RESEARCH REPORT

Validation of the Employment Retention Inventory
An Assessment Tool of the National Institute of Corrections

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Executive Summary

Purpose

This report summarizes findings from the first validation study of the National Institute of Corrections (NIC) Employment Retention Inventory (ERI). The ERI is an assessment tool designed to detect potential job loss risks and needs among justice-involved and behavioral health populations.

Scope

From September 2013 to August 2016, the Urban Institute (Urban) worked collaboratively with NIC’s Community Services Division to assess the ability of the ERI to predict employment-related risks and job loss among criminal justice-involved individuals in two diverse jurisdictions—Jackson County, OR and Allegheny County, PA. Researchers also examined the relationship between employment and recidivism.

Methods

In both study sites, individuals on probation and parole were recruited for study participation from May to October 2014; a total of 253 employed and 159 unemployed individuals participated in the study. Study participation included baseline completion of a short online survey in which the ERI was embedded, and collection of follow-up data on employment and recidivism eight and 12 months later, respectively.

Findings

Overall, items in the ERI showed strong face and content validity and readability at a 6th grade level, with study participants reporting ease and comfort in taking the computerized, self-administered questionnaire. Looking at the ERI’s predictive validity, the instrument performed fair overall with excellent ratings for those in rural Jackson County. Findings also support a linkage between employment retention and recidivism.

Next Steps

A replication validation of the ERI is currently underway to assess the instrument’s validity for a larger sample of individuals, covering the full array of employment experiences for justice-involved and behavioral health populations. The goal is to study the ERI’s implementation in practice, when administered by NIC-trained Employment Retention Specialists and applied to individuals from a diversity of backgrounds.
Introduction

From September 2013 to August 2016, the Urban Institute (Urban) worked collaboratively with the National Institute of Corrections (NIC) Community Services Division to conduct this first validation study of NIC’s Employment Retention Inventory (ERI). The ERI is an assessment tool designed to detect potential job loss risks and needs among justice-involved and behavioral health populations. Finding and retaining a job is one of the most critical components of individuals’ reintegration into the community, because employment can provide an ongoing source of financial stability and social support. The ERI is intended to aid practitioners working with justice-involved and behavioral health populations by helping them identify which clients are at highest risk of job loss, so that limited resources can be targeted most efficiently to address their employment retention needs.

The ERI is one key part of NIC’s employment initiatives designed to improve individuals’ chances for successful community reintegration through gainful attachment to the workforce and, ultimately, to lower the likelihood of recidivism for justice-involved individuals. As such, Urban’s evaluation focused on (1) assessing the ability of the ERI to predict employment-related risks and job loss among criminal justice-involved individuals and (2) examining the relationship between employment retention and recidivism using data collected for approximately 400 individuals on community supervision in two diverse jurisdictions. Researchers also conducted qualitative interviews with stakeholders in these jurisdictions to capture the employment landscape and job-related resources available to justice-involved individuals in these locations.

This report presents the findings from the ERI validation and recidivism analysis. It is divided into seven sections. First, we discuss the importance of the ERI given that employment can be critical to helping individuals successfully reintegrate into communities following involvement with the criminal justice system. In so doing, we describe the relevance of employment attachment to recidivism avoidance, the key barriers to employment retention noted in the literature, and the utility of risk and needs assessment tools in identifying these barriers. Second, we describe the purpose, development, and general content of the ERI for those unfamiliar with the instrument. Third, we detail the methods used to examine and test the ERI’s validity and reliability in two diverse sites: Jackson County, Oregon and Allegheny County, Pennsylvania. Fourth, we describe the baseline characteristics of the study participants in each site. Fifth, we present results from this initial validation study of the ERI tool; notably, a replication validation is currently underway, as of September 2016. Sixth, as a secondary study goal, we explore the link between individuals’ employment status at baseline and their subsequent recidivism behaviors using the official records data collected by the study. Finally, we
discuss the key lessons learned from the study and next steps toward advancing the evidence base for NIC’s employment training curriculum and ERI tool.
Importance of Employment Retention

Research has long demonstrated that stable employment is one of the most deeply embedded markers of adult success and social acceptance (Atkinson 1998; Caspi et al. 1998; Winkelmann 2009) and is strongly related to individuals’ physical, mental, and social health (Egerter et al., 2008; Hammarstrom and Janlert 2002; Wadsworth, Montgomery, and Bartley 1999). For individuals returning from incarceration, employment can play a central role in the transition back to the community, providing financial means that can serve as a platform for securing other important sources of stability, such as longer-term housing, child support, and family reunification (Fontaine and Biess 2012; Geller, Garfinkel, and Western 2011).

Particularly during the initial months after release, studies have found that unemployment corresponds with an increased risk of, and shorter time to, recidivism (Kethineni and Falcone 2007; Skardhamar and Telle 2012; Tripodi, Kim, and Bender 2009). Employment is also widely accepted as one of the top eight risk factors, or criminogenic needs, associated with the likelihood of recidivism (Andrews and Bonta 2007; Wooditch, Tang, and Taxman 2014).

Barriers to Employment Retention

Individuals returning from incarceration and those with other types of justice involvement often face barriers to reintegration that make both obtaining and maintaining employment simultaneously more difficult and more essential for stability. Many of these barriers—including housing instability, disrupted work experience, and lack of transportation—have been identified as barriers for employment retention in the general population and disproportionately affect people with criminal justice involvement (Morenoff and Harding 2014; Petersilia 2003; Western 2002; Visher and Travis 2003). The stigma associated with prior justice involvement can also make it difficult for individuals to obtain or retain employment, although recently, the US Equal Employment Opportunity Commission issued guidelines specifying the exact circumstances under which consideration of justice involvement can affect employment hiring decisions (i.e., only when directly relevant to the job opportunity and accompanied by the chance to explain one’s record in an interview). These guidelines, however, have been slow to take effect nationwide.
Employment barriers can affect individuals’ ability to access jobs as well as their ability to retain employment over time. Practical challenges such as transportation issues (Visher and Travis 2003) and unstable housing can be significant barriers to maintaining employment (Geller and Curtis 2011). Transportation issues include lack of a vehicle, dependence on unreliable public systems (e.g., irregular bus schedule), and lack of a driver’s license—all of which can affect employment retention when individuals are unable to get to work on time or at all (Corcoran, Danziger, and Tolman 2004; Danziger 1999). Housing instability can also lead to employment turnover by requiring individuals to search for housing and maintain employment at the same time. Not only does this pose a significant burden in terms of stress and time, but it may require employees to take time off of work and make it difficult for employers to communicate with individuals whose contact information is in constant flux (Olson and Pavetti 1996).

Housing instability may particularly impact employment when coupled with childcare responsibilities (Hofferth and Collins 2000), which have also been associated with leaving the workforce, particularly for women (Corcoran, Danziger, and Tolman 2004; Danziger 1999; Hofferth and Collins 2000). Among low-income individuals in particular, housing instability, family obligations, and transportation issues can pose heightened barriers to employment retention.

Additionally, the jobs available to individuals returning from incarceration are typically low-paying with few benefits, poor working conditions, and limited opportunities for advancement. These realities can leave individuals financially vulnerable and weaken any feelings of job attachment or satisfaction, increasing the likelihood that employees will leave and, in some cases, return to informal work or illegal income sources (Holzer, Raphael, and Stoll 2003; Visher, Debus, and Yahner 2008). Some research also suggests that the reentry population may be particularly vulnerable to job loss during economic downturns or industry slowdowns (“last hired, first fired”) (D’Alessio, Stolzenberg, and Eitle 2014).

Within the workplace, predictors of job loss include insufficient work skills and training, lack of relevant experience, and limited educational attainment (Corcoran, Danziger, and Tolman 2004). These issues can be obstacles not only to obtaining a job but also to maintaining it over time, if employers or employees perceive they are unable to meet job responsibilities or comply with workplace norms (Cortis, Bullen, and Hamilton 2013; Danziger 1999; Hershey and LaDonna 1997; Holzer and LaLonde 2000; Holzer, Stoll, and Wissoker 2004). Additionally, experiencing or perceiving workplace discrimination—particularly the experience of multiple forms or ongoing discrimination—may lead individuals to leave employment (Corcoran, Danziger, and Tolman 2004; Danziger 1999). Discrimination can be based on any number of factors, including an individual’s race, gender, age, sexual orientation, and criminal record. The effects of discrimination and other employment barriers can be
heightened for people facing multiple compounding issues, such as prior justice involvement and supervision reporting requirements (Danziger 1999; Phinney et al. 2007).

“On applications for employment, it is required to list your criminal background in Pittsburgh. This is not the case in all areas of the country. I believe that this is the main reason that I haven’t been able to find work.”
—ERI study participant, 27-year-old white male (Allegheny County, PA)

Studies have found that attitudinal, interpersonal, and workplace behavior-related factors are also among the strongest predictors of both voluntary and involuntary job loss (Griffeth, Hom, and Gaertner 2000). Common attitudinal correlates include overall job satisfaction and organizational commitment or intent to stay (Griffeth, Hom, and Gaertner 2000; Kirschenbaum and Weisberg 1990; Waters and Roach 2006). Interpersonal relationships and behaviors linked to employment retention include cohesion with coworkers, emotional competency and maturity, communication skills, and perception of coworkers’ level of attachment to their job (Cortis, Bullen, and Hamilton 2013; Griffeth, Hom, and Gaertner 2000; Hoggart et al. 2006; Kirschenbaum and Weisberg 1990; Mishra and Mohapatra 2010; Mossholder, Settoon, and Henagan 2005). Other workplace behaviors that contribute to job loss are poor time management (e.g., punctuality and absenteeism), lack of safety, and unsatisfactory job performance (Boden, Biddle, and Spieler 2001; Cortis, Bullen, and Hamilton 2013; Dembe et al. 2007; Griffeth, Hom, and Gaertner 2000; Holzer, Stoll, and Wissoker 2004; Waters and Roach 2006).

Substance use and physical and mental health issues can also significantly inhibit an individual’s ability to find a job and can lead to job loss (Holzer, Raphael, and Stoll 2003). A 2006 report commissioned by the President’s New Freedom Commission on Mental Health detailed a number of ways in which psychiatric disabilities bar individuals from both obtaining and retaining work, despite self-reported willingness and ability to work. These barriers included low educational attainment, lowered productivity as a result of disabling disorders, unfavorable labor market conditions, discrimination and stigma, lack of support services, and other factors (Cook 2006; see also Lerner et al. 2004; Russinova et al. 2011).
For both mental health and substance abuse issues, research has found that employment may compete with treatment when individuals have high levels of financial need: viewing employment as a higher immediate priority, individuals may attend treatment less or stop altogether, even if the underlying need for treatment remains (Cook 2006; Schechter 1997). This has particular significance for the reentry population, given that their rates of mental health and substance abuse diagnoses are substantially higher than among the general population (Fazel, Bains, and Doll 2006; Kim, Becker-Cohen, and Serakos 2015; Lamb and Weinberger 1998). Relatedly, Visher, Debus, and Yahner (2008) found that, among those recently released from incarceration, individuals who remained abstinent from illegal drug use were more likely to report employment eight months after prison release and reported being employed for a larger percentage of time during that period. They also identified other factors that were positively related to job retention, including younger age, white/Caucasian race, stronger pre-prison employment history, ability to obtain valid photo identification, and owing debt.

Given the difficulties that justice-involved individuals and others with behavioral health problems often face in finding and retaining employment, tools like the ERI can be critical to helping practitioners identify and address the risks and needs that are of highest priority.

Assessment to Identify Employment Barriers

The ERI was developed as a tool to help case managers identify the employment-related risks and needs of justice-involved and behavioral health populations, so that practitioners can work to address those issues through case management¹ and service provision. Tools like the ERI can help justice-serving practitioners establish a clear road to the most appropriate and individually responsive services for

¹ Case management includes monitoring individuals to ensure their completion of court-ordered sanctions and evaluating individuals’ needs so as to connect them to appropriate services (Taylor 2014).
successful reintegration outcomes—the most frequently measured of which is recidivism (Mohanan, John, and Skeem 2014).

