SORRY, THIS BUS IS NOT IN SERVICE: PUBLIC TRANSPORTATION ACCESSIBILITY AS A SOURCE OF RECIDIVISM RISK IN RURAL AREAS

By

Alison R. Colby

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ABSTRACT

SORRY, THIS BUS IS NOT IN SERVICE: PUBLIC TRANSPORTATION ACCESSIBILITY AS A SOURCE OF RECIDIVISM RISK IN RURAL AREAS

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While criminologists have successfully identified some risks associated with recidivism, the literature has largely been from an urban perspective. The current study aims to address this gap by examining probabilities for recidivism among offenders returning to rural counties. One challenge to prisoner reentry that remains understudied is transportation. Therefore, a further contribution of this study is the recognition of transportation as an obstacle to reentry and in turn, a source of risk for recidivism, especially among rural offenders with little access to public transportation services. Additionally, the current study examines for differences between two types of recidivism: reconviction and technical violation. Utilizing a dataset of 3,296 men released from prison in 1998, this data was combined with new dataset created specifically to capture different measures of rurality at the county level. Results indicate that when compared to offenders returning to urban counties, offenders returning to rural counties are more likely to recidivate, and more quickly, as these individuals experienced shortened times to failure. Furthermore, results indicate large variances in probabilities for recidivism and estimation of time to failure between offenders who fail by reconviction and those who fail by technical violation, warranting further analysis. Finally, access to transportation proved statistically significant across some models, but results were inconsistent for causal inference.

This work is dedicated to my mother, Catherine, as well as my partner, Jason. Thank you very much for the love, patience, and support you each constantly bestow upon me. I would not be the person I am today without either of you, and I would not have been able to meet this accomplishment without you both by my side.

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Introduction

Over the last three decades, U.S. prison populations have grown at an unprecedented rate (Garland, Wodahl, & Mayfield, 2011). In 1980, for every 100,000 people, only 140 were incarcerated (Lynch &Sabol, 2001). By 2011, this rate increased to 492 per 100,000 (Carson &Sabol, 2012). Other estimates have gauged that 2.4 million, or 1 in 100 adults, are currently serving time in prison or jail (Pew Center on the States, 2008).

An increase in the number of offenders behind bars thus translates to an increase in the number of offenders that are released, as roughly 95 percent of all inmates eventually return to their communities, and usually within three years (Hughes, Wilson, & Beck, 2001). For instance, during 1980 approximately 170,000 offenders were released from prison (Lynch &Sabol, 2001) but by 2008, this number more than quadrupled to nearly 735,000 (Carson &Sabol, 2012). Roughly 2,000 inmates are released daily in the United States, which now exceeds predicated estimates of 1,600 inmates per day (Petersilia, 2001; Travis & Lawrence, 2002; Travis & Petersilia, 2001).

Upon their return, offenders can directly affect the public safety of their communities, as well as social, economic and public health institutions (Lynch &Sabol, 2001; Petersilia, 2001; Travis et al., 2001). However, the process of reentry can also directly affect the offender as they face numerous obstacles that can further increase their risk for recidivism, or the likelihood of being returned to prison. And while the literature on prisoner reentry and recidivism has also grown rapidly over the last thirty years, it has largely been from an urban perspective (Osgood & Chambers, 2000; Wodahl, 2006) examining large metropolitan cities such as Baltimore (Taylor, 1997; Visher et al., 2004), Chicago (La Vigne, Fisher, & Castro, 2004; Sampson et al., 1997; Shaw & McKay, 1942), Boston (Brooks et al., 2005), Seattle (Miethe & McDowell, 1993), and

other major metropolitan areas (Nelson, Deess, & Allen, 1999; O'Brien, 2001; Richie, 2001; Solomon, Gouvis, &Waul, 2001). However, similar to those returning to densely populated urban cities, offenders returning to small towns or rural areas affect these communities (Wodahl, 2006). Therefore, it is important to acknowledge and empirically determine whether these effects are significant or not. By juxtaposing our understanding of the environments in which rural and urban crime occur, it may be possible to improve our general understanding of crime (Weisheit & Donnermeyer, 2000).

Although there have been a handful of studies specifically examining crime in rural areas (Freudenburg& Jones, 1991; Jobes, 1999; O'Connor & Gray, 1989; Petee & Kowalski, 1993; Wilkinson, 1984; Wilkinson et al., 1982, 1984), some continue to argue that there has not been enough focus on the rural perspective, especially when it comes to prisoner reentry in these particular environments (Bottoms, 1994; Weisheit & Donnermeyer, 2000; Wodahl, 2006). Addressing some of these scholarship deficiencies, this study examines paroled offenders and determines if there is variation in recidivism outcomes based on whether parolees returned to an urban or rural environment.

One obstacle to prisoner reentry (which is also understudied) is transportation and access to it (Garland, Wodahl, & Mayfield, 2011). Though some offenders may have their own personal vehicle or other reliable forms of private transportation, more often than not the recently released rely on others for travel (Garland, Wodahl, & Mayfield, 2011). Since transportation systems form the basis by which economic development can occur, as well as the means by which society interacts, an ineffective transport system can limit economic and social opportunities (Murray et al., 1998). However, simply having an effective transportation system may not be enough. For example, in large cities, mass public transportation outlets are often available to all at an

affordable price making it relatively easy to get from "point A" to "point B," but previous studies have pointed out that these offenders (and especially women) have found transportation to be an obstacle to their reentry experience (Hattery& Smith, Richie, 2001; Scroggins &Malley, 2010). If urban offenders are reporting problems with transportation, it is expected that rural offenders, especially those dependent upon public transportation, will experience greater challenges to reentry as mass public transit systems are limited in these areas (Gatersleben&Uzzell, 2007).

Expanding upon an earlier analysis conducted by Huebner and Berg (2011), this study aims to discover if varying levels of accessibility to public transportation affect the probability of recidivism and if so, whether these effects are more heavily concentrated across rural environments or urban ones. If a relationship is found, this analysis will not only be an innovative addition to the study of prisoner reentry and recidivism, but also to ecological studies of crime. Furthermore, differences in the type of recidivism are parsed out in this study and include separate analyses based on if the offender failed on a reconviction or if they failed on a technical violation, providing more detail to the literature. First, this study provides a review of the literature discussing what is generally known thus far on prisoner reentry and recidivism, how these generalities differ between urban and rural environments, and the various demographic, legal, and environmental covariates that are influential to the risk of recidivism. Notably in this review, transportation is recognized as a challenge to prisoner reentry, and therefore a potential source of recidivism risk. The author is unaware of other quantitative studies examining public transportation and recidivism risk.

Social disorganization theory (Shaw & McKay, 1942) serves as theoretical justification for explaining recidivism among rural offenders, despite it being traditionally applied to large, urban metropolitan cities. Since this study is more concerned with how certain *places* affect

crime and the potential risks for recidivism, an ecological theory of crime is an appropriate foundation. Furthermore, there has been adequate scholarly support for applying the principle of social disorganization to rural communities (Barnett & Mencken, 2002; Bouffard & Muftić, 2006; Freudenburg& Jones, 1991; Huggins, 2009; Jobes, 1999; Lee et al., 2003; O'Connor & Gray, 1989; Osgood & Chambers, 2000; Petee & Kowalski, 1993; Reisig &Cancino, 2004; Rephann, 1999; Spano& Nagy, 2005; Wells & Weisheit, 2004).

The purpose of study will then be discussed, including the statement of research questions and hypotheses. Subsequently, a detailed outline of the data and methodology used is presented, including information on the research site and descriptive statistics of the study sample. The last sections interpret and report the statistical results of the study and relate its findings. Finally, strengths and limitations of the study will be acknowledged and discussed, and recommendations for future research are suggested.

Literature Review

Prisoner Reentry and Recidivism

Though the number of prisoners under state and federal jurisdiction declined by 0.9 percent from 2010 to 2011, roughly 1,600,000 individuals currently remain incarcerated in U.S. prisons (Carson &Sabol, 2012). As a majority of inmates eventually return to their community, a total of 840,676 adults were reported to be under some form of state or federal parole supervision in 2010 (Glaze &Bonczar, 2011) and the failure rate is high: nearly two-thirds will be rearrested and sent back to prison in three years time (Austin, 2001). In a criminal justice context, recidivism can be defined as re-involvement of an individual to criminal behavior after they have been convicted of a prior offense, sentenced and (presumably) corrected (Maltz, 1994).

Recidivism "results from the concatenation of failures" (Maltz, 1994, p. 1) and occurs frequently. Approximately 40 percent of all prison admissions are parole violations that fall into the following two categories: offenders who are being returned for technical violations and those who have been convicted of a new crime and will now serve an additional sentence (Austin, 2001). Technical violations can occur for many reasons: failing drug or alcohol tests, failing to report to the parole officer, not notifying the parole officer of an address or employment change, failing to follow a treatment plan, or consorting with known felons (Hughes, Wilson, & Beck, 2001). In other words, technical violations are the failure to abide by the rules and conditions of supervisory parole and do not necessarily have to be illegal or criminal acts. Traditionally, the general public and members of state and federal parole boards seemed to be less tolerant of failure in the past, sending parolees back to prison on more technical violations for an undetermined length of time (Petersilia, 2001; Travis & Lawrence, 2002). For instance, the

number of parolees returned for technical violations increased from 32 to 49 percent between 1985 and 2001 (Blumstein & Beck, 2005).

Since the 2008 economic recession, however, states have been more concerned how to maintain overcrowded correctional facilities on a dwindling budget. While the prison population did decrease in 27 states between 2008 and 2009, it continued to grow in 23 others and the federal prison population increased by nearly 7 percent (Gottschalk, 2010). Facing a $24 billion budge shortfall in 2009, the state of California was forced to release 16,000 prisoners back to their communities. With some states granting nonviolent offenders early release, this leaves even more adults under some form of correctional supervision, and therefore, at risk for recidivating. Notably, Gottschalk (2010) argues that economic justification ignores the fact that successful reentry and the decarceration of offenders will cost money as these individuals need significant educational, vocational, housing, health, and economic support once released. These needs and services, and the process of trying to obtain them, can also influence the risk for recidivism.

The ability to predict future criminal behavior is a central part of the criminal justice system. From it stems community safety, prevention, treatment, ethics, and justice (Andrews &Bonta, (1994) 2003, pg. 225). If predicting future criminal behavior is one possibility, predicting future risks of recidivism is another. Developed by Andrews and Bonta (1994, 2003), the Level of Service Inventory-Revised (LSI-R) is a theoretically based assessment tool which samples 54 risk and need items that have been found to be associated with criminal conduct. Some of the items included are employment history, housing, criminal history, drug use and social relationships.

There is adequate support for LSR-I scores being able to predict recidivism within different types of offender populations, as well as different environmental settings (Cumberland

& Boyle, 1997; Lowenkamp, Holsinger, &Latessa, 2001; O'Keefe, Klebe, &Hromas, 1998; Raynor et al., 2000). Others have tested the abilities of the LSR-I and concluded it to be just as good, if not better, than other risk assessment instruments used to predict recidivism (Gendreau et al., 1996; Kroner & Mills, 2001; Loza&Loza-Fanous, 2001; Motiuk, Bonta, & Andrews, 1986; Raynor et al., 2000). For the purposes of this study, previously identified risk and need items have been included as independent variable characteristics and will be discussed in further detail.

Demographic Characteristics

One of the leading predictors of desistance from crime is age of the offender (Bushway et al., 2001; Gottfredson, 1990; Sampson &Laub, 1993). It is traditionally agreed upon that as the age of the offender increases, the probability of recidivism decreases. For example, when examining recidivism rates nationwide, Langan and Levin (2002) found that the younger the prisoner when released, the higher the rate of recidivism: 80 percent (82.1%) of offenders under the age of 18 were rearrested within three years, compared to 45.3 percent of those who were 45 years of age and older. Huebner and Berg (2011) discovered that young men, especially minorities, recidivated more quickly and were least likely to desist from crime. Also supporting the age-crime curve, similar research has found older offenders less likely to recidivate following their release from prison (Sampson &Laub, 1993; Shover& Thompson, 1992). Desistance from crime, however, is not "merely a function of an individual's chronological age" (Loeber& Le Blanc, 1990, p. 452). Many other demographic factors and personal characteristics of the offender affect the risk of recidivism as well including relationship status, number of dependent children, employment history, educational attainment, and mental health status.

Individuals with few social bonds to society are also more likely to recidivate following a period of incarceration (DeJong, 1997), as marriage, having children, and employment stimulate

and sustain the offender's perception of identity. This may give them the perception that they have something to lose (Braithwaite, 1989; Maruna, 2001). In fact, research has found that those offenders who were able to secure a stable job, even despite lengthy criminal history, were less likely to reoffend (Laub& Sampson, 2003; Western, Kling, &Weiman, 2001). In connection with employment, level of educational attainment is vital to reentry since uneducated offenders are more likely to return to prison shortly after their release (Allen, 1988; Batiuk, 1997; Harlow, 2003; Vacca, 2004). Finally, including personal characteristics such as mental health is important as previous studies have found antisocial attitudes and problems with mental health positively related to recidivism (Berg & Huebner, 2010), especially among rural offenders identified as mentally ill(Bucks County CCAP Committee, 2012; Myers & Associates, Inc., 2012).

Legal Characteristics

The length of an offender's criminal record and the crime for which they were sentenced to are both strong predictors of recidivism (Gottfredson & Gottfredson, 1994). Knowing the number of prior convictions an offender has can be particularly useful as those with a lengthier criminal history are more likely to recidivate (Langan& Levin, 2002; Gendreau et al., 1996). The type of offense committed by the offender is also useful in determining future recidivism (Burden, 2009). For example, Langan and Levin (2002) found 73.8 percent of all property offenders were rearrested within three years, compared to 66.7 percent of drug offenders, 61.7 percent of violent offenders, and 62.2 percent of public order offenders that were rearrested.

