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DESISTANCE FROM CRIME AND IDENTITY

An Empirical Test With Survival Time

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Theories of desistance from crime have emphasized social processes like involvement in adult social bonds or prosocial social relationships to the deliberate neglect of individual subjective processes such as one's identity. More recent theories, however, have stressed the role of identity and human agency in the desistance process. An important set of questions is whether identity theory adds anything to existing theories, and whether there is empirical evidence to suggest that such subjective processes are important. In this article, we provide an empirical assessment of individual subjective considerations in desistance by looking at the relationship between "good identities," intentional self-change, and desistance using survival time data from a sample of serious drug-troubled adult offenders released from prison whose arrest records are followed for almost a 20-year period. The implications of our findings for all brands of criminal desistance theory are discussed.

Keywords: identity; desistance; survival models

U p until recently, theories of desistance from crime have for the most part been heavily structural, relying on participation in prosocial roles as the primary causal mechanism behind quitting crime. For example, Sampson and Laub's (1993; Laub & Sampson, 2003) age-graded informal theory of social control asserts that offenders begin to desist when they are able to strengthen their conventional social bond by falling into emotionally satisfying marriages and securing stable jobs. Good jobs and warm marriages do not change offenders themselves in any substantial way; however, they simply reduce the opportunities for criminal activity. The causal mechanism by which marriages and jobs reduce crime, therefore, is

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by providing more direct control and monitoring of offenders than what existed in the past, such that desistance comes about when changes in the social bond alter the routine activities of offenders. Another prominent theory of desistance, the cognitive/emotional transformation theory of Giordano and colleagues (Giordano, Cernkovich, & Rudolph, 2002; Giordano, Schroeder, & Cernkovich, 2007), is also structural in that desistance from crime is theorized to come about when former offenders are able to enter into intimate relationships (not necessarily marriage) with a conventional romantic partner who serves as a role model and provides social support. These intimates also provide new prosocial definitions (new ways to deal with both new and old bad emotions that stem from social, particularly familial, relationships) in the way described by social learning theory (Giordano et al., 2007). Both these theories of desistance, then, rely heavily on social structural mechanisms to the neglect of individual processes such as identity change. Laub and Sampson (2003) acknowledged that identity transformation may play some small role in desistance, but clearly it comes only after turning points have worked their magic, and are likely not even needed for desistance to occur: "[O]ur stance on the desistance process contrasts with emerging theories of desistance that emphasize cognitive transformations or identity shifts as necessary for desistance to occur . . ." (p. 278). Giordano and colleagues also admit that identity change may be involved in desistance, but as in Laub and Sampson's scheme it only occurs after and as a result of participation in conventional roles ("hooks for change"): "[H]ooks for change can provide an important opening in the direction of a new identity" and "hooks influence the shift in identity" (Giordano et al., 2002, p. 1002).[1] In sum, neither Laub and Sampson's age-graded theory of social control nor Giordano and colleagues' theory of cognitive transformations has much of an active causal role for identity change in initiating desistance from crime.

At about the same time that the age-graded informal and cognitive/emotional transformation theories were crafted, Maruna and colleagues (Farrall & Maruna, 2004; Maruna, 2001, 2004; Maruna & Roy, 2007) developed a theory of desistance from crime wherein one's personal identity played a more central role. Their theory was not, however, anchored on the idea that an identity change either preceded or was an important causal mechanism of desistance. In Maruna's notion of "making good," offenders do not change their identity from one who thinks they are an offending antisocial person embedded in a life of crime to one who now sees themselves in a different, much more conventional and positive light. Rather, offenders who already have prosocial views of themselves in the present deliberately reinterpret their offender pasts to make previous criminal actions both explicable and consistent with their current favorable view of who they are now and what they are "really like." In Maruna's (2001) theoretical scheme, desisting offenders do not so much break from who they were in the past but engage in a "willful cognitive distortion" (p. 9) of the past, so that it is consistent with their current view of themselves as a good person.

Paternoster and Bushway (2009; Bushway & Paternoster, 2012, 2013) offered the most recent theoretical formulation explaining desistance, which they call an identity theory of desistance (ITD). Offenders, as Paternoster and Bushway (2009) contended, will retain an "offender" working identity as long as they perceive they are getting more benefits than costs from committing crime. Every criminal offender, however, eventually confronts failure (they get apprehended, the person being robbed fights back, they go to prison and their loved one takes up with another, the stolen goods net very little money). These failures do not cast doubt on offenders' identity as long as they are able to attribute these failures to

something not directly connected to them, such as "bad luck" or an inept crime partner, and they are able to treat these failures as isolated, disconnected events. Offenders can, then, operate with a self-serving bias (Miller & Ross, 1975) whereby they attribute their success at crime to their own wit and skills, and their failures to chance or someone else. The process of identity change occurs when, after repeated failures, the illusion of the self-serving bias begins to be questioned, and failures get connected and projected into the future: "When perceived failures and dissatisfactions within different domains of life become connected and when current failures become linked with anticipated future failures" (Paternoster & Bushway, 2009, p. 1105). Once offenders come to the realization that their criminal offending is more costly than beneficial, and when they see that the failures they are experiencing are due to their own shortcomings, and are therefore likely to continue into the foreseeable future, they make preliminary moves to change their identity (and ultimately their life) to one that is more prosocial. A key feature of the ITD, then, is that initial moves toward desistance come about as a result of a "feared self"—an image of what the person does not want to be or fears becoming. The feared self provides the first step toward desistance, but to maintain these initial steps the offender must at some point soon after begin to craft a new, more positive image of what they want to become: "the possible self" (Markus & Nurius, 1986; Oyserman & Markus, 1990). This newly emerging prosocial identity or possible self then triggers a change in the person's preferences away from things like quick and easy money (via theft or drug dealing), or the "party life" (Shover, 1996), toward more prosocial preferences such as conventional employment and non-criminal social relationships. It is this cluster of internal changes in identity and preferences and the crafting of the kind of person that one wants to be that both motivates behavior consistent with a prosocial identity (a life free of crime and drugs) and sends a signal to others (such as potential prosocial intimates and employers) that the person is making a change in their life, which in turn, makes prosocial opportunities more likely to be offered and more likely to be successfully used if offered.

The important time order articulated by the ITD, then, is a change in a former offender's identity that both explains the movement into conventional roles or "hooks," and explains why those who had previously been involved in crime would ever be receptive to these prosocial influences.[2] Furthermore, while conventional turning points are extremely useful in desisting, 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 or good partnership. Emotionally satisfying intimate relationships and stable employment are not essential for desistance (offenders can find work in temporary labor pools or janitorial or service sector jobs, sell their blood), but a change in one's identity is. It is this change in identity that is the willful purposive act of self-improvement that leads, in turn, to other prosocial changes.

