FROM CORRECTIONS TO COMMUNITY
THE JUVENILE REENTRY EXPERIENCE AS CHARACTERIZED BY MULTIPLE SYSTEMS INVOLVEMENT

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EXECUTIVE SUMMARY

In this study, we examined reentry experiences of a population of youth released from Illinois juvenile correctional facilities between 1996 and 2003. Prior research suggests that these youth are likely to face considerable challenges as they navigate the transition back into the community. The needs of these youth may place them in contact with one or several child-serving systems, which may indicate both need and support received during the transition. Involvement in multiple systems is viewed in this research as being part of the reentry experience that is likely to impact the chances of re-offending.

Using administrative data from a variety of human and public service systems that serve children and youth in Illinois, we developed profiles of reentry experiences, as characterized by varying levels of involvement across multiple systems after release from correctional settings among eight cohorts of youth. Reentry experiences were compared across age, gender, and race. Using multilevel modeling techniques, the study also examined how different reentry experiences are related to recidivism following release and how the relationship between these experiences and recidivism varies by social context.

Below is a summary of the findings of this report:

- Statewide, four distinct classes of youth exits are described by involvement across multiple child-serving systems.
- Nearly one half of youth exiting correctional settings statewide between 1996 and 2003 have little to no involvement across child-serving systems. The system involvement of another quarter of youth is limited to receipt of public aid. Yet another quarter is marginally served across most systems, while a small percentage is represented across a wide range of systems, particularly mental health and substance abuse rehabilitation treatment.
- Youth receiving public assistance, but few health services, are disproportionately African American.

- Although recidivism is high within 18 months from release, youth with collectively no systems involvement have the lowest recidivism rates.
- Experiences with multiple systems and the relationship between these experiences and recidivism vary across regions of the state.
- The majority of Chicago youth exits are marked by not being enrolled in school and not being employed during reentry.
- In Chicago, three distinct classes of youth exits are described by involvement across multiple child-serving systems, including a class of uninvolved youth, a class of welfare recipients, and a class of marginally served youth.

Findings from this study provide policy makers and practitioners a body of information on the extent of system involvement among Illinois youth released from correctional facilities. The research is intended to help coordinate efforts between the many systems and services that youth may become involved with upon release.

INTRODUCTION

While understanding the many challenges formerly incarcerated youth face has increasingly become an issue of importance to policymakers, service providers, and the general public, little is known empirically about the experiences of youth released from juvenile incarceration as they transition back to the community (Mears & Travis, 2004), and what factors account for recidivism. These youth face not only the possibility of returning to the juvenile or criminal justice system, but also needs that may put them in contact with a host of human and public child-serving systems. Although the challenges that youth face during the transition back to the community have been acknowledged (see Altschuler & Brash, 2004, Mears & Travis, 2004, Snyder, 2004), large-scale, empirical research is limited on their multiple systems involvement during reentry. As coordinated efforts to aid youthful offenders reintegrate into the community are developed by the justice system and the many other systems that serve youth (for a review of recent efforts, see Altschuler, Armstrong, & MacKenzie, 1999), it is crucial that we have an understanding of the extent of the service needs and receipt among youth as they transition from corrections to community.

This report describes findings from a study that tracks a population of formerly incarcerated youth under age 18 in Illinois following their release. Using administrative records, we develop profiles of reentry experiences across the many systems that serve children and their families and examine how variation in involvement across these systems is related to greater or less likelihood of re-offending.

The knowledge generated by this project is intended to help state and local policymakers, researchers, and service providers better understand the extent of involvement across multiple systems among formerly incarcerated youth and address the potential service needs of youth

during the reentry process. Such knowledge will allow those involved with this population to strengthen their collaborative efforts and provide appropriate services to youth during reentry, as well as improve a community's capacity to support the healthy and optimal development of youth when they return from correctional settings in order to reduce future offending.

Challenges During Reentry

The release of adult offenders from prison into the community, or the process known as reentry, has been a topic widely addressed in the research literature (Burke, 2001; Irwin, 1970; Maruna, 2001; Maruna & Immarigeon, 2003; Petersilia, 2003; Petersilia & Travis, 2001; Travis & Waul, 2003; Visher & Travis, 2003). Receipt of rehabilitative services and opportunities in areas such as housing, education, and employment are recognized as critical to successful reentry, as evidenced by federal initiatives such as the Coming Home Initiative (Petersilia, 2003).