The length of time served in prison can also affect future recidivism risk (Burden, 2009), as the longer time spent in prison translates the greater chance of failure once released. For example, research has found that increased time spent in prison weakens employment opportunities (Pager, 2003), chances for steady employment (Crutchfield &Pitchford, 1997;

Western & Beckett, 1999), and prospects for higher lifetime earnings (Needles, 1996). Researchers have also documented a positive association between offenders receiving institutional misconduct violations and future recidivism (Huebner & Berg, 2011) and salient factor scores indicating offenders as "high risk" have generally proven to validly predict recidivism (Gendreau, Goggin, & Smith, 2002; Gendreau, Little, &Goggin, 1996; Vose, Cullen, & Smith, 2008).

Environmental Characteristics

Drug dependence is another key factor in understanding patterns of recidivism, as there are several causal roles between substance abuse and criminal behavior (Huebner & Berg, 2011). For example, certain drugs have been linked to erratic behavior (Fagan, 1990), and drug use has been known to provoke criminal employment opportunities (Uggen& Thompson, 2003; Wright & Decker, 1997) in these release settings. More importantly, the association between drug dependence and recidivism is significant given the prevalence of drug use among prison populations: Fifty-seven percent of state prisoners have reported drug involvement in the month prior to their offense, while 33 percent reportedly committed their crime while under the influence of drugs (Laub& Sampson, 2003; Mumola&Karberg, 2006). Drug use is also known to increase the risk of recidivism due to the consequences it can have in sustaining employment and family relationships (Gottfredson &Gottfreson, 1994; Laub& Sampson, 2003; Sampson &Laub, 1993). Offenders incarcerated for drug related crimes have some of the highest rates of recidivism (Chaiken&Chaiken, 1990; Harrison, 2001; Langan& Levin, 2002; Spohn&Holleran, 2002), and those classified as drug dependent upon release tend to fail more quickly (Huebner, Varano, & Bynum, 2007).

Positive relationships and a strong social network can also be influential in offender

populations as they provide informal social control against future criminal behavior (Sampson, 1992). Typically, those who are married are less likely to reoffend (Fagan, 1989; Farrington & West, 1995; Horney et al., 1995; Laub, Nagin, & Sampson, 1998; Laub& Sampson, 2001; Ouimet& Le Blanc, 1996; Sampson &Laub, 1993; Warr, 1998) but fewer than half of all prisoners are married (Burden, 2009). Across the general prison population, just 17 percent of state prisoners and 30 percent of federal prisoners are married (Petersilia, 2003). Returning to a sustained marriage, or intimate partner, upon release can provide parolees with a place to live. Research has suggested that by having a stable housing situation, or place to live, is another step in the right direction in reentry process and can help lead the offender finding legitimate work (Solomon, Gouvis&Waul, 2001). However, by having serving time in prison, former inmates have a difficult time forging social bonds necessary for marriage (Laub, Nagin, & Sampson, 1998; Western &McLanahan, 2000). It may come to no surprise then that offenders with the lowest marriage rates tend to reside within urban, inner-city neighborhoods (Waite &Spitze, 1981).

Since most offenders are single, separated, or divorced (Laub, Nagin, & Sampson, 1998), the ability of the offender to reconnect with family and community members is vital (Mallik-Kane &Visher, 2008). Family and kin-based social networks can provide more than just emotional support for parolees; they can also provide stable housing, financial support, and help with transportation. Consequently, if ties with friends and family are fractured, the offender may gravitate towards potentially hazardous and socially deviant networks, increasing the risk of recidivism (Shover, 1996). Therefore knowing the offender's relationship status and living situation they will be returning to upon release can be useful in predicting future risks of recidivism.

Parole supervision also plays an important role in risk of recidivism. Most parolees fail immediately, with rearrest being most common during the first six months of supervision (Maltz, 1984; Schmidt & Witte, 1988). Although Lerner (1977) previously discovered that parole supervision reduces criminal behavior for those released from local correctional institutions, and that overall, supervision is effective in the reduction of recidivism, it is *not* a realistic pathway for most offenders. Parole supervision costs remain about $2,200 per parolee, per year, yet most jurisdictions do not have the necessary funds, resources, or correctional personnel for adequate supervision. With more prisoners being released on a daily basis, parole officers are now responsible for more clients. During the 1970s, parole officers were ordinarily assigned 45 parolees; at the turn of the 20th century, caseloads of 70 parolees per officer were common (Petersilia, 2001). Today, caseloads have only continued to increase; in 2009, the average parole officer was found to have an average caseload of 141 clients (Kerbs, Jolley, & Jones, 2009). Increased caseloads, in turn, can affect the level and quality of supervision maintained by parole officers, as well as officer discretion, thus influencing the probability for recidivism.

Relatedly, the type of community in which parole officers operate can also affect the probability of recidivism (Burden, 2009). The behavior of legal stakeholders varies across different types of communities such that police officers in urban areas are much more likely to take a professional, or legalistic, approach to processing crimes (Wilson, 1968). Law enforcement and other legal stakeholders in rural areas may choose to operate differently. Although research on parole supervision in rural areas is limited, it has previously been found that most officers rely on informal means of social control (Wilson, 1968; Weisheit et al., 2006). This can have a direct effect on the decision-making process and level of discretion of the parole officer, and determining whether the offender will return to prison on a technical violation or not.

Exactly *where* offenders return to in the community can provide important context to the reentry process, as the places they return to, including the physical geography surrounding the offender, can also serve as a source of recidivism risk. For instance, disadvantaged neighborhoods that have been associated with decreased labor markets tend to offer fewer opportunities to develop social bonds that are vital to the reentry process (Clear, Rose, Warring, & Scully, 2003; Sullivan, 1989; Wilson, 1997). Levels of concentrated disadvantage are important to incorporate into studies of recidivism since offenders who reintegrate into more disadvantaged, crime-ridden environments have shown greater chances for failure (Braithwaite, 1989; Huggins, 2009; Shover, 1996).

Research on neighborhood context and reentry outcomes, however, is mixed. For instance, Kubrin and Stewart (2006) found offenders returning to neighborhoods with higher levels of concentrated disadvantage were more likely to recidivate, while Burden (2009) reported concentrated disadvantage not being significantly related to recidivism. This study hopes to shed light on this argument, but more importantly, it is suggested that since factors associated with concentrated disadvantage are known to increase the risk of recidivism, and because these factors manifest themselves differently within rural communities (Wodahl, 2006), it is necessary to closely examine the effect rurality may have on offender recidivism.

Rurality and the Risk for Recidivism

Generally, states require most inmates return to the county in which they were originally sentenced (Austin, 2001) and it has been recently noted that recently released offenders may have more difficulty transitioning to "life on the outside" in rural settings (Wodahl, 2006). Rural communities have their own culture and tend to offer less social privacy despite increased geographic privacy (Weishet& Wells, 1996). Traditionally, rural communities tend to be

distrustful of outsiders, stress self-reliance, are less supportive of public programs, and often resist government involvement in their lives (Beltrame, 1978; Coward, DeWeaver, Schmidt, & Jackson, 1983; Keller & Murray, 1982; Kenkel, 1986; Littrell&Littrell, 1991; Robertson & Donnermeyer, 1997; Seroka&Subramaniam, 1991; Swanson, Cohen, & Swanson, 1979; Warner &Leukefeld, 2001; Weisheit & Donnermeyer, 2000).

Due to these differences in social culture and privacy, offenders returning to rural communities arguably have different reentry experiences than urban offenders in terms of the types of social networks formed, overall availability of jobs and housing, and the quantity (and quality) of reentry resources and services. For example, previous research has suggested that rural offenders may become more reliant on family members and their own resources to solve problems (Conger, 1997), or may choose not to address their problems at all. When examining rural substance abuse and treatment programs, Rost and colleagues (1993) noticed that recently released offenders avoided approaching mental health and substance abuse treatment providers out of fear of stigmatization. However, should a rural offender wish to participate in these or similar reentry services, because of their geographic isolation, one of the most obvious barriers to reentry in rural communities is simply the lack of reentry services in the first place (Fitchen, 1991; Leukefeld et al., 2002; Robertson, 1997).

Employment and housing opportunities can vary based on community size (Garland, Wodahl, & Mayfield, 2011). Rural communities tend to have less diversity in employment opportunities (Ghelfi&McGranahan, 2004), and the jobs that do exist are often service oriented with limited economic benefits (Gibbs, Kusmin, &Cromartie, 2004). Those employed in rural areas typically earn less to comparable positions in the city, and this pattern holds true for offenders that eventually gain steady employment as well (Wodahl, 2006). This an important

distinction to make as a majority of offenders returning to rural areas will be unable to make a decent wage through legitimate work, thus increasing the likelihood they may return to criminal acts to supplement their income (Wodahl, 2006). It also does not help that, due to the strictly imposed rural social culture, these communities may be more resistant to hiring ex-offenders, leaving the offender with even fewer options for legitimate work (Holzer, Raphael, & Stoll, 2001). When it comes to safe and affordable housing, rental properties are scarce in rural areas (Housing Assistance Council, 2003) as a vast majority of housing units are already owned and occupied. Poverty rates are also relatively high across rural communities (Economic Resource Center, 2004), thus making the process of becoming a homeowner that much more difficult, especially for the returning offender.

Combining what is currently known about recidivism with existing research on rural economics, culture, and society, it is possible to obtain a better understanding of how the challenges of prisoner reentry can potentially influence recidivism in rural settings (Wodahl, 2006). To date, not many studies have specifically examined recidivism rates among rural offenders (Burden, 2009; Garland, et al., 2011). However, the few studies that have been conducted have discovered that offenders returning to rural areas were significantly more likely to recidivate (Burden, 2009). These results were unexpected as Burden (2009) hypothesized that urban parolees would return to prison more quickly. With rural offenders having greater disadvantages and limitations to successful reentry due to their physical location, similar patterns of recidivism are expected among the current study sample.

Transportation as a Challenge of Prisoner Reentry and Source of Recidivism Risk

The two largest obstacles for rural residents are physical distance and isolation (Weisheit & Donnermeyer, 2000); thus, transportation serves an important role in rural America. By offering increased mobility and access to rural residents, public transportation functions as an

essential cornerstone of rural development (Rubel, 1990). It is important to note, however, that existing rural transportation networks have fallen into a state of disrepair with many states losing access to service through federal deregulation during the 1990s (Due et al., 1990; U.S. Department of Agriculture, 1991). Now more than twenty years later, a physical overhaul of the infrastructure, as well as numerous technological advances, are still needed in order to bring rural public transportation systems up to date for 2013.

Patterns of transportation in rural communities differ from urban communities (Stern, 1982). Due to variations in demand, accessibility, and level of service, regular daily service is hard to provide. Additionally, with little to no access to public transportation and large distances between houses, engaging in community life is often physically difficult in rural areas (Due et al., 1990; Economic Resource Center, 2005; Weisheit & Donnermeyer, 2000). It is difficult for ex-offenders as well. For instance, the typical rural substance abuser must travel further distances for treatment services, and sometimes without the availability of public transportation (Schoeneberger et al., 2006).

As with studies of prisoner reentry and recidivism, the majority of studies on public transportation have also primarily been from an urban perspective (Garrett & Taylor, 1999; Nutley, 2005). Studies specifically addressing rural bus service have found that maintaining higher levels of service in such areas can be economically infeasible due to insufficient demand (Rees &Wragg, 1975; White, 1976) and high cost of operations (Brown, 1996). Other obstacles that can hinder the development of public transport in rural areas include low population density, long distances separating rural transit stops that raise the cost of transportation, and limited monetary resources of local governments (Brown, 2008; Gruidl, Merrett, & Connelly, 2008; O'Sullivan, 2007).

With limited or no alternative means of transportation, individuals in rural areas have been compelled to rely on personal vehicles for accessibility, speed, and as a way to retain control over their lives (Gatersleben&Uzzell, 2007). This may explain why 97 percent of trips in rural areas occur in cars (Pucher&Renne, 2005). Because offenders returning to rural areas are unlikely to have their own vehicle or private transportation available to them (Leukefeld et al., 2002), they tend to not be very transient (Oser et al., 2006). But, there still are rural residents who require and utilize public transportation on a regular basis, even if this only represents a small percentage of the population. For example, a past report on transportation service to rural residents of small Iowa communities identified intercity bus service as the primary form of transportation with more than 300 communities being served by at least one bus a day (Due et al., 1990). In a federal report addressing the implementation of the Bus Regulatory Reform Act of 1982, the Motor Carrier Ratemaking Study Commission (1983) found that 69 percent of Iowa residents live anywhere from 1 to 36 miles from the nearest bus stop, and at least 11 to 20 miles away from the second closest stop.

Transportation as a challenge to prisoner reentry is at least starting to be recognized in the literature. A recent Housing Needs Study for the York County (Pennsylvania) Criminal Justice Advisory Board reported the lack of public transportation as a general barrier to securing affordable housing and services for those offenders with serious mental illness (Myers & Associates, Inc., 2012). Specifically, study participants trying to obtain reentry services reported a "lack of transportation outside the city, which impedes access to certain services suggesting the need for additional resources to be located outside the City of York" (Myers & Associates, Inc., 2012, p. 14). Furthermore, mentally ill offenders participating in the Forensic Re-Entry Enhancement (FREE) program in Bucks County (also located in Pennsylvania) reported housing,

employment and transportation as their main challenges to reentry (Bucks County CCAP Committee, 2012). In fact, nearly 70 percent of all participants reported that access to medications and treatment was hampered by either the lack of transportation or the inability to pay for it (Bucks County CCAP Committee, 2012).

In their recent study examining self-reported obstacles and strains of reentry to small metropolitan communities, Garland, Wodahl, and Mayfield (2011) also report transportation as an obstacle to successful reentry. Though a challenge for only about 15 percent of respondents, no other study examining offender recidivism to date has recorded transportation as an obstacle to reentry. Parolees often did not have reliable transportation of their own within three months after their release from prison. Instead, they relied on others for travel or reached their destination by bicycle. Similar to the studies previously mentioned (Bucks County CCAP Committee, 2012; Myers & Associates, Inc., 2012), being able to fulfill educational and program requirements was cited several times as a hardship, largely in part due to problems with transportation and employment schedules. More importantly, some participants stated their transportation issues always made them fearful of missing work and therefore consequently receiving a parole violation, increasing the possibility of being returned to prison (Garland, Wodahl, & Mayfield, 2011). Because of this recent recognition, access to transportation warrants scholarly attention in examining whether it might also be related to risk for recidivism. With a reported lack of public transportation service in rural areas and evidence of most offenders not owning their own vehicle, the probability of recidivism may very well be greater for rural offenders due to these circumstances.

