Commitment to Work: Assessing Heterogeneity in the Work-Crime Relationship from a Social Control Perspective

Chae M. Jaynes[1]

Abstract

Research evaluating the employment-crime relationship has paid little attention to individuals' behavior at work, despite the strong conviction that commitment to work should reduce offending. This study evaluates the relationship between job commitment and offending, and examines the role of job quality in the relationship. Hybrid fixed effects models are applied among a sample of high-risk adults. Findings suggest that transitioning from not working to working in a job that one has low commitment to can be criminogenic. In addition, increased commitment is associated with a reduced likelihood of offending. There is no significant evidence that the association between job commitment and offending is mediated or moderated by changes in job quality. Results also indicate "red flag" work behaviors associated with offending. These findings highlight the importance of job commitment in evaluating the work-crime relationship and caution criminologists against making assumptions about the role of job quality.

Criminologists have emphasized employment as a paramount institution capable of bonding an adult to society, and ultimately, deterring offending (Sampson & Laub, 1993). Theories of informal social control classically propose that individuals are "bound to conformity by participation in a *conventional game*" (Hirschi, 1969, p. 163, emphasis added). This is because conventional lines of action are perceived as valued investments or "side bets" that individuals do not want to risk losing (Becker, 1960). Undoubtedly, employment is a key part of the conventional game and "normative timetable" associated with the transition to adulthood (Elder et al., 2003). Even with increased variation in the timing of key life-course events (Shanahan,

✉ Chae M. Jaynes
  jaynes@usf.edu

[1] Department of Criminology, University of South Florida, 4202 E. Fowler Ave, SOC 332, Tampa, FL 33620, USA

2000), there remains consensus that working full time is a marker of adulthood that youths strive to obtain (Furstenberg et al., 2004).

Despite the strong conviction that employment should reduce crime from a social control perspective, modern research focused on the association between work and crime has often failed to consider a theoretically relevant symbol of a strong social bond to work — job *commitment*. Commitment can be defined as a state of being dedication to a cause, and is often demonstrated by showing a sense of responsibility, duty, and engagement. Commitment is expressed by playing the "conventional game" by the conventional rules. Within a work context, commitment can be conveyed by showing up on time, working hard, and doing a job the "right" way.

To date, however, many criminologists have arguably assumed, at least methodologically, that those who are employed are equivalently committed to work, often analyzing employment as a dichotomy (e.g., Horney et al., 1995; Laub & Sampson, 2003). This assumption is not only logically problematic to anyone who has supervised employees, as there is evident variation in commitment among workers, but also, variation in employee behavior is widely recognized in other fields. For instance, industrial and organizational psychologists frequently aim to explain variation in workplace deviance and productivity (Bennett & Robinson, 2003).

This is not to say that prior research has always relied on the methodological assumption that those who are employed are receiving an equivalent "dose" of employment as the treatment. In fact, research is increasingly moving beyond the work dichotomy to consider how variation in employment characteristics influence offending (Nguyen & Loughran, 2018). This research, however, has focused almost exclusively on variation in job quality (Jaynes, 2020; Uggen, 1999; Wadsworth, 2006) with relatively little attention to heterogeneity in how individuals *behave at work*. This may be because scholars have relied on the potentially flawed presumption that simply having a job reflects commitment to work, or that high-quality jobs inspire commitment. While there is theoretical precedent to suggest that high-quality jobs may result in commitment (Crutchfield, 2014; Sampson & Laub, 1993), not all theories share this assumption (Paternoster & Bushway, 2009). There are also qualitative accounts of individuals failing to commit to high-quality jobs, or showing stanch commitment to low-quality jobs (e.g., Shaw, 1930).

This research draws on a high-risk sample of adults from the Pathways to Desistance Study ("Pathways") to extend the employment-crime literature in three important ways. First, the study aims to provide a test of work as source of informal social control by evaluating the relationship between job commitment and offending. Second, the study assesses the role of job quality within the commitment-offending relationship, given that various theories similarly suggest that job commitment should be negatively associated with crime, but differ as to whether they propose a high-quality job inspires commitment. Third, the study evaluates whether there are specific "red flag" behavioral indicators of low job commitment that are associated with offending. I begin by offering a theoretical overview of the role of job commitment in the employment-crime relationship.

Commitment as an Indicator of the Social Bond

Theories of informal social control propose that employment will serve as a criminal disincentive to the extent that individuals are bonded to their job. In one of the most well-known formulation of social control theory, Hirschi (1969) detailed that individuals will be more bonded to a social institution insofar as they hold close affective ties with the institution, value the material gains associated with the institution, put time and effort into the institution, and believe the institution and general rules of society are legitimate. Sampson and Laub's (1993) age-graded theory of informal social control later extended this sentiment across the life course, highlighting employment as a central institution in the adult life course capable of deterring would-be offenders. In particular, they emphasized the strength of the social tie to work far more than simply having a job, forewarning against expecting just any job to have a protective effect.

It is then, not simply having a job, but making *an investment in work* as a conventional institution which should result in a reduction in crime from a social control perspective. This increased commitment — demonstrated when an employee behaves consistent with conventional employer expectations — is symbolic of one's bond to work.

Notably, however, one need not rely on Hirschi (1969) or Sampson and Laub (1993, see also Laub & Sampson, 2003) to draw this conclusion. Additional perspectives, such as Crutchfield's (2014) labor stratification and crime thesis and Paternoster and Bushway's (2009) identity theory, similarly articulate a negative association between a strong social bond with work and crime. These perspectives, however, diverge in their predictions as to the role of a high-quality job in inspiring commitment.

Does a Quality Job Inspire Job Commitment?

Sampson and Laub's (1993) theory is perhaps most prominent in positing a negative relationship between work and crime. Although there is a clear articulation that those who are more bonded to work are less likely to offend, their theory has been interpreted as suggesting only a *good job* is capable of inspiring commitment (Paternoster et al., 2016). For example, Sampson and Laub (1993, p. 18) noted that transitioning into "full-time employment" has the potential to serve as a turning point *because* full-time jobs more readily facilitate immaterial relationships among colleagues. Sampson and Laub (1993) also noted that jobs with many "obligations" and "expectations" are better suited for creating social bonds than "jobs characterized by purely utilitarian objectives" (p. 141).

A similar emphasis carried into their later work, when they referenced Goodman (1956) to explain that "a good job" allows one to maintain "honor and dignity… to be taken seriously, to be seen as useful, and indeed, to grow up" (Laub & Sampson, p. 47, emphasis added). To Sampson and Laub, it is

the arrival of a good job, characterized largely (but not necessarily exclusively) by strong immaterial rewards — a job that is intellectually, socially, and emotionally satisfying — that results in commitment — a "return investment" on an employer's hiring decision from the employee. This job commitment then ultimately reduces offending.

Crutchfield's (1989, 2014) labor stratification and crime thesis similarly suggests that high-quality jobs result in commitment. He underscores the realities of social stratification to suggest that jobs characterized by relatively high pay, good benefits, and job security (which he refers to as "primary sector jobs" consistent with dual labor market theory, Piore, 1968) result in an investment in work which will decrease offending. This is because:

> Primary sector jobs are the right stuff for building a middle class, and for conforming lifestyles. They are the jobs that we value sufficiently to get to work regularly and on time. They are the positions that we value enough that they influence and structure our days and habits, and we build our lifestyles around them. As a consequence they are less conducive to crime. (Crutchfield, 2014, p. 37)

Conversely, he implies that low-quality jobs (referred to as "secondary sector" jobs) with relatively low pay, no benefits, and little job security will not result in the type of social bond which will reduce crime.

Paternoster and Bushway's (2009; see also Bushway & Paternoster, 2012, 2013, 2014) identity theory (IT), however, is critical of exogenous "chance" arrivals of a high-quality employment opportunities which Sampson and Laub (1993) and Crutchfield (2014) propose prompt a strong investment in work. Drawing on Giordano et al.'s (2002) earlier notion of "upfront" cognitive shifts, IT emphasizes the causal role of identity in reducing criminal behavior. Specifically, Paternoster and Bushway (2009) theorized that individuals will maintain an "offender" working identity as long as they perceive the benefits of crime outweigh the costs. Eventually, however, an offender will experience failure associated with crime (e.g., arrest, incarceration, injury). A single failure, or even many, will not result in an identity change if an offender continues to attribute failure to an external source, such as "bad luck" or an incompetent partner-in-crime. An identity change only occurs after repeated failures are cognitively connected and an individual sees these failures as the result of his or her own shortcomings. When an offender begins to anticipate that costs of crime will continue, and possibly escalate, he or she foresees themselves as someone they no longer wish to be. This realization triggers a change in identity from the "feared self" to a prosocial "possible self." This changing identity corresponds with a change in preference away from costly criminal behavior toward less costly conventional lines of action, such as conventional employment.