While there has been a great deal of both quantitative and qualitative research conducted pertaining to the role of structural factors in desistance from crime, and some qualitative research with respect to the role of identity change in desistance, there has to date been a dearth of quantitative work on identity and desistance. In this article, we report on a study investigating the relationship between identity and active attempts by offenders to move toward a prosocial identity and desistance from crime in a sample of serious criminal offenders released from incarceration who have not only an extensive history of criminal acts but also drug and alcohol abuse. Specifically, we rely on a survival model of arrests

over more than a 20-year post-release period to examine two issues: (a) does the form of the survival model tell us anything about desistance from crime and (b) are factors such as identity, employment, marriage, the quality of one's intimate relationships, and emotional states related to the hazard of re-arrest. We are fully aware that the Paternoster/Bushway ITD articulates the effect of a change in identity on offenders' long-term pattern of offending. However, we think given the lack of much rigorous quantitative research on identity it is important to first establish even a non-causal static connection between identity and short-term changes in offending. Before we discuss our own research, we briefly connect it to previous work on desistance from crime.

EMPIRICAL FINDINGS ON IDENTITY AND DESISTANCE

There is a growing body of research on the connection between identity and desistance from crime. Although most of this research is qualitative, it sheds critical light on the connections between identity and decisions by former offenders to quit crime. Hundleby, Gfellner, and Racine (2007) conducted semi-structured interviews with 10 Canadian Aboriginal females who had long criminal histories but had managed to successfully quit crime. They found that although access to prosocial roles like well-paying jobs and marriages was difficult given their criminal record (and racial discrimination), they were able to desist in spite of these economic disadvantages. The most important factor in their process of desistance was developing a more positive self-worth, and embracing their ethnic identity with pride. Opsal (2012) examined the role of both employment and identity in desistance from crime within an interviewed sample of 43 female ex-offenders, with the interviews taken both immediately after the women were released from incarceration and again approximately 3 months later. To summarize the results, Opsal found that both conventional employment and identity change were important in the desistance process though it was impossible to make a clean causal inference as to whether identity change or the job came first. There was clear evidence from the narratives, however, that the process of desistance involved the ideas of a feared and possible self that are central to the identity theory. One of Opsal's (2012) women reflects this:

> So I got another chance and I'm gonna do it this time, because I want to change. I want to go home and be with my kids. I want to live a drug-free life. I want to be able to be an abiding citizen and do what I need to do and not always be in trouble and be bad-ass. That is not me. (p. 388)

The female offenders in Opsal's sample illustrate the difficulties that serious offenders have upon re-entry. All of them were unable to find the kinds of stable good-paying jobs that the Glueck males studied by Laub and Sampson (2003) enjoyed during a time of economic prosperity. Like virtually all offenders released from prison today, when these women found jobs they were generally in the food service and janitorial sector, paying at the minimum wage.

Based on intensive in-person interviews, Stevens (2012) explored the relationship between identity and offender rehabilitation in three English prison-based therapeutic communities (TCs). She reported that an important component of moving toward desistance was the creation, via participation in the TC, of a better "possible self." Through participation in TC events, serious offenders learned that they had a stock of valuable and worthwhile skills

which led them to think better of themselves, and that a life without crime in the future was achievable. The connection between identity change toward a prosocial possible self and quitting crime was vividly expressed by one member of the TC: "Before [TC], I was kind of lost and really broken . . . I've changed so much. I honestly don't believe I will ever offend again because I'm not that person now. I've found a better person here" (Stevens, 2012, p. 540; see also King, 2013). Breen (2014) conducted a mixed-methods study of 27 pregnant and parenting women with extensive criminal records and reported results consistent with the identity theory. First, many of the women initiated desistance when they became dissatisfied with their life of crime, particularly important was the "feared self" with respect to their children. For example, one woman (Jennifer) stated that she started to go straight: "After almost getting arrested and the cops telling me that if I get arrested I'm gonna be having this child in jail, and then my child would have been taken away." Jennifer also indicated that she had constructed a positive "possible self" and a roadmap to get there: ". . . now I realized I have to finish my schooling, I have to get a job." Sharpe (2015) conducted in-depth interviews with 19 mothers with a non-trivial history of criminal offending. These women revealed how difficult it was for serious offenders to link with good, well-paying jobs and to a person they expressed in vivid terms the stigma they felt they faced in turning their lives around. For many of these women, it was the expectation of the "feared self"—having their children taken from them by the state—that started them down the path of desistance. Breen (2014, pp. 66-67) also reported that these desisting women changed their preferences as well as their identities, and adopted more prosocial values.

There has been some quantitative work that points to the importance of identity or identity-like change in desistance from crime. LeBel, Burnett, Maruna, and Bushway (2008) examined desistance among the 130 male property offenders from the Oxford Recidivism Study who were initially interviewed in the 1990s and were followed up some 10 years later. They found that an offender's "subjective state," which included having an identity as a conventional family man, was indirectly related to the risk of long-term recidivism through its effect on reducing re-entry problems. Using longitudinal data (the Rutgers Health and Human Development Project) and growth-curve models, Rocque, Posick, and Paternoster (2014) found that even net of a cluster of control variables, a favorable improvement in one's identity over time was related to a decline in offending. Most recently, Na, Paternoster, and Bachman (2015) using the same longitudinal data as the present study have estimated a growth-curve model, and found that offenders released from prison who became more favorable in their self-image over time and who took concrete steps to get help with their drug problem showed signs of moving toward desistance as reflected in period-to-period changes in both arrest and self-reported drug use. While there has yet to be a definitive quantitative study of identity change over time and desistance from crime, these few empirical efforts seem to indicate that one's identity is an important component of the desistance process. We would like to add to this literature a quantitative study of identity and short-term change in the risk or hazard of arrest which we think provides a window into the process of desistance.

METHOD

SAMPLE

The data for this study come from a longitudinal analysis of serious drug-involved offenders who were released from the state of Delaware correctional system between the

years 1990 and 1996 with most released earlier in those years than later. The study was originally designed to examine the effectiveness of a drug TC, and the sample consisted of 1,250 offenders who were randomly assigned to either a control or a treatment condition (Inciardi, Martin, & Butzin, 2004).[3] Participants in the original study were first interviewed while still incarcerated, approximately 9 months prior to release (referred to throughout this article as the baseline incarceration), and were re-interviewed after release at 6, 18, 42, and 60 months after release.[4] Interview information was extensive, including basic demographics, criminal and drug use history, treatment history, living arrangements, sexual behavior and attitudes, physical and mental health indicators, and various attitudinal measures. The sample for the current follow-up consisted of 1,044 subjects, of whom 79% were male and 73% were African American.[5] As described below, we obtained arrest history information for a longer follow-up period through 2008, giving us nearly 20 years of arrest information. The mean and median age of the sample was 29 when released at their baseline incarceration, while at the end of the arrest data (2008) the mean and median age was 43.

