aggregate measure, such as "any offending" overlooks important distinctions within aggressive and income offending patterns as well as potential differences between more and less serious offending. Following that logic, exploring specific parenthood-offense relationships may highlight theoretically and empirically interesting patterns.

Finally, this study offers insight to a few policy implications as well. First, because early transitions to parenthood seem to be a risk factor for women, efforts should focus on providing effective sex education and preventative healthcare options to women and men in order to encourage and support one's ability to postpone the transition to parenthood until adulthood. Ostensibly, adults are more developed and better prepared for the stresses that come along with parenthood and may also be in a better work position to support children through legitimate means, thus it seems integral to agency and life outcomes to enable individuals to control and decide when to make the transition to parenthood. Second, free or low-cost parenting programs that equally focus on women and men would

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[11] Although a measure of cohabitation with a significant other is available via questions regarding household composition, this question does not distinguish whether the significant other is a spouse, girl/boyfriend, or parent of child. In supplemental analysis in which cohabitation was included, missing data led to a loss in statistical power and cohabitation was non-significantly related to offending patterns, thus it is not included in models here.

be useful in order to facilitate conversations about parental expectations and behavior as well as to cultivate parental orientation. These programs could also work as liaisons with other services to connect at-risk parents with work programs or counseling, if needed. This connection seems particularly important since very few of the parenthood measures here were related to periods of income offending which may indicate that parenthood, particularly among disadvantaged samples, may be most likely to financially stress families and lead to persistent income offending.

Compliance with Ethical Standards

Conflict of Interest   The authors declare they have no conflict of interest.

Appendix

Table 7   List of total, aggressive, and income offending items

Total	Aggressive	Income	Offense
X	X		Destroyed/damaged property
X	X		Set fire to house/building/car/vacant lot
X		X	Entered building to steal
X		X	Shoplifted
X		X	Bought/received/sold stolen property
X		X	Used checks/credit cards illegally
X		X	Stolen car/motorcycle
X		X	Sold marijuana
X		X	Sold other illegal drugs
X			Carjacked someone
X			Drove drunk or high
X		X	Been paid by someone for sex
X	X		Forced someone to have sex
X	X		Killed someone
X	X		Shot someone (where bullet hit)
X	X		Shot at someone (pulled trigger)
X	X	X	Took something by force using weapon
X	X	X	Took something by force no weapon
X	X		Beaten up somebody badly needed doctor
X	X		Been in fight
X	X		Beaten up someone as part of gang
X			Carried a gun
X			Broke into car to steal something
X			Gone joy-riding (stole car to ride around)

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