Importantly, within IT, it is this internal change in identity which motivates one to not only to seek conventional lines of action, but also to behave in a manner that is consistent with their new prosocial identity — committing to work. Although IT acknowledges that quality employment may help one craft a prosocial life, a high-quality job is not a necessary nor sufficient catalyst. As Paternoster et al., (2016, p. 1206) explained, "while conventional turning points are extremely useful… they are

not essential as one with a changed identity can, though not without some difficulty, cobble together a life that does not involve criminal behavior, even if their life does not include a good job." They further illustrated that this "cobbled life" may include finding work in a temporary labor pool, janitorial services, selling blood, or working in the service sector. An important conclusion, then, is that even if an individual with a criminal identity stumbles upon a quality job (or is helped to acquire a high-quality job), they will likely fail to commit — showing up late, unnecessarily call in sick, and/or arriving to work under the influence — resulting in no change or increased offending. Moreover, if a lack of commitment to work is associated with increased offending, an increase in poor work behavior may become a policy-relevant "red flag" for correctional supervision signaling the potential for recidivism.

In sum, while these perspectives similarly propose a negative association between commitment to work and crime, they make different assumptions surrounding the role of job quality. Together, the age-graded theory of informal social control (Sampson & Laub, 1993) and labor stratification and crime thesis (Crutchfield, 2014) stand in contrast to IT (Paternoster & Bushway, 2009) in that the former two suggest that obtaining a quality job is required to inspire job commitment. IT, however, suggests that a quality job is not a necessary catalyst.

Prior Research

To date, there is inconsistent support for an association between work and crime. Experimental program evaluations have generally produced tenuous evidence that work-related programs jointly improve employment and reduce crime — leading scholars to question "why work doesn't work?" (Bushway & Apel, 2012, p.26). In similarly evaluating work as a "treatment," observational research has often measured employment dichotomously —where an individual was either working (work = 1) or not (work = 0) in a given period. Studies using this methodology have also reached inconsistent conclusions. While some research found work to be negatively associated with crime (Laub & Sampson, 2003; Loughran, Nagin, et al., 2016; Savolainen, 2009; Verbruggen et al., 2012, 2015), others failed to find support (Skardhamar & Savolainen, 2014) or found only subsample-specific support (Griffin & Armstrong, 2003; Piquero et al., 2002). Horney and colleagues (Horney et al., 1995) even found a positive association.

When researchers have moved beyond measuring work dichotomously, they have typically focused on job quality rather than commitment. This research has found some evidence that job quality is associated with offending, though there is not consistent support and many different operationalizations of quality. Jobs with higher wages (e.g., Grogger, 1998; Myers, 1984; but see also Apel & Horney, 2017; Sampson & Laub, 1993; Wadsworth, 2006), or fringe benefits (Wadsworth, 2006) have been found to be negatively associated with crime. Jobs offering more prestige are also negatively associated with crime (Blokland & Niuewbeerta, 2005; Giordano et al., 2007). Perhaps the most consistent evidence that job quality is negatively associated with offending comes from studies using perceptual measures, such as job satisfaction (Uggen, 1999; Paternoster et al., 2016; Simons et al., 2002; Wadsworth,

2006). However, a recent study examining the Pathways data found little evidence that within-individual changes in job quality were associated with changes offending in the aggregate sample (Jaynes, 2020).

In contrast to the increasing number of studies focusing on job quality, to date, very few have considered individuals' commitment to work, though there are exceptions. For example, Apel and Horney (2017, p.11) asked incarcerated males to rate their level of commitment to a past job on a Likert scale ranging from "just a job" to "a job I was very committed to." They found that work had a negative effect on crime, but only when their respondents were *committed*. There are a few notable takeaways from this study that inform the present inquiry.

First, they described their measure of commitment as an indicator of job quality when an argument can be made that a subjective appraisal of commitment does not necessarily capture quality. While commitment may be influenced by the perceived value of the job (its quality) (Crutchfield, 2014; Sampson & Laub, 1993), these two concepts are not synonymous. An individual can have a high-quality job he/she is not committed to, or a low-quality job with strong commitment (Paternoster & Bushway, 2009). For a classic example, consider *The Jackroller* (Shaw, 1930[1966]). In this ethnographic account, Stanley, who had a long history of delinquency, was offered a promising opportunity to work a well-paying job where he believed he may become president one day, noting his future "looked rosy" (p. 88). Stanley, however, chose not to commit to this job, as he rationalized, "What's the use of having riches if you can't enjoy life?" (p. 88). There are also additional qualitative accounts of offenders desisting from crime and committing to conventional work without a high-quality job, suggesting other factors may influence commitment independent of a job's quality (Paternoster et al., 2016).

Second, while Apel and Horney (2017) made an important theoretical contribution in providing evidence that commitment to work is negatively associated with criminal behavior, the study's measure had limitations. For example, they relied on a single item measure. Relative to multiple-item measures, single-item constructs may be seen as psychometrically weak because they are more vulnerable to random measurement error and interpretation bias, and reliability statistics cannot be computed. A single-item measure may also be particularly vulnerable to social desirability bias, where individuals express commitment to work because they perceive it is conventionally admirable to do so (Snir & Harpaz, 2002), but their behavior may be inconsistent. To illustrate, how many of us have claimed we are "very committed" to something (e.g., losing weight, a relationship, finishing a manuscript), but our behavior begged to differ? The adage that *actions speak louder than words* may be particularly important for assessments of commitment. This notion is consistent with research which demonstrates that while employees' attitudes are associated with job performance, attitudinal measures are not strong predictors of work behavior (Harrison et al., 2006).

Finally, Apel and Horney's (2017) attitudinal measure offered no indication as to what types of low-commitment work behavior are associated with offending — a gap in the literature this study seeks to advance. This may be particularly relevant from a policy perspective, as behavioral manifestations of low commitment

could represent "red flags" signaling an increased risk of recidivism among those supervised by the correctional system.

To date, Sampson and Laub's (1993) study is the only known research to consider the effect of employees' commitment to work on offending through considering behavioral indicators of commitment. Their study included work habits as one of three elements of "job stability." Following interviews with employers, employees' work habits were classified as poor, fair, or good. They found that job stability was negatively associated with crime. However, because work habits were combined with duration and employment status to create the stability scale, the relationship between work behavior and offending remains unclear.

In addition, Sampson and Laub (1993, p. 144) considered measures of commitment to conventional goals. In the second wave, they considered an individual as having "low" (relative to "high") commitment if he "expressed no particular work, educational, or economic aspirations; they had not thought about further schooling or had vague educational ambitions". In the third wave, their measure was a three-point scale of an individual's efforts to improve his work and occupational status from ages 25 to 32. They found that those with increased commitment were less likely to partake in deviant behavior. Together, these results provide evidence that commitment may be a key aspect of the work-offending relationship. However, their study did not clearly differentiate between job quality and commitment nor consider the role of job quality in the commitment-crime relationship.

Within the greater social control literature, studies have considered the general effect of commitment on crime without a work focus. For instance, in his seminal work, Hirschi (1969) found that stronger elements of the social bond (aside from involvement) were associated with a reduction in delinquency. Since then, research has supported a relationship between social bonds and crime (Costello & Vowell, 1999; Hindelang, 1973; Krohn & Massey, 1980). However, this literature is limited because studies often focus on broad conventionality, beliefs, values, or time commitments without a focus on work. While these measures may be valuable in testing social control generally, they do little to assess work or job-specific commitment.

Scholarship from outside of the field is also important to consider, as researchers within industrial and organizational psychology, as well as sociology, have provided evidence that job quality and commitment are associated with one another. For instance, while the Hawthorne studies (1920s-1930s) are often recognized for drawing attention to the effects of employee attitudes on job performance, it was not until 1974 that Flanagan and colleagues hypothesized that dissatisfied employees would demonstrate inferior (or even counterproductive) behavior — for example, showing up late, leaving early, failing to work hard (see also Mangione & Quinn, 1975). Job satisfaction has since been frequently identified as having a negative association with work behavior (Hollinger, 1986; Hollinger & Clark, 1982, 1983; Huiras et al., 2000; Murphy, 1993). However, this literature does not speak to whether job quality is associated with work commitment in a manner which ultimately is associated with changes in offending.

This study seeks to fill these gaps in the literature by evaluating three research questions:

1. Is job commitment negatively associated with crime?
2. How does job quality influence the relationship between job commitment and crime?

   2a. Does job commitment mediate the relationship between job quality and crime?
   2b. Does job quality moderate the relationship between job commitment and crime?