MEASURES

Dependent Variable

Arrest histories for each offender that covered the time period from the year of their release from their baseline imprisonment (early to mid-1990s) to 2008 were obtained from the Delaware Statistical Analysis Center, which records all arrests and imprisonments in the state of Delaware. These data were augmented by arrest data from the National Crime Information Center (NCIC) to capture arrests that occurred outside the state of Delaware.[6] All of these arrests were for new crimes and not for technical violations of parole. From these data sources, we knew if someone had been arrested during any given year and the date of the arrest. From the date of release from the baseline imprisonment until the end of 2008, we calculated if the offender had been re-arrested and the number of days from their baseline release date to the date of their first re-arrest (if there was more than one). Our dependent variable in subsequent analyses, then, is survival time or the number of days until re-arrest for each offender beginning with their release from the Delaware prison they were serving time for their baseline incarceration up to the end of 2008. Survival time is a continuous variable which when logged for our analyses has a normal distribution (see our discussion below on the analytic strategy).

Independent Variables

Approximately 6 months after release, each offender was interviewed by the original study researchers. We used data from this interview to measure two traditional "turning points" referred to by Laub and Sampson (2003; and "hooks for change" by Giordano et al., 2002). Employment was one turning point of interest that has been shown to be related to desistance from crime. One measure of employment was whether the person had worked in the 6-month period since being released from their baseline incarceration, which had a score ranging from 1 (*unemployed*) to 5 (*currently employed full-time*).[7] A second measure of employment, satisfaction with work, was a binary variable coded 1 for those respondents who self-reported either getting a "good job" during the 6-month post-release period or "any job they liked." Being married is the second turning point that has been shown to be related to desistance. A binary variable coded 1 was created for those who were married. To

capture relationship satisfaction whether in a marriage or not, a second binary variable was coded 1 if respondents reported an improvement in their relationship (either marriage or an intimate partner) during the 6-month post-release period.

While admittedly an imperfect match with the identity theory, we were able to construct some measures that reflect each member of our sample's identity and efforts at what we and Kiecolt (1994) would call intentional self-change.[8] Recall that these offenders all had substance abuse problems and were involved (except for the control group) in a substance abuse TC while incarcerated. We captured the process of identity change the following way. In the interview before they were released from prison, all respondents were asked to self-report if they considered themselves an addict. They were asked the same question again in the first follow-up period when they were in the community.[9] With these two items, we created a measure of identity change with three dummy variables: (a) they self-reported not being an addict at either time (never an addict), (b) they reported not being an addict at the first interview but reported being an addict at the second (new addict), and (c) they reported being an addict at the first interview but not at the second (reformed addict), and self-reporting an addict at both time periods (persistent addicts) was the reference category. A hypothesis from the identity theory would be that those whose identity changed from being an addict to not thinking of themselves as an addict (the reformed addicts) had an identity change and would have a longer survival time compared with the persistent addicts.

As these offenders all had a history of drug and/or alcohol use, we also created a measure of intentional self-change based on their seeking help for substance use during the immediate post-release period. This measure reflects each offender's behavioral effort to create a new, more prosocial life, and captures what Kiecolt (1994) referred to as "intentional self-change"—an agentic move toward a new self. A standardized scale of getting drug help was created from three separate items: (a) if the respondent had been in drug treatment during release, (b) the number of days they were in treatment, (c) if they sought any help from any source for their drug/alcohol problem. This is an additive index meant to capture any intentional activity on the part of the offender to get clean of drugs.

In addition to these key theoretical variables, we employed a number of control variables that included respondent's gender (male), race/ethnicity (White), prior arrests (the number of arrests from 1980 until their baseline incarceration), the person's age when released at the time of the baseline incarceration, if they derived any income from illegal activity in the post-release period, and an ordinal measure (ranging from 0 for no drug use to 6 for using the drug more than once a day) of the level of drug use since release for one's self-reported "drug of choice." As the original study from which we got the data was designed to assess the effect of a prison TC program on participants' behavior when released into the community, we constructed three dummy variables that capture respondents' random assignment to one of three drug treatment groups (Inciardi et al., 2004). One treatment group (key) was a prison-based TC total treatment environment, the second (crest) was a work release only therapeutic program housed in a post-prison work release center, and the third (key/crest) was a program that included both treatment types. Descriptive statistics for all variables are shown in Table 1.

ANALYTIC STRATEGY

We use survival time analysis to study the relationship between the covariates described above and the number of days respondent spent before their first re-arrest after release from

TABLE 1: Descriptive Statistics

Variable	M	SD	Minimum	Maximum
Days to arrest	876.02	1,259.97	2.00	6,753.00
Male	0.79	0.41	0.00	1.00
White	0.27	0.44	0.00	1.00
Illegal income	0.05	0.22	0.00	1.00
Prior arrests	1.79	3.67	0.00	30.00
Substance use	1.19	1.86	0.0	6.00
Age at release	29.62	6.93	17.00	54.00
No treatment	0.27	0.44	0.00	1.00
Treatment: Key	0.04	0.20	0.00	1.00
Treatment: Crest	0.52	0.50	0.00	1.00
Treatment: Key/crest	0.17	0.38	0.00	1.00
Never addict	0.12	0.32	0.00	1.00
Reformed addict	0.29	0.45	0.00	1.00
New addict	0.06	0.24	0.00	1.00
Persistent addict	0.53	0.48	0.00	1.00
Get drug help	0.00	1.00	−1.51	4.07
Married	0.08	0.27	0.00	1.00
Relationship better	0.10	0.29	0.00	1.00
Working	3.48	1.33	1.00	5.00
Job satisfaction	0.88	0.32	0.00	1.00

the baseline incarceration. Survival time in the present case is the number of days until an event (an arrest for a new crime after release from incarceration). In defense of our use of survival time to study desistance, we would note the long and productive history of the use of survival time and hazard rates (the probability of re-arrest at time t conditional on the fact that arrest has not yet occurred) in desistance research, as well as the close conceptual connection between desistance and recidivism (Brame, Bushway, & Paternoster, 2003; Bushway & Paternoster, 2012). More than 30 years ago, recidivism and desistance were complementary measures with recidivist criminal offenders being those who failed (re-arrested) after a certain period of time and desisters being those who did not fail. The use of this static approach to studying both recidivism and desistance has now been rejected by most criminologists, replaced with hazard rates of offending over time in recidivism research (Kurlychek, Bushway, & Brame, 2012) and trajectories of offending rates over time in desistance research (Nagin, 2005). However, it is a well-known fact in both statistics and quantitative criminology that hazard rates and trajectory models measure much the same thing, with hazard rate models measuring a change in the propensity to offend in the short term and trajectory models measuring a change in the propensity to offend in the long term. This point was precisely noted by Hagan and Palloni (1988):

> The expected number of criminal events during the age interval being examined is a unique function of these hazards. This expected number of criminal events is what Blumstein et al. are estimating when they calculate lambda (offending rate). So, lambda is summary of the combined hazards of criminal events of various orders over a period of time. (p. 97)

In sum, we can learn much about desistance by studying the short-term change in offending that is captured by survival and hazard rates (see also Brame et al., 2003; Horney,

Osgood, & Marshall, 1995) as has been done in recent research (Kurlychek et al., 2012; Uggen, 2000; Uggen & Kruttschnitt, 1998).