Accordingly, the ERI can function as a risk and needs assessment tool if it helps practitioners optimize use of the justice system’s limited resources by differentiating between individuals with few job retention needs, who are at low risk of negative outcomes, and those with high risk of unsuccessful reintegration outcomes and greater employment-related needs. Studies have shown that when justice systems prioritize resources to attend to those at highest risk and highest need, they can ensure the greatest public safety benefits (Andrews, Bonta, and Wormith 2006; Onifade et al. 2008). Some research also shows that resource-efficient supervision strategies can have as much effect in reducing recidivism, if not more, as incarceration (Gendreau et al. 2001).

Ultimately, the ERI is intended to function as a means for helping individuals by highlighting potential employment-related service needs. After a client completes the ERI assessment, they are to review each response, side by side, with their case manager or probation officer. NIC’s training program describes the process by which correctional practitioners can engage in a positive conversation with their client—using motivational interviewing techniques and cognitive behavioral strategies—to help the client rethink any negative attitudes or decision-making that could affect employment and understand whether and how services may be helpful to ensuring or encouraging job retention.

Employment Retention and Recidivism

Although the link between employment retention and long-term recidivism has been inconsistently analyzed in the literature, a substantial body of research suggests a correlation between obtaining employment and avoiding recidivism; generally, people who are employed after release from incarceration have a lower likelihood of recidivating (Kethineni and Falcone 2007; Skardhamar and Telle 2012; Tripodi, Kim, and Bender 2009). Research on criminogenic risk and needs indicators also consistently identifies employment as one of the top dynamic risk factors related to post-release recidivism (Andrews and Bonta 2007).

Employment attachment and retention are likely correlated with recidivism behaviors because of their integral relationship with a range of factors that contribute to individuals’ overall stability and resiliency as they return to the community. For example, securing gainful employment is an important step in acquiring permanent housing in the months after release, which is associated with reduced recidivism (Olson and Pavetti 1996). Employment can also help returning individuals adopt a more
supportive financial role with family members and thereby strengthen family relationships, increasing the likelihood that family will serve as a supportive network through the reentry process (Fontaine and Biess 2012; Geller, Garfinkel, and Western 2011). Similarly, family networks can provide a source of support that assists returning individuals in finding and maintaining employment (Berg and Huebner 2010; Naser and La Vigne 2006).

In these ways, employment retention can play a critical role in reducing recidivism and helping individuals attain broader stability in the reentry process. Understanding and addressing the link between employment and recidivism, however, requires disentangling it from other factors influencing recidivism in a way that allows service providers to address the unique combination of issues experienced by each individual. With that goal in mind, the ERI was designed to empower practitioners with the ability to identify individuals’ unique employment retention needs, so that they might be addressed through appropriate service interventions.
The Employment Retention Inventory

The Employment Retention Inventory (ERI) and its supporting curriculum were developed by the National Institute of Corrections (NIC) in collaboration with Learning Designs, Inc. to support NIC’s larger employment retention efforts. Since surfacing on NIC’s radar in March 1999 at a national forum sponsored by NIC and the Safer Foundation, job retention for justice-involved individuals has become a priority for federal assistance across institutional and community corrections programs. Responding to the challenge identified by studies showing lack of sustained employment as a key risk factor for recidivism (see, e.g., Caudy, Durso, and Taxman 2014), NIC first sponsored development of its Employment Retention Initiative in 2007 and administered the first pilot training in January 2011. Then and now, the initiative’s chief goal is to enhance the ability of case managers and corrections practitioners to support clients’ job attainment and retention. Ultimately, the initiative aims to propel policies supporting the provision of employment services for both justice-involved people and those with behavioral health issues who lack steady, long-term employment and are at high risk of job loss.

In its inception, NIC’s Employment Retention Initiative program developed a curriculum integrating principles of adult learning theory and practice to aid correctional practitioners in helping clients avert preventable job loss. Through combined application of cognitive behavioral therapy principles and motivational interviewing techniques, the Employment Retention Initiative has equipped trained corrections and behavioral health staff to assess individuals’ unique job loss indicators and identify and break the chain of events that would otherwise affect their gainful employment.

Gainful Attachment to the Workforce

As described by NIC’s Correctional Program Specialist, P. Elizabeth Taylor (2016), obtaining a job is the first step on a continuum promoting “gainful attachment to the workforce,” the pathway to meaningful and lasting employment experiences. The goal is not only to obtain a job, but to retain that workforce attachment in the long term, with increasingly smaller gaps of unemployment between jobs. Only through such attachment to the workforce can the benefits of employment in reducing recidivism be maintained over time (Blitz 2006; Holzer, Raphael, and Stoll 2003; Kazemian, Farrington, and LeBlanc 2009; Makarios, Steiner, and Travis 2010; Wooditch, Tang, and Taxman 2014). The goal of NIC’s
Employment Retention Initiative is to help practitioners recognize and target clients’ employment retention needs so as to encourage and support gainful attachment to the workforce.

“I think it would help if probation/parole had a component that specialized in helping us find jobs with employers who are willing to hire and pay a livable wage.”
—ERI study participant, 45-year-old African American male (Allegheny County, PA)

The ERI is intended to serve as a self-administered, employment retention risk and needs assessment tool that, once completed by clients, can help criminal justice practitioners (e.g., probation and parole officers) and behavioral health practitioners, including case managers and employment specialists, to identify those at highest risk of job loss, as well as the areas in which employment-focused service interventions will be most effective. Drawing on extant research, the tool was developed by Learning Designs Inc. in collaboration with NIC to contain approximately 40 items designed to predict an individual’s likelihood of staying employed and attached to the workforce.

The 40 items on the ERI are grouped into the following seven domains:

1. Employment barriers (e.g., transportation, housing, perceived discrimination)
2. Stress (e.g., lack of respect at work, life stress due to job)
3. Time management (e.g., late for job start, leave job too early)
4. Family and friends (e.g., family/friends don’t work/don’t care about a job)
5. Substance use (e.g., cravings/dreams about using drugs/drug lifestyle)
6. Mental health (e.g., feeling down, poor sleep, unstable mood)
7. Possible job loss (e.g., going to be fired soon, may be laid off soon)

Two additional items measure clients’ perceived importance of and confidence in retaining their job.

As mentioned previously, the ERI is intended to facilitate long-term employment retention by helping case managers and correctional staff identify potential job loss risks and needs that must be addressed to improve a client’s long-term reintegration success. Long-term employment retention is defined as continued attachment to the workforce regardless of whether it is with a single employer or a series of employers. This definition is commonly used in studies of difficult-to-employ populations (Houston 2001; Shawn and Martinson 2000). In the next section, we describe the evaluation methods undertaken to empirically validate the ERI.
Evaluation of the ERI

This section identifies the research questions guiding the analysis and the data sources supporting it, and provides information about the two selected validation sites of Jackson County, OR, and Allegheny County, PA.

Research Questions

The ERI evaluation was designed to address the following four research questions:

1. How strong is the construct validity of the ERI as assessed by examining its face/content validity, factorial validity, internal consistency reliability, and convergent/concurrent validity?

The items on the ERI appear on their face to cover many of the domains relevant in the literature to employment and recidivism (e.g., social support, substance use, mental health). Urban researchers expected the ERI to demonstrate strong measures of these types of validity, which focus on the conceptual similarities among the included items.

2. How strong is the predictive validity of the ERI as assessed by examining its sensitivity, specificity, area under the curve, positive/negative predictive values, diagnostic odds ratio, and point-biserial correlation?

Given that the ERI covers important domains relevant to employment and recidivism, but has not previously been tested empirically, Urban researchers expected the ERI to show moderate to strong predictive validity. Many risk assessments in use in the justice system today have shown moderate evidence of predictive validity, with an average area under the curve of 0.64 (considered fair at best by most standards; Schwalbe 2007 as cited in Baird et al. 2013).

3. Does the predictive validity of the ERI vary across geographic regions (urban/rural) or by individuals' sociodemographic characteristics? In other words, how strong is the generalizability of the ERI?

Few if any risk assessment tools are universally applicable to populations in different geographic regions and to males/females or individuals with different racial/ethnic backgrounds. Therefore, although this question was exploratory, Urban researchers
expected to find at least some variation in the validity of the ERI across subgroups of individuals.

4. Is there a relationship between justice-involved individuals’ employment experiences and recidivism behaviors?

Urban researchers anticipated finding a correlation between employment retention experiences and recidivism, given the theoretical and general empirical support for this relationship in the criminal justice literature.

Study Design

To conduct the ERI validation study, we worked collaboratively with NIC’s Community Services Division to identify and select two diverse county probation and parole departments as study sites: Jackson County, OR, and Allegheny County, PA. The diversity of study sites was critical to test the ERI’s generalizability to individuals from different geographic settings, employment landscapes, and sociodemographic backgrounds. The selected sites provided a mix of geographic (rural/urban) and racial/ethnic diversity as well as the computer capabilities needed to support administration of the web-based ERI survey. Other criteria for sites included that they did not currently provide employment retention services; and that they had not previously participated in NIC’s Employment Retention Specialist training. By avoiding these potential influences on individual employment retention, researchers did not have to worry about suppression effects on the ERI’s ability to predict job loss.

In each site, justice-involved individuals were recruited for and consented to voluntary study participation, which consisted of taking the web-based survey in which the ERI was embedded and agreeing to allow researchers access to their employment and criminal justice records. Study participants also provided contact information so their participation in a follow-up survey could be requested. Prior to launching the survey, Urban researchers talked by telephone with probation and parole liaisons in both sites multiple times and visited each site to explore the employment context individuals typically face and to explain the study’s objectives and needs. Researchers also observed the placement of computers on which the baseline survey was to be administered, tested the secure survey website, and worked through logistical issues while on site as well as through subsequent phone contacts.

2 The study sample was not a random selection of individuals representing each study site or the sociodemographic subgroups within sites; however, probation and parole officers were instructed to mention the study to all clients, and fliers were viewable by anyone entering the reporting centers.
Researchers worked with stakeholders in each site to recruit study participants by posting fliers developed by the Urban Institute that described the survey and its objectives (the flier also explained that participants would receive a $5 gift card to thank them for their time), as well as the voluntary and confidential nature of the research. The secure online survey’s introductory screen was used as an “informed consent” form, explaining that participation was voluntary, confidential, and may include a follow-up wave, and requesting access to individuals’ official records by Urban’s study researchers. Individuals had to explicitly check two boxes to voluntarily indicate (1) agreement to take the survey and participate in the study and (2) agreement to have their official records tracked for the study. Urban research staff also signed confidentiality pledges to protect the study data collected. All study procedures received a full review and approval by Urban’s Institutional Review Board.

The next sections describe the study sites in detail and then, the survey administration and study recruitment procedures.

“I look forward to somebody actually helping those of us who have difficulties obtaining the things we need in order to be a successful and positive member of the community. Thank you for taking the time out to show there is somebody who cares.”

—ERI study participant, 24-year-old multiracial male (Jackson County, OR)

Study Sites

Two sites—Jackson County, OR, and Allegheny County, PA—were selected to assess the validity of the ERI, with the intent of representing different study contexts (e.g., rural vs. urban, more and less racially diverse; see figure 1). Jurisdictions were also selected for their ability to support administration of a computerized, web-based survey to individuals on probation and parole, and for the lack of significant employment retention programming at the time of the baseline survey administration (i.e., May–October 2014). We did not include jurisdictions, for example, who had previously participated in NIC’s Employment Retention Specialist training, because for this initial validation of the ERI, we did not want any interference of suppression effects on the evaluation of ERI’s ability to predict job loss.³

³ If practitioners were actively working to reduce the likelihood of job loss for individuals whom the ERI identified as high-risk, there would be a suppression of its true ability to predict job loss. The current replication validation
Urban project staff conducted phone calls and one visit to each site just prior to survey launch in April 2014 (Oregon) and May 2014 (Pennsylvania) to develop an understanding of each site’s unique employment landscape and challenges. Thereafter, Urban researchers maintained ongoing communication throughout the project period primarily via email to troubleshoot issues and send regular updates regarding participant survey progress. The following section describes the study context of each of these jurisdictions in greater detail, including findings from these initial site visits and subsequent communications.

**Jackson County, Oregon**

Jackson County is located in the southwest region of Oregon, with a 2015 population estimate of nearly 213,000. The county is predominately rural, with a population density of about 70 people per square mile (US Census Bureau 2016b), and its economy is driven by the agriculture, manufacturing, and recreation industries (Jackson County 2016a). The largest city, Medford, has a population of about 80,000 and is the seat of most local government agencies.