3. If an association between job commitment and crime is found, which specific work behaviors may be considered "red flags" for recidivism?

The Present Study

The present study draws on data from the Pathways study, a longitudinal investigation designed to evaluate mechanisms of desistance among a sample of serious adolescent offenders (Mulvey et al., 2004). A total of 1354 adolescents who were adjudicated for serious (overwhelmingly felony) offenses in Phoenix, AZ or Philadelphia, PA from November 2000 to January 2003 were enrolled at the study at baseline. Those enrolled represent approximated one-third of adolescents adjudicated in these locations during recruitment. Additional details regarding the study's recruitment are provided by Schubert et al. (2004).

Follow-up data was collected 7 years post-baseline: every 6 months for the first three years (waves 1–6), and then annually for the last four years (waves 7–10). Because the Pathways study did not begin consistently collecting measures on job quality and commitment until the 7th wave, the present study evaluates only waves 7–10 (collected 48, 60, 72, and 84 months past baseline). There are three advantages associated with this wave selection. First, the panels are highly balanced for longitudinal analysis. Second, the waves have a consistent annual recall period. Third, and most importantly, all study participants were 18 years of age or older by the 7th wave — making this an entirely adult sample.

Of the 1354 individuals enrolled at baseline, 1245 (92% of baseline) at least partially completed two of the four follow-up waves required to be included in this study's potential analytic sample. The study's final analytic sample consists of 1196 individuals (96% of potential analytic sample), with each individual contributing to an average of approximately 3.5 waves (NT = 4134). This missing data is largely the result of missing information regarding education. The analytic sample is comprised primarily of males (85%), who were 21.6 years old, on average, across the study, with ages ranging from 18 to 26. The sample is racially/ethnically diverse, with 39% of individuals self-reporting Black, 35% Hispanic, 21% White, and 5% "other." It is important to emphasize that this sample is not only "high-risk" because they were adjudicated for a serious crime in their youth, but also because the sample is notably low in human capital by most standards. For example, by study completion only 18 individuals (<2%) had earned a college degree.

Table 1 Descriptive statistics (N = 1196; NT = 4134)

Variable	Mean	SD	Med	Min	Max	Within[2]
Dependent variable						
Self-reported Offending	0.24	–	0	0	1	.48
Independent variables						
Work	0.50	–	0	0	1	.38
Job Commitment[1]	6.42	1.68	7	0	8	.43
Job Quality[1]	2.00	1.41	2.00	0	4	.40
Additional covariates						
Certainty	5.84	2.96	5.71	0	10	.34
Social Costs	3.33	0.92	3.40	1	5	.43
Personal Rewards	1.49	2.22	0.29	0	10	.33
Social Rewards	1.85	0.52	2.00	1	4	.38
Illegal Earnings ($10,000/yr)	0.30	1.53	0	0	15	.60
Other Income Sources	0.37	0.64	0	0	4	.48
Work Opportunities	3.18	1.17	3.60	1	5	.37
Financial Responsibility	3.83	3.00	4	0	10	.38
Romantic Relationship	0.61	–	1	0	1	.44
Relationship Quality	1.85	1.60	2	0	4	.43
Expecting a Child	0.09	–	0	0	1	.67
Number of Children	0.76	1.01	0	0	6	.16
Education Level	0.59	0.51	1	0	2	.10
Enrolled in School	0.25	–	0	0	1	.58
Priors	2.12	2.50	1	0	23	.12
Criminal Record	0.15	–	0	0	1	.55
Time Incarcerated	0.28	0.39	0	0	1	.24
Parole	0.25	–	–	–	1	.48
Substance Dependence	0.94	2.12	0	0	17	.45
Age	21.6	1.58	22	18	26	.46
Black	0.39	–	0	0	1	–
Male	0.85	–	1	0	1	–
Philadelphia	0.48	–	0	0	1	–

1: Descriptives provided for only working recall periods

2: Proportion of within individual variation, all values significant at $p \leq .001$, Black, Male, and Philadelphia are time-constant

This dataset is particularly well-suited for evaluating the association between work and crime among a group that criminologists are often most interested in deterring — high-risk individuals with a history of criminal involvement. In addition, the data provide an opportunity to study the work-crime relationship during a key period in the adult life course — the transition to adulthood — a time when conventional employment becomes culturally normative and offending levels remain high (Hirschi & Gottfredson, 1983).

Table 1 provides descriptive statistics for all measures used within this study. Additional details regarding these measures and their psychometric properties are also available on the Pathways website (https://www.pathwaysstudy.pitt.edu). All measures described in the following section are measured at each of the four annual waves.[1]

Measures

Self-Reported Offending

The study's measure of self-reported offending (SRO) was created from a common self-reported delinquency scale adapted for the Pathways study (Huizinga et al., 1991). *Offending* (=1, No Offending=0) is a dichotomous indicator that an individual engaged in at least one of the following crimes within a wave: (1) Entered a building to steal, (2) Shoplifted, (3) Bought, sold, or received stolen property, (4) Used credit cards illegally, (5) Stole a car or motorcycle, (6) Carjacked someone, (7) Robbed someone with or without a weapon, (8) Entered a car to steal, (9) Shot at someone regardless of whether the bullet hit, (10) Beat up and seriously injured someone, (11) Beat up someone as part of a gang, (12) Sold marijuana, or (13) Sold other illegal drugs.[2] A dichotomous indicator of offending was selected to remain consistent with prior research (Apel & Horney, 2017).[3]

Work

Work (=1, 0=No Employment) is a dichotomous measure indicating an individual reported working during a recall period. Work includes only regular community-based work and does not include work which was reported as "sporadic," institutionally based, or only available to those residing within a facility.

Job Commitment

Job Commitment is captured through self-reported behavior and is operationalized as the number of problematic work behaviors an individual self-reported *avoiding* within a recall period (a variety count). The following 8 behaviors were included within the scale: (1) Arriving late to work, (2) Pretending to be sick or injured or giving another false excuse to get time off, (3) Using things without permission, (4) Having a conflict with a boss or supervisor, (5) Losing your temper, having a fight,

---

[1] Although the Pathways data has monthly-level data available, the present study's key independent variable, job commitment, is only available at the annual level. Therefore, all forthcoming analysis are conducted at the annual recall level.

[2] I also considered the robustness of the forthcoming findings by disaggregating the outcome into violent, property, and drug offending. These results are available within the Online Supplemental Material Table OS3. Findings are consistent across violent and property offending, but not drug offending.

[3] Count outcomes were also evaluated. These findings, available within the Online Supplemental Material Table OS3, demonstrate that substantive findings are robust across alternative operationalizations of offending.

or getting into argument with someone at work, (6) Doing the job in a way that would cause you to lose it, (7) Purposefully damaging or destroying equipment or tools, and (8) Being under the influence of alcohol or drugs at work. These 8 behaviors loaded onto a single scale (Eigenvalue 2.24) and demonstrated acceptable internal consistency (alpha = 0.70). Commitment values range from 0 to 8, with higher values signifying stronger commitment to work.

Job Quality

The most widely accepted measures of *Job Quality* often focus on individuals' subjective evaluations of their job characteristics — or their job satisfaction (Kalleberg, 2011). Within this study, individuals were asked "How satisfied are/were you with [10 different job characteristic items]" on a scale from 1 ("very satisfied") to 5 ("very dissatisfied"). The items included (1) Salary, (2) Benefits (e.g., health insurance), (3) Supervision, (4) Control, (5) Usefulness, (6) Advancement, (7) Status, (8) Security, (9) Colleagues, and (10) Workload. Responses were then reverse coded, such that values ranged from 0 ("very dissatisfied") to 4 ("very satisfied"). Because respondents reported information on the quality of each job held during the annual recall period, a weighted average was established for each item.[4] Consistent with prior literature (Jaynes, 2020), this was done by weighting each job's quality item score by the number of weeks within a recall period that an individual worked that job. For example, consider an individual who held two jobs within a wave, Job A and Job B. If the individual was "dissatisfied" (=1) with their benefits at Job A which was held for 7 weeks and then "satisfied" (=3) with their benefits at Job B which was held for 47 weeks, their weighted benefits satisfaction score is equal to 2.74 as follows:

$$\frac{(\text{bene\_sat}_{\text{JobA}} \times \text{weeks}_{\text{JobA}}) + (\text{bene\_sat}_{\text{JobB}} \times \text{weeks}_{\text{JobB}})}{\text{weeks}_{\text{JobA}} + \text{weeks}_{\text{JobB}}} = \frac{(1 \times 7) + (3 \times 47)}{(7 + 47)} = 2.74$$

The 10 weighted job satisfaction items were then used to create a job quality scale through factor analysis. All items loaded on a single factor (Eigenvalue = 4.29) with the scale demonstrating high internal consistency (alpha = 0.87). Consistent with prior literature (Apel & Horney, 2017; Jaynes, 2020), the scale was then recoded categorically (a quintile scale from 0 to 4), where zero indicates the lowest observed job quality and higher values indicate higher job quality. This was done to allow for the method of model specification described within the forthcoming "Analytic Plan" section.