In our survival time analysis, the outcome is an event time (*T*)—the time until the first post-release arrest. The dependent variable is T_i, the number of days until the first post-release arrest (number of days survived arrest) for individual *i*. The survival function $S(t)$ is the fraction of persons who have not yet failed (been arrested) by time *t*. At time 0 or release, $S(0) = 1$ because no one has yet been observed to fail. As *T* moves through time, $S(t)$ will either decline or stay flat. Most recidivism research converges on the conclusion that $S(t)$ drops relatively rapidly at the beginning of the follow-up period and levels out as time continues to pass (Kurlychek, Brame, & Bushway, 2006, 2007; Kurlychek et al., 2012). This implies that the risk of failure is greatest shortly after release from prison and tends to decline thereafter. As *T* can theoretically go to infinity, standard survival models assume that $S(t)$ will eventually fall to 0. In other words, if followed for a long enough period of time, everyone will fail; in our case, all offenders will eventually be re-arrested at some point in time. This seems to be an untrue assumption for arrest recidivism (Kitchener, Schmidt, & Glaser, 1977; Kurlychek et al., 2012). Research suggests that long-term failure rates are usually significantly lower than 100% (Maltz, 1984; Schmidt & Witte, 1988).

We will also examine the feasibility of a type of survival model, a split-population or cure model, that relaxes the assumption that everyone will eventually fail by allowing for the possibility that there are actually two populations upon release: a population of those released who will get re-arrested at some point in time and a second group who will never get arrested (the "cured" or desisted). A split-population survival model would be consistent with the notion that desistance is instantaneous with a non-trivial group of offenders deciding to quit crime at release and who would not be re-arrested regardless of the follow-up period length. The split-population survival model would be consistent with a "strong" model of identity change for desistance, offenders instantly decide that they no longer want to be offenders and move from a non-zero to a zero level of propensity for crime. A non-split survival model would be consistent with the notion that while an identity change may be important for desistance to be initiated, time is important for desistance to occur and identity change needs to be accompanied by things such as conventional opportunities and prosocial relationships.

The remaining question is the distribution of survival times. We allow that the waiting time T_i is a random variable with some continuous distribution, and there are different models for survival time data that are distinguished by the choice of the probability for T_i: exponential, Weibull, or lognormal. These models vary in the assumptions that they make about the relationship between the risk of recidivism and the time elapsed since release from prison. We will examine each of these models to see which provides the best fit to our survival data. Finally, we introduce covariates in the model and allow for the possibility that recidivism risk is conditioned by covariates. A survival model is estimated rather than a more traditional logistic regression model with re-arrest/no re-arrest as the outcome variable primarily because the latter only considers whether recidivism has occurred (Maltz, 1984). That is, a logistic regression model assumes that any difference between those who get re-arrested quickly and those who get re-arrested much more slowly is uninformative. As suggested by others, we believe that differences in the survival time reflect differences in criminal propensity; survival time differences capture variation in the rate at which people offend—those who offend quickly are also offending at a higher rate (Bushway,

Thornberry, & Krohn, 2003; Hagan & Palloni, 1988; Kurlychek et al., 2012). Those who re-offend quickly (whose survival time is short) show little evidence of moving toward desistance from crime, while those who do not re-offend at all (instantaneous desistance) or who offend after a longer period of time following release from incarceration are more consistent with the idea of a gradual move or "glide path" to desistance (Kurlychek et al., 2012). Another advantage of the survival model over the logistic is that the survival model allows for right censoring, in this case right censoring occurred at the time of death. There were 10 persons who died before the end of the time period but had accumulated no arrests up to the time of their death. Rather than drop these cases, the right censoring of the survival model allowed them to contribute information to the likelihood function up to the time of death.

While there are many published empirical studies of desistance, many have used group-based semi-parametric trajectory models instead of survival modeling. There are important conceptual and empirical linkages between recidivism and desistance from crime, and hazard and trajectory models, as pointed out by Bushway, Brame, and Paternoster (2004; see also Brame et al., 2003): ". . . these two models are actually measuring the same concept, with hazard rate models focusing on short-term change in the propensity to offend and the trajectory models focusing on long-term change in the propensity to offend," with a similar point made by Hagan and Palloni (1988, p. 97). We can then conceive of a regular survival model as capturing the gradual process of desistance through a declining propensity of offending over time—what has been described as a "glide path" to eventual zero offending (Kurlychek et al., 2012).

RESULTS

We begin our presentation of the results by showing the cumulative survival curve for our sample of released offenders, which is displayed in Figure 1. The shape of the survival curve is similar to what is consistently found in the recidivism literature. There is a very steep decline in the survival curve immediately after release, indicating that the re-arrest rate is very high in the initial period following release from prison. Then, there is a turning point in the survival curve where the re-arrest rate flattens out until the end of the period. In fact, after 3 years post-release the survival rate is down to 20% (80% have been re-arrested at least once), and at 5 years it is 12% (88% re-arrested). At the end of the time period, after a little less than 20 years since their release, only 5% of the original sample has avoided re-arrest. The median time to re-arrest was 408 days or just over a year and a month.