Yet researchers have only recently turned their attention to the juvenile population. Moreover, much reentry research focuses solely on recidivism as the measure of success or failure (Spencer & Jones-Walker, 2004; Visher & Travis, 2003). Because re-offending represents a threat to public safety, as well as to an individual's well being, recidivism is certainly a concern for the study of juvenile reentry and a focus of this report.

Yet, in addition to staying out of trouble, youth face many other challenges as they transition back to the community. Recent research has identified a host of challenges youth face during the reentry process (Altschuler & Brash, 2004; Byrnes, Macallair, & Shorter, 2002; Chung, Little, & Steinberg, 2005; Steinberg, Chung, & Little, 2004; Sullivan, 2004). These challenges may put youth in contact with multiple child-serving systems when reentering the community. What is known about these challenges for youth during reentry is reviewed below.

Education

Delinquency and persistence in offending have long been associated with poor academic performance (for a detailed review, see Maguin & Loeber, 1996), and incarcerated youth perform at academically low levels and have high rates of academic failure and grade retention (for a review, see Foley, 2001). Therefore, youth transitioning from correctional settings to the community are likely to experience educational problems. Enrolling in school is a particularly troublesome event for formerly incarcerated youth under current accountability policies that often lead schools to exclude students displaying academic or behavioral problems (Mayer, 2005; Mears & Aron, 2003) and therefore, this is a population at risk for not continuing their education. Although initiatives exist to help youth make the transition from incarceration to school, many youth leaving correctional settings must negotiate reentry to the educational system with no help from transitional educational placements (Stephens & Arnette, 2000). It may be no surprise then, that dropping out of school is associated with subsequent offending among certain subgroups (Jarjoura, 1993).

Abuse and Neglect

Although heavily debated due to methodological issues, studies generally show a positive association between maltreatment, including physical abuse and neglect, and delinquency (Maxfield & Widom, 1996; McCord, 1983; Smith & Thornberry, 1995; Widom, 1989). Thus, youth who have experienced abuse or neglect are at risk for justice system involvement. Numerous studies have identified high rates of arrest and criminal justice system involvement among foster youth (Barth, 1990; Courtney et al., 2001; Cusick & Courtney, 2007; Jones and Moses, 1984; Zimmerman, 1982). Incarceration rates have been found to be twice as high for children with investigated abuse reports than for all other children, according to a study of youth

in the state of California (Johnson-Reid & Barth, 2000). Similarly, a study of incarcerated young adults by Haapasalo (2000) found that the majority of offenders had prior experiences with child protection services and a disproportionate number of incarcerated youth are victims of abuse, especially girls (Altschuler & Brash, 2004; Burke, 2004). Little is known, however, about the extent of maltreatment and placement in out-of-home care among youth *after* they have been released from correctional settings.

Health and Mental Health Care

The prevalence of health problems is much higher for incarcerated youth than the general population, which makes health care an especially important aspect of the reentry process. Incarcerated youth have higher than average rates of substance abuse, sexually transmitted diseases, unplanned pregnancies, and psychiatric disorders, all of which can impact behavior and the ability to make healthy decisions (see Clark & Gehshan, 2006; Cocozza & Skowyra, 2000; Greenbaum et. al., 1996; Otto et. al., 1992; Steiner & Cauffman, 1998; Stiffman et. al., 1997; Timmons-Mitchell et. al., 1997). In many cases, youth have multiple health problems. Mental health disorders and substance abuse commonly co-occur for these youth (Altschuler & Brash, 2004; Lyons et. al., 2001; Milin et. al., 1991; Otto et. al., 1992), and both are strongly related to incarceration, especially among juvenile offenders (Dembo, et. al, 1993; National Institute of Justice, 2001). All of these health problems can threaten the youth's well being as well as diminish the possibility for a successful reintegration into society.

Economic Disadvantage

The challenges and experiences facing youth as they reenter the community are even more daunting given the high level of disadvantage that typically characterizes incarcerated youth. These youth often come from low-income families. Despite the possible need for and

risks associated with health care among previously incarcerated youth, few have adequate health care coverage when they exit the juvenile justice system (Sickmund et. al., 2004). The majority of incarcerated youth is presumably eligible for Medicaid, given that many come from low-income families, but many states terminate, rather than suspend, a youth's Medicaid benefits while they are incarcerated.[1] This practice may result in significant delays for youth seeking to obtain Medicaid. Youth with a criminal record or those who violate parole may even be denied access to public health care benefits (Byrnes et. al. 2002; Freudenberg, 2006).