---

[4] Respondents reported on the quality of *each job* during the recall period. The maximum number of unique jobs reported within a single recall was 7. Job commitment behaviors, however, were only asked about at the recall level. The commitment behavioral items are therefore not necessarily job specific for those who held more than one job in the recall period. This is a data limitation that will be discussed further in the Discussion section. However, the modal number of jobs for each recall period was 1.

Control Variables

Several covariates are included to more fully specify the model and reduce the likelihood of omitted variable bias. Specifically, measures capturing perceived costs of crime (Nagin & Paternoster, 1994) include the *Certainty* of formal sanctioning, which was measured by asking individuals how likely it is that they would be caught and arrested for committing seven crimes: (1) Fighting, (2) Robbery, (3) Stabbing someone, (4) Breaking into a store or home, (5) Stealing clothes from a store, (6) Vandalism, and (7) Auto theft on a scale from 0 ("no chance") to 10 ("absolutely certain"). A 7-items mean was then established (alpha=0.89 at baseline). The *Social Cost* of crime was measured by asking individuals if the police were to catch them breaking the law, how likely it would be that they would suffer six social costs such as "losing respect from family members" on a scale from 1 ("very unlikely") to 5 ("very likely"). A 6-item mean was then established (alpha=0.76 at baseline).

Measures capturing perceived rewards of crime are also included. For instance, *Social Rewards* were measured by asking individuals on a scale from 1 ("strongly disagree") to 4 ("strongly agree"), how much they agreed with statements regarding how others would react to three crimes: (1) Stealing, (2) Fighting, and (3) Robbery. A 3-item mean was then established (alpha=0.82 at baseline). The *Personal Rewards* of crime were measured by asking respondents on a scale from 0 ("no fun or kick at all") to 10 ("a great deal of fun or kick"), how much "thrill" or "rush" it is to commit 7 crimes: (1) Fighting, (2) Robbery, (3) Stabbing someone, (4) Breaking into a store or home, (5) Stealing clothes from a store, (6) Vandalizing, and (7) Stealing an automotive. A 7-item mean was then established (alpha=0.88 at baseline). Past *Illegal Earnings* are also measured as the total illicit earnings an individual reported within the previous recall period (top coded at $150,000/year).

In addition, to capture perceptions of *Opportunities for Work* individuals were asked to assess how much they agreed with 5 items such as "employers around here often hire young people from this neighborhood" on a scale from 1 ("strongly disagree") to 5 ("strongly agree"). A 5-item mean was then taken (alpha=0.76 at baseline).

To account for individuals' financial need, two measures are used. First, level of *Financial Responsibility* was created through an summated 5-item scale in which an individual was asked whether they had 0 ("no"), 1 ("partial"), or 2 ("full") financial responsibility for the following: (1) Paying bills, (2) Paying rent, (3) Support family members, (4) Supporting themselves, and (5) Buying groceries. Each item was found to have adequate to high internal reliability (alpha=0.63 at wave 7, alpha=0.80 at waves 8–10). Higher values indicate increased financial responsibility. The second measure of financial need, *Other Income*, is a variety count of the number of additional sources of income a respondent had including (1) Welfare, (2) Social security, (3) Money from parents/other relatives, (4) Survivor benefits, and (5) Money from a current or former partner. Higher values indicate a greater variety of other income sources.

Additional life circumstances of the respondent are also considered. A dichotomous indicator of whether an individual was in a *Romantic Relationship* (1=Yes) and their *Relationship Quality* was established from the mean of 7-items such as

"In general, how happy are you with your relationship?" (Pierce, 1994; Pierce et al., 1997).[5] Higher values indicate greater relationship quality. Measures of whether the respondent or their partner was *Expecting a Child* (1 = Yes), and the *Number of Children* the respondent had in each recall period are also included. An individual's level of *Education* (0 = No high school or GED; 1 = high school or GED; 2 = College associates or higher), and a dichotomous measure indicating whether the individual was in *School* (1 = Yes) in the recall period are also included.

Given notions of state dependence and cumulative disadvantage (Nagin & Paternoster, 1991; Sampson & Laub, 1997), a perceptual indicator of whether an individual felt his or her *Criminal Record* influenced employment decisions (1 = Yes), their number of *Prior* arrests (a summated total of the number of prior arrests from baseline until the start of the recall period), and the proportion of time incarcerated within a wave (*Time Incarcerated)* are included. Additionally, an indicator of whether an individual was on *Parole* or under criminal justice supervision (1 = Yes) is also included.

Given the documented prevalence of substance dependence among those who offend (Fazel et al., 2006) and the known deleterious effects of substance abuse on labor market outcomes (Bray et al., 2000), a modified version of The Substance Use/ Abuse Inventory (Chassin et al., 1991) is also included to capture substance *Dependence*. This is a count of the number of drug and alcohol consequences endorsed by an individual within a wave. Scores range from 0 to 17, where higher values indicate increased drug and alcohol dependence.

The study also incorporates demographic controls such as an individual's race/ ethnicity (1 = *Black*; 0 = White, Hispanic, or other), sex (1 = *Male*, 0 = Female), *Age*, study site location (1 = *Philadelphia*, 0 = Phoenix), and indicator of recall period *Year*.

Analytic Plan

Although the multitude of variables available within the Pathways data make it possible to control for many potential confounders — reducing concerns of omitted variable bias associated with *observable* characteristics — *unobservable* factors remain a key concern. Unobservable time-stable traits such ability, motivation, or criminal propensity, for instance, may influence an individual's employment, commitment, and job quality, as well as their likelihood of offending, making them a threat to causal inference (Gottfredson & Hirschi, 1990).

The panel structure of the Pathways data, however, provides an opportunity to eliminate concerns of omitted variable bias resulting from unobservable time-stable

---

[5] While the measure was originally continuous ranging from 1–5, 1 was subtracted from the measure and the variable was then recoded into 5 categories such that 0 = [0,.5), 1 = [.5,1.5), 2 = [1.5, 2.5), 3 = [2.5, 3.5) and 4 = [3.5, 4]. This was done so that Romantic Relationship indicates the presence of a relationship, and Relationship Quality indicates the quality of the relationship conditional on being in a relationship. This operationalization is consistent with how work and job quality are operationalized and interpreted within this study which will be further discussed in the forthcoming Analytic Plan section.

characteristics by essentially using individuals as their own control over time. Consistent with prior research (Apel & Horney, 2017; Jaynes, 2020), this study applies Allison's (2009) hybrid fixed effects approach by decomposing each time-varying predictor into within and between-individual components, and then fitting a random effects model including both components as follows[6]:

$$Y_{it} = \beta_0 + \beta_1 W_{it} + \beta_2 C_{it} + \beta_3 Q_{it} + \beta_4 X'_{it} + \beta_5 T'_i + \gamma_1 \overline{W}_i + \gamma_2 \overline{C}_i + \gamma_3 \overline{Q}_i + \gamma_4 \overline{X'}_i + \gamma_t + u_i$$

Here, Y_{it} is a dichotomous indicator of crime committed by each individual (i) within a wave (t). W_{it} indicates whether an individual was working within a wave, and C_{it} and Q_{it}, respectively, represent the individual's commitment to work and job quality. Additionally, X'_{it} represents a vector of time-varying controls, T'_i represents a vector of time-stable controls, β_0 represents the constant, γ_t are indicators for each year and u_i represents the error term.

This model eliminates bias resulting from unobserved time-stable factors by including the means of each time-varying predictor for each individual ($\overline{W}_i, \overline{C}_i \overline{Q}_i, \overline{X}_i$), as well as the time-varying deviations from those means ($W_{it}, C_{it}, Q_{it}, X'_{it}$). Coefficients from the deviation predictors can be interpreted as fixed effects estimates because they are based only on within-individual variation. Because Allison (2009) suggests that coefficients from the time-variant mean predictors are not informative themselves, they are omitted from the forthcoming output but are available upon request.

This model follows Apel and Horney's (2017) method of variable specification given that when an individual was not working in a wave, W_{it}, C_{it}, Q_{it} are assigned values of zero (see also Jaynes, 2020). When an individual was working, W_{it} is assigned a value of 1, and then C_{it} and Q_{it} take on values indicating an individual's commitment to work and job quality, respectively. Therefore, the work coefficient (β_1) in the fully specified model captures the transition from not working to working in a job with the lowest level of commitment and quality (values of zero), and the commitment and job quality coefficients (β_2, β_3) capture variation in commitment and job quality, respectively, among those who are working.