These recidivism rates seem somewhat higher than what is usually found in the literature where it is consistently reported that two thirds of prison releases are re-arrested over a 3-year time period. The latter frequently cited figure comes from a Bureau of Justice Statistics (BJS) report on the recidivism rate of prisoners released from state prisons in 1994—about the same time these Delaware inmates were released (Langan & Levin, 2002).[10] The 3-year recidivism rate for a new arrest in that report was 67.5% for both in-state and out-of-state arrests with a re-arrest rate of 62% for violent offenders, 74% for property offenders, and 67% for drug offenders (Langan & Levin, 2002). These figures were updated in a later BJS study which reported a 68% re-arrest rate within 3 years of release for prisoners in 30 states released in 2005 (Durose, Cooper, & Snyder, 2014). The
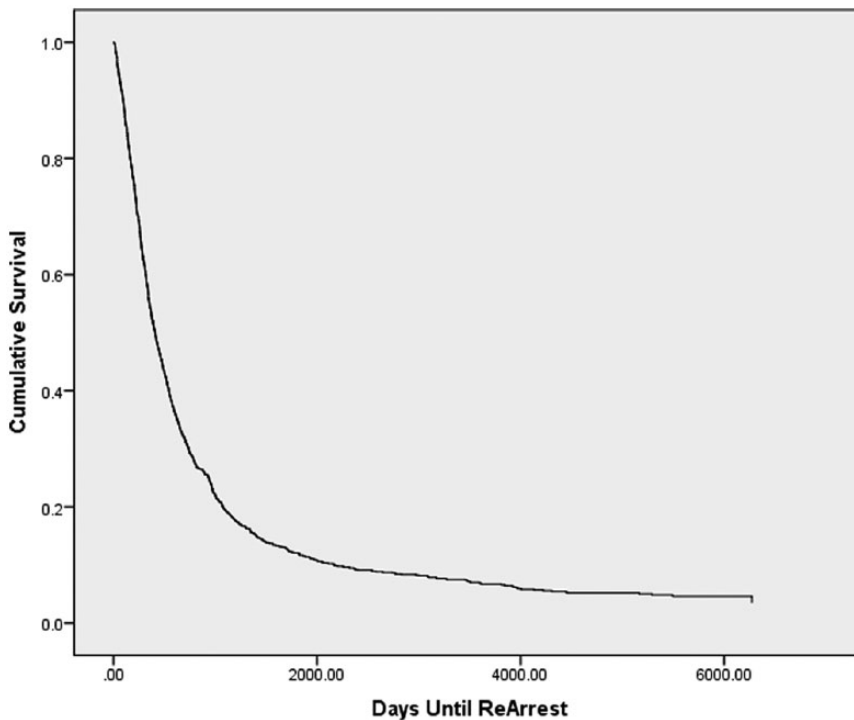
Figure 1:   Cumulative Survival Rate for Offenders

re-arrest figure when the prisoners were tracked over a 5-year period was nearly 80%, somewhat less than our 5-year re-arrest rate of 88%. In the BJS study, 82% of property offenders had been re-arrested within 5 years, 77% for those originally committed for a drug offense, and 71% for previous violent offenders (Durose et al., 2014). Our re-arrest rate of 80% over 3 years is also consistent with a study of Delaware prisoners released in 2008 and 2009 where 77% were reported to be re-arrested by the end of 3 years (Delaware Criminal Justice Council, 2014).

While our recidivism rate at 5 years is consistent with previous research, the fact that 95% of all released offenders were re-arrested at least once during the 20-year period is striking, even with the knowledge that these offenders were serious offenders with substance abuse problems. It illuminates the reality already understood by those who work in clinical rehabilitation settings that drug and alcohol abusing offenders are particularly vulnerable to long-term patterns of relapse and re-offending (Anglin, Brown, Dembo, & Leukelfeld, 2009). This belies the notion of "instantaneous desistance" for many drug-involved offenders leaving prison today. The survivor curve shown in Figure 1 does indicate that while nearly all of these offenders were eventually re-arrested, there was great variability in the timing of their failure. The question to address now is "what is the relationship between known theoretical covariates of desistance and the length of survival time?" In particular, is survival time greater for those with a more favorable personal identity at release and who make active steps to get help with their substance abuse, that is, they make "agentic moves" (Giordano et al., 2007) to change their life.

TABLE 2: Parametric Survival Models Fit Benchmarks

Statistical Model	Number of Parameters	Log (L)	BIC	AIC
Exponential	1	−1,898.49	−1,901.96	3,799.0
Weibull	2	−1,838.42	−1,845.37	3,680.8
Lognormal	2	−1,736.53	−1,771.61	3,477.1
Split-exponential	2	−1,764.66	−1,771.61	3,533.3
Split-Weibull	3	−1,762.18	−1,772.62	3,530.4
Split-lognormal	3	−1,721.68	−1,732.11	3,449.4

Note. BIC = Bayesian Information Criterion; AIC = Akaike Information Criterion.

Table 2 reports the results of a series of different survival models based on different distributions of the survival rates, along with goodness-of-fit indices. Our purpose here is to identify the probability distribution that best describes these observed survival times before estimating the appropriate multivariate survival model. The regular exponential survival time model is the simplest model with only one parameter estimated. The exponential model assumes that the survival rate is constant over time and the exponential is the only distribution that presumes a constant survival rate. Figure 1 clearly does not show a constant survival rate; it first drops rapidly, and then flattens out, so we would expect the exponential model to provide a poor fit to the data compared with other models, and this is confirmed. The predicted median number of days to re-arrest estimated from the exponential model is 639 days with a 95% confidence interval of 614 days to 664 days, far off from the observed median of 408 days. The Weibull model is a generalization of the exponential model with shape parameter k, and the Weibull reduces to the exponential when $k = 1$. Depending upon the shape parameter, the Weibull survival function either monotonically decreases or monotonically increases over time. The two model fit statistics, the Bayesian Information Criterion (BIC) and the Akaike Information Criterion (AIC),[11] for the Weibull model are superior to the exponential, further indicating that the survival rate is not constant, but it does not provide as good a fit to the data as our next model, the lognormal model. The Weibull model does a better job than the exponential at estimating the median re-arrest time at 505 days until re-arrest, but the 95% confidence interval (455 days-555 days) still does not contain the observed median of 408 days. The regular lognormal survival model like the Weibull model is also a two-parameter model, but unlike the Weibull it relaxes the assumption of monotonicity, allowing for a turning point in the survival over time. This is consistent with Figure 1 which shows a sharply dropping survival rate until about the fourth year after release at which point it flattens into a glide path. The lognormal model assumes that the log of the waiting time distribution is normal, and Figure 2 indicates that the log-survival time for these data looks very normal. According to the BIC and AIC statistics, the lognormal is the best fitting of our non-split survival models, and while it slightly over predicts the median survival days (median = 432), its 95% confidence interval (398 days-466 days) does contain the observed median (408 days). The good fit provided by the lognormal survival model is not surprising as it has consistently shown to provide the best fit to recidivism rates (DeJong, 1997; Kurlychek et al., 2012; Schmidt & Witte, 1980, 1984).