Residents of Jackson County are majority white (93%), with small numbers who identify as Hispanic or Latino (12%), multiracial (3%), American Indian or Alaska Native (2%), Asian (1%), Black or African American (1%), and Native Hawaiian or Other Pacific Islander (0.3%). Jackson County residents are also will adequately measure this effect in conjunction with the ERI’s administration by NIC-trained Employment Retention Specialists.
older than the national population, with 20% of Jackson County residents aged 65 and older compared to 15% of the US population, and are more likely to be veterans, with 22,000 veterans in Jackson County from 2010 to 2014 (roughly 10% of the 2014 population estimate) compared to 21 million in the United States (6% of the population; US Census Bureau 2016b, 2016d).

In terms of education, most (89%) residents have a high school diploma or higher level of education. The median household income is $44,000 ($24,500 per capita income), with 18 percent of residents below the poverty line at the most recent census (US Census Bureau 2016b).

Employment in Jackson County was substantially impacted by the 2008 financial crisis, with unemployment jumping by over 50 percent from 8 percent in 2008 to 13 percent in 2009. Fortunately, annual unemployment has decreased each year since that time, returning to pre-recession levels for the first time in 2015 at seven percent (US Bureau of Labor Statistics 2016).

Today, healthcare and social assistance services, retail, and government employ the most residents (State of Oregon Employment Department 2016). However, interviews conducted with Jackson County supervision staff indicate that although job availability has improved substantially since the 2008 financial crisis, entry-level positions in previously large employers, such as the mill and construction, remain harder to find, particularly for justice-involved individuals. Interviewees also reported that many people on supervision in Jackson County have informal or “under the table” jobs in Medford, sometimes preferring this type of work since legal wages can be garnished to pay court fees, child support, restitution, and other costs. However, much of the work available in Medford is seasonal and thus poses a challenge to employment retention.

Community supervision in Jackson County. In 2013, over 11,000 individuals were held in the Jackson County Jail (Jackson County Sheriff’s Office 2014) and 220 were admitted to state prison (Oregon DOC 2013). According to the “Reentry Wiki” created by the Oregon Department of Corrections, Jackson County has an average of 2,100 people on community supervision, of which 78 percent are male and 35 percent are assessed as having a medium or high level of recidivism risk (Oregon Reentry Wiki 2011).

Individuals on probation or parole are supervised by the Jackson County Community Justice (JCCJ) department, which works in collaboration with the Public Safety Coordinating Council (PSCC) to protect public safety and facilitate reentry back into the community. JCCJ oversees Adult Parole and Probation Services as well as the Jackson County Transition Center, and it additionally operates a sex offender treatment and supervision program, two drug courts, a specialized domestic violence unit, a juvenile detention and education program, the Alternative to Incarceration program focused on
rehabilitation, and a community services program (Jackson County 2016b). The PSSC brings together a wide array of local stakeholders—including criminal justice agency leaders, educators, service providers, and local government—to help oversee issues related to reentry and locally incarcerated individuals (Jackson County 2016c). The JCCJ places a substantial emphasis on evidence-based practice (EBP) and, according to site visits, began holding monthly staff reviews in April 2014 focused on different EBP-related topics.

Employment services for probation and parole. The JCCJ offers a range of employment services to individuals on community supervision, primarily focused on skill building, supporting stability, and obtaining a job. A job training and Day Management program offered at the JCCJ employment office provide job search assistance by helping clients obtain identification, coaching, and assistance with job applications and resumes. Probation and parole officers (POs) provide additional coaching and alert clients to job opportunities sent by the JCCJ program analyst.

Eligible4 individuals may be enrolled in the Alternative Incarceration Program, which provides intensive reentry services up to six months after release and requires participants to find fulltime employment within 30 days of release, with an employment specialist available to assist. For individuals returning from prison or county jail, POs conduct “reach-ins” 30–60 days before release to do transition planning, including preliminary employment assistance (Oregon Reentry Wiki 2011).

Individuals may also be sentenced to or voluntarily request placement in the JCCJ Transition Center, which offers a work release program, limited in-house jobs/work crews, structured job search assistance, and fire control certification. Veterans may seek additional employment assistance at the VA Domiciliary along with education and treatment services. Finally, a number of community-based providers offer additional job training resources in Jackson County, concentrated primarily in Medford.5 However, while a broad number of providers offer employment assistance in Jackson County, the scope of these services is once again narrowly focused on obtaining a job, with little or no programming directly focused on promoting employment retention (as of the time of this study’s administration).

To be eligible, inmates must (1) be sentenced to custody of the Oregon DOC with a period of post-prison supervision; (2) be at least 18 years of age or convicted in adult court; and (3) be assigned Level 1 or Level 2 classification and have no more than 36 months remaining in prison at the time of program entry (Oregon Secretary of State 2016).

Including Job Council Goodwill, Rogue Community College, Salvation Army, and Vocational Rehabilitation. Bright Futures offers assistance for clients who are interested in attending college, while the Job Council will sometimes help clients gain access to employers by paying initial wages with the intent that employers will then transition to fully employing and paying them.
Allegheny County, Pennsylvania

Allegheny County is located in western Pennsylvania and is the state's second most populous county, with a 2015 population estimate of over 1.2 million and population density of 1,675 people per square mile. Much of the population is concentrated in or around the city of Pittsburgh, as well as in the smaller cities of McKeesport, Clairton, and Duquesne.

Residents of Allegheny County are 81 percent white, 13 percent Black or African American, 0.2 percent American Indian or Alaskan Native, 3 percent Asian, and 2 percent multiracial. This breakdown is substantially more diverse in Pittsburgh, where 26 percent of residents are Black or African American while 66 percent are white.

Allegheny County is home to a number of universities and has higher rates of education than the national average in terms of the percentage of people with a high school diploma or higher (93% compared to 86%) or a bachelor's degree (37% compared to 29%). The median household income in 2014 was estimated at $52,000 across the county ($32,000 per capita), with 13 percent of residents living in poverty. Once again, the picture looks different in Pittsburgh, where the median household income is $40,000 ($27,000 per capita) and 23 percent of residents are below the poverty line (US Census Bureau 2016a, 2016c, 2016d).

Although Allegheny County has historically been a major northeast manufacturing center anchored in the steel industry, the decline of steel in the 1970s-1980s and again during the recent recession resulted in substantial job losses and out-migration. Over the past two decades, the county has diversified its economy, shifting to rely less on manufacturing and more on employment in the service sector (Deitrick and Briem 2005; Pennsylvania Economy League of Southwestern Pennsylvania 2011). These changes helped to promote economic growth in the aggregate, with unemployment declining annually since 2010, reaching 5 percent in 2015 (US Bureau of Labor Statistics 2016).

The effects of this growth have not been universally felt: many of the county's small steel mill towns remain economically depressed, and disparate employment rates and income also persist for African American residents (Deitrick and Briem 2005; Pittsburgh Today 2015). Furthermore, there is some indication that the shift to industries which rely on medium- and high-skilled workers, while beneficial for the economy as a whole, has left fewer employment opportunities for individuals who do not have higher levels of education or training in specific skills (Gonzalez et al. 2016; Belser 2014).

People with criminal records remain among the most impacted, with significantly lower rates of unemployment and under-employment than the general population (Diaz and Strickland 2013).
Currently, the industries which employ the most Allegheny County residents are healthcare and social assistance, retail, and educational services. On the other hand, industries with the highest proportion of employees who have exhausted unemployment benefits prior to finding work include professional and business services; trade, transportation, and utilities; education and health services; and construction (Pennsylvania CWIA 2016).

Community supervision in Allegheny County. In 2014, the Allegheny County Adult Probation and Parole Department (ACAPP) supervised over 27,000 individuals, including nearly 19,000 on probation and 1,100 on parole. Over half (58%) of those supervised are Caucasian, 41 percent are African American, and about 2 percent identify as another race/ethnicity.

In terms of offense category, 59 percent are under supervision for a misdemeanor, 40 percent for a felony, and 3 percent for another reason (ACAPP 2015). ACAPP also oversees a number of specialized units, including an electronic monitoring unit, mental health unit, and DUI unit. Individuals who are not placed in a specialty unit are supervised according to risk level as determined by the Proxy risk instrument, based on current age, age at first arrest, and total number of arrests; their supervision is covered by five community-based field centers across the county (ACAPP 2011, 2015).

POs take a “mobile” approach to supervision, interacting with individuals on supervision in residences or at other locations in the community, in addition to the office. ACAPP also presently operates three Community Resource Centers (CRCs), which include computers, meeting spaces, drug testing resources, and some in-house services, and are intended to serve as one-stop-shops providing both internal services and external service referrals. In 2014, the average caseload for POs supervising non-specialized, predominantly medium-risk caseloads was 96 people, and 105 for POs with caseloads screened as high-risk (ACAPP 2015).

ACAPP has an established relationship and data-sharing agreement with the Department of Human Services, Health Department, Allegheny County Jail, and community-based service providers through the Allegheny Jail Collaborative (Allegheny DHS 2016). Since the late 2000s, ACAPP has worked to improve the use of evidence based practices by expanding the use of risk assessments (particularly the LSI-R) and Offender Supervision Plans (OSPs), which are intended to incorporate the results of the risk assessments (ACAPP 2011). ACAPP is presently in the first year of a “SMART Accountability” initiative that will emphasize agency-wide adoption of evidence-based practices and reduced caseload size to improve client outcomes, PO work level, and agency efficiency.

Employment services for probation and parole. Published materials and Urban researchers’ interviews with ACAPP staff indicate that both locating job opportunities and lack of job consistency
remain challenges for individuals on probation and parole (ACAPP 2015). Difficulties finding and retaining employment are exacerbated by barriers such as substance use, lack of stable housing, and lack of transportation.

To address these challenges, ACAPP provides employment and GED services both in-house at CRCs and through partnerships with community-based organizations (e.g., Goodwill Industries of Western PA). Computers are available at the CRCs for job searching and applications, and POs may also provide assistance on an ad-hoc basis by identifying job opportunities, providing guidance on resumes and applications, or referring people for related support services such as housing assistance, life skills classes, or drug and alcohol evaluation. However, within this range of services, efforts to support employment retention remain a significant gap. Instead, and similarly to many supervision agencies across the country, employment services to date have focused almost exclusively on initial skill-building and front-end assistance with obtaining a job. Illustrating this focus, ACAPP stakeholders report that the largest category of referrals made by POs is for job search assistance.

Against this contextual backdrop, the next section describes the design and administration of the baseline survey in each site.

Baseline Survey

The short, online baseline survey administered for this study incorporated questions about study participants’ sociodemographic characteristics, current and previous employment experiences, and the 40 items of the ERI for participants who were currently employed. As mentioned, the first screen of the survey requested informed consent and provided a summary of the purpose and voluntary nature of the study, potential risks and benefits, and notice that participation would neither help nor hurt individuals’ probation and parole experiences. Individuals’ responses to the survey were viewed only by Urban researchers, held on a confidential server, and not shared with participants’ probation/parole departments. Study participants were offered a $5 Walmart gift card to thank them for participation in the baseline survey.

The baseline study recruitment goal was to survey 125 currently employed, justice-involved individuals and 75 unemployed individuals in each site; these goals were met in both sites over a six-

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\(^6\) For study recruitment purposes, current employment was defined as that which was legal (i.e., respondent paid taxes) and consisted of 20 or more hours per week. However, all individuals who indicated they were currently legally employed were asked the ERI questions, and analyses focused on all individuals who completed the ERI regardless of the number of hours worked per week.
month recruitment period, from May to October 2014. In total, 412 individuals completed the baseline survey, including 201 individuals in Jackson County, OR, and 211 individuals in Allegheny County, PA.

To recruit participants for the baseline survey, probation and parole officers were instructed to invite supervisees—ideally those with a minimum of four months remaining on supervision—to voluntarily take the survey during the course of fulfilling their regular reporting requirements. As mentioned previously, Urban researchers also met with POs prior to launching data collection to explain the study and work through logistical issues. Available resources and rules in each site contributed to small differences in survey administration. In Jackson County, OR, the online survey was administered on a single, standalone computer located in the social worker’s office, which afforded greater privacy for survey participants. In Allegheny County, PA, surveys were administered on multiple computers in a Community Resource Center (referred to as a Day Reporting Center at the time).

Staff were instructed not to directly observe participants’ responses on the survey computers, though each site had staff available to provide computer-related assistance if requested by the respondent, and to provide identifying information (e.g., Social Security number, state ID number) if the participant did not know their information offhand.