Analyses proceed in three stages. The first stage presents descriptive statistics for key variables of interest. The second stage uses hybrid fixed effects logistic models in an iterative process to evaluate the relationship between work, commitment, job quality, and crime. The third stage then further considers if there are behavioral "red flags" demonstrating low commitment which may signal an increased risk of recidivism. Unless otherwise noted, logistic models are used because the outcome measure is dichotomous and all coefficients are presented as Odds Ratios (OR). Because

---

[6] The hybrid approach was selected for its advantages including its ability to facilitate mediation analysis. However, substantive conclusions are robust when using a conditional maximum likelihood fixed effects logit model (Chamberlain, 1980). These findings are also consistent when implementing a linear probability specification, which is important to assess because logistic models using fixed effects may be subject to an incidental parameters problem (Heckman, 1987). In addition, a chi-squared test of the difference between deviation coefficients and mean coefficients favor the fixed effects estimates (Chi-sq = 94.97, p < .001).

the data were collected over several years in two unique cities, year-site interactions are incorporated to control for time-variant trends within location (omitted from output). To aid in parsimony, control variables results will not be discussed in-depth, though generally, findings are consistent with prior research (Loughran, Paternoster, et al., 2016) and theoretical expectations.

Results

Table 1 reports the mean, standard deviation, minimum, and maximum values for each variable, along with the within-individual proportion of variation to provide a sense of the degree to which each variable varies within relative to between individuals.

With respect to offending, on average, individuals committed crime 24% of the time across the study. As expected, the percentage of those offending in a given wave decreased over time (25% in wave 7, 25% in wave 8, 24% in wave 9, and 22% in wave 10). Of the individual waves where an offense took place, 35% were violent, 61% were a drug offense, and 59% were a property offense.

On average, individuals worked about half of the time (work = 1 in 50% of individual waves). Across the study, about a quarter of individuals were always working (27%), a quarter were consistently not working (27%) and the rest showed variation in their employment status by working in some waves and not others (46%). Hereafter, job quality and commitment are discussed for only working waves.

Job quality ranges from 0 to 4 within the study, with mean and median job quality scores of 2. Because job quality was categorized into quintiles, 20% of observations fall within each category. To aid in meaningful description, the Online Supplemental Material Table OS1 provides descriptive statistics for each item within the job quality scale. On average, individuals were at least somewhat satisfied with their job. Individuals were the least satisfied, on average, with their job's material compensation — salary and benefits — and the most satisfied with their sense of control, usefulness and colleague relationships.

Though there is notable variation in commitment to work across the study, with scores ranging from 0 to 8, on average, individuals were fairly committed to work as evidenced by a mean commitment score of 6.42 and a median of 7. Job commitment is highly left skewed, where across the study, less than 1% of observations indicated all problematic work behaviors (with a job commitment score of 0), and nearly 32% demonstrating the highest level of job commitment (avoiding all problematic behaviors). Table OS1 within the Online Supplemental Material also provides descriptive information for each item included in the job commitment variety score. On average, it was fairly normative for an individual to show up late to work at least once within a wave (54%). Other problematic behaviors, however, were rarer, in that consistently over 75% of individuals reported avoiding each additional behavior across the study. It was the most unusual for individuals to purposefully damage or destroy equipment (only 4% of individuals reported this across the study) or do their job in a way that could cause them to lose it (only 10% of individual reported this across the study).

Table 2 Hybrid logistic models of self-reported offending, work, job commitment and job quality (N = 1196; NT = 4134)

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variable	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
Work	1.20	0.17	7.38***	2.54	4.04***	1.66	0.98	0.21	3.88*	2.25
Job Commitment	–	–	0.75***	0.04	0.79***	0.04	–	–	0.80*	0.07
Job Quality	–	–	–	–	0.96	0.07	0.93	0.07	0.99	0.25
JobCommitment*JobQual	–	–	–	–	–	–	–	–	1.00	0.04
Certainty	–	–	–	–	0.93*	0.03	0.93*	0.03	0.93*	0.03
Social Cost	–	–	–	–	1.05	0.09	1.04	0.09	1.05	0.09
Personal Rewards	–	–	–	–	1.15***	0.04	1.15***	0.04	1.15***	0.04
Social Rewards	–	–	–	–	2.12***	0.36	2.20***	0.37	2.12***	0.36
Illegal Earnings[1]	–	–	–	–	1.31***	0.07	1.30***	0.07	1.31***	0.07
Other Income	–	–	–	–	0.86	0.10	0.86	0.10	0.86	0.10
Work Opp	–	–	–	–	1.33**	0.12	1.30**	0.12	1.33**	0.12
Financial Resp.	–	–	–	–	1.00	0.03	1.00	0.03	1.00	0.03
Romantic Rel	–	–	–	–	2.03*	0.74	2.09*	0.76	2.03*	0.74
Relationship Quality	–	–	–	–	0.91	0.10	0.90	0.10	0.91	0.10
Expecting a Child	–	–	–	–	1.19	0.27	1.16	0.26	1.19	0.27
Number of Children	–	–	–	–	0.83	0.11	0.83	0.11	0.83	0.11
Education Level	–	–	–	–	1.25	0.40	1.24	0.39	1.25	0.40
Enrolled in School	–	–	–	–	1.15	0.19	1.15	0.19	1.15	0.19
Priors	–	–	–	–	0.78***	0.05	0.79***	0.05	0.78***	0.05
Criminal Record	–	–	–	–	1.36	0.25	1.45*	0.26	1.36	0.25
Time Incarcerated	–	–	–	–	1.77	0.54	1.70	0.52	1.77	0.54
Parole	–	–	–	–	0.99	0.17	1.01	0.17	0.99	0.17
Substance Dep	–	–	–	–	1.56***	0.06	1.59***	0.06	1.56***	0.06
Age	–	–	–	–	0.89*	0.05	0.90	0.05	0.89*	0.05
Black	–	–	–	–	0.87	0.15	0.87	0.15	0.87	0.15
Male	–	–	–	–	1.94**	0.46	1.85**	0.44	1.94**	0.46
Philadelphia	–	–	–	–	0.83	0.31	0.84	0.31	0.83	0.31

$*p \leq .05$; $** p \leq .01$; $*** p \leq .001$; All hypothesis tests are two-tailed; Coefficients are odds ratios (OR). Year and year-site indicators are included but omitted from output in Models 3, 4, and 5; 1: Illegal Earnings is scaled per $10,000

Factor analysis of all the items included in the job quality and commitment scales indicate that they are, as expected, two distinct constructs (Eigenvalues 4.38 and 2.18, respectively) without evidence of problematic cross-loadings. In addition, there is only a weak correlation between job quality and commitment, such that only 15% of the variation in job commitment is associated with job quality among those who are working.

Table 2 provides the results of hybrid logistic models which incrementally include or exclude variables of interest and controls. When only a work indicator is included in Model 1, there is no significant evidence that simply "working"

has either a criminogenic or protective effect.[7] However, once job commitment is included within Model 2, there is significant evidence that transitioning from not working to working in a job that one has the lowest level of commitment toward is criminogenic. Specifically, this transition is associated with a 638% increase in the likelihood of offending (OR = 7.38, $p \leq 0.001$). In addition, an improvement in job commitment is associated with a 25% reduced likelihood of offending (OR = 0.75, $p \leq 0.001$).

When job quality and all of the control variables are included in Model 3 (the fully specified model), job commitment continues to have a significant association with offending, in that an improvement in commitment to work, holding all else constant, is associated with a 21% decrease in the likelihood of offending (OR = 0.79, $p \leq 0.001$).[8] Job quality, however, has no association with offending (OR = 0.96, $p > 0.05$), consistent with prior research (Jaynes, 2020).

Given the theoretical precedent that commitment to work may be driven by job quality, it is plausible that the effect of job quality is fully mediated by job commitment, resulting in Model 3's null job quality finding. To further consider this notion, Model 4 then removes job commitment from analysis. Here, job quality remains insignificant (OR = 0.93, $p > 0.05$). This provides informal evidence that job commitment does not mediate the relationship between job quality and crime.[9]

Within Model 3, it is also important to highlight that there is significant evidence of a criminogenic work effect, such that transitioning from not working to working in the lowest level quality job that one has the lowest level of job commitment to is associated with a 304% increase in the likelihood of offending (OR = 4.04, $p \leq 0.001$). This effect is largely driven by working at a job that one has low commitment toward alone rather than the combination of working a low-quality-low-commitment job, given that when job commitment is removed from analysis (Model

---

[7] This lack of statistical association is also replicated at the monthly level (OR = 1.04, $p > .05$). It is not possible to conduct all analysis at the monthly level because job commitment is only available annually.