Theoretical Justification: Social Disorganization Among Rural Communities

Developed out of the urban streets of Chicago, Shaw and McKay's (1942) theory of social disorganization contends that crime rates can be explained by the structural characteristics of a community. Specifically, they point to three characteristics of a community (economic disadvantage, racial and ethnic heterogeneity, and residential instability) that impact its ability to regulate the behavior of its members through informal social control (Bouffard & Muftić, 2006), as the concept of social networks and social bonds are a prominent theme in determining levels of social disorganization (Kornhauser, 1978; Sampson & Groves, 1989; Shaw & McKay, 1942). In other words, neighborhood crime rates are actually a function of the community's ability to establish formal and informal connections among its members so as to realize common values and collectively come together to work toward solving and preventing social problems (Bellair, 1997; Bursik, 1988; Bursik&Grasmick, 1993; Crutchfield et al., 1982; Land, McCall, & Cohen, 1990; Osgood & Chambers, 2000; Stark et al., 1983). However, this could prove challenging among rural communities.

A highly recognized and supported ecological model, social disorganization theory has previously only been applied to metropolitan cities due to the fact that rural crime was thought to be different from urban crime (Clinard 1942; Kowalski & Duffield, 1990). Others (Glenn & Hill 1977; Palen 1977) contend that a majority of this perceived difference has largely dissipated with advances in the standardization of education, transportation, and communication, thus casting some doubt about the inappropriateness of the social disorganization model for rural settings (Petee & Kowalski, 1993). In fact, Osgood and Chambers (2000) argue that though much of their analysis on rural youth violence is borrowed from urban sociology, the systems of social relationships involved are just as relevant to crime and delinquency in small towns and rural

communities.

One of the first studies to examine social disorganization among rural communities was conducted by Wilkinson and colleagues (1984). Though their results did not support the application of social disorganization, it was one of the first steps in comparative research on patterns of violent crime across different environments (Wilkinson et al., 1984). Fifteen years later, Osgood and Chambers (2000) contended that the systematic processes of social control are, in fact, supported in rural settings. When examining juvenile violence in nonmetropolitan counties, they found that the themes of social disorganization theory did generalize well to rural communities (Osgood & Chambers, 2000). More recently, social disorganization has been tested in nonmetro environments (Barnett & Mencken, 2002; Bouffard & Muftić, 2006; Burden, 2009; Garland, Mayfield, & Wodahl, 2011; Reisig &Cancino, 2004) with some interesting results. For instance, Burden (2009) discovered that probabilities for recidivism were higher among rural offenders, while Garland and colleagues (2011) suggest that core obstacles and challenges to reentry, such as financial issues, employment and transportation, are consistent across geographical locations.

Also finding social disorganization models useful for rural communities, Barnett and Mencken (2002) argue variations in population change can have a direct affect on crime rates. When these areas lose population, the level of social organization is transformed in important ways: the network structures of community surveillance through which social control is enforced are lost, thereby potentially also losing a part of the structural support that allows people to survive (Barnett & Mencken, 2002). For some individuals, this can then lead to more desperate economic situations, and ultimately, acts of crime and violence. Their conclusion is consistent with existing research (Jobes, 1999; Kposowa&Breault, 1993; Kposowa et al., 1995; Osgood

&Chambers, 2000; Petee & Kowalski, 1993) and state that models of crime in nonmetropolitan counties should consider the contextual effects of concepts from social disorganization theory (Barnett & Mencken, 2002).

Rural residents, like their urban counterparts, form and maintain social networks. However, it is likely that the nature of these networks differ between each group (Reisig &Cancino, 2004). For example, Fischer (1982) found that residents of small towns were more often members of kin-based social networks, and others have found similar results (Beggs, Haines, &Hurlbert, 1996; Hofferth& Iceland, 1998). Consequently, rural residents are more likely to exchange social support with family members than nonrelated peers (Reisig &Cancino, 2004). Earlier research conducted by Amato (1993) noted three potential explanations for urban-rural differences in exchange relationships: 1) urban residents rely less frequently on family members for support because they are able to draw from a greater variety of formal organizational sources for support; 2) exchange relationships in more rural areas are based on a sense of obligation, whereas more on a matter of choice in urban settings; and 3) urban residents are more likely to live farther away from immediate family members, so they may be more reliant on friends for social support. Despite these differences, Reisig and Cancino (2004) propose that the social capital gained from these different types of relationships continues to flow across urban and rural communities, and their results also support the notion that social disorganization theory can be generalized beyond the urban setting (Reisig &Cancino, 2004).

With a majority of rural social networks being kin-based, this can directly affect the level of involvement and type of support provided to offenders returning home from prison, including transportation needs. Typically, family members are more likely to help out with basic reentry needs such as housing, finances, childcare, and transportation. These patterns of kin

involvement, however, have been found to differ across White/Caucasian and Black/African-American families (Sarkisian&Gerstel, 2004). For example, members of White families reported greater involvement in financial and emotional kin support, whereas Black family members were more involved in practical support, including offering transportation when needed. Additionally, with Garland and colleagues (2011) discovery that offenders returning home from prison often relied on others for travel, the likelihood of asking for a ride or for help would most likely decrease among rural offenders with few friends and nonkin-based social networks. Therefore, especially across rural communities where public transportation services are lacking (Gatersleben&Uzzell, 2007), transportation and the availability of it can directly be impacted by level of social disorganization and type of social networks available in the area. In turn, this can have an affect on the probability that recidivism will occur.

Levels of population density can affect the social disorganization of a neighborhood (Sampson et al., 1997; Shaw & McKay, 1942). These levels, however, can vary widely between rural and urban areas (Burden, 2009). Wirth (1938) was one of first scholars to discover that as population density increased, social relationships began to break down. In their comprehensive review on rural studies published to date, Weisheit and colleagues (2006) discovered in 21 of 23 recorded studies, communities with rapid population growth experienced a vast increase in crime rates, with some even at three or four times the rate of the population growth.

With consistent lower levels of population density, researchers more concerned with urban ecology have typically overlooked rural communities. This oversight is detrimental, however, as some rural areas experience dramatic surges in population due to suburb expansion and local economic growth (Burden, 2009). By incorporating a measure of population density in

this study, perhaps a more clear distinction of recidivism patterns can be discerned across urban and rural counties.

Purpose of Study

While there is budding research examining the sources of recidivism risk for rural offenders (Burden, 2009; Garland, Wodahl, & Mayfield, 2011), much remains to be discovered. Expanding upon an earlier exploration of offender recidivism (Huebner & Berg, 2011), this study aims to answer the following questions using the same dataset:

1a. Are offenders who return to rural counties more or less likely to recidivate compared to offenders who return to urban counties?

1b. Do offenders returning to rural counties differ in their timing of recidivism compared to offenders returning to urban counties?

2a. Are there differences in probabilities for recidivism between offenders who fail on a reconviction compared to those offenders who fail on a technical violation?

2b. Are there differences in the estimating the timing of recidivism between offenders who fail on a reconviction compared to those offenders who fail on a technical violation?

3a. Does having access to public transportation show a statistically significant effect on the probability for recidivism?

3b. Does having access to public transportation show a statistically significant effect on the time to failure?

Based on previous literature, it is therefore hypothesized that:

1a. Offenders who return to rural counties are more likely to recidivate compared to offenders who return to urban counties.

1b. Offenders who return to rural counties will experience shortened times to failure compared to offenders who return to urban counties.

2a. Probabilities of recidivism will vary depending on if the offender failed by reconviction or failed by technical violation.

2b. Estimations on the time to failure will vary depending on if the offender failed by reconviction or failed by technical violation.

3a. Having access to public transportation will show a statistically significant effect on the probability of recidivism. This study aims to discover the direction of this relationship through statistical analysis.

3b. Having access to public transportation will show a statistically significant effect on the estimation of time to failure. This study aims to discover the direction of this relationship through statistical analysis.

Traditionally, urban environments have been viewed as criminogenic because of their fragile, impersonal social fabric and weakened social bonds (Bottoms, 1994). The dense and highly populated inner city has long sparked researchers' interests, and due to higher levels of recording and reporting official crime rates, data have always been easily accessible from urban metropolitan cities (Hogg & Carrington, 1998). Additionally, since a majority of the prison population primarily returns to large metropolitan cities (Lynch &Sabol, 2001), it is only expected that these environments would be ideal for study.

The United States is arguably an industrial nation rather than an agricultural one (Sagarin, Donnermeyer, & Carter, 1982).With the urban population currently at 71 percent (U.S. Bureau of Census, 2000), very few other countries have such a large portion of their population residing in metropolitan areas**.** Yet, most *places* in the United States are identified as rural (Weisheit

&Donnermeyer, 2000). With a total land area of nearly 2.3 billion acres, recent reports continue to show our nation continues to be overwhelmingly utilized for agriculture and farming (Vesterby et al., 2006).

More importantly, while most industrial countries have some agriculture, and most largely agricultural countries have some industry, seldom does one country have such a large concentration of both (Sagarin, Donnermeyer, & Carter, 1982).This makes our nation a unique case study, as our population experiences and is affected by crime across urban and rural environments (Rephann, 1999; Scheer, Borden, & Donnermeyer, 2000). With noted differences in their social norms and culture (Weisheit & Donnermeyer, 2000; Weisheit & Wells, 1996), including criminogenic needs and criminality (Burden, 2009; Freudenburg& Jones, 1991; Jobes, 1999; O'Connor & Gray, 1989; Petee & Kowalski, 1993; Reisig &Cancino, 2004; Weisheit, Falcone & Wells, 1995, 2006; Wilkinson, 1984; Wilkinson et al., 1982, 1984) rural areas are still in need of closer examination.

And while there is budding research examining the sources of risk for recidivism among rural offenders (Burden, 2009; Garland, Wodahl, & Mayfield, 2011), much remains to be discovered. Specifically, little is known about how community-level factors influence recidivism (Burden, 2009). Retaining focus on the element of rurality, this study improves upon prior works by identifying transportation as a challenge to prisoner reentry and creating a quantitative measure to determine if varying levels of accessibility can affect the probability of recidivism.

Data and Methodology

Data for this study were obtained from the Missouri Department of Corrections, as the state maintains a comprehensive database on offender demographic characteristics, risk levels, prison misconduct, service provision, and post-release convictions, including technical violations (Huebner & Berg, 2011). After accounting for missing cases, a total of 3,296 men released from prison in 1998 were included in the analysis group. Follow-up data originally collected through May 2006 remains included in the study, as well as data from the 2000. The author has expanded the original dataset by including variable information obtained from the two most recent U.S. Decennial Censuses (2000; 2010) (see Table 2 in Appendix for more detail). Data on public transportation available in the state was compiled from the Missouri Department of Transportation, the Missouri Public Transportation Association, and the American Public Transportation Association.

Missouri continues to serve as the research site due to the fact this is where data was originally collected. However, this particular state, like our nation, also has a significant concentration of urban and rural counties. Although Missouri is home to large metropolitan cities like St. Louis and Kansas City, a majority of counties in the sample (n = 81 out of 115) have been deemed "nonmetro" according to current Rural Urban Continuum Codes (Economic Research Service, 2013). Additionally, Missouri incarceration rates have also increased. This has led to a substantial rise in the number of offenders annually released in the state. For instance, in 1975, only 1,120 offenders were released from Missouri prisons but by 2010, this number skyrocketed to 19,421 offenders released (Carson &Sabol, 2011). With a large increase in the number of adults under parole supervision, and a vast majority of the state being nonmetro, Missouri can serve as an ideal environment for examining recidivism from the rural perspective.

Overall, Missouri appears to be comparable to national averages (see Table 1 in Appendix for more detail) but there are a few distinctions that make this area unique for comparing urban and rural environments. Slightly higher in population density than the national average (81.2 residents per square mile versus 79.6), most Missourians tend to reside in, or at least nearby, one of the nine major metropolitan cities. One noticeable distinction that merits discussion is the racial and ethnic composition of the state. While the nation's population is reportedly 72.4 percent White/Caucasian, this racial group is overwhelmingly represented in the state population (82.8%). Though the percentage of Black/African-American residents in Missouri is close to the national average of 12.6 percent (11.6%), there is a large discrepancy in the percentage of Hispanic/Latino residents. Nationally, this racial group represents a little over 16 percent of the population (16.3%). In Missouri, however, the Hispanic/Latino population is hardly represented at all, with only 3.5 percent comprising the state population. Notably, only 5.1 percent of Missouri residents speak a second language, compared to nearly 18 percent (17.9%) of the country. This low figure may make more sense when observing the percent of native born in the state: 97.3 percent of Missouri residents are native born compared to 87.7 percent of U.S. residents.

Another distinction between Missouri and the United States are rates of crime. For the most part, violent crime occurs roughly at the same rate as national averages, but the aggravated assault rate in Missouri is higher (312.7 per 100,000 residents versus 241.1). Missouri also has higher rates for certain property crimes. For example, the most recent burglary rate reported to be 745.7 (compared to 702.2, nationally), the larceny-theft rate to be 2,308.3 (compared to 1,976.9) and the motor vehicle theft rate to be 254.8 (compared to 229.6) (FBI, 2011). In attempting to explain such elevated rates, some have argued that urban and rural crime trends are now

mirroring one another through the advancement of modern communication and transportation (Weisheit, Falcone, & Wells, 2006). Opportunities for crime have increased in rural areas due to increasing inventories of farming equipment and other operational inputs; the interstate highway system and improvements in transportation; and the overall growth of the rural population due to relocation of industry associated with energy development, construction of suburbs and the migration of retired households to small town, open-country environments (Saragin, Donnermeyer, & Carter, 1982).