In the last three models of Table 2, we estimate exponential, Weibull, and lognormal survival models that include a splitting parameter. Recall that split-population survival models do not make the assumption that all individuals will eventually be arrested if only
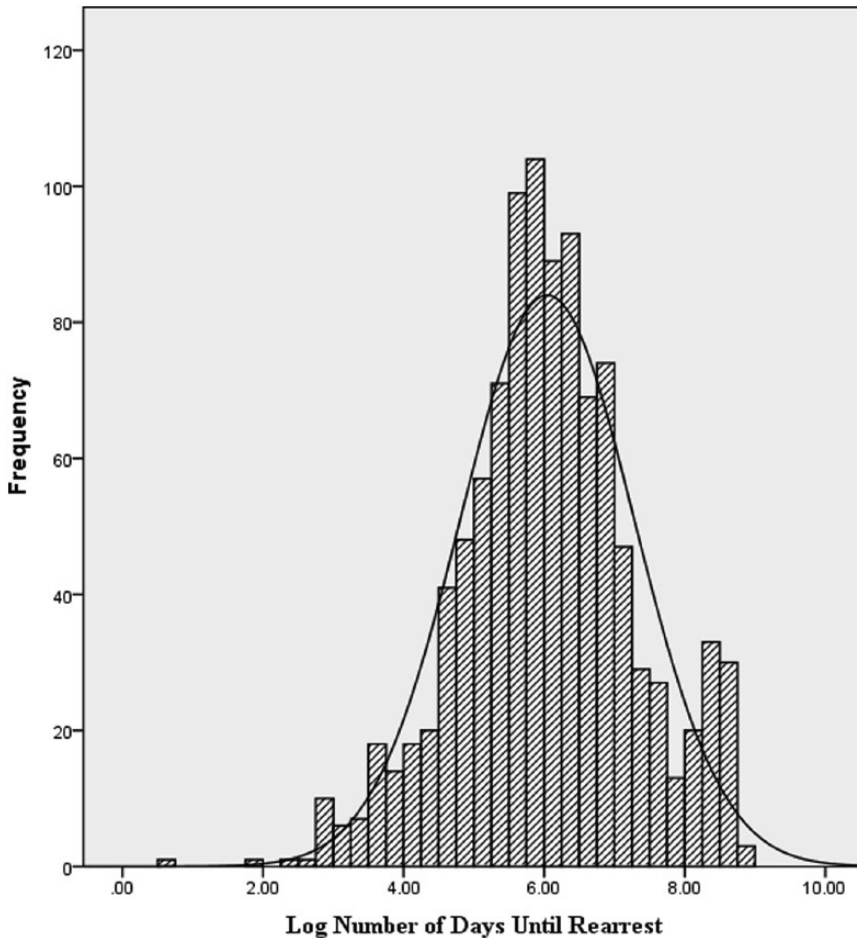
Figure 2:   Distribution of the Log of the Number of Days Until Re-Arrest

they are watched over a long enough time period. In the context of our study, the split-population survival model allows for the existence of a group of offenders who spontane-ously desist and would accumulate no more arrests after release. The split-exponential and split-Weibull models, although providing a better fit than their non-split versions according to the BIC and AIC, fit the data as well as the two-parameter lognormal model (the split-exponential model is also a two-parameter model).[12] This should not be too surprising as the proportion of the individuals in this sample of serious substance abusing offenders who do not get arrested over a nearly 20-year time period is very small (only 5%). The split-lognor-mal model does, however, fit the data a little better than the regular lognormal model, and it comes closest to estimating the true value of the median time until re-arrest at 387 days (the median is 408 days) with a slightly smaller 95% confidence interval at 356 days to 417 days. The slightly better fit provided by the split-lognormal model is purchased at the price of one more parameter to estimate. In spite of the somewhat better fit by the split model, we opt to rely on a survival model with covariates using the regular lognormal model primarily because it is more parsimonious and provides almost as good a fit as the split-lognormal.

TABLE 3:   Estimates of Effects of Covariates on Survival Time Until Re-Arrest (Lognormal Models)

Variable	Model 1	Model 2	Model 3
Male	−.232*	−.224*	−.255*
White	−.066	−.095	−.044
Illegal income	−.031	−.003	.004
Prior arrests	−.014*	−.011*	−.014*
Substance use	−.207***	−.197***	−.189***
Age at release	.028***	.036***	.037***
Treatment: Key[a]	.424	.134	.215
Treatment: Crest	−.146	−.138*	−.363*
Treatment: Key/crest	.052	−.186	−.170
Never addict[b]	.131		.182
Reformed addict	.326***		.326***
New addict	.226		.267
Get drug help		.196**	.201**
Married	.093	.086	.113
Relationship better	.218*	.223*	.190*
Working	.006	.007	.006
Job satisfaction	.189*	.156*	.175*
Constant	5.141	5.451	5.241
σ	1.207	1.208	1.200
Log likelihood	−1,254.280	−1,255.550	−1,250.000

[a]No treatment is the reference category. [b]Persistent addict is the reference category.
*p < .05. **p < .01. ***p < .001.

Moreover, the proportion of those who were never re-arrested is so small as to render the split-population lognormal model practically unnecessary.

Table 3 reports the results of two survival models when we add covariates. Model 1 contains all covariates, while the work variable was dropped in Model 2 because 13% of the cases for that variable were missing. Model 1 shows that males had a significantly shorter survival time than did females, as did those who had more prior arrests, those who derived some of their post-release income from illegal activities, and those who reported using drugs more frequently after being released from prison. All of these findings are consistent with expectations with the exception of the treatment programs where none of the three treatment groups had a significantly longer survival time than the control group. As would be expected from an age effect, those who were older when released from their baseline incarceration had a longer time until re-arrest than those who were younger when released.

Consistent with the notions from the Paternoster/Bushway ITD, the measure of having a good identity was positively and significantly related to survival time, as was the offender's active involvement during their post-release period in getting help for a drug or alcohol problem. Although the identity measure does not capture the identity of an offender versus non-offender, it does reflect a positive view about the self in the period immediately following release. Our finding that a "good" self-identity is related to the process of desistance is consistent with identity theories of desistance like Paternoster/Bushway and Maruna, and replicates with a sample of serious offenders the finding by Rocque et al. (2014) who used a more conventional and younger sample. As described in the ITD, however, a conventional or even a positive identity is not sufficient for desistance to occur, and that there must be

specific actions taken in response to that desired prosocial self. Given the drug history of these offenders, getting help for one's drug issues seems to be just such a positive intentional action that flows from a favorable view of self, and those who sought help had significantly longer survival times. Clearly, this does not confirm the hypotheses from the ITD, but it is consistent with the theory and it does seem to hold promise, in that it shows that those who engage in intentional self-improvement fare have a lower risk of re-arrest than those who do not. Contrary to Giordano et al.'s (2007) theory of cognitive and emotional transformations, we found no evidence that either angry or depressive feelings at release were related to survival time. While we acknowledge that the items used to measure an angry and depressive self reflect the current trait more than an identity, it should be recalled that our measures are virtually identical to those used by Giordano et al. (2007) in their study of offending Ohio youth. It is possible that our null findings reflect the age difference between the two samples, but a definitive answer about the role of emotional selves in the desistance process awaits additional research.