To take the baseline survey, POs directed potential participants to the web-enabled computers where they could self-administer the survey. For those who decided not to take the survey, this decision was not shared with POs, and individuals were shown a pretend survey screen on which they could linger as long as desired before leaving the room. Individual POs were not informed whether their clients chose to participate in the study or not.

The baseline survey was designed to take 10–15 minutes to complete. The average completion time was seven minutes for unemployed participants and 12 minutes for employed participants (who completed the ERI). Participants were offered a modest $5 Walmart gift card as a token of appreciation for participating in the study and, as described previously, provided online consent before taking the survey.

Given the low rate of employment among justice-involved populations, it was anticipated that sites would quickly meet the quota (150 total) of unemployed study participants. After this target number was met, Urban researchers worked with each site’s PO administrators to develop a flier that specifically focused on recruiting individuals with current employment.
Follow-Up Survey

Approximately 90 days after completing the baseline survey, the study participants who reported being employed at baseline were contacted again for a short, web-based follow-up survey. Participants were provided with a unique identifier developed for the study in order to link follow-up responses to baseline survey results.

At the time of the follow-up contact attempts, participants were in the community, though still under supervision, and the responsibility of reconnecting each individual was borne by Urban researchers rather than by POs. Urban staff relied on contact information provided by study participants at the time of the baseline survey. This contact data was also used to deliver their $5 gift cards, so there was an incentive to provide accurate contact information. The follow-up surveys were secure online surveys that could be taken on any computer or electronic device with Internet access (e.g., home computer, cell phone, library computer).

Follow-up outreach was initiated by Urban researchers in August 2014 for the cohort of early baseline survey participants and continued through March 2015 for later cohorts. Researchers employed a number of proactive steps to reconnect with the approximately 250 participants who had reported baseline employment of 20 or more hours per week; these contacts included email, mobile text messages, and phone calls. Research staff attempted a total of 10 contacts across a 21-day period before determining that a respondent was no longer reachable.

To encourage participation, researchers offered hard-to-reach individuals Walmart gift cards in increasing amounts ($10 and then $20). At one point, a $100 gift card drawing was also offered and advertised through a flier posted in the probation and parole offices, but there was no noticeable increase in survey response, so it was dropped after three weeks. Additionally, a “last-chance email offer” was sent to nonrespondents one month after the initial follow-up contact, which offered recipients who answered a single question (“How many of the past three months have you been employed?”) a $20 gift card to thank them for their answer; nine participants took advantage of this opportunity (six in Jackson and three in Allegheny). A flier was also created for each site to hang in the probation and parole office space as a general reminder to participate, though POs were not informed of which clients researchers had contacted for follow-up survey participation, nor were they told who had participated to date.

Despite these extensive efforts, obtaining a follow-up survey response from individuals was difficult. Ultimately, a follow-up survey response rate of 30 percent was achieved (38% in Jackson...
County and 24% in Allegheny County). While there were a small number of refusals, the majority of attrition was due to difficulties reconnecting with participants, despite requesting a variety of initial contact information. Notably, the follow-up survey was shorter than the baseline survey, and took only five minutes to complete; it could be taken on any computer with internet access and participants without access were offered the opportunity to take the survey by phone.7

To supplement the follow-up survey data and more consistently track employment retention of survey respondents, researchers requested administrative employment records from probation departments in each site. This effort was part of the original study design, and consent to access these records was obtained from all study participants on the first baseline survey screen.

Probation and Parole Records

Probation and parole records on all study participants (employed and unemployed) were requested and received from each site. Study participants had consented to permit researchers access to records data on the baseline survey’s informed consent form. Records data included information about individuals’ employment status on dates at which POs had checked it, specifically if clients were employed at all, whether the employment was fulltime or part-time, and whether respondents also held an “under the table” job.

Official employment status information was provided at least once for 253 (61%) of the 412 baseline survey participants, including 153 individuals in Jackson County and 100 individuals in Allegheny County. The earliest date at which follow-up employment information was available for each participant was combined with follow-up survey data—and exactly agreed with official records for the handful of cases for which both sources of information were available on the same date—to yield the best available picture of study participants’ follow-up employment status.

Recidivism information was also provided by Jackson County’s Department of Corrections and Allegheny County Adult Probation and Parole records. For Jackson County study participants, recidivism data consisted of incidents of reincarceration, including dates and offense types. For Allegheny County study participants, recidivism data consisted of rearrests, reconvictions for new crimes, and technical violations of probation and parole, including dates and offense types. This

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7 In a few cases, research staff administered the survey verbally over the phone if a participant indicated that this was preferable or more convenient. In this case, research staff entered responses directly into the web-based survey form in real time as the participant responded to the questions.
information was used to inform study analysis of the relationship between employment retention and recidivism.

Analytic Strategy

Urban researchers used multiple analytic techniques to address each of the study’s four research questions, as follows:

**Research Question #1: Construct Validity of the ERI**

To assess the strength of the ERI’s construct validity, we qualitatively examined its face and content validity and conducted quantitative analyses of its factorial validity, internal consistency reliability, and convergent/concurrent validity. Quantitative analyses were performed on the baseline survey responses from the 253 employed study participants, because these individuals had completed the ERI questionnaire embedded in the baseline survey. The quantitative analyses included confirmatory factor analysis to assess the unidimensionality of each ERI domain as a unique factor, Cronbach’s alpha to evaluate each domain’s internal consistency reliability, evaluation of the ERI’s convergent validity by estimating the correlations among domains, and assessment of its concurrent validity by examining the correlation between ERI and LSI-R scores for the same individuals.

**Research Question #2: Predictive Validity of the ERI**

To assess the predictive power of the ERI at identifying the precursors to job loss, we examined seven predictive validity performance indicators, each of which assessed the ability of the ERI to accurately predict individuals’ employment status at follow-up. The quantitative performance indicators measured the ERI’s sensitivity, specificity, area under the curve, positive and negative predictive values, diagnostic odds ratio, and point-biserial correlation (estimated using the Pearson correlation). These analyses focused on the 207 study participants who were employed at the time of the ERI baseline survey and also had follow-up employment data available, from either the follow-up ERI survey or probation and parole records. Employment status at follow-up was a single dichotomous measure indicating 1 = yes if an individual was employed in a job where taxes were paid or withheld and 0 = no if otherwise.
Research Question #3: Generalizability of the ERI

The generalizability of the ERI’s predictive power was assessed by re-computing the seven predictive validity performance indicators by site (Jackson County was predominantly rural and Allegheny predominantly urban), by age groups (following groups defined by the US Census: 18 to 24, 25 to 44, and 45 to 65), by race/ethnicity as self-identified by study participants, and by gender. We looked for patterns of differences between subgroups to understand for which groups the ERI showed the strongest predictive validity.

Research Question #4: Employment Retention and Recidivism

Finally, to examine the relationship between study participants’ employment experiences and recidivism, we focused on comparisons of those who were (1) unemployed at both the baseline survey and follow-up time point, (2) employed at baseline only, (3) employed at follow-up only, and (4) employed at both baseline and follow-up. The latter group represents employment retention experiences. We used quantitative cross-tabulation analyses with Chi-squared significant testing and Kaplan-Meier survival analysis to examine the likelihood of, and time to, recidivism event. One-year post-baseline recidivism measures included reincarceration for Jackson County study participants and rearrest, reconviction, and/or technical violations for Allegheny County study participants.
Study Participants’ Characteristics

A total of 412 valid baseline surveys were administered across the two sites between May and October 2014. In Jackson County, 127 employed and 74 unemployed supervisees ($n = 201$) completed the baseline web-based survey. In Allegheny County, 126 employed and 85 unemployed supervisees ($n = 211$) were surveyed. As expected, the target number of survey participants was reached two months sooner in Allegheny County (by September 2014) than in Jackson County due to a higher flow of cases through probation and parole.

Sociodemographic Characteristics

Figure 2 presents baseline sociodemographic characteristics for the ERI study participants, including age, gender, race/ethnicity, educational attainment, receipt of financial assistance, and current living situation. We also present information on the number of years participants had served on probation at the time of the baseline survey.

These data confirm findings from the site selection process, which indicate that while Jackson and Allegheny counties are similar on some characteristics (e.g., age, gender, years on probation), the two sites differ significantly with regard to racial/ethnic diversity, receipt of public assistance, and current living situation:

- The proportion of black/African American and Hispanic study participants in Allegheny County was ten and five times more, respectively, than that in Jackson County, while the proportion of white/Caucasian participants was two-thirds that in Jackson County;
- Almost twice as many study participants in Jackson County had received public assistance in the past six months and two-thirds as many had received no financial assistance compared to those in Allegheny County; and
- With regard to study participants’ current living situation, those in Allegheny County were 50 percent more likely to live with family and half as likely to live in a transitional or hallway house during their community reintegration.

In general, there appeared to be less access to and usage of financial assistance and housing support by those in Allegheny County compared to those in Jackson County.
FIGURE 2
Sociodemographic Characteristics of ERI Study Participants (%)

<table>
<thead>
<tr>
<th></th>
<th>Total sample (N = 412)</th>
<th>Jackson County (n = 201)</th>
<th>Allegheny County (n = 211)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>32.6 years</td>
<td>32.6 years</td>
<td>32.6 years</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>79.9</td>
<td>78.6</td>
<td>81.0</td>
</tr>
<tr>
<td>Female</td>
<td>20.1</td>
<td>21.4</td>
<td>19.0</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>1.8</td>
<td>2.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Asian</td>
<td>0.8</td>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Black or African American</td>
<td>19.2</td>
<td>3.7</td>
<td>33.5***</td>
</tr>
<tr>
<td>Hispanic</td>
<td>5.8</td>
<td>10.0</td>
<td>1.9***</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>1.0</td>
<td>1.6</td>
<td>0.5</td>
</tr>
<tr>
<td>White</td>
<td>75.5</td>
<td>88.9</td>
<td>63.1***</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary or middle school</td>
<td>1.0</td>
<td>2.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Some high school, did not graduate</td>
<td>15.4</td>
<td>17.7</td>
<td>13.2†</td>
</tr>
<tr>
<td>Graduated high school or GED</td>
<td>59.6</td>
<td>59.4</td>
<td>59.8</td>
</tr>
<tr>
<td>College graduate or higher</td>
<td>24.0</td>
<td>20.8</td>
<td>27.0†</td>
</tr>
<tr>
<td>Financial assistance in past six months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>39.6</td>
<td>31.0</td>
<td>47.8***</td>
</tr>
<tr>
<td>Public assistance (e.g., food stamps)</td>
<td>47.9</td>
<td>61.5</td>
<td>34.8***</td>
</tr>
<tr>
<td>Military income</td>
<td>0.5</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Social security or disability</td>
<td>5.9</td>
<td>4.5</td>
<td>7.2</td>
</tr>
<tr>
<td>Spouse, family or friends</td>
<td>17.9</td>
<td>17.0</td>
<td>18.8</td>
</tr>
<tr>
<td>Current living situation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live alone</td>
<td>14.1</td>
<td>16.1</td>
<td>12.2</td>
</tr>
<tr>
<td>Live with spouse or partner</td>
<td>26.4</td>
<td>26.4</td>
<td>26.3</td>
</tr>
<tr>
<td>Live with a friend</td>
<td>7.5</td>
<td>9.3</td>
<td>5.9</td>
</tr>
<tr>
<td>Live with a family member</td>
<td>44.2</td>
<td>34.7</td>
<td>53.2***</td>
</tr>
<tr>
<td>Transitional or halfway house</td>
<td>10.3</td>
<td>15.0</td>
<td>5.9**</td>
</tr>
<tr>
<td>Length of time on probation</td>
<td>1.6 years</td>
<td>1.7 years</td>
<td>1.6 years</td>
</tr>
</tbody>
</table>

Source: Baseline ERI survey administered May–October 2014.
Note: Differences between sites significant at † p < .10, * p < .05, ** p < .01, *** p < .001.

Receipt of Employment Services

When asked about their receipt of employment services in the previous six months, the majority of study participants in both Jackson (70%) and Allegheny (74%) counties reported not receiving any employment assistance. Figure 3 presents the array of employment services received among the approximately 28 percent of respondents who reported getting such services. As indicated, job search assistance (13%) was the most common type, followed by help from their probation or parole office (12%) and job readiness (9%). Education assistance (1%) and employment retention services (1%) were
the least-reported services. There were no significant differences in types of employment services received in Jackson and Allegheny counties (see figure 3 for rates within each site).