The current study expands upon the original data provided by including additional environmental variables specific to rural populations. First, a variable identifying if participants returned to an urban or rural county within the research site was created. This was used by obtaining the most recent Rural Urban Continuum Code (RUCC) for each county in the sample, available from the Economic Research Service located within the U.S. Department of Agriculture (2013). Originally developed in 1974, the RUCC forms a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area (Economic Research Service, 2013).

Specifically, the official Office of Management and Budget (OMB) metro and nonmetro categories are subdivided further, and each county in the U.S. is assigned one of the nine codes. A value of 1 represents counties in metro areas with populations of one million of more, while a value of 9 represents counties in nonmetro areas that are completely rural, or an urban population less than 2,500, and not adjacent to a metro area (Economic Research Service, 2013). This method allows researchers to break county data into finer residential groups, particularly for the analysis of trends in nonmetro areas. For the purposes of this study, a county was considered

rural if it had an RUCC code of 4, 5, 6, 7, 8, or 9. Examining rural offenders with substance abuse issues, Oser and colleagues (2009) used a similar measure for rurality, but instead labeled counties rural if they had an RUCC code of 6, 7, 8, or 9. Due a higher prevalence of nonmetro counties within the study site, counties with an RUCC code of 4 or 5 were identified as rural.

Next, a measure of population density (number of individuals per square mile) has been added to the dataset using information from the 2000 U.S. Decennial Census. Examining population density is worthwhile when examining rural environments, as recent studies have shown it to be a better indicator of rurality than overall population counts (Bouffard & Muftić, 2006). Social disorganization theorists have also long recognized population density as a useful variable for predicting crime and deviant behavior (Bursick &Grasmick, 1993; Lee et al., 2003; Sampson, 1985; Sampson & Groves, 1989; Sampson et al., 1997; Shaw & McKay, 1942) due to the observation that as population density increases, social relationships begin to break down (Wirth, 1938).

As transportation has at least been mentioned to be a challenge for some returning offenders (Bucks County CCAP Commission, 2012; Due et al., 1990; Garland, Wodahl, & Mayfield, 2011; Myers & Associates, Inc., 2012), this analysis aims to determine whether access to public transportation is related to recidivism, particularly among rural offenders as their communities tend to lack these services (Economic Resource Center, 2005). Variables measuring the accessibility and frequency of various public bus services offered at the county-level have been included and coded for each participant.

This study proceeds into three stages. First, data on a sample of men released from prison are used to estimate how demographic, legal and environmental characteristics, including levels of rurality, affect their probability of recidivism. To begin, univariate analysis will be conducted

in order to gather descriptive statistics and look for potential outliers and errors in the data. Next, bivariate analysis will examine the distribution of the sample of those returning to rural counties and those returning to urban. Second, multivariate logistic regression was used to determine which variables affected the probability of recidivism in the sample. Before the third stage, however, an ordinary linear regression was performed to check for collinearity. It is important to note that no extreme or conflating collinearity diagnostics were found. Finally, a Cox proportional hazard model was aided in determining which independent variables were significant in estimating shortened or delayed times to failure, and if offenders returning to rural counties experienced shortened times to failure when compared to urban offenders.

Dependent Variable

It is first necessary to clearly define how *recidivism* will be measured, as strong debate over its definition and measurement continues (Bushway et al., 2001; Maltz, 1984; National Research Council, 2008; Ritter, 1997). The most commonly used measures of recidivism include rearrest, reconviction, and return to prison through revocation of parole supervision (Burden, 2009). Though Langan and Levin (2002) have suggested that parolee rearrests and reconvictions may overestimate rates of recidivism, this study follows in line with Huebner and Berg's (2011) original measure. Dichotomous in nature, their measure of recidivism includes offenders who have sustained either 1) a new conviction following release from prison (reconviction), or 2) those returned to prison through revocation of parole (technical violation). By including technical violations in the measure of recidivism, possible sample bias may be reduced while also allowing for a more accurate sample (Huebner & Berg, 2011). They continue to explain that if revocations due to technical violations were not included in the measure of recidivism, their

absence could then lower estimates of failure and bias models of analysis by omitting what could be measured and quantified as recidivism (Hubener& Berg, 2011).

Overall, 2,200 men (66.7%) recidivated during the original study period; 1,143 were reconvicted, with the remaining 1,057 participants receiving a technical violation. This rate of recidivism is consistent with other research documenting a 59 percent failure rate among offenders using similar measures (Yahner&Visher, 2008). Interestingly enough, although only 840 study participants returned to rural areas, this group showed a higher probability of recidivism (70.47%) when compared to the 2,456 parolees returning to urban counties (65.47%). Reconvictions were more common among those returning to rural counties (49.18%) compared to technical violations (29.64%), and similar percentages were found in the urban subgroup (46.87% returned for reconviction and 32.90% for technical violation).

Independent Variables

This study incorporates three broad clusters of independent variables that have been associated with recidivism. Demographic characteristics were assessed at the original time of offender intake and include *age* at release (in years), if the offender is a *minority* (Black = 1), and if they are a *high school graduate*(yes = 1) or not. More minority participants returned to urban counties (40.59%) than those identified as rural (11.55%). Also included in the dataset is if the offender reported a *stable work history* (yes = 1) or not. This variable was measured prior to their incarceration and defined as having no noted employment deficits and good reports from employers. Men with sporadic or no employment or training experience prior to incarceration served as the reference category (Huebner & Berg, 2011). Only a little over 25 percent (25.79%) of the sample met these requirements and reported a stable work history. Relatedly, *stable mental health* (yes = 1) is also included and was assessed by the state department of corrections at the

original time of offender intake. A majority of the sample (93.11%) reported to be mentally sound, and this applied across rural and urban counties. As family and social networks are vital to prisoner reentry, the number of *dependent children* (yes = 1) is one measure of pre-prison social relationships. Offenders returning to rural counties were slightly more likely to be a father to one or more dependent children (34.40%) when compared those returning to urban counties (32.90%).

Measures of past criminal behavior and other legal characteristics are also critical to understanding future criminal involvement. For this study, criminal history is measured as indicated by the *number of prior convictions*, for any crime, prior to the offenders' current offense. Using offense classifications from Langan and Levin (2002), current offenses included are *property* (burglary, larceny, malicious destruction of property), *drug* offenses (drug use, possession, sales, and trafficking), and *personal* offenses(rape, robbery, assault, murder, and sexual offenses). Some men in the sample, however, had committed offenses not so easily categorized. Therefore, *other* offenses committed by offenders in the sample have been recognized and include domestic crimes, obstructing or fleeing from law enforcement, disturbing the peace, and weapon and traffic offenses. Most study participants were serving time for committing a property crime (40.84%), with personal offenses coming in second (23.82%). Participants were least likely to be serving a sentence for a drug offense (19.60%) or other miscellaneous offenses (15.75%). However, when examining the distribution of offense type across rural and urban counties, offenders returning to rural counties committed slightly more property crime (44.88% compared to 39.35%) and other offenses (20.00% compared to 14.29%).

Although institutional misconduct is often omitted from existing empirical studies of recidivism (Huebner & Berg, 2011), some have found some significant predictive power in

measure of criminal history and institutional misconduct. (DeLisi, 2003; Matsueda, Gartner, Piliavin, &Polakowski, 1992). Therefore, a measure of the *total number of misconduct violations*, for any offense or infraction, sustained between entrance to prison and date of release is included. Misconduct was prevalent among the original sample with an average of 6.84 misconduct tickets prior to release. However, misconduct violations were more frequent among those returning to urban counties (7.34) compared to those returning to rural counties (5.46). *Time served in prison*, in days, is also included as a control measure. Overall, men averaged approximately two years (768.74 days) in prison before release (Huebner & Berg, 2011). Offenders returning to urban areas served almost one year longer than those returning to rural (829.68 days compared to 590.53). Using a composite risk factor for predicting recidivism, this study also incorporates the offender's *salient factor score*, based on three criteria: conviction and confinement measures (prior incarceration, prior convictions and total sentence length), stability (age at first imprisonment, drug and alcohol use, and offending patterns), and performance and behavior measures(failure on community supervision, escape attempt, and prior conviction for burglary). Salient factor scores can range from 0 (highest risk) to 11 (lowest risk). Though measures of prior convictions are already included in the model, the salient factor score is seen as a global policy tool for offender risk assessment. Despite differences in time served and misconduct violations, offenders returning to urban (7.37) and rural counties (7.51) showed similar salient factor scores, though rural offenders appear to be slightly less risky.

The dataset also includes seven measures of post-release context addressing the offender's release setting and living situation. First, a dichotomous measure of *drug dependence* (yes = 1) is included as assessed 90 days post-releaseusing the Texas Christian University Drug Screen II (Knight, Simpson, &Moyey, 2002). Nearly 22 percent (21.84%) of participants were

identified as drug-dependentupon release, and those returning to rural counties appear to be just slightly more drug dependent (22.86%) than urban offenders (21.5%). Next, each participant's living situation was captured to include the following measures: whether the offender returned to a *sustained marriage* (yes = 1), *intimate partner* (yes = 1), if they *returned to family* (yes = 1)or *transitional housing* (yes = 1), if they were placed under *enhanced supervision*, and the level of *concentrated disadvantage* in their returning county.

Designed to capture stability in social bonds, only 15.24 percent of offenders returning to rural counties reported being in a sustained marriage, however, this rate is still higher than urban parolees (12.05%). The measure of transitional housing includes men who lived in a community-based halfway house, as well as those who returned to a release center managed by the department of corrections (Huebner & Berg, 2011). With public housing options more prevalent in urban cities, nearly 20 percent (19.91%) of participants returning to urban counties were able to utilize a halfway house, while only 8.21% of rural parolees returned to transitional housing.

As discussed, conditions of parole supervision can shape reentry and the risk for recidivism. Though almost a quarter of the sample (23.5%) reported being on some form of enhanced parole supervision upon release, this form of supervision was utilized more in rural counties: 32.86 percent of rural parolees compared to only 20.24 percent of those returning to urban counties. Notably, as enhanced parole supervision is often ordered for men deemed at higher risk for recidivism, it has also been associated with greater chance to receive a technical violation (Petersilia & Turner, 1991). Therefore, it is anticipated that individuals receiving enhanced parole supervision will fail more quickly.

In addition, levels of concentrated disadvantage are also included in the study. Originally constructed by Huebner and Berg (2011), this measure uses data on the first post-release address

merged with data from the 2000 U.S. Decennial Census, geocoded in GIS ArcView and linked to a census tract. The five-item factor score of concentrated disadvantage includes the proportion of individuals living on public assistance, below the poverty level, unemployed, Black, and living in female-headed households. The difference in levels of concentrated disadvantage across metro and nonmetro counties is striking: those returning to urban counties reported a disadvantage level of 0.14 while parolees returning to rural counties reported levels of -0.41. Also striking in difference are levels of population density. Rural parolees were spread out with only 62.71 individuals per square mile while urban parolees returned to far more densely populated counties: 1,398.39 individuals per square mile.

In order to get a sense of how far some offenders may need to travel to report to their parole officer, and also to control for county parole resources, a categorical variable of *parole office location* was included in the dataset by identifying the county location for each of the 53 parole offices across the state. Once identified and linked to a census tract, each county was coded into the following categories: Has contiguous county parole office = 1; Has a county office = 2; and Has more than one county office = 3. When examining the distribution of the sample, parolees returning to rural counties seem to experience far less administrative coverage than those returning to urban counties. For example, only 31.92 percent of rural parolees returned to a county with its own parole office, leaving 35.36 percent of rural parolees access to a parole office contiguously located nearby. Though parole office location and coverage reported to be higher for urban parolees, still only 61.69 percent of those returning to urban counties had access to more than one parole office in their entire county.

The Missouri Public Transportation Association and Department of Transportation are responsible for providing service to all 115 counties, including those identified as rural. Agencies

providing public bus service to these areas utilize two regional systems: OATS, Inc., which serves a majority (85 counties) of the state and Southeast Missouri Transportation System, Inc. (SMTS), which serves the remaining 20 counties (Missouri Public Transportation Association, 2013). Additionally, there are nine county systems, 19 city systems, and two university systems available for general public use. There are also a few nonprofit organization and agencies that offer some form of enhanced transportation service, whether by city bus, taxi coupon programs, or intercity bus assistance (Missouri Public Transportation Association, 2013). In order to examine the *types of public transportation* available in each county, locally identified bus services are coded as follows: Has an OATS system (yes = 1); Has an SMTS system (yes = 1); Has a county wide system (yes = 1); Has a university system for public use (yes = 1); and Has a nonprofit or some other agency transportation service (yes = 1).

Identifying an earlier measure of access to public transit from Murray and colleagues (1998), the *level of access* to service can be defined as simply having the opportunity for use. Sometimes, however, having the opportunity alone is not enough if there is low frequency of service. An earlier study examining network connectivity and frequency of rural bus services in Israel, Stern (1980, 1982) previously measured frequency of service by observing a range in the number of bus departures available each day. Recognizing the special transportation needs among rural residents, the state of Missouri claims they will "find a way to help you get where you need to go," (Missouri Rural Public Transportation Providers, 2013) by providing every county with at least some public bus service.

Although transportation services are available to anyone regardless of age, income, disability, race, gender, religion, or national origin (OATS, 2013; SMTS, 2013), there are few designated bus stops, or terminals, where riders may gather and wait to be picked up. Rural bus

services in Missouri typically fall within two categories: regular route service with deviations (limited to three-quarters of a mile off the fixed route) and demand response service by appointment. The latter requires the rider to call at least 24 or 48 hours in advance and schedule their pick-up, with some transportation agencies recommending at least seven days in advance (City of Joplin MAPS Transit, 2010).