[8] Three additional sensitivity tests were conducted to demonstrate the robustness of these findings. Descriptive statistics for variables used in these sensitivity tests are available within the Online Supplemental Material Table OS2. These findings are available within the Online Supplemental Material Table OS3, Section C. The first sensitivity test selects only on waves in which individuals were working to demonstrate that findings are not sensitive to incorporating both those who are working and not working within the analyses. Second, some could argue that self-control is not time-stable and therefore may not an eliminated source of bias when relying on fixed-effects estimates (e.g., Hay and Forrest, 2004), and that low commitment is merely a behavioral manifestation of low self-control (Keane, Maxim, & Teevan, 1993). Therefore, analysis was also run with an attitudinal measure of self-control included as a control variable within the second column. Finally, this analysis did not account for differential amounts of time-employed within a recall period. Therefore, within the third sensitivity test, a variable accounting for the proportion of time-employed within a recall period in the third column. All of these findings demonstrate results are robust.

[9] A formal test of mediation was also performed because informal tests with logistic models can be problematic because the exclusion of variables may cause changes in magnitude or significance due to the rescaling of coefficients rather than due to mediation. Specifically, the "KHB" method of decomposition was used (Karlson, Holm, & Breen, 2012). These findings were consistent with the informal tests of mediation in that they indicate there are not only no significant total or direct effect of job quality ($p > .05$), but also that there is no indirect influence of job quality on crime through increasing commitment to the job ($p > .05$).

Table 3 Hybrid logit models of self-reported offending, work, and job commitment: by commitment behavior (N = 1196; NT = 4134)

Variable	Model 1 Late for Work		Model 2 Called in Sick		Model 3 Violated Permissions		Model 4 Conflict with Supervisor	
	OR	SE	OR	SE	OR	SE	OR	SE
Work	1.13	0.27	1.66	0.46	1.26	0.39	1.57	0.41
Job Commitment	0.74	0.15	0.51**	0.11	0.74	0.19	0.50***	0.10
Job Quality	0.94	0.07	0.94	0.11	0.94	0.07	0.96	0.07

Variable	Model 5 Lost Temper at Work		Model 6 Did Job Poorly		Model 7 Damaged Equipment		Model 8 Under Influence	
	OR	SE	OR	SE	OR	SE	OR	SE
Work	1.26	0.35	1.69	0.60	1.02	0.49	2.20**	0.67
Job Commitment	0.72	0.16	0.54*	0.16	0.96	0.44	0.37***	0.10
Job Quality	0.94	0.07	0.94	0.07	0.93	0.07	0.93	0.07

$*p \leq .05$; $**p \leq .01$; $***p \leq .001$; All hypothesis tests are two-tailed; Coefficients are odds ratios (OR). All models are fully specified with control variables, as well as year and year-site indicators included but omitted from output

4) there is no longer a negative association between transitioning from not working to working in the lowest quality job and offending. In contrast, when job quality is not included in analysis (Model 2), transitioning from not working to working in a job with the lowest level of job commitment is a significant predictor of offending.[10]

Model 5 then considers whether job quality moderates the relationship between job commitment and offending using a method of model specification outlined by Schunck (2013). These results provide no significant effect of moderation (OR = 1.00, $p > 0.05$), indicating that the job commitment-offending relationship is consistent across various levels of job quality.

Assessing "Red Flag" Work Behaviors

Given the finding that commitment to work is associated with a reduced likelihood of offending, this study also sought to evaluate which behavioral indications of poor job commitment were most strongly associated with offending to provide deeper contextual understanding of this observed relationship. In doing this, rather than operationalizing job commitment as a variety score of the number of problematic work behaviors avoided, each model within Table 3 operationalizes job commitment as an indicator of avoiding a *single* problematic behavior to disentangle which specific behaviors may be "red flags" for recidivism. These models suggest that neither

---

[10] This result is also substantively consistent in a fully specified model (all controls added) if job quality is omitted (available upon request).

avoiding arriving late to work (Model 1), using things without permission (Model 3), losing one's temper (Model 5) nor intentionally damaging equipment (Model 7) are significantly associated with offending ($p > 0.05$). However, avoiding calling in sick (Model 2), conflict with a supervisor (Model 4), and doing a job poorly (Model 6) are each associated with approximately a 50% reduced likelihood of offending — holding all else constant. Avoiding coming to work under the influence has the strongest deterrent effect, such that it is associated with a 63% reduction in the likelihood of offending (Model 8). Model 8 is also the only model in which work reaches statistical significance, signifying that transitioning from not working to working in the lowest quality job and coming to work under the influence is associated with a 120% increase in the likelihood of offending ($p \leq 0.01$). Consistent with prior models, job quality is not significantly associated with offending in any of the behavior-specific analyses.

Discussion

Given the widely held conviction that employment should deter crime, numerous studies have evaluated the relationship, but often find inconsistent empirical support — leading scholars to question "Why work doesn't work?" (Bushway & Apel, 2012). The present study suggests the lack of consistent support for a work-crime relationship may be attributed to the failure of prior research to consider an individual's commitment to work — a key construct in the social control perspective. Relatedly, the lack of consistent findings may be the result of an overreliance on potentially erroneous assumptions that a quality job inspires job commitment.

With these motivations, several key findings emerged from this study's analyses of a sample of high-risk adults drawn from the Pathways study. First, there was strong evidence that a within-individual improvement in job commitment was negatively associated with offending, yet an improvement in job quality did not have a significant association with offending. Together, these findings provide support for emphasizing the role of commitment to work when evaluating the work-crime relationship, as it was not simply becoming employed, or an improvement in job quality that reduced offending, but rather, having a job that one increases their *commitment* to.

Findings also revealed that job quality and commitment were weakly correlated. Moreover, the observed lack of association between job quality and offending was not due to the effect of job quality on crime being fully mediated by commitment to work. There was also no evidence that job quality moderates the relationship between commitment and offending. Together, these findings fail to support theory which suggests that a high-quality job motivates job commitment (e.g., Crutchfield, 2014; Sampson & Laub, 1993). Substantively, this may also indicate that an individual's commitment may be to *work* as a key social institution in the adult life course, rather than a specific job. Further evaluating whether commitment is general or job-specific is a key direction for future research.

In addition, this finding raises an important theoretical question — if job quality does not inspire commitment — *then what does*? While these results provide

indirect support for Paternoster and Bushway's (2009) identity theory in finding that job commitment had a strong direct effect on offending that was not driven by nor moderated by job quality, it is theoretically plausible that a change in identity (which is neither observed nor time-stable) may be responsible for increases in job commitment. This is a key direction for future research with data better suited for capturing identity change. The present study conducted supplemental analyses to help prompt this effort, by "ruling out" other potential factors driving job commitment (these results and details of these analyses are available within the Table OS4 of the Online Supplemental Material). Here, job commitment did not mediate any observed covariates (with a preliminary association with job commitment) and offending. While these exploratory analyses provide additional indirect evidence consistent with identity theory, they are not a direct test of the theory.

Evidence also emerged suggesting that employment can be *criminogenic*, given the finding that transitioning from not working to working in the lowest quality job that one had the lowest level of commitment toward was positively associated with offending (Table 2, Model 3). Furthermore, the effect was largely the result of working at a job that one has little commitment to, rather than the combination of working a low-commitment-low-quality job. This finding may be especially policy relevant, as criminal justice supervision often requires employment as part of its terms. If supervision pushes individuals to work jobs that they are not committed to, this may result in an increased likelihood of offending. Rather, greater protective effects may be observed from allowing offenders sufficient time to select into jobs that they will commit to, or through focusing on increasing perceived costs of crime and encouraging offenders to attribute these costs to their own shortcomings, consistent with identity theory.

This study also considered which problematic work behaviors were most strongly associated with offending. In particular, beginning to call in sick, have a conflict with a supervisor, and doing a job poorly, were each positively associated with offending, while being late to work, violating permissions, losing one's temper, and damaging equipment, in isolation, were not. Beginning to come to work under the influence had the strongest association with offending and should be seen as a key red flag. This result is particularly noteworthy given that substance dependence was held constant in analyses. This means that it is not just substance dependence, but substance dependence that seeps into the workplace, that is especially reflective of a disassociation from work that becomes statistically criminogenic. This finding is consistent with an often under emphasized theme from Sampson and Laub's (1993, see also Laub & Sampson, 2003) life history narratives as they demonstrated the serious deleterious effects of alcohol abuse on the employment of the Glueck men (see also Shover, 1996). This illuminates an important next step for scholars is to look more closely at the intersectionality of substance abuse, work, and offending. In addition, these findings highlight the importance of substance abuse treatment in conjunction with work-related reentry efforts.