FIGURE 3
Employment Services in the Past Six Months

Notably, individuals who did not receive employment services in the past six months reported a number of reasons why not, the most common in both sites being that they already had a job (42%) and did not need any help (35%). About one in ten study participants indicated they did not want help with employment (8%) or that no help was available (13%), while three percent said they did not receive employment help because of a physical or mental disability. Those in Jackson County were significantly less likely to cite already having a job as a reason for not receiving employment assistance and much more likely to report not wanting any help than those in Allegheny County (figure 4).
FIGURE 4
Reasons for Not Receiving Employment Services in the Past Six Months

Employment History

As shown in figure 5, the vast majority (97%) of study participants in both Jackson and Allegheny counties had prior work experience, though only a third (33%) had worked five or more years in their longest job; Allegheny County participants were significantly more likely to report having worked 5 or more years. With regard to “under the table” employment, Jackson County study participants (61%) were significantly more likely to report having worked a job where no taxes were paid or withheld, compared to Allegheny County participants (42%).

Alongside the high rates of lifetime employment history, about three-quarters of study participants in both sites (75% in Jackson and 77% in Allegheny) had also experienced being laid off or fired from a job during their lifetime. Roughly a quarter (27% in Jackson and 28% in Allegheny) had been both fired and laid off during their lifetime.
Current Employment

The survey data collected about study participants’ current employment status provide a point-in-time illustration of not only whether or not participants were employed, but also of the various characteristics of each status.

Unemployed at Baseline

Of the 159 study participants across the two sites who indicated they were unemployed at baseline, those in Jackson County had been unemployed for significantly longer than those in Allegheny, with a median time unemployed between one and three years compared to Allegheny’s six months to a year (Figure 6). Participants were asked to indicate reasons why they did not have a job at the time, and the most common reasons provided in both sites were that individuals had applied but not been hired (30% in Jackson and 46% in Allegheny) and that they had a criminal record (39% in Jackson and 37% in Allegheny).
Employed at Baseline

A total of 253 individuals in Allegheny and Jackson Counties indicated they were employed at baseline, after being instructed to exclude "under the table" employment for which taxes were not withheld or paid. Most respondents reported working 30 hours per week or more (78%) with an average wage of approximately $13/hour; there were no statistically significant differences between sites (figure 7). Employed study participants in Jackson County were about half as likely to receive employment benefits (15%) than those in Allegheny County (27%). Jackson County respondents also had a lower median time in their current job at less than 6 months, whereas the median in Allegheny was six months to a year.

The most common type of job in both counties was in food service, followed by construction in Allegheny and sales/cashier in Jackson (figure 8). A substantial number of respondents also reported being employed in "other" types of jobs; in Jackson, responses included cleaning and custodial jobs (n = 4), machine work and manufacturing (n = 6), firefighting (n = 3), and forklift operation (n = 3), while in Allegheny, responses included white-collar office jobs (n = 8; accounting, IT, call representative) and healthcare, as well as manufacturing and machinery, and forklift driver.
FIGURE 7
Description of Current Employment[^a] by Employed Study Participants (%)

<table>
<thead>
<tr>
<th>Hours worked per week</th>
<th>Total employed (N = 253)</th>
<th>Jackson County (n = 127)</th>
<th>Allegheny County (n = 126)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 20</td>
<td>4.0</td>
<td>4.8</td>
<td>3.3</td>
</tr>
<tr>
<td>20-29</td>
<td>17.7</td>
<td>16.0</td>
<td>19.5</td>
</tr>
<tr>
<td>30-39</td>
<td>24.6</td>
<td>30.4</td>
<td>18.7</td>
</tr>
<tr>
<td>40 or more</td>
<td>53.6</td>
<td>48.8</td>
<td>58.5</td>
</tr>
<tr>
<td>Calculated hourly wage (mean)</td>
<td>$12.60</td>
<td>$11.68</td>
<td>$13.51</td>
</tr>
<tr>
<td>Receive employment benefits</td>
<td>21.2</td>
<td>15.1</td>
<td>27.4[^*]</td>
</tr>
<tr>
<td>Time in current job</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>51.6</td>
<td>59.2</td>
<td>44.0[^**]</td>
</tr>
<tr>
<td>6 months to 1 year</td>
<td>26.0</td>
<td>27.2</td>
<td>24.8</td>
</tr>
<tr>
<td>2 to 3 years</td>
<td>10.0</td>
<td>7.2</td>
<td>12.8[^**]</td>
</tr>
<tr>
<td>3 or more years</td>
<td>12.4</td>
<td>6.4</td>
<td>18.4[^**]</td>
</tr>
</tbody>
</table>

Source: Baseline ERI survey administered May–October 2014.
Notes: Differences between sites significant at [^†] p < .10, [*] p < .05, [^**] p < .01, [^***] p < .001.
[^a] Survey included instructions to exclude “under the table” jobs for which taxes were not paid or withheld.

FIGURE 8
Current Job Type

Current Job Type, Jackson Co.  
- Automotive
- Construction
- Gardening/landscaping
- Maintenance
- Food service
- Sales/Cashier
- Other

Current Job Type, Allegheny Co.  
- Automotive
- Construction
- Gardening/landscaping
- Maintenance
- Food service
- Sales/Cashier
- Other

Finally, study participants were asked how they obtained their current job, and survey data indicated that most had walked in and applied, or had obtained their job through family and friends (figure 9). Online job searches, job placement services, and assistance from POs played only a small role in both counties, and in Allegheny alone, some respondents were able to get jobs through a union. A small number (n=12) of study participants reported finding employment in other ways, including five who were self-employed. One individual returned to a job they held prior to incarceration, and others obtained jobs through other relationships including therapist and AA sponsor.
“Under the Table” Employment at Baseline

In addition to asking whether participants had legitimate, formal employment in which taxes are paid or withheld, the research team sought to capture the extent to which participants were currently engaged in informal, “under the table” work. While 61 percent of Jackson respondents and 58 percent in Allegheny reported being engaged in such work during their lifetime, this proportion was much smaller at the time of the survey: only 14 percent (n = 27) in Jackson and 11 percent (n = 23) in Allegheny reported having under the table jobs at the time they took the survey. Construction (36%), gardening/landscaping (40%), and maintenance (22%) were the most commonly reported types of under the table jobs (figure 10). As with legitimate/taxable work in the two counties, Jackson respondents had been in their under-the-table job for a shorter amount of time: a majority had had their current under the table job for less than six months, while the median for Allegheny was six months to a year.

The next section presents results from ERI validation analyses.
FIGURE 10
Job Type and Method for “Under the Table” Employment

Source: Baseline ERI survey administered May–October 2014; n = 50 participants with under-the-table employment at baseline.
ERI Validation Results

The extant measurement development literature focuses on two psychometric properties of assessment tools: an instrument’s validity, meaning that it measures what it is intended to measure (Hammersley 1987) and its reliability, meaning that it does so consistently when repeated (Black and Champion 1976).

In this section, we assess the degree to which the ERI showed evidence of strong validity and reliability in its first empirical test by examining several construct-related measures of the ERI, including its face and content validity and factorial validity; its predictive validity; and its generalizability. Each term is defined when discussed below, though figure 11 presents a summary of definitions and measurement methods. The goal of these analyses was to assess and also suggest improvements to optimize the validity and reliability of the ERI.

FIGURE 11
Definitions of ERI Validity Assessment Types

<table>
<thead>
<tr>
<th>Psychometric Property</th>
<th>Definition</th>
<th>Method of Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face validity</td>
<td>Does the ERI appear “on its face” to measure the precursors of job loss?</td>
<td>Evaluate item content and prior efforts by ERI developers</td>
</tr>
<tr>
<td>Content validity</td>
<td>Do the ERI items cover the entire range of precursors to job loss?</td>
<td>Evaluate item content and prior efforts by ERI developers</td>
</tr>
<tr>
<td>Factorial validity</td>
<td>Do the ERI items load highly (0.4 and above) on the specified domains?</td>
<td>Confirmatory factor analysis of each ERI domain</td>
</tr>
<tr>
<td>Internal consistency</td>
<td>Does the ERI yield consistent scores across items within each domain?</td>
<td>Cronbach’s alpha analysis (0.7 and higher) of each domain</td>
</tr>
<tr>
<td>reliability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Convergent validity</td>
<td>Are ERI’s individual domain scores highly correlated (0.4 and above)?</td>
<td>Correlation analysis of ERI domain scores</td>
</tr>
<tr>
<td>Concurrent validity</td>
<td>Is the ERI score highly correlated (0.4 and above) with risk classification by the probation and parole department?</td>
<td>Correlation analysis of ERI score and risk classification score</td>
</tr>
<tr>
<td>Predictive validity</td>
<td>Does the ERI predict self-reported and/or official job loss 8 months later?</td>
<td>Estimate sensitivity, specificity, area under the curve, positive/negative predictive values, diagnostic odds ratio, and point-biserial correlation</td>
</tr>
<tr>
<td>Generalizability</td>
<td>Does the predictive validity of the ERI generalize across different types of individuals?</td>
<td>Age, race, and gender subgroup analyses of ERI predictive validity</td>
</tr>
</tbody>
</table>
Face and Content Validity

The first two types of ERI validity assessed were its face and content validity, which were examined through qualitative expert review of whether the instrument appeared to “on its face” measure the precursors to job loss (face validity) and whether it comprehensively covered all relevant indicators (content validity). Toward this end, four senior researchers and two junior researchers at the Urban Institute independently reviewed items on the ERI to assess their degree of relevance as predictors of employment retention among the general population and among justice-involved individuals. One senior and one junior researcher also specifically reviewed the literature on employment retention barriers (e.g., Conger 1999; Dill et al. 2013; Holzer and Lalonde 2000; Holzer, Stoll, and Wissoker 2004).

These assessments reached two conclusions: First, at its core, the ERI covered the full range of employment retention barriers, measured each in a direct and uncomplicated manner, and none of the ERI items appeared superfluous or unnecessary. Second, the literature pointed to four additional potential job loss predictors that did not seem to be sufficiently measured on the ERI; these factors included the effects of having a criminal record, earning low wages, possessing inadequate education/skills, having limited work history, and believing it would be easy to find another job (Conger 1999; Holzer and Lalonde 2000; Onyewu 2009). Urban researchers also suggested adding an item to measure perceived discrimination based on sexual orientation, as age-, gender-, and race-based discrimination items were already included in the ERI. In total, the following six items were added to create a revised ERI with stronger face and content validity:

- Perceived discrimination based on sexual orientation
- Negative impact of criminal record in the workplace
- Insufficient earnings to support oneself
- Insufficient training/education to do one’s job well
- Insufficient work experience to do one’s job well
- Ease of finding another job

Additionally, a review of the number and type of ERI response choices found they align well with those of other risk assessment tools (e.g., Level of Service Inventory-Revised by Andrews and Bonta 1995) and similar scales (e.g., BARRIERS scale by Funk et al. 1991). ERI response choices consist of a 4-point Likert scale ranging from “does not apply” to “applies a lot.”
As part of the face and content validity assessment, Urban researchers checked the readability\textsuperscript{8} rating of each ERI item and found that nine in ten items (89\%) were assessed at a 6th grade reading level or lower, while the other 11\% were assessed at an 8th grade reading level. Given that most (86\%) of the correctional population has at least an 8th grade education (Harlow 2003), the readability of the ERI was determined to be accessible to its relevant audience. Also supportive of this conclusion, as shown in figure 12, 87\% of the 253 employed study participants who completed the ERI as part of their baseline survey reported that it was “very easy” to complete and 80\% felt “very comfortable” answering the survey questions; another 10\% and 13\%, respectively, rated the survey as 4 out of 5 on a scale indicating ease and comfort.

Ratings of ERI survey ease and comfort did not differ significantly by participant’s age, gender, race/ethnicity, or education. Jackson County participants were significantly more comfortable taking the survey than Allegheny County participants, but both groups reported high comfort ratings (4.6 and 4.8, respectively, on a scale from 1 to 5). Further, one 43-year-old white male participant from Allegheny County commented that the survey was “simple, self-explanatory, and quick,” while a 38-year-old black male participant wrote that “it was easy to understand.”