With respect to the role of what Sampson and Laub (1993; Laub & Sampson, 2003) have referred to as turning points, there is some support for the view that some types of prosocial adult bonds matter for survival times. For example, while we found no evidence that being married was related to survival time, this must be balanced by the fact that only 8% of our offenders were married during their initial release period. Given the extensive criminal history of these offenders (numerous prior arrests and incarcerations) and their history of substance abuse, it is not surprising that they were not desirable marriage partners. Furthermore, Sampson and Laub have always expressed the position that it is the quality of the marriage that matters, and in partial support of this view, we found that those who self-reported that their intimate relationships were getting better since being released from prison did have significantly longer survival times. Similarly, while having a full- or part-time job (working) was unrelated to time until re-arrest, those who reported having at least one job since release that they "liked" or a "good job" had significantly longer survival times. It would appear that although our sample of adult offenders did not enjoy the kinds of relatively high-paying manufacturing jobs that the Glueck boys in Sampson and Laub's work were more likely to get (our men and women were most likely to be employed in the secondary labor market or temporary labor pools), having some type of positive work experience was related to a longer time until re-arrest as was a relationship with an intimate that was reported to be "getting better." Finally, in Model 2 reported in Table 3, we dropped the work variable because it was not related to survival time and because it had the largest proportion of missing data of any variable (13%) and re-estimated the model. The results presented above barely changed in terms of both the sign and magnitude of the parameter estimates.

DISCUSSION

Theoretical work in desistance from crime was greatly advanced by the important work of Sampson and Laub (1993; Laub & Sampson, 2003) and their idea that prosocial "turning points" such as jobs and marriages are critical in the desistance process. Subsequent to this, Giordano and colleagues (Giordano et al., 2002; Giordano et al., 2007) made an equally important contribution by highlighting the importance of the "upfront" work that offenders must first engage in for turning points ("hooks" in their parlance) to be effective in bringing about desistance. Although both theories have provided vital insight into how desistance

occurs, there are critical unresolved issues in both theories, issues that can better be resolved within a new theoretical framework for desistance. The identity theory of Paternoster and Bushway (2009) is a further extension of this line of desistance theories, not so much contradicting them, but elaborating on them and brining into prominence the role of one's personal identity in the desistance process. They have argued that (a) offenders must first change their self-identity (who they are and want to be) before prosocial opportunities arrive and can successfully be taken advantage of with the implication that offenders are active participants in their own desistance by deciding to quit crime, and then concretely acting on that decision. The identity theory also contends that desisters are active participants in getting themselves out of crime by making a decision to quit and forming an intention to change their life which involves a project of self-improvement.

While there has been a modest amount of qualitative research regarding identity and desistance from crime, there have been few quantitative studies to date. We hoped to make a contribution to the growing identity and criminal desistance literature by examining the survival rate of a sample of serious, drug-involved offenders released from Delaware prisons in the early 1990s with follow-up multistate arrest records until 2008. We consider desistance from crime to be a process rather than an event, and as others before us have noted (Bushway, Piquero, Broidy, Cauffman, & Mazerolle, 2001; Bushway et al., 2003; Hagan & Palloni, 1988; Kurlychek et al., 2012), examining survival rates over time is a useful way to consider desistance as a glide path to termination. Survival rates in fact provide a good window into the short-term change in offending patterns and how they relate to both one's identity and intentional behavior directed at self-change.

Our findings with respect to the best-fitting survival model highlight some facts about desistance and corroborate previous research. The simplest survival model, the exponential, assumes that the survival rate is constant over time. As have others before us, we rejected the exponential model—survival rates clearly vary over time. The Weibull model rejects the constant survival rate assumption in favor of an assumption that it is monotonically increasing or decreasing over time. This model too provided a very poor fit to the data. The best fitting of our models was clearly the lognormal model. This model, which has provided a good fit in other recidivism studies, relaxes the Weibull's assumption of monotonicity and allows for a turning point in the survival rate over time—increasing up to a point then decreasing. This model mapped closely to the survival times found here where there was an increase in survival up to about the fourth year after release from prison, then a decline to a long, slowly flattening "gliding path" to termination. The long glide path indicates offenders who, though eventually getting re-arrested, are spending more and more time free from crime. We also estimated split-population versions of these models which allow for a splitting parameter. The substantive meaning of the splitting parameter is that the model assumes that there is a group of respondents who do not fail (are "cured"), which in our case implies that there is instantaneous desistance. Only the split-lognormal model evidenced a good fit to the data (not surprising as 95% of the respondents were arrested at some point over the time period studied), but we opted for the simpler (one less parameter to estimate) non-split-lognormal as our best-fitting model. As the lognormal survival model implies that there is heterogeneity in the survival rates over time, we next estimated multivariate survival models to determine what factors contribute to shorter or longer periods of being arrest free after prison.

Estimating a multivariate lognormal survival model, we found that those who changed their self-reported identity from thinking of themselves as a drug addict to one who was not had longer survival times compared with those who continued to have a self-identity as an

addict. We readily acknowledge that we have to directly address the issue that our measure of identity change from these data does not exactly fit the movement from one who is a criminal offender to one who has a more conventional identity as originally proposed by Paternoster and Bushway (2009). Their identity theory does, however, imply that the process of moving from the spoiled identity (Biernacki, 1986; Goffman, 1963) of a criminal offender with drug/alcohol problems to a conventional identity is the initial step in breaking from crime. From this, we hypothesized that those who changed their view of themselves from that of an addict (spoiled identity) to a non-addict (conventional identity) would be more likely to begin the desistance process as reflected in longer survival times. This is evidenced too in the fact that the reformed addicts (those who once said that they were addicts but said that they were non-addicts in the follow-up) were the ones most likely to seek help for their substance abuse problems (intentional self-change). In this regard, our derivation of the identity hypothesis and findings is consistent with McIntosh and McKeganey (2000, 2001), who found that the desire to change one's spoiled identity as a drug abuser by fashioning a new positive identity was strongly related to success in getting off drugs and alcohol.

In addition, there may be some contention with our deduction from the identity theory that the movement from thinking of yourself as an addict to a non-addict is a sign of health and a desire to change. A reasonable argument could be offered that one who once self-reported being an addict but who now says that they are not might actually be "in denial" and not ready to change, while one who continues to recognize that they will always be an addict (persistent addicts) or those who once denied that they were addicts but now self-report that they are (new addicts) are actually in a healthier position to change.[13] These are reasonable competing hypotheses that could be put to test under a different theoretical scheme. Based on our understanding of the logic of Paternoster and Bushway's identity theory, we predicted that the reformed addicts (former addicts now reporting that they are not addicts) have experienced the kind of identity change described by the theory and are the ones most ready to begin the process of changing. Not only did we find that the reformed addicts had longer survival times, consistent with our predictions, but they also were more involved in post-released self-help efforts in getting help with their substance abuse problems (something that those in denial of their addiction would not likely be ready to do). While we have conceptually extended the identity theory, our findings also give additional credence to it, particularly as the data indicate that identity is not an intervening process linking turning points such as jobs and relationships to subsequent desistance, but that turning points like these mediate some of the effects of identity change on survival times. Furthermore, they are consistent with other research both quantitative (LeBel et al., 2008; Na et al., 2015; Rocque et al., 2014) and qualitative (Breen, 2014; Hundleby et al., 2007; Maruna, 2001; Opsal, 2012; Sharpe, 2015; Stevens, 2012), which points to the importance of identity and other subjective individual factors in initiating desistance from crime.