Termination of Medicaid eligibility among incarcerated youth is an issue in Illinois. Although the Illinois Title XIX State Plan covers inpatient services provided outside a public institution for inmates, the individual must be enrolled in the Medicaid program at the time the service is provided. In Illinois, however, Medicaid eligibility is terminated upon incarceration. Because it takes 30-90 days for an individual to be determined eligible for the Medicaid program, these health care benefits are unavailable to youth not only during incarceration but also immediately after release from prison. This practice may result in a gap in access to health care between the time a youth is released and their Medicaid eligibility is re-instated, which is a problem that has been noted by several groups.[2]

The environment to which a juvenile offender returns is another important, and often problematic, element of the reintegration process. Although securing safe and affordable housing is a significant challenge for adults exiting prison, there are added complexities for youth who reenter society, particularly those from low-income families. Few residential transition programs exist for formerly incarcerated youth, due in part to the presumption that

[1] Federal Medicaid law does not require that a state terminate Medicaid eligibility for any individual who is incarcerated, but doing so "often results in an interruption in coverage for juveniles upon re-entry into the community, partly due to the 45 to 90 days the average application takes to process" (Koppelman, 2005).

they can return home or find alternative living arrangements with an adult guardian (Altschuler & Brash, 2004). Returning to family is not, however, always an option. Often incarcerated youth fail to maintain family ties while they are in prison, so when it comes time to exit the system, they have no family to which they can return (Sullivan, 2004). Youth who manage to maintain familial relationships also face barriers when it comes to finding a place to live. If a former juvenile offender moves into public housing with a family member, the entire family may be at risk of being evicted (Byrnes et. al., 2002; Freudenberg, 2006; Henning, 2004; New York City Department of Corrections, 2001).

Most incarcerated youth also come from and move back to disadvantaged communities in which violence and crime are prevalent, but safe housing, education, and employment opportunities are lacking (Spencer & Jones-Walker, 2004; Sullivan, 2004). Neighborhood disadvantage is particularly high among youth of color. Research has shown that youth of color are overrepresented in correctional settings (Pope, Lovell, & Hsia, 2002). But, the juvenile justice system is not the only system in which youth of color are disproportionately represented. For example, a review of child welfare research shows that youth of color are also overrepresented in the child welfare system (Courtney & Barth, 1996). Given the high level of disadvantage among youth of color and their disproportionate rates of incarceration, experiences during reentry, particularly those with child-serving systems, may be unique.

Multiple Systems Involvement: The Collective Reentry Experience

Given the challenges that youth face as they reenter the community from correctional settings, involvement with public systems that serve children, youth, and their families, is likely, while

[2] Personal (written) communication with Theresa Eagleson, Medicaid Director, Illinois Department of Healthcare and Family Services, 2007.

engagement in public school systems may be low. A study of Illinois human service recipients in 1996 found that 29 percent of children participated in a program of at least one of six state human service agencies[3] (Goerge, Joo Lee, & Reidy, 2001). The number of youth in the juvenile reentry population participating in such programs across the state of Illinois, however, has yet to be thoroughly addressed.

Multiple system involvement is an important issue to study as it may indicate both challenges youth face and support youth receive during reentry. For example, receipt of mental health services or public assistance and placement in out-of-home care indicate mental health needs, financial difficulties, or abuse/neglect in the home. On the other hand, receiving these services may also indicate the levels of formal support such youth are receiving during this challenging period.

Successfully navigating the reentry process and staying out of trouble will in part depend on the services and support youth receive from public child-serving systems. No one indicator of involvement with these systems and settings, however, provides the complete picture of reentry experiences for youth. We view the reentry process as consisting of a range of challenges and experiences that may put youth in contact with one or many public child-serving systems. In turn, varying levels of involvement across these multiple systems may be related to more or less success in the transition from correctional settings back into the community, as marked by either staying out of trouble or recidivating.

Additional Reentry Experiences with Employment

Although the focus of this report is on reentry experiences from a systems involvement perspective, we recognize the potential importance of employment during this period. Stable

[3] These include the Department of Mental Health and Developmental Disabilities, the Department of Alcoholism and Substance Abuse, the Department of Rehabilitative Services, the Department of Public Aid, the Department of

employment has been linked to desistance from crime (Sampson & Laub, 1993; Horney, Osgood, & Marshall, 1995), yet youth may find obtaining employment upon release to be difficult (Hagan, 1993), particularly with their limited educational backgrounds (Altschuler & Brash, 2004). This may be particularly true for older youth. For youth with difficulties enrolling in school, employment may be necessary. On the other hand, research has shown that employment in support of, rather than in displacement of, education is linked to lower rates of offending among adolescents (Staff & Uggen, 2003). Therefore, employment coupled with education may serve as a protective factor for youth during reentry. Finally, those not in school nor working are considered disconnected during the difficult reentry period.