\textbf{FIGURE 12}  
Participant Ease and Comfort Taking ERI Survey

\begin{figure}[h] 
\centering 
\includegraphics[width=\textwidth]{fig12.png} 
\caption{Participant Ease and Comfort Taking ERI Survey} 
\end{figure}

\textbf{Source:} Baseline ERI survey administered May–October 2014, employed study participants \( n = 253. \)

\textsuperscript{8} https://readability-score.com.
Factorial Validity and Internal Consistency Reliability

The ERI’s factorial validity measures the unidimensionality of items within each specified domain, while the internal consistency reliability indicates how closely related items are. The ERI was constructed to represent seven domains measuring precursors to job loss, or seven factors as follows: (1) employment barriers, (2) stress, (3) time management, (4) family and friends, (5) substance use, (6) mental health, and (7) possible job loss. The ERI also included two items indicating individuals’ perceived importance of and confidence in keeping their job; these items were not included in factorial validity tests, as they were not hypothesized to represent latent factors.

“There was no question on whether I was underemployed. I’ve taken a nearly tenfold pay reduction and have no reasonable hope of ever returning to my profession.”
—ERI study participant, 47-year-old white male (Allegheny County, PA)

Using the 253 employed study participants’ baseline ERI survey responses, Urban researchers conducted seven sets of confirmatory factor analyses, one for each domain, to assess the degree to which ERI items appeared sufficiently interrelated and were adequately captured by each factor. The criterion for assessing whether items sufficiently served as an indicator of an underlying factor was observance of an item loading of 0.4 or higher, a common rule of thumb (e.g., Stevens 1992). We also examined the total variance within each factor that was explained by the specified grouping of items, with a minimum criterion of 50 percent or more explained variance as optimal. Finally, to measure each domain’s internal consistency reliability, we obtained the Cronbach’s alpha, for which a value of 0.7 or higher indicated acceptably strong reliability (Cronbach 1951; Nunnally 1978).

**Figure 13** summarizes results from these confirmatory factor and reliability analyses. The first column shows the name of each domain as well as the abbreviated descriptions of ERI items within each domain (the full ERI instrument will be viewable to practitioners who participate in NIC’s Employment Retention Specialist training).
### FIGURE 13

**ERI Confirmatory Factor and Reliability Analyses, by Domain**

**Factor Loadings (≥.4 Good)**

<table>
<thead>
<tr>
<th>Employment barriers</th>
<th>NIC-original ERI</th>
<th>Urban-revised ERI</th>
<th>Jackson County, OR, optimal ERI</th>
<th>Allegheny County, PA, optimal ERI</th>
<th>Optimal ERI across sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Family issues</td>
<td>.593</td>
<td>.529</td>
<td>.486</td>
<td>.582</td>
<td>.519</td>
</tr>
<tr>
<td>2-Transportation problems</td>
<td>.475</td>
<td>.470</td>
<td>.615</td>
<td>.372</td>
<td>.494</td>
</tr>
<tr>
<td>3-Lack stable place to live</td>
<td>.513</td>
<td>.505</td>
<td>.563</td>
<td>.387</td>
<td>.464</td>
</tr>
<tr>
<td>4-Health problems</td>
<td>.566</td>
<td>.505</td>
<td></td>
<td>.578</td>
<td>.425</td>
</tr>
<tr>
<td>5-Race problems</td>
<td>.217</td>
<td>.251</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-Age problems</td>
<td>.439</td>
<td>.400</td>
<td>.495</td>
<td>.450</td>
<td></td>
</tr>
<tr>
<td>7-Gender problems</td>
<td>.380</td>
<td>.441</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-Other problems</td>
<td>.400</td>
<td>.419</td>
<td></td>
<td>.687</td>
<td>.456</td>
</tr>
<tr>
<td>9-Sexual orientation problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-Criminal record problems</td>
<td>.372</td>
<td>.550</td>
<td></td>
<td>.429</td>
<td></td>
</tr>
<tr>
<td>11-Lack training/education</td>
<td>.478</td>
<td>.484</td>
<td>.545</td>
<td>.519</td>
<td></td>
</tr>
<tr>
<td>12-Lack experience</td>
<td>.506</td>
<td>.561</td>
<td>.558</td>
<td>.575</td>
<td></td>
</tr>
<tr>
<td><strong>Total Variance Explained</strong></td>
<td>30.7%</td>
<td>26.2%</td>
<td>39.0%</td>
<td>38.8%</td>
<td>31.8%</td>
</tr>
<tr>
<td><strong>Cronbach's Alpha Reliability</strong></td>
<td>.642</td>
<td>.705</td>
<td>.714</td>
<td>.699</td>
<td>.697</td>
</tr>
<tr>
<td><strong>Stress</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Supervisor problems</td>
<td>.444</td>
<td>.399</td>
<td></td>
<td>.440</td>
<td>.399</td>
</tr>
<tr>
<td>2-Not getting respect</td>
<td>.638</td>
<td>.599</td>
<td>.501</td>
<td>.693</td>
<td>.599</td>
</tr>
<tr>
<td>3-Angry/upset at work</td>
<td>.672</td>
<td>.685</td>
<td>.545</td>
<td>.745</td>
<td>.685</td>
</tr>
<tr>
<td>4-Wonder if job worth it</td>
<td>.691</td>
<td>.760</td>
<td>.622</td>
<td>.820</td>
<td>.760</td>
</tr>
<tr>
<td>5-Life stressful due to job</td>
<td>.543</td>
<td>.523</td>
<td>.612</td>
<td>.472</td>
<td>.523</td>
</tr>
<tr>
<td>6-Do not earn enough</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Variance Explained</strong></td>
<td>48.7%</td>
<td>44.2%</td>
<td>45.1%</td>
<td>47.2%</td>
<td>44.2%</td>
</tr>
<tr>
<td><strong>Cronbach's Alpha Reliability</strong></td>
<td>.729</td>
<td>.710</td>
<td>.657</td>
<td>.738</td>
<td>.710</td>
</tr>
<tr>
<td><strong>Time management</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Late for job start</td>
<td>.950</td>
<td>-</td>
<td>.771</td>
<td>.662</td>
<td>.947</td>
</tr>
<tr>
<td>2-Forget about work</td>
<td>.193</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-Late after work breaks</td>
<td>.518</td>
<td>-</td>
<td>.796</td>
<td>.662</td>
<td>.529</td>
</tr>
<tr>
<td>4-Leave job early</td>
<td>.431</td>
<td>-</td>
<td>.595</td>
<td>.414</td>
<td></td>
</tr>
<tr>
<td>5-Warning for being late</td>
<td>.242</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Variance Explained</strong></td>
<td>38.1%</td>
<td>-</td>
<td>67.8%</td>
<td>72.0%</td>
<td>58.4%</td>
</tr>
<tr>
<td><strong>Cronbach’s Alpha Reliability</strong></td>
<td>.566</td>
<td>-</td>
<td>.752</td>
<td>.598</td>
<td>.625</td>
</tr>
<tr>
<td><strong>Family and friends</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Family/friends have no jobs</td>
<td>.520</td>
<td>-</td>
<td>.454</td>
<td>.599</td>
<td>.520</td>
</tr>
<tr>
<td>2-I’m only one has to work</td>
<td>.627</td>
<td>-</td>
<td>.630</td>
<td>.638</td>
<td>.627</td>
</tr>
<tr>
<td>3-Friends don’t care about jobs</td>
<td>.786</td>
<td>-</td>
<td>.822</td>
<td>.762</td>
<td>.786</td>
</tr>
<tr>
<td>4-Friends don’t understand work</td>
<td>.437</td>
<td>-</td>
<td></td>
<td>.655</td>
<td>.437</td>
</tr>
<tr>
<td>5-Friends pull me from job</td>
<td>.594</td>
<td>-</td>
<td>.788</td>
<td>.552</td>
<td>.594</td>
</tr>
<tr>
<td><strong>Total Variance Explained</strong></td>
<td>48.3%</td>
<td>-</td>
<td>59.1%</td>
<td>53.0%</td>
<td>48.3%</td>
</tr>
<tr>
<td><strong>Cronbach’s Alpha Reliability</strong></td>
<td>.656</td>
<td>-</td>
<td>.598</td>
<td>.744</td>
<td>.656</td>
</tr>
<tr>
<td><strong>Substance use</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Cravings to use</td>
<td>.553</td>
<td>-</td>
<td>.735</td>
<td>.520</td>
<td>.553</td>
</tr>
<tr>
<td>2-Dreams about using</td>
<td>.764</td>
<td>-</td>
<td>.682</td>
<td>.857</td>
<td>.764</td>
</tr>
<tr>
<td>3-Miss lifestyle of using</td>
<td>.613</td>
<td>-</td>
<td>.846</td>
<td>.613</td>
<td></td>
</tr>
<tr>
<td>4-Around others who use</td>
<td>.386</td>
<td>-</td>
<td></td>
<td>.446</td>
<td>.386</td>
</tr>
<tr>
<td>5-Bothered by memories of use</td>
<td>.588</td>
<td>-</td>
<td>.474</td>
<td>.677</td>
<td>.588</td>
</tr>
<tr>
<td><strong>Total Variance Explained</strong></td>
<td>47.3%</td>
<td>-</td>
<td>59.6%</td>
<td>56.4%</td>
<td>47.3%</td>
</tr>
<tr>
<td><strong>Cronbach’s Alpha Reliability</strong></td>
<td>.708</td>
<td>-</td>
<td>.637</td>
<td>.795</td>
<td>.708</td>
</tr>
</tbody>
</table>
ERI Confirmatory Factor and Reliability Analyses, by Domain (continued)

<table>
<thead>
<tr>
<th>Mental health</th>
<th>Factor Loadings (≥.4 Good)</th>
<th>NIC-original ERI</th>
<th>Urban-revised ERI</th>
<th>Jackson County, OR, optimal ERI</th>
<th>Allegheny County, PA, optimal ERI</th>
<th>Optimal ERI across sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Feeling so down</td>
<td></td>
<td>.552</td>
<td>-</td>
<td>.740</td>
<td>.550</td>
<td>.552</td>
</tr>
<tr>
<td>2-Sleep poor lately</td>
<td></td>
<td>.452</td>
<td>-</td>
<td>.740</td>
<td>.571</td>
<td>.452</td>
</tr>
<tr>
<td>3-Not taking medications</td>
<td></td>
<td>.715</td>
<td>-</td>
<td>.868</td>
<td>.715</td>
<td>.715</td>
</tr>
<tr>
<td>4-Unstable mood</td>
<td></td>
<td>.846</td>
<td>-</td>
<td>.956</td>
<td>.846</td>
<td>.846</td>
</tr>
<tr>
<td>5-Can’t wake on time</td>
<td></td>
<td>.646</td>
<td>-</td>
<td>.740</td>
<td>.634</td>
<td>.646</td>
</tr>
<tr>
<td><strong>Total Variance Explained</strong></td>
<td></td>
<td><strong>53.3%</strong></td>
<td><strong>77.4%</strong></td>
<td><strong>61.4%</strong></td>
<td><strong>53.3%</strong></td>
<td></td>
</tr>
<tr>
<td>Cronbach’s Alpha Reliability</td>
<td></td>
<td>.716</td>
<td>-</td>
<td>.708</td>
<td>.807</td>
<td>.716</td>
</tr>
</tbody>
</table>

| Possible job loss                     |                             |                   |                   |                               |                                 |                         |
| 1-Thinking of quitting                |                             | .405             | .403              | .695                          | .405                             |                         |
| 2-May get fired soon                  |                             | .635             | .627              | .710                          | .828                             | .635                    |
| 3-May get laid off soon               |                             | .959             | .967              | .908                          | .828                             | .959                    |
| 4-Job may get cancelled               |                             | .398             | .401              | .563                          | .398                             |                         |
| 5-Easy to find another job            |                             |                   | .056              |                               |                                  |                         |
| **Total Variance Explained**          |                             | **51.7%**        | **41.5%**         | **63.7%**                     | **84.3%**                        | **51.7%**               |
| Cronbach’s Alpha Reliability          |                             | .656             | .408              | .771                          | .805                             | .656                    |

Source: Baseline ERI survey administered May–October 2014 to n = 253 employed study participants, including 127 in Jackson County, OR, and 126 in Allegheny County, PA.

Notes: Factor loadings 0.4 and above indicate strong factorial validity. Cronbach’s alpha 0.7 and above indicates strong internal consistency reliability.