Proponents of the *General Theory of Crime* may question whether this study's associations between offending and behavioral indicators of job commitment are simply associations between crime and "analogous acts" (Gottfredson & Hirschi, 1990). The foundation for this concern is the notion that crime and other high-risk/

deviant behaviors (e.g., not wearing a seatbelt, unprotected sex, gambling) are caused by a single *time-stable trait*, low self-control, rendering observed associations spurious (Gottfredson & Hirschi, 1990). Within this study, this is unlikely to be the case because the fixed-effects methodology rules out time-stable individual differences as causal factors. As an additional precaution, given evidence that self-control may not be time-stable (Hay & Forrest, 2004; Jaynes et al., 2021) and therefore not accounted for by the fixed-effects methodology, Online Supplemental Analysis Table OS3 also controlled for self-control and findings remained substantively consistent (see also footnote 8). Cumulatively, this suggests that the observed associations between job commitment and crime are not simply the result of low self-control.

This study had several limitations which are important to note. Although the analytic strategy controlled for time-stable heterogeneity and a robust set of time-varying covariates, these results are not experimental and thus findings are susceptible to omitted variable bias. Additionally, analysis was conducted at the annual recall level, making it very difficult to draw conclusions with respect to the causal ordering of job quality, commitment, and offending. For these reasons, results should be interpreted as statistical associations rather than causal relationships. In addition, job quality was measured at the recall-job level, while job commitment was measured only at the recall level. Therefore, the job quality and commitment measures do not perfectly align for those who worked more than one job in a recall period (35% of observations, see footnote 4). Future research should seek to further evaluate these key theoretical relationships by considering shorter-term variation in these measures (e.g., monthly-job level follow-ups). The study also relied on only self-reported measures of work commitment. Future research should consider using employer's assessments of an employee's commitment consistent with prior research (Sampson & Laub, 1993).

The Pathways study is also limited in that it only enrolled youths within two cities (Phoenix and Philadelphia) who were adjudicated from years 2000–2003. Therefore, results derived from this sample may not generalize outside of these locations and historical context. Findings should also be interpreted with the demographic composition of the sample in mind. This sample was largely male (85%) and racially/ethnically diverse (39% Black, 35% Hispanic, 21% White, and 5% "other"). Given that prior research has found that the relationship between employment and crime could vary across demographic groups (Jaynes, 2020; Piquero et al., 2002; Simons et al., 2002; Yang, 2017), it is plausible that the effect of job commitment on crime may vary by sex, race/ethnicity and/or socioeconomic status. In addition, while this study evaluated high-risk offenders during a pivotal point in their life course — the transition to adulthood — this period is only a small window within the greater life course. Given evidence that work may have age-conditional effects on crime (Uggen, 2000), findings may also not generalize outside of this specific time in the life course. Addressing questions of generalizability is a key direction for future research.

Despite these limitations, this study offered a strong empirical test of the work-crime relationship by focusing on commitment to work and highlighting unsupported theoretical assumptions surrounding job commitment and quality. Given

these findings, future research should consider commitment to work as a key construct in evaluating the work-crime relationship and more deeply consider how faithful measures of "employment" are to the propositions of social control theory. Perhaps, it is time we start focusing on whether those who appear to be "playing the conventional game" are actually playing by the rules.

This exploratory analysis was conducted in two steps. First, a hybrid fixed effects negative binomial model (Allison, 2009) was used to evaluate the relationship between all of the study's observable covariates and job commitment. Here, a count of work problem behaviors (job commitment reverse coded to more appropriately use a count model) is the outcome measure. In addition, this analysis selects on only working waves, given that work job commitment is only captured among those who are employed. These findings suggest that job quality, social cost, personal rewards, social rewards, financial responsibility, criminal record, and substance dependence were all at least marginally significantly associated with problematic work behaviors (job commitment).

Each covariate that was at least marginally associated with job commitment (and work) was then considered for its potential to influence offending through its effect on job commitment (vector of covariates job commitment offending). To formally test this notion, the KHB method of decomposition was applied in the study's fully specified model (Table 3, Model 4) with the vector of potential covariates as independent variables, job commitment as the mediator, and all other factors included as controls. These results suggest that none of the covariates examined (job quality, social cost, personal rewards, social rewards, financial responsibility, criminal record, and substance dependence) had a significant indirect effect on offending through job commitment.

References

Allison, P. D. (2009). *Fixed effects regression models* (Vol. 160). SAGE Publications.

Apel, R., & Horney, J. (2017). How and why does work matter? Employment conditions, routine actives, and crime among adult male offenders. *Criminology, 55*, 307–343.

Becker, H. S. (1960). Notes on the concept of commitment. *American Journal of Sociology, 66*, 32–42.

Bennett, R. J., & Robinson, S. L. (2003). The past, present, and future of workplace deviance research. In J. Greenberg (Ed.), *Organizational behavior: The state of the science* (pp. 247–281). Lawrence Erlbaum Associates Publishers.

Blokland, A. A. J., & Nieuwbeerta, P. (2005). The effects of life circumstances on longitudinal trajectories of offending. *Criminology, 43*, 1203–1240.

Bray, J. W., Zarkin, G. A., Dennis, M. L., & French, M. T. (2000). Symptoms of dependence, multiple substance use, and labor market outcomes. *The American Journal of Drug and Alcohol Abuse, 26*, 77–95.

Bushway, S. D., & Paternoster, R. (2012). Understanding desistance: Theory testing with formal empirical models. In J. MacDonald (Ed.), *Measuring crime and criminality: Advances in criminological theory* (Vol. 17, pp. 299–334). Transaction Publishers.

Bushway, S. D., & Paternoster, R. (2013). Desistance from crime: A review and ideas for moving forward. In C. L. Gibson & M. D. Krohn (Eds.), *Handbook of life-course criminology* (pp. 213–231). Springer.

Bushway, S. D., & Apel, R. (2012). A signaling perspective on employment-based reentry programming. *Criminology and Public Policy, 11*, 21–50.

Bushway, S. D., & Paternoster, R. (2014). Identity and desistance from crime. In J. A. Humphrey & P. Cordella (Eds.), *Effective Interventions in the Lives of Criminal Offenders* (pp. 63–77). Springer.

Chamberlain, G. A. (1980). Analysis of covariance with qualitative data. *The Review of Economic Studies, 47*, 225–238.

Chassin, L., Rogosch, F., & Barrera, M. (1991). Substance use and symptomatology among adolescent children of alcoholics. *Journal of Abnormal Psychology, 100*, 449–463.

Costello, B. J., & Vowell, P. R. (1999). Testing control theory and differential association: A reanalysis of the Richmond Youth Project data. *Criminology, 37*, 815–842.

Crutchfield, R. D. (1989). Labor stratification and violent crime. *Social Forces, 68*, 489–512.

Crutchfield, R. D. (2014). *Get a job: Labor markets, economic opportunity, and crime*. New York University Press.

Elder, G. H., Johnson, M. K., & Crosnoe, R. (2003). The emergence and development of life course theory. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the Life Course* (pp. 3–19). Springer.

Fazel, S., Bains, P., & Doll, H. (2006). Substance abuse and dependence in prisoners: A systematic review. *Addiction, 101*, 181–191.

Furstenberg, F. F., Jr., Kennedy, S., McLoyd, V. C., Rumbaut, R. G., & Settersten, R. K., Jr. (2004). Growing up is harder to do. *Contexts, 3*, 33–41.

Giordano, P. C., Cernkovich, S. A., & Rudolph, J. L. (2002). Gender, crime, and desistance: Toward a theory of cognitive transformation. *American Journal of Sociology, 107*(4), 990–1064.

Giordano, P. C., Schroeder, R. D., & Cernkovich, S. A. (2007). Emotions and crime over the life course: A neo-Meadian perspective on criminal continuity and change. *American Journal of Sociology, 112*, 1603–1661.

Goodman, P. (1956). *Growing up absurd*. Random House.

Gottfredson, M. R., & Hirschi, T. (1990). *A general theory of crime*. Stanford University Press.

Griffin, M. L., & Armstrong, G. S. (2003). The effect of local life circumstances on female probationers' offending. *Justice Quarterly, 20*, 213–239.

Grogger, J. (1998). Market wages and youth crime. *Journal of Labor Economics, 16*, 756–791.

Harrison, D. A., Newman, D. A., & Roth, P. L. (2006). How important are job attitudes? Meta-analytic comparisons of integrative behavioral outcomes and time sequences. *Academy of Management Journal, 49*, 305–325.