The Importance of Context

To best address the needs of youth during reentry, consideration must be given to differences in social environments. Involvement with child-serving systems is likely to differ for youth across the state. For example, although the state of Illinois recognized the need for a coordinated state system of services and programs with the creation of the Department of Human Services in 1997, the number and percent of children and families receiving services differs across geographic regions (Goerge, Joo Lee & Reidy, 2001). Although efforts have been made to assist in the reentry process of youth in one neighborhood with the Going Home Program (Illinois Department of Corrections, 2002), a better understanding of the differences in involvement in child-serving systems across the state is needed. In addition, although the effect of contextual characteristics of neighborhoods on delinquent and criminal behavior, such as poverty levels and crime rates, has been heavily researched (for a review see Sampson, Morenoff, & Gannon-

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Public Health, and the Department of Children and Family Services.

Rowley, 2002), research on the relationship between neighborhood context and recidivism is limited (Kubrin & Stewart, 2006).

The Current Study

The larger goal of this study is to provide a better understanding of the reentry process for juveniles in Illinois from a systems involvement perspective. Within this larger goal, the study has the following specific aims:

1) To describe involvement in child-serving systems of formerly incarcerated youth during the first year after release from correctional settings, including involvement with school, public assistance, foster care, and government assisted services for health, mental health and substance abuse needs;

2) To identify profiles of the reentry experience, characterized by different levels of involvement across child-serving systems;

3) To examine different reentry experiences across gender, race, age, employment, and region;

4) To examine how different reentry experiences are related to recidivism during the18 months after release;

5) To determine whether the relationship between different reentry experiences and recidivism varies by social context across Illinois.

With these goals, we aim to gain information on the extent of involvement with child-serving systems during the reentry period and determine whether such involvement is related to recidivism through the analysis of administrative data. Finding that differences in system involvement during the reentry period are related to recidivism would suggest the need for further studies to identify the mechanism behind any such relationship. For example, if a wider extent of system involvement is related to lower recidivism, this might suggest that connecting youth to services they need during reentry is critical to helping these youth make a positive transition back to the community and avoid further trouble. Criminological theories of social

control, such as Hirschi's social bond theory (1969) or Sampson and Laub's age graded theory of social control (1990;1992;1993), would support such findings. These theories argue that bonds to institutions, for example education and employment institutions, reduce crime and deviance. Involvement may also indicate that the need for services, such as mental health treatment, among youth being released from prison, is being met during this important transition period. On the other hand, involvement with many of the child-serving systems examined here, such as the child welfare system or public assistance may be indicative of risk factors for subsequent criminal behavior. Because this study relies on administrative data only, we cannot control for level of need. Therefore, identifying whether system involvement during the reentry period indicates risk or protective factors is beyond the scope of this work.

METHODS

Study Population

Statewide Population

The statewide population in this report includes all exits from Illinois juvenile correctional facilities from January 1, 1996 through June 30, 2003 among youth between the ages of 13 and 18. We restricted the population to youth under the age of 18 when released in order to capture experiences during adolescence. Because we have access to all youth in the population who meet this criteria, no sampling design was necessary. Correctional settings examined include a range of minimum, medium, and maximum security levels. During these years, we examined 13,511 correctional setting exits. Youth may experience multiple spells of incarceration within the same year. We retained only the first record per individual within the same exit year. Youth may also exit and reenter correctional settings across years, although most youth in the

population examined here experienced only one correctional exit. For youth with multiple incarceration spells across years, we retained one record for every year in which an individual exited a correctional setting. As such, our main unit of analysis can be thought of as 'youth exits' which may be associated with different reentry experiences even among individual youth. Analyses are conducted within exit year cohorts and on the statewide population, in which exit year cohorts are combined from 1996-2003.