In order to partially control for the varying levels of frequency of service, types of public bus service available in each county were identified in each county and if they operate under regular route service, on demand pick-up service, or both. Counties limited to on demand pick-up service (those only receiving OATS and SMTS services) have been identified and coded at the lowest level of accessibility (no regular coverage = 1). Counties offering at least some regular service either through a city within the county, a public university owned system within the county, or a county operated transit system have been identified and coded at the middle level of accessibility (partial coverage = 2). And finally, counties offering bus service with daily departures available throughout the week have been identified and coded at the highest level of access (regular coverage = 3). Not surprisingly, 72.62 percent of parolees retuning to rural counties had no regular coverage and only 27.38 percent having some access. A majority of those returning to urban counties reported having some access available to them (70.48%), but all in all, only 19.14 percent of the sample had regular, daily access to bus service within their returning county.

High energy, impulsiveness, low self-control, and sensation-seeking behavior are the "Big Four" correlates that broadly define the antisocial personality pattern that can strongly influence criminal behavior (Andrews &Bonta, (1994) 2003). Not surprisingly, these personality traits are common in adult offenders (Andrews &Bonta, (1994) 2003). Less capable of

recognizing personal responsibilities, making and sticking to a daily or weekly schedule, these individuals tend to lack adequate personal organizational and life management skills. Thus, parolees in need of a ride in order to report to their parole officer, attend a substance abuse counseling session, or show up for a job interview, may find scheduling a ride through one of these rural transportation providers challenging. It is commendable that the state has these services in place for rural residents, but it is solely up to them (including the rural offender) to remember how and when to utilize the service. It is expected that although a vigorous effort to adequately provide public transportation services across the state has been made, offenders returning to rural counties will experience difficulty in access to these services, thus potentially affecting the risk for recidivism.

Results and Findings

This section details the results of logistic regression and survival models designed to predict the probability of recidivism among adult male parolees, controlling for the independent variables described in the study. Recidivism serves as the dependent variable for logistic models, but has been divided into the following categories for more fine-tuned analysis: total failure, or those that either received a reconviction or technical violation; failure only by reconviction; and failure only by technical violation. The logistic regression models and results displayed in Tables 4, 5, and 6 (see Appendix) are designed to estimate the probability that an individual will recidivate during the time of original study. Model 1 displays probabilities for recidivism based on the level of rurality, while Model 2 denotes probabilities for recidivism based on having the availability of regular public transportation coverage. Finally, Model 3 reports the probabilities for recidivism based on the availability of more than one parole office in the county. Positive coefficients delineate a greater chance for recidivism, while negative coefficients coincide with a lesser probability of recidivism (Long, 1997).

The results displayed in Tables 7, 8, and 9 include coefficients from Cox proportional hazard models, or survival models, and estimate the probability of failure at time *t* (Cox, 1972; Singer & Willett, 2003). A positive coefficient for each variable characteristic indicates the increased probability of hazard for that particular event; therefore decreasing predicted offender survival duration. In other words, positive coefficients delineate a shorted time to failure. A negative coefficient indicates the decreased hazard probabilities, resulting in increased survival times, or delayed time to failure. Mirroring logistic regression models, Model 1 displays estimated time to failure based on the level of rurality, estimated time to failure based on having the availability of regular public transportation coverage is shown in Model 2, and the estimated

time to failure based on the availability of more than one parole office in the county is displayed in Model 3.

Beginning with the results from logistic regression models for total recidivism displayed in Table 4, these initially suggest agreement with existing predictive models of recidivism. As anticipated, indicators of age, race, offense type, criminal history, drug dependence and returning living situation proved to be central correlates in the chance that recidivism will occur. Results for the first coefficient of age are positive and suggest that aging decreases the chance of the offender recidivating. The log odds ratio presented in Models 1, 2, and 3 signify that for each yearly increase in age, male participants were .037 times less likely to recidivate. Additionally, negative coefficients for the minority variable suggest that Black/African-American men were .488 times more likely to recidivate if returned to a rural county; .435 times more likely to recidivate if returned to a county with regular public transportation coverage; and .501 times more like to recidivate should they return to county with more than parole office.

Previously committing a drug offense also proved to a significant predictor, and parolees in this group were overall less likely to recidivate compared to other types of offenses (B = -.260). The negative coefficient for the institutional risk score indicates that men with higher salient factor scores (lower risk) were less likely to recidivate, while the positive coefficient for total number of misconduct violations indicate with each additional violation, men are .034 times more likely to recidivate.

Examining results for environmental characteristics, drug dependence and marriage were found to be significantly strong predictors. For participants identified as drug dependent, these individuals were extremely more likely to recidivate compared to offenders who were not identified as drug dependent, reporting increased probabilities of .784. Furthermore, higher

probabilities of failure for drug dependent offenders were reported across each of the three models and types of recidivism (for comparison see Tables 4, 5, 6, 7, 8, and 9 in Appendix). As well were men returning to transitional housing; the log odds ratio indicate that men are .333 times more likely to recidivate if they return to a transitional housing compared to those offenders who did not return to transitional housing; .339 times more likely to recidivate if returning to county with regular public transportation coverage; and .342 times more likely to recidivate if returning to a county with more than one parole office. Conversely, parolees returning to their spouses upon release were significantly less likely to recidivate (*B* = -.970) compared to those who did not return to a sustainable marriage.

More importantly, results in Model 1 suggest that those returning to rural counties show greater odds for recidivating when compared to parolees returning to urban counties. Those returning to rural counties upon release reported an increase in probability of recidivating by .348. In other words, offenders returning to rural counties are .348 times more likely to fail. When examining the probability of recidivism based on parole office location, Model 3 indicates that men returning to counties with more than one parole office are .314 times less likely to recidivate (*B* = -.314). Notably, the probability for recidivism of those returning to counties with access to regular public transportation, as displayed in Model 2, showed these offenders experienced a 1.465 (*B* = 1.465) increase in the likelihood of recidivating.

Table 5 denotes results logistic regression models of recidivism based on those participants who failed specifically by receiving a reconviction. Though similar to the results previously discussed for total recidivism, some interesting details emerge across this model. Although many indicators remain central correlates in the likelihood that recidivism will occur (age, race, offense type, criminal history, drug dependence and returning living situation), there

are distinct differences worthy of discussion. First, having dependent children now emerges as a significant predictor, as men who are the guardian of a minor child were .510 times less likely to fail on a reconviction. This was also true for Models 2 (*B* = -.503) and 3 (*B* = -.499). Stable work history also proved to be a significant predictor, but not as anticipated. Results in Table 5 show that men with stable work history were .238 times more likely to fail on a reconviction. These results prove different from previous research that has indicated offenders able to secure stable work are less likely to reoffend (Laub& Sampson, 2003; Western, Kling, &Weiman, 2001). However, it is important to note that this particular measure of work history does not capture if the offender obtained and sustained employment upon release, only if they have sustained a previous stable work history prior to incarceration.

In this particular model, the number of prior convictions now reports to be statistically significant. For men in this particular sample, the log odds ratios report that each additional prior conviction increases the chance for recidivism, though only slightly (*B* = .120). But another interesting fact stands out in the results for those offenders who failed on a reconviction: the influence of returning to transitional housing. Remaining a significant predictor in this model, for those parolees eventually returned on a reconviction, transitional housing appears to decrease the odds of recidivating (*B* = -.293). Also remaining a significant predictor is the level of rurality, as men continued to show greater odds of recidivating when returning to a rural county (*B* = .395). Furthermore, this model predicts for those returning to a county with more than one parole office are significantly less likely to fail on a reconviction (*B* = -.409), while those returning to a county with access to regular transportation service seem to experience an increased likelihood of failure (*B* = 1.619).

The third logistic regression model analyzing the probability of recidivism for parolees receiving technical violations are displayed in Table 6 (see Appendix). It is here where especially striking differences in probabilities were noted. Age, race and environmental characteristics remain central correlates in the model, but show a weaker influence. The first indicator that is noticeably different is that offenders with dependent children were more .587 times more likely to fail by technical violation – the opposite of what we saw with offenders who failed by reconviction. Additionally, stable work history is no longer statistically significant for this group.

Another indicator of difference is the predictive ability legal characteristics and criminal history. For each additional prior convictions sustained, this now reportedly lowers the odds for recidivism on a technical violation (B = -.106). Furthermore, the type of offense committed is also different for offenders in this group. Under this model, drug offenses were no longer statistically significant, but property offenses were and increased the odds for recidivism by .379. Variables of criminal history including salient factor score, number of misconduct violations, and the number of days served in prison were also no longer statistically significant in their predictive abilities for offenders who failed on a technical violation.

Reviewing environmental characteristics, drug dependence, marriage and returning to transitional housing remained centrally correlated as well. Similar to previous regression models, men identified as drug dependent were more likely to recidivate (B = .360), and those that returned to a sustained marriage were less likely (B = -.447). However, men returning to transitional housing were significantly more likely to fail on a technical violation by .542 times. These results were the complete opposite from the reconviction group. Most important of all, across all three measure of rurality (rural county; regular access to public transportation; and county with more than one parole office) were no longer statistically significant under this

regression model, and therefore can no longer serve as adequate predictors of recidivism for offenders failing on a technical violation.

When examining survival analysis of estimates on how long it takes parolees to recidivate, or their estimated time to failure, patterns emerged similar to logistic regression models but again with some notable differences. Reviewing estimated odds of the hazard of the event of failure, results in Table 7 (see Appendix) show age, race, criminal history, and certain environmental characteristics congruent with earlier results. As men increased each year in age, their hazard was decreased by .024, or in other words, experienced a 2.4 percent delay to failure. Whereas minority participants displayed a significant hazard increase, overall quickening their time to failure (*B* = .213). What especially stood out in this particular model is the offender having dependent children. This variable proved to be statistically significant, but indicates that men who are fathers experience a shortened time to failure (*B* = .144)

Following logistic regression models, participants who previously committed drug offenses, who were already less likely to recidivate, report noticeable delays in their time to failure based on survival analysis (*B* = -.233). The same held true for those offenders who committed other offenses. This group also experienced delayed times to failure (*B* = -.204). Criminal history patterns are also congruent with logistic regression models and suggest that those with higher salient factor scores (lower risk) take longer to fail (*B* = -.078); and those with more misconduct violations fail more quickly (*B* = .020), as well as men that served more days in in prison (*B* = .000)

Although participants who previously committed drug offenses reported delayed time to failure, men identified as drug dependent in the sample experienced a significant increase in hazard, thus decreasing their survival time while simultaneously quickening their time to failure

(*B* = .369). Similar results were obtained for those who returned to transitional housing (*B* = .240). These participants experienced an increase in hazard of that particular event, thus decreasing their odds of survival. Conversely, men who returned to their spouses upon their release were congruent with recidivism patterns; this group showed a significant delay in their time to failure (*B* = -.582).

Finally, and as anticipated, rurality proved to be a significant indicator in estimating times to failure. Men returning to rural counties upon release increase their hazard by 14.9 percent (*B* = .149), thus indicating these participants experienced shortened time to failure by returning to these areas. This would make sense as logistic regression models predicted that returning to a rural county increased the offender's chances for recidivating. Results in Model 2 show access to public transportation is no longer significant in estimating times to failure. When examining results in Model 3, however, it appears that parolees returning to counties with more than one parole office decrease their hazard by 17.5 percent. (*B* = -.175), thus delaying their time to failure.

The results from survival analysis of time to failure to recidivism on a reconviction are shown in Table 8 (see Appendix). Generally these covariates showed similar results to logistic regression and survival analysis for overall recidivism, however, some proved to be stronger estimates in time to failure. For instance, minority participants experienced a further increase in hazard (*B* = .282), and those with drug offenses doubled their decrease in hazard, thus significantly delaying time to failure (*B* = -.448). Having dependent children seemed to be particularly beneficial to this group, as each additional child appears decrease the odds of hazard by 22.9 percent (*B* = -.229). Similar to logistic regression results for this particular group, stable work history interacts differently with those who were eventually returned to prison on a

reconviction. Now statistically significant, these participants with a stable work history report a 15.4 percent (*B* = .154) increase in hazard and therefore tend to fail more quickly.

Reviewing legal characteristics, the number of prior convictions proves to be statistically significant for this group and men who eventually fail on reconvictions increase their hazard by 7.3 percent (*B* = .032) for each additional prior conviction they have sustained. Those who previously committed drug offenses continued to experience significant delays in time to failure (*B* = -.448), while again, drug dependent men in the sample reported a 30.3 percent (*B* = .303) hazard increase, thus quickening their time to failure.

Marriage remains a central correlate and continued delay in time to failure. Notably, transitional housing for offenders who fail on a reconviction is no longer statistically significant in estimating time to failure. Finally, parolees returning to rural counties that eventually fail on a reconviction report a 28.2 percent (*B* = .282) hazard increase, while those returning to counties with more than one parole office experience a 31.9 percent (*B* = -.319) decrease in their odds of hazard, thus delaying their ultimate failure. Notably, parolees returning to counties with regular transportation coverage reported shortened times to failure on a reconviction by 98.2% (*B* = .982).

For study participants who recidivate on technical violations, results for the survival analysis of time to failure are displayed in Table 9 (see Appendix). Again, age of the offender remains a central correlate, decreasing by .025 hazard odds each year as the offender gets older, however, the minority variable and stable work history are no longer statistically significant in this particular model. Having dependent children significantly increases hazard odds (*B* = .489), thus shortening time to failure for those recidivating on a technical violation. The number of prior convictions remains significant from the previous model depicted in Table 8, but for those

failing on a technical violation, each additional prior conviction decreases hazard odds by 6.6 percent (*B* = .066), conversely extending their time to failure. Again, criminal history patterns are also congruent with logistic regression models and suggest that those with higher salient factor scores (lower risk) take longer to fail (*B* = -.067); and those with more misconduct violations fail more quickly (*B* = .013).