In sum, our findings and the earlier discussion of the three theoretical models would lead us to conclude that there is important common ground among them, and that all bring important insights into the desistance process. While some turning points such as affectively positive jobs and intimate relationships may be important, so too is a positive view of the self and a purposeful desire to change one's life through self-improvement or intentional self-change. These findings are consistent with theories of desistance that place identity at front and center of the desistance process such as Maruna's (2001) and Paternoster and Bushway's (2009). In our view, an additional appealing feature of identity theories is that

they give serious weight to the importance of intentional efforts at self-improvement by criminal offenders, and hence to agency. Human agency may matter a great deal for the desistance process, in that it is instrumental in launching former criminal offenders onto a different behavioral and life trajectory.

While human agency has been given prominence in recent desistance theories like Laub and Sampson's and Giordano and colleagues', we agree with Matsueda's (2006) observation that agency has not been well integrated into these theories, and that "[w]hat is needed is a theory of agency, consistent with the theory of crime and desistance" (p. 97). The ITD places human agency at front and center of the theory by asserting that desistance is brought about by the decisions and actions of offenders. The understanding of desistance in the identity theory is very unlike Laub and Sampson's "desistance by default" where offenders are portrayed as passive and not consciously involved in their desistance actions because they simply react to the situations in which they find themselves in. In the ITD, the role of human decision making is central, as previous offenders, after becoming dissatisfied with their current life and identity, examine the alternatives in front of them, decide to make changes, and form a deliberate intention to change who they are and what activities they want to be involved in. A key notion in the ITD is that behavior is intentional, and intentional behavior is something we purposely do, and so cannot ever be accidental, nor something that just happens to us. Agents make decisions they are fully conscious of, create specific projects to see those decisions through, and monitor their actions over time until they are either successful, or another intention has taken its place. Rather than passively reacting to diminished opportunities to commit crimes as a result of altered routine activities (Laub & Sampson, 2003), or reacting to the changed social definitions and emotional meanings provided by intimate others (Giordano et al., 2007), ITD's assumption of intentional decision-making agents is fully aligned with rational choice theory—offenders are active participants in their desistance by engaging in conscious deliberation over alternatives, and intentionally choosing to desist from crime. In addition to providing what we would argue is a better description of the desistance process by providing a mechanism by which "a subjective reconstruction of the self" occurs (Cohler, 1982; Laub & Sampson, 2003), the ITD, anchored as it is in rational choice theory (Paternoster & Bushway, 2009), provides a theory of crime and crime desistance that is fully reflective of human agency.

Although we like to think we have contributed to the desistance literature with this article, we are aware of its limitations. We have acknowledged that perhaps a more direct and faithful test of the identity theory would be to have repeated measures of the "feared" and "positive possible" selves, as well as additional measures of offenders' concrete self-help projects besides getting drug treatment (other changes in preferences, changes in residence or social networks). We also conceded that the measure of intimate partners and changes in intimate relationships required some untested assumptions. It would have been helpful if the data set also contained measures of self-reported offending over a long period to conduct important sensitivity tests with respect to our use of the timing of official arrests. Finally, we would have liked a more robust collection of other control variables, particularly with respect to the offenders' availability of forms of personal and social capital (legal income, work opportunities, family members' work connections, the amount of debt or child support payments, financial support from family and friends, etc.) to better isolate the effect of identity change from the availability of resources the offender could draw on after

release from prison as well as to get a more complete picture of the resources that desisting offenders can call on (Schinkel, 2015). In essence, while the research over the past 5 years or so has begun to support the notion that one's identity is instrumental in desisting crime and that desistance is preceded by offenders' decisions and intentions, there is a great deal more research, conceptualizing, and theorizing to do. In the process of better understanding desistance from crime, however, small and flawed efforts should not be discarded in favor of the "ultimate study." As English physicist Oliver Heaviside asked, "Shall I refuse my dinner because I do not fully understand the process of digestion?"

NOTES

1. With respect to participation in hooks preceding identity transformation, they noted (Giordano et al., 2002) that "in some instances, the presence of the environmental stimulus is integral to the development of the replacement self (e.g., one's identity as a traditional wife requires a husband—ideally a correspondingly respectable one)" (p. 1002). This view about the temporal order between conventional hooks and identity change is also consistent with the causal diagram of the theory (Giordano et al., 2002, Figure 1) where identity transformation is a consequence of involvement in conventional roles such as parent, spouse, and worker.

2. In other words, the identity change in Paternoster/Bushway's theory provides an explanation as to why an offender would in Giordano et al.'s theory be open to change and more receptive to prosocial influences, and also explains the arrival of prosocial turning points in the Sampson/Laub theory.

3. Of the 1,250 offenders who were originally randomly assigned to one of the treatment groups or the control (no treatment) condition, 48 were Hispanic and were not included in the analyses. The remaining offenders ($n = 158$) had either died before the first follow-up period or could not be found in the two arrest data bases used in the study.

4. As these offenders could have been imprisoned both before and after this prison term, we refer to this as the baseline incarceration.

5. Because of their small number, Hispanic offenders were excluded from our analysis which reduced the sample size from 1,250 to 1,044.

6. The value of multistate searches for arrest data is revealed by the fact that there were on average two offenses per person that occurred in a state other than Delaware.

7. We also looked at the number of monthly hours respondent had worked since release but this variable was unrelated at the bivariate level to the number of days to re-arrest.

8. Ideally, we would like to have measures of criminal and non-criminal identity or the extent to which persons' think of themselves as an offender. Unfortunately, the original researchers did not collect these data. We do, however, have measures of a positive identity, well aware that it is possible for one with a criminal identity to also have a favorable self-image.

9. We used measures from only the first two waves of data to construct our measure of identity change for the purpose of better controlling for temporal order. In this way, we can examine the relationship between identity change in the beginning period of release from prison and survival time over the subsequent periods. Had we extended the time period of identity change further into the longitudinal time period, we would have instances of re-arrest before our measure of identity change.

10. The data consisted of 272,111 prisoners released from 15 states, one of which was Delaware. There were only 659 total Delaware releases in the Bureau of Justice Statistics (BJS) sample.

11. Readable discussions of the BIC and AIC can be found in Wasserman (2000) and Posada and Buckley (2004).

12. The split-exponential model still over predicts the median days until re-arrest, with an estimated value of 456 days and a 95% confidence interval that does not contain the observed median.

13. We thank one of our reviewers for pointing this possibility out to us and urging us to address the issue.

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