Hay, C., & Forrest, W. (2004). The development of self-control: Examining self-control theory's stability thesis. *Criminology, 44*, 739–774.

Heckman, J. J. (1987). *The incidental parameters problem and the problem of initial conditions in estimating a discrete time-discrete data stochastic process and some Monte Carlo evidence*. University of Chicago Center for Mathematical studies in Business and Economics.

Hindelang, M. J. (1973). Causes of delinquency: A partial replication and extension. *Social Problems, 20*, 471–487.

Hirschi, T. (1969). *Causes of Delinquency*. University California Press.

Hirschi, T., & Gottfredson, M. (1983). Age and the explanation of crime. *American Journal of Sociology, 89*, 552–584.

Hollinger, R. C. (1986). Acts against the workplace: Social bonding and employee deviance. *Deviant Behavior, 7*, 53–75.

Hollinger, R. C., & Clark, J. P. (1983). *Theft by employees*. Lexington Books.

Hollinger, R. C., & Clark, J. P. (1982). Formal and informal social controls of employee deviance. *Sociological Quarterly, 23*, 333–343.

Horney, J., Osgood, D. W., & Marshall, I. H. (1995). Criminal careers in the short-term: Intra-individual variability in crime and its relation to local life circumstances. *American Sociological Review, 60*, 655–673.

Huiras, J., Uggen, C., & McMorris, B. (2000). Career jobs, survival jobs, and employee deviance: A social investment model of workplace misconduct. *The Sociological Quarterly, 41*, 245–263.

Huizinga, D., Esbensen, F., & Weiher, A. W. (1991). Are there multiple paths to delinquency? *The Journal of Criminal Law and Criminology, 82*, 83–118.

Jaynes, C. M. (2020). The relationship between job quality and crime: Examining heterogeneity in treatment and treatment effect. *Journal of Research in Crime and Delinquency, 57*, 693–740.

Jaynes, C. M., Moule, R. K., Hubbell, J. T., & Santos, M. R. (2021). Impulsivity or discounting? Evaluating the influence of individual differences in temporal orientation on offending. *Journal of Quantitative Criminology*, DOI: https://doi.org/10.1007/s10940-021-09518-5.

Kalleberg, A. L. (2011). *Good Jobs, Bad Jobs*. Russell Sage Foundation.

Karlson, K. B., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: A new method. *Sociological Methodology, 42*, 286–313.

Keane, C., Maxim, P. S., & Teevan, J. J. (1993). Drinking and driving, self-control, and gender: Testing a general theory of crime. *Journal of Research in Crime and Delinquency, 30*, 30–46.

Krohn, M. D., & Massey, J. L. (1980). Social control and delinquent behavior: An examination of the elements of the social bond. *The Sociological Quarterly, 21*, 529–544.

Laub, J. H., & Sampson, R. J. (2003). *Shared beginnings, divergent lives*. Harvard University Press.

Loughran, T. A., Nagin, D. S., & Nguyen, H. (2016). Crime and legal work: A Markovian model of the desistance process. *Social Problems, 64*, 30–52.

Loughran, T. A., Paternoster, R., Chalfin, A., & Wilson, T. (2016). Can rational choice be considered a general theory of crime? Evidence from individual-level panel data. *Criminology, 54*, 86–112.

Mulvey, E. P., Steinberg, L., Fagan, F., Cauffman, E., Piquero, A. R., Chassin, L., Knight, G. P., et al. (2004). Theory and research on desistance from antisocial activity among serious adolescent offenders. *Youth Violence and Juvenile Justice, 2*, 213–236.

Murphy, K. R. (1993). *Honesty in the workplace*. Thomson Brooks/Cole Publishing Company.

Myers, S. L. (1984). Do better wages reduce crime? A research note. *American Journal of Economics and Sociology, 43*, 191–195.

Nagin, S. S., & Paternoster, R. (1991). On the relationship of past to future participation in delinquency. *Criminology, 29*, 163–189.

Nagin, D. S., & Paternoster, R. (1994). Personal capital and social control: The deterrence implications of individual differences in criminal offending. *Criminology, 32*, 581–606.

Nguyen, H., & Loughran, T. A. (2018). On the measurement and identification of turning points in criminology. *Annual Review of Criminology, 1*, 335–358.

Paternoster, R., & Bushway, S. (2009). Desistance and the feared self: Toward an identity theory of criminal desistance. *Journal of Criminal Law & Criminology, 99*, 1103–1156.

Paternoster, R., Bachman, R., Kerrison, E., O'Connell, D., & Smith, L. (2016). Desistance from crime and identity: An empirical test with survival time. *Criminal Justice and Behavior, 43*, 1204–1224.

Pierce, G. P. (1994). The quality of relationships inventory: Assessing the interpersonal context of social support. In B. R. Burleson, T. L. Albrecht, & I. G. Sarason (Eds.), *Communication of Social Support: Messages, Interactions, Relationships, and Community* (pp. 247–266). Sage.

Pierce, G. R., Sarason, I. G., Sarason, B. R., Solky-Butzel, J. A., & Nagle, L. C. (1997). Assessing the quality of personal relationships. *Journal of Social and Personal Relationships, 14*, 339–356.

Piore, M. J. (1968). On-the-job training and adjustment to technological change. *Journal of Human Resources, 3*, 435–449.

Piquero, A. R., MacDonald, J. M., & Parker, K. F. (2002). Race, local life circumstances, and criminal activity. *Social Science Quarterly, 83*, 654–670.

Sampson, R. J., & Laub, J. H. (1997). A life-course theory of cumulative disadvantage and the stability of delinquency. *Developmental Theories of Crime and Delinquency, 7*, 133–161.

Sampson, R. J., & Laub, J. H. (1993). *Crime in the making: Pathways and turning points through life*. Harvard University Press.

Savolainen, J. (2009). Work, family and criminal desistance: Adult social bonds in a Nordic welfare state. *The British Journal of Criminology, 49*, 285–304.

Schubert, C. A., Mulvey, E. P., Steinberg, L., Cauffman, E., Losoya, S. H., Hecker, T., Chassin, L., & Knight, G. P. (2004). Operational lessons from the pathways to desistance project. *Youth Violence and Juvenile Justice, 2*, 237–255.

Schunck, R. (2013). Within and between estimates in random-effects models: Advantages and drawbacks of correlated random effects and hybrid models. *The Stata Journal, 13*(1), 65–76.

Shanahan, M. J. (2000). Pathways to adulthood in changing societies: Variability and mechanisms in life course perspective. *Annual Review of Sociology, 26*, 667–692.

Shaw, C. R. (1930[1966]). *The jackroller: A delinquent boy's own story*. Chicago, IL: The University of Chicago Press.

Shover, N. (1996). Great pretenders: Pursuits and careers of persistent thieves. New York, NY: Routledge Taylor & Francis Group.

Simons, R. L., Stewart, E., Gordon, L. C., Conger, R. D., & Elder, G. H., Jr. (2002). A test of life-course explanations for stability and change in antisocial behavior from adolescence to young adulthood. *Criminology, 40*, 401–434.

Skardhamar, T., & Savolainen, J. (2014). Changes in criminal offending around the time of job entry: A study of employment and desistance. *Criminology, 52*, 263–291.

Snir, R., & Harpaz, I. (2002). To work or not to work: Nonfinancial employment commitment and the social desirability bias. *The Journal of Social Psychology, 142*, 635–644.

Uggen, C., & Wakefield, S. (2008). What have we learned from longitudinal studies of work and crime? In A. M. Liberman (Ed.), *The Long View of Crime: A Synthesis of Longitudinal Research* (pp. 191–219). Springer.

Uggen, C. (1999). Ex-offenders and the conformist alternative: A job quality model of work and crime. *Social Problems, 46*, 127–151.

Uggen, C. (2000). Work as a turning point in the life course of criminals: A duration model of age, employment, and recidivism. *American Sociological Review, 65*, 529–546.

Verbruggen, J., Blokland, A. A. J., & Van der Geest, V. R. (2012). Effects of employment and unemployment on serious offending in a high-risk sample of men and women from ages 18 to 32 in the Netherlands. *British Journal of Criminology, 52*, 845–869.

Verbruggen, J., Apel, R., Van der Geest, V. R., & Blokland, A. A. J. (2015). Work, income support, and crime in the Dutch welfare state: A longitudinal study following vulnerable youth into adulthood. *Criminology, 53*, 545–570.

Wadsworth, T. (2006). The meaning of work: Conceptualizing the deterrent effect of employment on crime among young adults. *Sociological Perspectives, 49*, 343–368.

Yang, C. S. (2017). Local labor markets and criminal recidivism. *Journal of Public Economics, 147*, 16–29.