When it comes to environmental variables, drug dependent men who eventually failed on a technical violation report .436 increased hazard odds, thus shortening their overall time to failure by 43.6 percent. This was also true for those returning to transitional housing and who failed on a technical violation (*B* = .506). What is more notable in this particular model is the measure of returning to family. Not statistically significant in any other model in this study, men who returned to family upon their release, and who eventually failed on a technical violation, slightly increased their hazard odds by 14.1 percent (*B* = .141) and failed more quickly compared to those who did not return to member of their family. Finally, all measures of rurality were found to be no longer statistically significant in estimating the time to failure for those offenders receiving technical violations. These results suggest that estimates of time to failure for a technical violation could not be as accurately captured as estimates of time to failure for a reconviction

Discussion and Limitations

This study was designed to explore the probabilities of recidivism among paroles who returned to rural counties compared to those returning to urban, as well as the possible influence public transportation may or may not have as a source of recidivism risk. The current study's goal was threefold. First, the difference between covariates and related concepts of recidivism risk were identified and compared across the rural-urban continuum. Next, these same covariates were further analyzed for differences between two measures of recidivism: those who fail by reconviction and those who fail by technical violation. Finally, this study was also concerned with determining if access to public transportation affects the probability for recidivism.

Overall, this analysis is congruent with existing models of recidivism, but more importantly, confirms the first set of hypotheses put forth and also supports more recent findings among rural offenders (Burden, 2009; Garland, Wodahl, & Mayfield, 2011). As anticipated, the probability (and therefore, risk) of recidivism is higher for parolees residing in rural areas (Hypothesis 1a), and participants in this group also experienced a shortened time to failure as well (Hypothesis 1b). Following previous models of recidivism, measures of age and race continued to be significant predictors in the likelihood of failure with younger men and men of color being more likely to recidivate, and at a more quickened pace. Like Huebner and Berg (2011) discovered in their original analysis, social relationships and drug dependent remain important predictors for the current study as well. Men who reportedly returned to a sustained marriage were significantly less likely to recidivate, and were delayed in their failure, while participants who claimed to be drug dependent were more likely to fail and in shorter periods of time. When looking at the offender's release setting and related environmental characteristics, results suggest that men who return to transitional housing experience higher probabilities for

recidivism and fail more quickly than those returning to family. These results, however, can only be applied when examining total failure of the sample, as differences existed based on if the offender failed by reconviction or by technical violation.

By separating probabilities of recidivism for reconviction versus probabilities of recidivism for technical violations, some interesting differences emerged. These unique distinctions help lend support for the second set of hypotheses put forth: that probabilities for recidivism will vary between reconvictions and technical violations (Hypothesis 2a) and estimations on the time to failure will also vary between these groups (Hypothesis 2b). For instance, transitional housing remained to be a strong predictor in the probability for recidivism overall, but these outcomes varied depending on whether the offender failed on a reconviction or technical violation. Parolees returning to transitional housing after the release were less likely to fail on a reconviction, but this living situation actually increased likelihood of failure on a technical violation, and shortened time to failure by half. Huebner and Berg (2011) point out that offenders are often placed in transitional housing when they pose a significant risk to the community or when they lack social support and capital. If transitional housing is a proxy for weak networks of social support and capital, then this could possibly explain why the measure of transitional housing is significantly related to risk of recidivism (Huebner & Berg, 2011). It is suggested that further examination is needed in order to parse out differences between offenders who fail by reconviction and those who fail by technical violation and the influence returning to transitional housing upon release has on these differences.

Continuing to look at measures of post-release context, social relationships also proved to be significant in their predictions of recidivism overall, but again, these measures depended the type of failure. As a majority of participants returned to live with family, this particular living

situation was found to be a significant predictor, but only in the estimate of time to failure (recidivism) for a technical violation. Surprisingly, this particular group of men displayed slightly shortened times to failure by returning to family. Huebner and Berg (2011) reported similar findings in their original analysis and have suggested that these results may imply those who return to family might be more at risk to re-offend since they are less equipped with the personal capital that is needed to successfully navigate the post-release period (Huebner & Berg, 2011). The fact that the current study yielded similar results for this measure calls for increased examination to the assumption that offenders who return to social networks, especially one that is kin-based, have relatively better chances of abstaining from crime after their release (Visher& Travis, 2003). Although beyond the scope of this study, it is suggested that future studies consider the quality of familial relationships, as well as the levels of strain and stigma returning individuals can have on their families, in order to better understand the reentry processes (Huebner & Berg, 2011).

Having dependent children also proved significant predictor in the risk for recidivism, and these probabilities, again, are dependent on the type of failure. Being a parent significantly decreased the probability for recidivism for the reconviction group, and these men were also delayed in their time to failure. Conversely, the complete opposite holds true for offenders eventually failing on a technical violation. These individuals experienced a much greater chance for recidivism after release, and on top of that, a shortened time to failure. These findings lend support to Huebner and Berg's (2011) notion that potential bonds to children could be part of long-term offender change and desistance. But being an offender and a parent at the same time can have negative effects as well and previous research has highlighted some of the difficulties and stress that can materialize from parent-child relationships (Braman, 2005; Slocum, Simpson,

& Smith, 2005). Generally, less than half of men live with their children prior to incarceration (Glaze &Maruschak, 2008) but a majority of men are court-ordered to pay child support. Therefore, it is reasonable to assume that this requirement can place further economic pressure on men who are on parole supervision, ultimately increasing their odds of failure (Visher, La Vigne, & Travis, 2004), especially for technical violations. It is a common knowledge that parenting a child comes with great responsibilities. Perhaps parents whom recidivate on a technical violation have a different relationship, bond and level of responsibility with their children compared to those who fail on a reconviction. With such disparity in the probability of recidivism and estimates of time to failure for this particular measure, more multilevel modeling is needed to better assess how the quality and nature of parent-child relationships affect the reentry process. And since nearly one third of parolees returning to rural counties reported being a parent to at least one dependent child during time of the study, it is further suggested that future models leave room for the rural perspective as well.

The number of parole offices available in a county also emerged as a significant predictor for the risk of recidivism, at least in the present research site. It is important to note that Missouri currently has 53 district parole offices spread across 115 counties. There are various satellite, district, IPO, and sub office domiciles available in several counties, but it is unclear if any of these locations are used for parole supervision and reporting services. The level of reentry services can vary across different environments. Because the current study is more concerned with rural environments where there typically is a lack of reentry services (Fitchen, 1991; Leukefeld et al., 2002; Robertson, 1997) simply having more than one parole office in a county proved to be an overall predictor for recidivism.

Burden (2009) previously examined location of parole office in her study of rural parolees, however, results were not statistically significant for this measure. Creating a similar measure to Burden, but one that is categorical in nature and not assessed spatially, results from the current study do show some significance from this new measure. Having more than one parole office within a single county (at least for the state of Missouri) decreased the likelihood for overall recidivism, as well as for those who failed by receiving a new reconviction. However, this measure was no longer statistically significant across prediction models for recidivism on a technical violation. Like Burden (2009), this study also did not include more meaningful parole supervision variables such as manpower and officer workload (Klinger, 1997), but it is agreed upon that future studies should make it a point to include better measures of both parole and police officers in *rural* communities. This may help to lend insight into the relationship between supervision and recidivism in these particular areas.

Although this study attempted to measure access to public transportation by examining the varying levels of bus service coverage, the results analyzing access to transportation and level of service coverage were unpredictable in their ability to estimate probabilities of recidivism and time to failure. Some models proved statistically significant, but with such inconsistency, the current recommends that future analyses find more accurate measures of access to public transportation. Therefore, the third and last set of hypotheses remains unconfirmed. However, it is worthy to point out that while a majority of parolees (72.62%) returning to rural counties experienced a complete lack of regular bus service coverage, only a small amount of the sample (19.14%) had regular, daily bus service available to them. With qualitative examinations and official commissions finding offender needs and challenges associated with transportation (Bucks County CCAP Commission, 2012; Due et al., 1990;

Garland, Wodahl, & Mayfield, 2011; Myers & Associates, Inc., 2012), it is highly suggested that future research on recidivism and prisoner reentry should focus on this usually-overlooked service, as it is one that the public, including offenders, depend on.

More importantly, rurality was found to be statistically significant in predicting the probability for overall recidivism, with results being particularly stronger for offenders failing on a reconviction. Adding support to Burden's (2009) previous findings, parolees who live in rural areas were significantly more likely to recidivate than parolees who live in urban areas. However, rurality failed to be statistically significant across logistic and survival models for those failing on a technical violation. Previous research has suggested that rural communities tend to have deeper friendship networks (Weisheit, Falcone, & Wells, 2006) and be less tolerant of deviance (Wilkinson, 1991). It is therefore plausible that parolees who return to rural, less populated areas "would find that the community they left not only remembered their past crimes, but also would be quick to report any current involvements in deviant or criminal behavior" (Burden, 2009: pg. 117). Again, rural social culture is different than social culture in urban areas and these differences play out in distinct ways in regards to forming social networks and gaining social capital (Weisheit & Wells, 1996). These differences also apply to returning offenders and may influence probabilities for recidivism in various ways.

Also, criminal justice officers tend to respond to crime and delinquency differently depending on the type of community they operate in (Burden, 2009; Stark, 1987; Klinger & Bridges, 1997). Parolees can be returned to prison for a wide array of offenses ranging from serious (e.g., committing a new burglary, assault, rape) to the more trivial, such as violations of their parole conditions (e.g., drinking alcohol, spending time with known felons) (Burden, 2009). Criminal justice officers operating in rural communities, including parole officers, have been

known to use more informal means of social control (Wilson, 1968; Weisheit, Falcone, & Wells, 2006) rather than a professional approach as typically seen in urban officers (Wilson, 1968). Due to possible increased levels of discretion, and that parolees may be apprehended for a wider array of offenses than the average individual (Burden, 2009), the current study insists for the need to closely examine parole client-officer relationships in rural environments.

While these findings contribute to the literature in innovative ways, current limitations of the study should be noted and discussed. First, the data sample examined is limited to adult males incarcerated in a single state; therefore, one should be cautious in interpreting results as generalizable. The particular research site may be an anomaly in levels of rurality, as well as urbanism; in the level of access and frequency of public transportation; and in the number and location of parole offices. Each of these variables can all drastically vary when compared to other states or countries. Future research continuing to focus on the rural perspective should examine similarly situated U.S. states for comparison, particularly other rural areas in the Midwest, West, Southern, and Appalachian regions.

Relatedly, minority variables in the current study were unable to account for other racial and ethnic groups, and future studies should therefore include more participants of color, especially those who identify as being Hispanic/Latino, Asian, or Native American. Since the current study sample reported very few Hispanic, Asian, and Native American offenders within the sample population, the author chose to only included offenders who were racially identified and coded as White/Caucasian or Black/African-American. Missouri currently reports a statewide Hispanic/Latino population of 3 percent (U.S. Census Bureau, 2010c), and these figures are even less for Asian and Native American residents. Thus, the racial and ethnic

makeup for this particular sample is limited[1]. It is highly recommended that forthcoming examinations of prisoner reentry include more diversity in their measures of race and ethnicity.

Finally, as only adult males were represented in this study, sources of risk for recidivism among rural *female* offenders should also be examined. It is likely that women parolees returning to rural communities have different experiences in their reentry process compared to women returning to the city, and these differences can shape future recidivism outcomes. As it has been touted by feminist criminologists that women enter gendered "pathways" to crime (Daly, 1992, 1994; Daly & Chesney-Lind, 1988) and therefore differ in offending experiences than men (Davidson & Chesney-Lind, 2009), rural *female* offenders should also be closely examined for their gender specific challenges and obstacles to reentry compared to rural male offenders. Specifically, as women with dependent children may need to utilize public transportation services in order to take their children to a doctor's appointment, meet with social service agents, and complete weekly errands such as grocery shopping. As Scroggins and Malley (2010) report specific transportation problems as a challenge to reentry for women offenders in urban areas, there is dire need for these types of transportation patterns to be examined across more rural environments.

Another limitation of importance involves the use of official records as data on technical violations and parole revocations can be highly subjective and vary substantially from state to

[1]It is important to note that data from institutional records maintained by the department of corrections included measures of race and ethnicity, however Huebner and Berg (2011) are apt to point out the small population of Hispanic inmates present in their original study sample. As the current study is using the same dataset, the remaining minute presence of men of color in the study population restricted analysis outcomes by ethnicity. Before assuming for missing cases, nearly all men were originally identified as of minority race in the sample are black (n = 1,214), but the minority measure also includes 15 Native American and seven Asian men (Huebner & Berg, 2011). Additionally, 60 men indicated that they were of Hispanic origin; 52 were Hispanic-white, six Hispanic-black, one Hispanic-Native American, and one Hispanic-Asian (Huebner & Berg, 2011).

state (Huebner & Berg, 2011). The current study is aware of this limitation and contends that as future examinations expand to other rural areas, it is necessary to conduct in-depth qualitative interviews with rural offenders in order to capture patterns of recidivism that may go unreported or undetected by criminal justice officials. Furthermore, like Huebner and Berg (2011), these data still do not reflect the full complexities of the incarceration and reentry experience. This study failed to address measures of the quality of offenders' social relationships, levels of post-release employment, the treatment they may have received while incarcerated, and self-report data on offenders' overall incarceration experience.

Though some studies have found that personalized treatment programs available in prison can positively affect recidivism (Cullen, 2002; Gaes, Flanagan, Motiuk, & Stewart, 1999), and that these effects are further intensified when coupled with extensive aftercare (Hiller, Knight, & Simpson, 1999), but these effects may not apply to rural offenders. Although treatment and reentry services are generally lacking among rural communities (Fitchen, 1991; Leukefeld et al., 2002; Robertson, 1997), even if these services were available, research has suggested that rural offenders may be hesitant to utilize them due to the negative stigmas attached to their use by community members (Rost, et al., 1993). Again, this is where in-depth qualitative research would be able to fill some of these remaining gaps as to if and how rural offenders obtain treatment and rehabilitative services once released, the quality of these services, the location of these services, and the overall availability, compared to similar services provided in urban areas.

Unlike Huebner and Berg (2011), the current study did not specify any clear timing of recidivism. Instead, timing was based simply on survival analysis estimates if time to failure was shortened or delayed based on three different measures of rurality, as well as type of recidivism. It is important to delineate between early, mid, and late timings in failure as it has been

suggested that desistance can best be viewed as an ongoing process (Bushway, Thornberry, &Krohn, 2003; Laub& Sampson, 2001; Maruna, 2001; Uggen, Manza, & Behrens, 2003). Timing was not in the scope of the current study, but scholars knowledgeable of the reentry process would surely benefit from examining the timing of recidivism of rural offenders and learning of their particular experiences in the desistance process[2].