The second through sixth columns in figure 13 show confirmatory factor loadings coupled with information about the total variance explained by each set of items and the Cronbach’s alpha reliability for each domain.

Each domain-column represents a unique confirmatory factor analysis. For the employment barriers domain, for example, a total of eight items were specified when examining the domain following the original ERI developed by NIC (in conjunction with Learning Designs Inc.). When examining the employment barriers domain revised by Urban, following its face and content validity analysis, factor analysis was performed on 12 items. In the next three columns, the most optimal set of items within each domain (for each site) was obtained, followed by the most optimal set of items for both sites combined. “Optimal” versions of each domain were determined by removing poorly loading items and retaining those that loaded at a rounded value of 0.4 or above; optimal analyses also focused on obtaining reliability coefficients that rounded to 0.7 or above and total explained variance rounding to 50 percent or higher.

From examining the patterns in figure 13, three conclusions can be reached:
1. Most domains yielded sufficiently strong factorial validity and internal consistency reliability results once the weakest loading items were removed. The most unidimensional and internally consistent domains across both sites were those measuring stress, family and friends, substance use, mental health, and possible job loss. Conversely, the weakest domain was time management. The employment barriers domain performed well by all standards except that of total explained variance; approximately 70 percent of the variance among variables included in that domain was not captured by the single factor solution (though no clearly definable multifactor solution emerged).

2. Some of the weakest loading items across both sites included those measuring perceived discrimination in the workplace (particularly that based on race, gender or sexual orientation), tendency to forget about work, receiving warnings for being late to work, and thinking that it would be easy to find another job. The frequency distributions of the discrimination items, in particular, were lowest of all with virtually no participants indicated yes to them. By contrast, over a third (36%) of the study participants believed it would be easy to find another job.

3. There were some substantial differences in the interrelatedness of items among Jackson County study participants when compared to Allegheny County participants, particularly with regard to the domains of time management (which showed stronger factorial validity and reliability in Jackson County), and the domains capturing family and friends, substance use, and mental health (which showed stronger factorial validity and reliability in Allegheny County).

Finally, we estimated the internal consistency reliability of the entire ERI instrument, including all “optimal version” items from the seven ERI domains plus the two ERI items measuring the importance of and confidence in keeping one’s job. The Cronbach’s alpha for this 39-item optimal version of the ERI was .889, indicating high internal consistency reliability.

Convergent and Concurrent Validity

The convergent validity of the ERI measures the extent to which its seven underlying domains, each of which is hypothesized as a predictor of job loss, are related. To assess the ERI’s convergent validity we examined the Pearson correlations among its seven domains (the optimal versions, defined in the previous section), as shown in figure 14. All correlations were statistically significant and positive, and the majority (15 out of 21) were substantively large, in that they rounded to 0.4 and above. From this

9 The latter two items were recoded from a 10-point to a four-point scale and were reverse-coded for the purpose of measuring the Cronbach's alpha reliability coefficient.
analysis, we concluded that the domains of the ERI are significantly interrelated and supportive of strong convergent validity, with the strongest correlations observed among the domains of mental health, stress, and employment barriers. By contrast, the correlations among family and friends, substance use and perceptions of possible job loss were weaker albeit statistically significant.

The concurrent validity of the ERI was examined by comparing employed study participants’ ERI domain scores to the same individuals’ Level of Service Inventory- Revised (LSI-R) scores as recorded by probation and parole officers in Allegheny County. Unlike the ERI, the LSI-R was designed specifically to predict recidivism risk for the purpose of classifying individuals into supervision levels of varying intensity (Andrews and Bonta 1995). As explained previously, the ERI was designed to identify the risks and associated case management needs related to potential job loss for individuals with justice involvement or behavioral health issues. With this caveat in mind, the comparison between ERI domain scores and those of the LSI-R was done by examining the Pearson correlations.

**FIGURE 14**

Correlations among ERI Domains

<table>
<thead>
<tr>
<th></th>
<th>Employment barriers</th>
<th>Stress</th>
<th>Time management</th>
<th>Family and friends</th>
<th>Substance use</th>
<th>Mental health</th>
<th>Possible job loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment barriers</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>.530***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time management</td>
<td>.501***</td>
<td>.499***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family and friends</td>
<td>.346***</td>
<td>.241***</td>
<td>.322***</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance use</td>
<td>.437***</td>
<td>.481***</td>
<td>.422***</td>
<td>.200**</td>
<td>.486***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mental health</td>
<td>.595***</td>
<td>.604***</td>
<td>.488***</td>
<td>.287***</td>
<td>.486***</td>
<td>.407***</td>
<td>1</td>
</tr>
<tr>
<td>Possible job loss</td>
<td>.358***</td>
<td>.446***</td>
<td>.499***</td>
<td>.202***</td>
<td>.367***</td>
<td>.407***</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Baseline ERI survey administered May–October 2014, employed study participants n = 253.

Notes: The ERI scores analyzed were from the optimal versions of the ERI as indicated previously in figure 12. Statistically significant at † p < .10, * p < .05, ** p < .01, *** p < .001.

Correlation analysis for employed study participants in Allegheny County (n = 126) showed moderate and statistically significant correlations (r values) between LSI-R scores and study participants’ overall ERI score (.187*), as well as their domain scores on time management (.193*), family and friends (.222*), substance use (.173†), and possible job loss (.198*), and the job confidence item (.216†), at a probability less than †.10 or *.05. There were no significant correlations between individuals’ LSI-R scores and the remaining ERI domains/item (i.e., employment barriers, stress, mental

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10 Risk assessment scores for Jackson County study participants were not provided.
health, job importance). Considering all correlations together, the ERI showed moderate concurrent validity with the LSI-R.

Predictive Validity

The predictive power of the ERI was assessed by comparing study participants’ responses to the ERI on the baseline survey with their employment status at follow-up, approximately eight months later. Follow-up employment status was determined either by an individual’s response to the ERI follow-up survey or by an employment check performed and recorded by their probation and parole officer.\(^\text{11}\)

Focusing on the 253 study participants who were employed at the time of the ERI baseline survey, 82 percent (207) had sufficient information available from either the follow-up survey (32%) or official records (68%) to determine whether they were employed at the time of follow-up (\textit{figure 15}). Follow-up employment information was available for virtually all cases (95%) in Jackson County, but only two-thirds (68%) of the cases in Allegheny County. The reasons for this difference are difficult to pinpoint, since both groups of individuals had been on probation/parole for approximately the same period of time as of the ERI baseline survey (see \textit{figure 2}). However, Urban researchers encountered somewhat greater difficulty tracking down study participants in Allegheny than in Jackson County,\(^\text{12}\) and probation and parole employment records were more complete in Jackson than in Allegheny County.

Relatedly, the timing of follow-up check-ins varied across individuals, ranging from half a month to 17 months with an average follow-up check-in time of eight months. Further, there was a significant difference between the average time at which follow-up employment data were available in Jackson and Allegheny, with employment checks available at nine months post-baseline in Jackson compared to six months post-baseline in Allegheny. Follow-up timing was included as a statistical control in predictive validity analyses.

Notably, across both sites, most individuals (78%) were employed at follow-up at a job where taxes were reportedly paid or withheld; just over one-fifth (22%) were unemployed. There was no significant difference between sites in the proportion of study participants who were employed at follow-up: 79 percent were employed in Jackson County and 78 percent in Allegheny County.

\(^\text{11}\) For the handful of cases where both sources of information were available on the same date, the information was identical.

\(^\text{12}\) The follow-up response rate in Allegheny (24%) was two-thirds that in Jackson County (38%).
To assess the predictive power of the ERI, Urban researchers calculated the seven indicators of predictive validity performance described below (Glas et al., 2003; Singh, 2013; Singh, Desmarais, and Van Dorn 2013). For each measure, higher values indicate stronger predictive validity.

**Sensitivity** refers to the true positive rate, or the proportion of those unemployed at follow-up whom the ERI accurately identified as being at high risk\(^\text{13}\) of job loss; values range from 0 percent to 100 percent.

**Specificity** refers to the true negative rate, or the proportion of those employed at follow-up whom the ERI accurately identified as being at low risk of job loss; values range from 0 percent to 100 percent.

- **Area under the curve**\(^\text{14}\) combines information from sensitivity and specificity to identify the probability that an individual who is unemployed at follow-up was identified as high risk by the ERI, compared to someone who is employed at follow-up; values range from 0 to 1.0, with values above 0.5 indicating prediction better than chance.

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\(^{13}\)“High risk” participants had an ERI predictive probability of job loss of 0.2 or higher; a low cut-off value was selected to maximize the identification of study participants at risk of unemployment. Predicted probabilities of job loss ranged from .002 to .997 and were calculated from logistic regressions that controlled for the number of months post-baseline at which employment was assessed.

\(^{14}\)Refers to the receiver operating characteristic (ROC) curve.
- **Positive predictive value** describes the proportion of individuals whom the ERI identified as being at high risk of job loss who actually ended up unemployed at follow-up; values range from 0 percent to 100 percent.

- **Negative predictive value** describes the proportion of individuals whom the ERI identified as being low risk who were actually employed at follow-up; values range from 0 percent to 100 percent.

- **Diagnostic odds ratio** is the ratio of the odds of being designated high risk by the ERI among those unemployed at follow-up, compared to the odds of being designated high risk among those who were employed at follow-up; values can range from 0 to infinity, but only those higher than 1 indicate accurate ERI discrimination between those who will and will not retain employment.

- **Pearson correlation** estimates the direction and strength of the association between individuals’ ERI-predicted probabilities of job loss and actual unemployment at follow-up; values can range from -1 to +1 but only those above 0 indicate an association between ERI and unemployment in the expected direction.

Each of these predictive validity performance indicators is shown in figure 16. The first set of columns shows results for the total sample of study participants employed at baseline for whom follow-up employment status was known (N = 207), while the second two columns correspond to subsets of these individuals in Jackson County (n = 121) and Allegheny County (n = 86). Alongside each indicator is an Urban-designated performance rating of “fair,” “good,” or “excellent,” which corresponds to rules of thumb as follows: for proportion indicators, values rounding to 60 percent are fair, 70 percent are good, and 80 percent or higher are excellent; for areas under the curve, values rounding to 0.6 are fair, 0.7 are good, and 0.8 or higher are excellent; for diagnostic odds ratios, values rounding to 2.0 are fair, 4.0 are good, and 6.0 or higher are excellent; and for Pearson correlations, values rounding to 0.2 are fair, 0.4 are good, and 0.6 or higher are excellent. In all cases, ratings less than fair are indicated by a dash.

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15 Pearson correlation is used as the mathematical equivalent to the point-biserial correlation, or the association between a dichotomous and continuous variable.
FIGURE 16
ERI Predictive Validity Performance Indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Total Employed at Baseline (N = 207)</th>
<th>Jackson County (n = 121)</th>
<th>Allegheny County (n = 86)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indicator Rating</td>
<td>Indicator Rating</td>
<td>Indicator Rating</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>52.6% - Fair</td>
<td>65.0% Fair</td>
<td>83.3% Excellent</td>
</tr>
<tr>
<td>Specificity</td>
<td>67.1% Fair</td>
<td>82.4% Excellent</td>
<td>43.3% -</td>
</tr>
<tr>
<td>Area under the curve</td>
<td>0.654 Fair</td>
<td>0.839 Excellent</td>
<td>0.697 Good</td>
</tr>
<tr>
<td>Positive predictive value</td>
<td>28.6% -</td>
<td>44.8% -</td>
<td>30.6% -</td>
</tr>
<tr>
<td>Negative predictive value</td>
<td>85.0% Excellent</td>
<td>91.5% Excellent</td>
<td>89.7% Excellent</td>
</tr>
<tr>
<td>Diagnostic odds ratio</td>
<td>2.27 Fair</td>
<td>8.71 Excellent</td>
<td>3.82 Good</td>
</tr>
<tr>
<td>Pearson correlation</td>
<td>0.290*** Fair</td>
<td>0.597*** Excellent</td>
<td>0.364*** Good</td>
</tr>
</tbody>
</table>


Notes: The ERI scores analyzed were from the optimal versions of the ERI domains as indicated previously in figure 12, along with the two ERI items measuring importance and confidence in keeping one’s job. Analyses controlled for the number of months post-baseline at which employment status was measured. Statistically significant correlation at $^†p < .10, ^*p < .05, ^**p < .01, ^***p < .001$.