A further limitation of importance is the inability to determine the exact address to where study participants originally returned. Having a street address or coordinated return location would allow for more advanced analysis utilizing Geographic Information Systems (GIS), which could prove to be extremely beneficial to spatial and ecological studies on patterns of recidivism and prisoner reentry. Addresses would also be able to serve as a reference check, as this study was unable to determine how long participants stayed in their return locations, if they moved, or if they still reside in the same location since the original time of study. Since rural offenders tend not to be as transient as those residing in urban areas (Oser et al., 2006), it would be interesting to see how many rural parolees have continued to reside in the same living situation they originally returned to. With more information and time, a detailed multimethod and ecologically based study of offenders returning to rural areas could be performed. Furthermore, the current study utilizes measures on the county level, which offers its own difficulties in operationalization and generalizability. Measures on this level may lead to a false sense of similarity within these

[2]Huebner and Berg (2011) previously examined the timing of failure in their study. Additionally, in order to better explore differences in recidivism timing, Huebner and Berg (2011) subdivided study participants into three groups: early, mid, and late failure. Men who failed within the first six months following release constituted as an *early failure*; those who failed between six months and three years after release were considered *mid failure*; and men who failed either on a reconviction or technical violation at any time greater than three years following the original study period were identified as a *late failure*. Notably, it is particularly the recognition of late failure that is unique to research on recidivism and desistance.

fairly large geographic units, and it is possible that certain towns or neighborhoods within counties can be more rural and isolated than others (Bouffard & Muftić, 2006). It is important that future studies look beyond the county level and more towards the neighborhood level, especially if social disorganization is to remain the theoretical foundation in explaining variances in rural recidivism outcomes.

Another limitation is that it is unknown if participants actually *utilized* public bus services during the original time of study as this study was more concerned with the level of access and frequency available to them in the research site. As some measures of accessibility to public transportation proved to be statistically significant in predicting probabilities and estimated time to failure in offenders, not all models were significant and the current study demonstrated inconsistent and varied results. In order to better capture these measures, future examinations should conduct in-depth qualitative interviews with rural offenders in order to gain increased knowledge on their specific transportation patterns, habits, and needs. It is further suggested that by combining qualitative and ethnographic methods along with empirical, quantitative methods, future multilevel and multimethod examinations are needed and may help provide more clarity on rural prisoner reentry.

Finally, and perhaps most important of all, is how the current study chose to define rurality[3]. Constituting exactly what is "rural" has proven a difficult challenge in scholarly literature. To date, one of the most commonly used operational definitions of rural is by U.S. Bureau of the Census standards. A place is deemed *rural* if it has a population of 2,500 or less, and also includes all other populations, housing, and territory not located within a designated

[3]For a complete and detailed understanding what is meant by the term "rural", see "What is Rural" located in the Appendix of Weisheit, Falcone, and Wells' (2006) *Crime and Policing in Rural and Small-Town America, 3rd Edition*.

urban area (U.S. Census Bureau, 2010). The terms *urban*, *urbanized area*, *urban cluster* and *rural* are all specifically defined by the Census Bureau; however, other agencies, whether federal, state, local or private, may use these same terms to identify areas, but may be based on entirely different criteria (Ricketts et al., 1998). It has even been suggested by some researchers that this definition should only serve as a rough guide for distinguishing rural from urban as it useful, but imprecise (Weisheit & Donnermeyer, 2000).

Additionally, rural communities can vary culturally, economically and socially (Weisheit & Donnermeyer, 2000). Residents tend to be distrustful of outsiders, stress self-reliance, be less supportive of public programs, and can often resist government involvement in their lives (Beltrame, 1978; Coward, DeWeaver, Schmidt & Jackson, 1983; Keller & Murray, 1982; Kenkel, 1986; Littrell&Littrell, 1991; Robertson & Donnermeyer, 1997; Seroka&Subramaniam, 1991; Swanson, Cohen & Swanson, 1979; Warner &Leukefeld, 2001; Weisheit & Donnermeyer, 2000). Due to such social diversity, making across-the-board generalizations about rural communities should be avoided at all costs (Murray & Keller, 1991). It is important to strictly define, operationalize, and measure rurality, but these measures need to look beyond simple population counts and acknowledge how rural communities and its members are affected by their surrounding landscape (Wodahl, 2006). Some scholars have even suggested that only when the concept of rural is broadly defined that the true nature of prisoner reentry to rural communities can be considered (Wodahl, 2006). In short, "rural" needs to be a flexible variable; one that is precisely clear, but broad enough to include the unique elements and influences of rural geography, culture and society.

Conclusion

While we do seem to have an overall idea of some of the specific challenges to reentry and risks associated with recidivism, this knowledge tends to only aptly apply to the urban offender. It is important that we also have similar amounts of knowledge from the rural perspective in order to provide a broader sense of the reentry process. This study has not only extended our knowledge of recidivism by focusing on parolees returning to rural counties, but also by incorporating a new obstacle to reentry that is beginning to be recognized in the field: transportation (Bucks County CCAP Commission, 2012; Due et al., 1990; Garland, Wodahl, & Mayfield, 2011; Myers & Associates, Inc., 2012). Additionally, the current study also looked at differences in probabilities of recidivism and estimated time to failure between reconvictions and technical violations.

First, this study verifies that certain demographic, legal and environmental characteristics influence the likelihood of recidivism, and that these influences react differently across rural and urban environments. Confirming the first set of hypotheses, offenders returning to rural counties showed higher probabilities for recidivating, as well as quicker times to failure. Confirming the second set of hypotheses, differences in probabilities for recidivism were found between offenders who failed on a reconviction and offenders who failed on a technical violation. As this analysis is only a beginning into looking at these differences, it is recommended that further reentry studies give more focus to the different methods, or types of recidivism. While the current study was able to partially confirm the third set of hypotheses, results were too inconsistent to make a fair assessment at this time. Therefore, an increased examination of how transportation affects prisoner reentry and recidivism, especially among rural offender populations, is warranted. This can be done through extensive multilevel methods that include

in-depth qualitative interview with rural offenders. Finally, this study also helps identify the importance of parole office location. Because offenders are required to report to their parole office on a regular basis, the location of these offices are critical, especially for offenders residing in more rural communities. Future research should also look to incorporate the geographic location of parole offices available to the particular study site in question and how close offenders are located to the nearest office.

With an increase in the amount of adults released to some form of community correctional supervision annually, exploration in areas of prisoner reentry and recidivism is still needed. We have only barely begun to make a dent in the study of recidivism by solely addressing the urban perspective, and much more knowledge is required from the rural perspective. In addition, it is also important to continually recognize and address any new potential challenges and obstacles to prisoner reentry as we advance during the 21st century. As modes of public transportation have been made available for all to use, it is necessary to further examine how offenders travel and navigate the reentry process and how this may pose a risk on their chance for recidivism.

APPENDIX

Table 1: Comparing Variable Characteristics Between Missouri And The United States

	Missouri	U.S.
General Characteristics		
Population	5,988,927	-
Land area (square miles)	68,885.93	-
Population density (per square mile)	81.2	79.6
Median Age	37.9	37.2
Percent Male	49.0	49.2
Female-Headed Households	12.3	13.1
Racial/Ethnic Composition		
Percent White	82.8	72.4
Percent Black	11.6	12.6
Percent Hispanic	3.5	16.3
Percent that speak second language	5.1	17.9
Percent native born	97.3	87.7
Economic Characteristics		
Median family income	$59,020	$64,293
Percent below poverty	14.3	14.3
Percent unemployed	8.1	8.7
Percent on public assistance	14.6	15.9
Housing Characteristics		
Percent vacant	12.4	11.4
Percent owner-occupied	68.8	65.1
Criminal Characteristics		
Violent Crimes (per 100,000)		
Homicide rate	6.1	4.7
Forcible rape rate	24.3	26.8
Robbery rate	104.3	113.7
Aggravated assault rate	312.7	241.1
Property Crimes (per 100,000)		
Burglary rate	745.7	702.2
Larceny-theft rate	2308.3	1976.9
Motor vehicle theft rate	254.8	229.6

Data obtained from U.S. Decennial Census (2010) and FBI Uniform Crime Reports (2011)

Table 2: Description of Variables Measured in Study

Type of Factor	Variables	Source	Year
Dependent variable			
Recidivism	Returned to prison through **reconviction** or revocation of parole due to **technical violation**.	MDOC	1998 - 2006
Independent variables			
Demographic characteristics	(1) Age (at release) (2) Minority (3) Dependent children (4) High school graduate/GED (5) Stable work history (6) Stable mental health	MDOC	1998 - 2006
Legal characteristics	(1) Number of prior convictions (2) Current offense (3) Property (4) Personal (5) Drug (6) Other (7) Salient factor score (8) Number of misconduct violations (9) Time served in prison (days)	MDOC	1998 - 2006
Environmental characteristics			
Release setting	(1) Drug dependent	MDOC	1998 - 2006
Living situation	(1) Sustained marriage (2) Returned to family (3) Returned to transitional housing (4) Enhanced supervision (5) Concentrated disadvantage	MDOC U.S. Census Bureau	1998 – 2006 2000
Rurality	(1) Metro (RUCC 1-3) (2) Nonmetro (RUCC 4-9)	Economic Research Service	2013
Population density	Number of people per square mile.	U.S. Census Bureau	2000

Table 2 (cont'd)

Type of Factor	Variables	Source	Year
Parole office location	(1) Has contiguous county office (2) Has county office (3) Has more than 1 county office	MDOC, Division of Probation and Parole	2013
Type of public transportation available	(1) Has OATS (2) Has SMTS (3) Has City (4) Has University (5) Has County (6) Has Other	Missouri Department of Transportation Missouri Public Transportation Association American Public Transportation Association	2013
Level of access	(1) No coverage (Has OATS or SMTS) (2) Partial coverage (Has University, County or Other) (3) Regular coverage (Has City)	Missouri Department of Transportation Missouri Public Transportation Association American Public Transportation Association	2013

Table 3: Descriptive Statistics for Study Sample (*n*= 3,296)

		All Returning Parolees (*n*= 3,296)		**Returning to Rural** (*n*= 840)	**Returning to Urban** (*n*= 2,456)
		Mean	*SD*		
Dependent variable					
Recidivated (1 = yes)		66.7%	.47	70.47%	65.47%**
	Reconviction	34.7%	.48	49.18%	46.87%***
	Technical violation	32.1%		29.64%	32.90%
Independent variables					
Demographic characteristics					
Age at release		32.47	9.53	31.59	32.76**
Minority (1 = Black)		33.19%	.47	11.55%	40.59%***
Dependent children (1 = one or more)		33.28%		34.4%	32.90%
High school graduate (1 = yes)		55.37%		55.95%	55.17%
Stable work history (1 = yes)		25.79%		26.55%	25.53%
Stable mental health (1 = yes)		93.11%		92.5%	93.32%
Legal characteristics					
Number of prior convictions		1.64	2.11	1.50	1.68*
Current offense					
	Property	40.84%	.49	44.88%	39.35%**
	Personal	23.82%	.43	19.52%	25.29%***
	Drug	19.60%	.39	15.60%	20.97%***
	Other	15.75%	.36	20.00%	14.29%***
Salient factor score		7.41		7.51	7.37
Number of misconduct violations		6.86	8.49	5.46	7.34***
Time served in prison (days)		768.74	871.52	590.53	829.68***

*p< .05; **p < .01; ***p < .001

Table 3 (cont'd)

		All Returning Parolees (n = 3,296)		Returning to Rural (n = 840)	Returning to Urban (n = 2,456)
		Mean	*SD*		
Independent Variables					
Environmental characteristics					
Release setting					
	Drug dependent (1 = yes)	21.84%		22.86%	21.5%
Living situation					
	Sustained marriage (1 = yes)	12.86%	.33	15.24%	12.05%*
	Intimate partner (1 = yes)	14.26%		15.48%	13.84%
	Returned to family (1 = yes)	48.97%	.50	52.38%	47.80%*
	Returned to transitional housing (1 = yes)	16.93%	.38	8.21%	19.91%***
	Enhanced supervision	23.45%	.42	32.86%	20.24%***
	Concentrated disadvantage	.000	.99	-0.41	0.14***
Rurality				25.49%	74.51%
Population density		1057.99	1898.68	62.71	1398.39***
Parole office location					
	Has contiguous county office	13.77%	.34	35.36%	6.39%***
	Has county office	40.26%	.49	31.92%	64.64%***
	Has more than one county office	45.96%	.50	0%	61.69%***
Level of access					
	No regular coverage	26.24%	.45	72.62%	10.38%***
	Partial coverage	59.50%	.39	27.38%	70.48%***
	Regular coverage	14.26%	.45	0.00%	19.14%***

*p< .05; **p < .01; ***p < .001

Table 4: Logistic Regression Models of Recidivism for Reconviction and Technical Violation

	Model 1			Model 2			Model 3		
	B	SE	OR	*B*	SE	OR	*B*	SE	OR
Demographic characteristics									
Age at release	-.037***	.005	.964	-.037***	.005	.964	-.037***	.005	.964
Minority (Black)	.488***	.107	1.628	.435***	.106	1.545	.501***	.109	1.650
Dependent children	.071	.088	1.073	.075	.088	1.078	.080	.088	1.083
High school graduate	-.143	.084	.867	-.154	.084	.858	-.144	.084	.866
Stable work history	.087	.096	1.091	.084	.096	1.087	.090	.096	1.094
Stable mental health	.100	.163	1.105	.110	.162	1.116	.122	.162	1.130
Legal characteristics									
Number of prior convictions	.023	.021	1.023	.019	.021	1.019	.022	.021	1.023
Property offense (current)	.221	.120	1.247	.215	.120	1.240	.215	.120	1.240
Drug offense (current)	-.260*	.128	.771	-.263*	.128	.769	-.265*	.128	.767
Other offense (current)	-.177	.143	.838	-.188	.143	.828	-.188	.143	.829
Salient factor score	-.117***	.020	.889	-.118***	.020	.899	-.114***	.020	.892
Misconduct violations	.034***	.007	1.035	.035***	.007	1.035	.035***	.007	1.036
Time served in prison (days)	.000***	.000	1.000	.000***	.000	1.000	.000***	.000	1.000
Environmental characteristics									
Drug dependent	.784***	.109	2.190	.789***	.109	2.200	.785***	.109	2.192
Sustained marriage	-.970***	.120	.379	-.959***	.120	.383	-.965***	.120	.381
Returned to family	.083	.082	1.087	.072	.082	1.075	.089	.082	1.093
Transitional housing	.333**	.121	1.395	.339**	.122	1.404	.342**	.121	1.408
Enhanced supervision	.036	.100	1.036	.042	.100	1.043	.046	.100	1.047
Concentrated disadvantage	-.057	.056	.945	-.030	.057	.970	-.021	.057	.980
Population Density	.000**	.000	1.000	.000**	.000	1.000	.000	.000	1.000
Measures of Rurality									
Rurality (Model 1)	.348***	.100	1.416						
Regular coverage (Model 2)				1.465*	.612	4.328			
More than one parole office (Model 3)							-.314**	.104	.731
Model Fit									
Nagelkerke R^2	.190			.188			.189		

*p< .05; **p < .01; ***p < .001

Table 5: Logistic Regression Models of Recidivism for Reconviction Only

	Model 1			Model 2			Model 3		
	B	SE	OR	*B*	SE	OR	*B*	SE	OR
Demographic characteristics									
Age at release	-.023***	.005	.978	-.023***	.005	.977	-.022***	.005	.978
Minority (Black)	.361***	.101	1.435	.295**	.099	1.343	.382***	.102	1.465
Dependent children	-.510***	.089	.601	-.503***	.089	.605	-.499***	.089	.607
High school graduate	.004	.081	1.004	-.007	.081	.993	.005	.081	1.005
Stable work history	.238*	.096	1.268	.233*	.096	1.263	.239*	.096	1.270
Stable mental health	.252	.158	1.287	.250	.157	1.284	.268	.157	1.307
Legal characteristics									
Number of prior convictions	.120***	.020	1.127	.115***	.020	1.122	.120***	.020	1.127
Property offense (current)	-.175	.113	.839	-.178	.113	.837	-.182	.113	.834
Drug offense (current)	-.474***	.129	.622	-.479***	.129	.619	-.480***	.129	.619
Other offense (current)	-.186	.143	.831	-.191	.143	.826	-.197	.143	.821
Salient factor score	-.089***	.019	.915	-.091***	.019	.913	-.086***	.019	.918
Misconduct violations	.030***	.006	1.030	.030***	.006	1.030	.030***	.006	1.031
Time served in prison (days)	.000***	.000	1.000	.000***	.000	1.000	.000***	.000	1.000
Environmental characteristics									
Drug dependent	.278**	.091	1.320	.285**	.091	1.330	.281**	.091	1.325
Sustained marriage	-.734***	.143	.480	-.721***	.143	.486	-.728***	.143	.483
Returned to family	-.075	.079	.927	-.091	.079	.913	-.070	.079	.932
Transitional housing	-.293**	.116	.746	-.289**	.117	.749	-.285**	.117	.752
Enhanced supervision	-.098	.095	.907	-.091	.095	.913	-.095	.095	.909
Concentrated disadvantage	-.017	.055	.983	.014	.055	1.014	.033	.056	1.003
Population Density	.000	.000	1.000	.000**	.000	1.000	.000	.000	1.000
Measures of Rurality									
Rurality (Model 1)	.395***	.094	1.484						
Regular coverage (Model 2)				1.619**	.610	5.047			
More than one parole office (Model 3)							-.409***	.102	.664
Model Fit									
Nagelkerke R^2	.135			.131			.134		

*p< .05; **p < .01; ***p < .001

Table 6: Logistic Regression Models of Recidivism for Technical Violation Only

	Model 1			Model 2			Model 3		
	B	SE	OR	*B*	SE	OR	*B*	SE	OR
Demographic characteristics									
Age at release	-.017**	.005	.983	-.017**	.005	.983	-.017**	.005	.983
Minority (Black)	.117	1.00	1.124	.131	.098	1.140	.105	.101	1.110
Dependent children	.587***	.084	1.799	.586***	.084	1.796	.584***	.084	1.794
High school graduate	-.116	.080	.890	-.114	.080	.892	-.117	.080	.889
Stable work history	-.161	.097	.851	-.160	.097	.852	-.162	.097	.850
Stable mental health	-.120	.152	.887	-.120	.152	.887	-.127	.152	.881
Legal characteristics									
Number of prior convictions	-.106***	.023	.899	-.106***	.023	.900	-.107***	.023	.899
Property offense (current)	.379**	.115	1.461	.379**	.115	1.461	.382**	.115	1.465
Drug offense (current)	.219	.127	1.245	.221	.127	1.247	.220	.127	1.246
Other offense (current)	.025	.146	1.026	.026	.147	1.026	.031	.147	1.032
Salient factor score	-.033	.019	.968	-.032	.019	.968	-.033	.019	.967
Misconduct violations	.001	.006	1.001	.001	.006	1.001	.001	.006	1.001
Time served in prison (days)	.000	.000	1.000	.000	.000	1.000	.000	.000	1.000
Environmental characteristics									
Drug dependent	.360***	.091	1.433	.358***	.091	1.431	.358***	.091	1.431
Sustained marriage	-.447**	.129	.639	-.451**	.129	.637	-.449***	.129	.638
Returned to family	.142	.078	1.153	.143	.079	1.154	.141	.078	1.151
Transitional housing	.542***	.109	1.720	.545***	.110	1.724	.536***	.109	1.709
Enhanced supervision	.135	.096	1.144	.132	.096	1.141	.135	.096	1.145
Concentrated disadvantage	-.026	.053	.974	-.030	.054	.970	-.041	.054	.960
Population Density	.000	.000	1.000	.000	.000	1.00	.000	.000	1.000
Measures of Rurality									
Rurality (Model 1)	-.093	.096	.912						
Regular coverage (Model 2)				-.209	.588	.811			
More than one parole office (Model 3)							.128	.100	1.137
Model Fit									
Nagelkerke R^2	.075			.075			.075		

*p< .05; **p < .01; ***p < .001

Table 7: Survival Analysis of Time to Failure to Recidivism for Reconviction and Technical Violation

	Model 1			Model 2			Model 3		
	B	SE	OR	*B*	SE	OR	*B*	SE	OR
Demographic characteristics									
Age at release	-.024***	.003	.976	-.024***	.003	.976	-.024***	.003	.976
Minority (Black)	.213***	.056	1.238	.184**	.055	1.202	.225***	.056	1.252
Dependent children	.144**	.048	1.155	.146**	.048	1.158	.147**	.048	1.158
High school graduate	-.061	.045	.941	-.065	.045	.937	-.059	.045	.942
Stable work history	.032	.054	1.032	.028	.054	1.029	.029	.054	1.030
Stable mental health	-.046	.086	.955	-.049	.086	.952	-.044	.086	.957
Legal characteristics									
Number of prior convictions	.014	.011	1.014	.012	.011	1.012	.013	.011	1.013
Property offense (current)	.044	.063	1.045	.045	.063	1.046	.038	.063	1.039
Drug offense (current)	-.233**	.073	.792	-.236**	.072	.790	-.235**	.073	.790
Other offense (current)	-.204*	.082	.815	-.209*	.082	.811	-.215**	.082	.807
Salient factor score	-.078***	.011	.925	-.079***	.011	.925	-.077***	.011	.926
Misconduct violations	.020***	.003	1.020	.020***	.003	1.020	.020***	.003	1.020
Time served in prison (days)	.000***	.000	1.000	.000***	.000	1.000	.000***	.000	1.000
Environmental characteristics									
Drug dependent	.369***	.049	1.446	.372***	.049	1.451	.377***	.049	1.458
Sustained marriage	-.582***	.081	.559	-.574***	.081	.563	-.577***	.081	.562
Returned to family	.054	.044	1.055	.049	.044	1.051	.055	.044	1.057
Transitional housing	.240***	.062	1.271	.236***	.062	1.266	.246***	.062	1.278
Enhanced supervision	.038	.053	1.038	.040	.053	1.041	.038	.053	1.039
Concentrated disadvantage	-.035	.030	.965	-.025	.031	.975	-.015	.031	.985
Population Density	.000	.000	1.000	.000	.000	1.000	.000	.000	1.000
Measures of Rurality									
Rurality (Model 1)	.152**	.053	1.165						
Regular coverage (Model 2)				.472	.331	1.603			
More than one parole office (Model 3)							-.175**	.057	.839
Model Fit									
-2 Log likelihood	33,071.178			33,077.404			33,069.787		

*p< .05; **p < .01; ***p < .001

Table 8: Survival Analysis of Time to Failure to Recidivism for Reconviction Only

	Model 1			Model 2			Model 3		
	B	SE	OR	*B*	SE	OR	*B*	SE	OR
Demographic characteristics									
Age at release	-.023***	.004	.977	-.024***	.004	.977	-.023***	.004	.977
Minority (Black)	.282***	.007	1.326	.223**	.076	1.249	.299***	.078	1.349
Dependent children	-.229**	.072	.795	-.225**	.072	.799	-.225**	.072	.799
High school graduate	-.013	.062	.987	-.021	.062	.979	-.013	.063	.987
Stable work history	.154*	.074	1.166	.145*	.074	1.156	.148*	.074	1.159
Stable mental health	.077	.124	1.080	.068	.124	1.070	.079	.124	1.082
Legal characteristics									
Number of prior convictions	.073***	.014	1.075	.069***	.014	1.072	.071***	.014	1.074
Property offense (current)	-.137	.085	.872	-.134	.085	.875	-.148	.085	.862
Drug offense (current)	-.448***	.102	.639	-.451***	.102	.637	-.451***	.102	.637
Other offense (current)	-.260*	.111	.771	-.267*	.111	.765	-.277*	.111	.758
Salient factor score	-.089***	.014	.915	-.090***	.014	.914	-.087***	.014	.917
Misconduct violations	.027***	.004	1.028	.027***	.004	1.028	.028***	.004	1.028
Time served in prison (days)	.000***	.000	1.000	.000***	.000	1.000	.000***	.000	1.000
Environmental characteristics									
Drug dependent	.303***	.068	1.354	.311***	.068	1.365	.315***	.068	1.370
Sustained marriage	-.691***	.124	.501	-.680***	.124	.506	-.686***	.124	.503
Returned to family	-.027	.061	.973	-.039	.061	.962	-.024	.061	.976
Transitional housing	-.051	.093	.951	-.056	.093	.945	-.044	.093	.957
Enhanced supervision	-.020	.073	.981	-.006	.043	.994	-.015	.072	.985
Concentrated disadvantage	-.026	.043	.974	-.006	.043	.994	.011	.043	1.011
Population Density	.000	.000	1.000	.000*	.000	1.000	.000	.000	1.000
Measures of Rurality									
Rurality (Model 1)	.282***	.071	1.326						
Regular coverage (Model 2)				.982*	.476	2.670			
More than one parole office (Model 3)							-.319***	.080	.727
Model Fit									
-2 Log likelihood	17,178.827			17,189.929			17,177.792		

*p< .05; **p < .01; ***p < .001

Table 9: Survival Analysis of Time to Failure to Recidivism for Technical Violation Only

	Model 1			Model 2			Model 3		
	B	SE	OR	*B*	SE	OR	*B*	SE	OR
Demographic characteristics									
Age at release	-.025***	.004	.976	-.025***	.004	.976	-.025***	.004	.976
Minority (Black)	.147	.080	1.158	.147	.079	1.158	.152	.081	1.164
Dependent children	.489***	.066	1.631	.489***	.066	1.631	-.489***	.066	1.631
High school graduate	-.104	.064	.901	-.104	.064	.901	-.104	.064	.902
Stable work history	-.094	.080	.911	-.094	.080	.911	-.094	.080	.910
Stable mental health	-.158	.119	.854	-.158	.119	.854	-.157	.119	.855
Legal characteristics									
Number of prior convictions	-.066***	.019	.937	-.065***	.019	.937	-.066***	.019	.937
Property offense (current)	.241*	.94	1.272	.241*	.094	1.272	.240*	.094	1.271
Drug offense (current)	-.013	.104	.987	-.014	.104	.987	-.013	.104	.987
Other offense (current)	-.162	.122	.851	-.161	.122	.851	-.163	.122	.849
Salient factor score	-.067***	.016	.935	-.067***	.016	.935	-.067***	.016	.936
Misconduct violations	.013**	.104	.987	.013**	.005	1.013	.013**	.005	1.013
Time served (days)	.000***	.000	1.000	.000***	.000	1.000	.000	.000	1.000
Environmental characteristics									
Drug dependent	.436***	.071	1.546	.435***	.071	1.546	.437***	.071	1.548
Sustained marriage	-.478***	.107	.620	-.478***	.107	.620	-.478***	.107	.620
Returned to family	.142*	.063	1.152	.142*	.064	1.153	.142*	.063	1.152
Transitional housing	.506***	.085	1.659	.506***	.085	1.658	.510***	.085	1.665
Enhanced supervision	.104	.078	1.109	.104	.078	1.110	.102	.078	1.108
Concentrated disadvantage	-.040	.043	.960	-.041	.043	.960	-.038	.044	.963
Population Density	.000	.000	1.000	.000	.000	1.000	.000	.000	1.000
Measures of Rurality									
Rurality (Model 1)	-.002	.079	.998						
Regular coverage (Model 2)				-.034	.463	.967			
More than one parole office (Model 3)							-.023	.081	.977
Model Fit									
-2 Log likelihood	15,717.218			15,717.214			15,717.140		

*p< .05; **p < .01; ***p < .001

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