Looking at the totality of predictive validity performance indicators in figure 16, several conclusions can be reached:

The ERI performed fairly well overall in identifying which study participants would retain or lose employment, and it performed excellently for those in rural Jackson County, the site for whom the largest share of follow-up employment information was known.

The ERI’s negative predictive value ratings, while excellent, were undoubtedly affected by the high base rate of follow-up employment. Most (78%) of the sample was employed at follow-up, making it easier to identify low risk study participants and more difficult to identify those at high risk (see Singh 2013 for detailed discussion).

Despite this high base rate of follow-up employment and lower sample size in Allegheny County, the ERI accurately identified those at high risk of job loss 83 percent of the time in that, largely urban site (sensitivity indicator).

Further, the correlations between ERI-predicted probabilities of job loss and actual unemployment at follow-up in both rural Jackson County and urban Allegheny County are indicative of good predictive validity, particularly in light of the fact that higher base-rates of follow-up employment constrain these correlations to a maximum value less than 1.0 (Nunnally 1978).
Generalizability across Subgroups

In this section, we recomputed the ERI predictive validity performance indicators for subgroups of study participants defined by age, race, and gender to identify the generalizability of the ERI across different types of individuals. Specifically, we focus on age groups defined as 18 to 24 years, 25 to 44 years, and 45 to 65 years; self-identified race defined as black/African American, Hispanic/Latino, and white/Caucasian; and gender (male, female).

As shown in figure 17, the ERI’s predictive power varied somewhat across subgroups of study participants. It showed stronger predictive validity for younger (18 to 44), white/Caucasian, Hispanic/Latino, and female participants than for older (45 to 65), black/African American, and male participants. However, the ERI’s diagnostics odds ratio for black/African American and male study participants indicates moderate predictive validity: the odds of being classified as high risk for job loss, among those unemployed at follow-up, was approximately twice that among those employed at follow-up. Additionally and as expected, the ERI showed excellent negative predictive values across all subgroups of participants; since most individuals were employed at follow-up, it was frequently correct in its designations of who was at low risk of job loss.

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16 The ERI’s predictive validity across geographic settings was discussed in the previous section.
17 There were too few American Indian or Alaska Native (n=7), Asian (n=3), and Native Hawaiian or other Pacific Islander (n=4) individuals in the study sample to examine with confidence.
FIGURE 17
Generalizability Analyses of ERI Predictive Performance by Age, Race, and Gender

<table>
<thead>
<tr>
<th>Age 18 to 24</th>
<th>Age 25 to 44</th>
<th>Age 45 to 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 38)</td>
<td>(n = 143)</td>
<td>(n = 19)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rating</th>
<th>Indicator</th>
<th>Rating</th>
<th>Indicator</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td></td>
<td>88.9%</td>
<td>Excellent</td>
<td>43.5%</td>
<td>Good</td>
</tr>
<tr>
<td>Specificity</td>
<td></td>
<td>53.6%</td>
<td>-</td>
<td>72.2%</td>
<td>Good</td>
</tr>
<tr>
<td>Area under the curve</td>
<td></td>
<td>0.766</td>
<td>Good</td>
<td>0.630</td>
<td>Fair</td>
</tr>
<tr>
<td>Positive predictive value</td>
<td></td>
<td>38.1%</td>
<td>-</td>
<td>25.0%</td>
<td>-</td>
</tr>
<tr>
<td>Negative predictive value</td>
<td></td>
<td>93.8%</td>
<td>Excellent</td>
<td>85.7%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Diagnostic odds ratio</td>
<td></td>
<td>9.23</td>
<td>Excellent</td>
<td>2.00</td>
<td>Fair</td>
</tr>
<tr>
<td>Pearson correlation</td>
<td></td>
<td>0.416*</td>
<td>Good</td>
<td>0.297</td>
<td>Fair</td>
</tr>
<tr>
<td>Black/African American</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td></td>
<td>50.0%</td>
<td>-</td>
<td>100.0%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Specificity</td>
<td></td>
<td>66.7%</td>
<td>Fair</td>
<td>44.4%</td>
<td>-</td>
</tr>
<tr>
<td>Area under the curve</td>
<td></td>
<td>0.491</td>
<td>-</td>
<td>0.800</td>
<td>Excellent</td>
</tr>
<tr>
<td>Positive predictive value</td>
<td></td>
<td>33.3%</td>
<td>-</td>
<td>50.0%</td>
<td>-</td>
</tr>
<tr>
<td>Negative predictive value</td>
<td></td>
<td>80.0%</td>
<td>Excellent</td>
<td>100.0%</td>
<td>Excellent</td>
</tr>
<tr>
<td>Diagnostic odds ratio</td>
<td></td>
<td>2.00</td>
<td>Fair</td>
<td>N/A</td>
<td>-</td>
</tr>
<tr>
<td>Pearson correlation</td>
<td></td>
<td>0.095</td>
<td>-</td>
<td>0.612*</td>
<td>Excellent</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specificity</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Area under the curve</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Positive predictive value</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Negative predictive value</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic odds ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White/Caucasian</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(n = 145)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specificity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area under the curve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive predictive value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative predictive value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnostic odds ratio</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Notes: The ERI scores analyzed were from the optimal versions of the ERI domains as indicated previously in figure 12, along with the two ERI items measuring importance and confidence in keeping one’s job. Analyses controlled for the number of months post-baseline at which employment status was measured. Statistically significant correlation at † p < .10, * p < .05, ** p < .01, *** p < .001.
Employment Retention and Recidivism

As a secondary research goal, we assessed the connection between study participants’ employment status at baseline, employment retention eight months later (on average), and recidivism behaviors one year post-baseline. In the previous sections, analyses have focused on the 253 study participants who were employed at the time of their ERI baseline survey; in this section, we also examine the 159 participants who did not have a job at that time. Recidivism data were available for 410 of these study participants; data were missing for two study participants in Jackson County.

“I believe it is up to the person to find a job. I'm a felon for the rest of my life and I currently work two jobs, both tax paid, am clean and sober for 15 months, have my own house, bills are paid, debt is getting paid, and my wife/stepson/newborn son are all taken care of including myself.”
—ERI study participant, male (Jackson County, OR; no age/race provided)

Measures of recidivism covered the one year period following participants’ ERI baseline survey, but varied between the two study sites. In Jackson County, recidivism was measured as reincarceration, while in Allegheny County, recidivism measures included rearrest, reconviction, and technical violations of probation or parole.

To examine the connection between employment and recidivism, Urban researchers first conducted a series of cross-tabulations. As shown in figure 18, for each recidivism outcome (except rearrest), the proportion of recidivists was higher among those who were unemployed at the time of the ERI baseline survey than among those who were employed. This difference reached statistical significance, however, only with regard to reincarceration. For study participants in Jackson County, the site that provided reincarceration data, those who did not have a job at baseline were four times more likely to be reincarcerated within the following year, compared to those who did have a job at baseline (12% versus 3% reincarceration rate, respectively).
Next, we focused on the study participants for whom follow-up employment data were available (N = 207) and created four categories according to their employment status at baseline and follow-up (figure 19). For each participant, we calculated a recidivism outcome: for Jackson County participants, it was defined solely as reincarceration, while for Allegheny County participants it was defined as either rearrest or reconviction. Technical violations were excluded as least similar to the other recidivism measures.

As shown in figure 19, there was a significant and substantive difference in recidivism rates for study participants who were unemployed at both baseline and follow-up and those only employed at baseline (i.e., lacked employment retention), when compared to those who were employed at both time points (i.e., retained employment) or just at follow-up (had recent employment). The former two groups were almost three times more likely to recidivate during the year following their baseline ERI survey than those who retained or had recent employment experiences.
To examine this relationship in a model that assessed the timing of recidivism events, we conducted a survival analysis predicting days to recidivism or to one year if no recidivism event occurred. We used the Kaplan-Meier method and examined the significance of the log rank (Mantel-Cox) statistic, which indicates statistically significant ($p < .01$) pairwise differences between the top two and bottom two survival curves shown in figure 20. These analyses showed that both employment retention (at baseline and follow-up) and recent employment (at follow-up) were associated with lower recidivism rates and longer survival time before a recidivism event. Further, these differences remained significant even after statistically adjusting for site, age, race, and gender.
FIGURE 20
Survival Analysis of ERI Study Participants’ Recidivism by Employment Retention

Source: Baseline ERI survey administered May–October 2014 for all study participants with follow-up employment data n = 303. Recidivism data from Oregon Department of Corrections and Allegheny County Adult Probation and Parole; covers the period one year post-baseline.

Notes: *Excluding technical violations. Pairwise comparisons based on the Mantel-Cox log rank statistic showed statistically significant differences between the top and bottom survival curves at a probability less than .001, and between the two middle curves at a probability less than .01.
Lessons Learned and Next Steps

In this initial validation of the National Institute of Correction’s (NIC) Employment Retention Inventory (ERI), Urban Institute researchers examined the employment-related barriers included in the ERI, assessed the degree to which they conceptually and statistically correlated with one another, estimated the predictive power of the ERI at identifying individuals at high risk of job loss, and analyzed the importance of and relationship between employment retention and recidivism.

Overall, the items in the ERI showed strong face and content validity and readability at a 6th grade level, with study participants reporting ease and comfort in taking the computerized, self-administered questionnaire. Across all ERI items, an optimal version of each of the seven ERI domains was attainable, with each domain showing unidimensionality and relatively high internal consistency reliability—particularly, the domains measuring stress, mental health, family and friends, substance use, and possible job loss. These latter three domains also showed significant concurrent validity with participants’ LSI-R risk scores, a finding assessable in Allegheny County.

Looking at the ERI’s predictive validity when subjected to quite a stringent test, the instrument performed fair overall with excellent ratings for those in rural Jackson County. The instrument also showed somewhat stronger predictive validity indicators for study participants who were under age 45, white, Hispanic/Latino, and female than it did for older (45 plus), black, and male participants; however, given the non-random nature of these subgroups, it is important to explore these differences further. In the next phase of the ERI’s validation, it will be critical to include as many diverse populations as is reasonably feasible and to collect ERI responses and employment outcomes for a larger sample of individuals (N~600), so that validation techniques can be used to construct, calibrate, and validate the ERI on randomly selected subgroups of participants.

In the current, replication validation of the ERI, it will also be important to assess employment outcomes over the entire follow-up period, rather than just a snapshot at one point in time. In this way, the ERI’s applicability to the continuum of gainful workforce attachment—including those who are unemployed and underemployed—can be assessed. The instrument could then be calibrated to apply to all justice-involved and behavioral health clients regardless of their current employment status.

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18 That of predicting employment status eight months post-ERI, rather than predicting duration of employment attachment, which was unavailable.
Analyses in this report also support the linkage between employment retention and recidivism. Study participants who were employed at both the baseline and follow-up time points showed the lowest likelihood of, and greatest time to, recidivism. Employment attachment offers individuals an avenue to financial stability, which can help them secure longer-term housing, family reunification, and a more successful transition back into the community.

“It was tight talkin' to my PO for a min. I’m doin' good [and] love havin' a job. My life's better with one. No chances for screwin' up if I'm busy.”
—ERI study participant, 33-year-old white male (Jackson County, OR)

For the time being, the ERI validation analyses in this report provide some degree of reassurance to future NIC employment retention specialists and practitioners that when they incorporate use of the ERI into daily practices, they will be relying on an instrument that has been qualitatively and empirically tested, and one that is supported by the very principles upon which its importance rests—namely, that when individuals’ employment retention barriers can be properly identified and addressed, recidivism events will be less likely or take longer to occur—providing individuals with improved chances at reintegration and life success.
References


REFERENCES


About the Authors

Jennifer Yahner is a senior research associate in the Urban Institute’s Justice Policy Center, where she has been conducting research on criminal justice issues for over a decade. She served as lead data analyst on Urban’s Returning Home studies, and led important components of MDRC’s Transitional Jobs Reentry Demonstration and Hard-to-Employ evaluations. She also conducted scale validation and other data analyses tasks for the NIC-funded Transition from Jail to Community and Norval Morris workforce transformation projects. Yahner has expertise in a variety of sophisticated statistical methodologies using programs such as SPSS, SAS, and Mplus, and she has conducted previous studies of the connection between offender employment and recidivism. Her work has been published in peer-reviewed journals including Criminology and Public Policy, Journal of Interpersonal Violence, Journal of Youth and Adolescence, and Crime and Delinquency.

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