A description of the statewide population is provided in Table 1. Not surprisingly, the majority of exits were by male youth, although in general the percentage of female exits increased slightly across the study period. Over half of the exits were by African American youth. Less than 1 percent of the population was a high school graduate or attained a GED, while most were either grade school graduates or had some high school when incarcerated. Exits largely occurred between the ages of 15 and 17, with just over 40 percent exiting at age 17. Thus, our population largely represents exits in late adolescence. The vast majority of the population was recorded as having used alcohol or drugs. Similarly, most youth exiting had a recorded gang affiliation. Around one half of exits were of youth sentenced for a property offense, with over a third being sentenced for a person offense. Most had a prior criminal arrest, with nearly 2.5 on average. Before exiting, youth spent about 234 days in prison, on average, or approximately 8 months.

Table 1. Description of the Statewide Population: Exits among Youth Statewide

Exit Year	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**[a]	**Total**
N=	*1,589*	*1,972*	*1,857*	*1,903*	*1,795*	*1,625*	*1,852*	*918*	*13,511*
	%	%	%	%	%	%	%	%	%
Gender									
Male	90.9	90.8	90.1	89.6	87.6	87.2	87.7	88.6	89.1
Female	9.1	9.2	9.9	10.4	12.4	12.8	12.3	11.4	10.9
Race									
African American	49.9	52.7	55.4	53.1	55.8	53.2	51.5	55.6	53.3
Caucasian	38.9	35.6	33.9	34.4	33.6	36.6	38.9	34.2	35.8
Hispanic	10.4	10.7	10.0	12.0	10.0	9.7	9.1	9.9	10.3
Other	.8	1.0	.7	.5	.7	.5	.5	.3	.6
Education[b]									
Some grade school	15.1	14.9	18.1	23.3	24.8	23.9	23.5	23.2	20.7
Grade school graduate	35.4	33.3	38.2	40.2	39.5	39.1	36.6	36.4	37.4
Some high school	40.5	42.3	33.5	31.5	30.5	32.9	37.5	37.6	35.7
High school graduate/GED	.9	.7	.3	.8	.4	.7	.7	.8	.7
Age at exit									
Age 13	.9	.7	1.9	1.3	1.2	2.0	1.7	1.7	1.4
Age 14	5.5	6.1	5.6	6.5	7.2	6.3	7.2	7.5	6.4
Age 15	18.9	16.8	18.6	18.9	17.3	16.4	16.1	18.6	17.7
Age 16	34.5	33.8	32.4	34.7	32.5	34.2	34.3	33.3	33.7
Age 17	40.2	42.5	41.5	38.6	41.8	41.2	40.7	38.8	40.8
Drug use	68.3	70.5	75.2	78.5	80.6	87.4	86.4	86.1	78.6
Alcohol use	62.6	61.8	65.8	69.4	72.3	80.1	80.7	77.5	70.8
Gang affiliation	89.0	90.2	86.7	82.8	79.1	-	-	-	85.5[c]
Type of offense									
Drug	11.6	15.3	17.3	16.5	18.2	15.1	13.6	12.5	15.3
Property	48.0	45.9	46.5	47.7	45.9	48.9	52.6	53.5	48.3
Person	40.4	38.8	36.2	35.8	35.9	35.9	33.8	34.0	36.5
# of prior arrests	2.84	2.92	2.93	2.41	2.04	2.25	2.13	2.30	2.49
Mean, (std. deviation)	(4.27)	(4.29)	(4.30)	(3.96)	(3.35)	(3.45)	(3.33)	(3.45)	(3.82)
Length of prison stay in days[d]	258.0	243.4	241.7	240.9	241.8	226.6	213.6	180.9	233.97
Mean, (std. deviation)	(195)	(168)	(172)	(176)	(194)	(206)	(201)	(165)	(186.55)

[a] The 2003 cohort includes data through June 30th.

[b] Percentages do not add up to 100 due to a small amount of missing data on highest education level.

[c] Data on gang affiliation were incomplete from 2001-2003; the total percentage is calculated from cases (N=9,116) in 1996-2000

[d] Length of prison stay reflects the number of days incarcerated in the juvenile facility; Additional time may be spent in detention, mental health custody, on probation, etc.

Chicago Population

Although most data were available statewide, information on educational experiences was available only from the Chicago Public School (CPS) system. From the statewide population described above, we identified 3,662 exits by youth who were enrolled in a CPS school prior to incarceration and who had not already graduated or transferred to a non-CPS school during the semester before being incarcerated.[4] Of the selected Chicago population, 33 percent were recorded by CPS as inactive during the semester prior to incarceration for reasons such as transferring to evening school, dropout, or unable to locate. Although these youth were inactive during the semester immediately prior to their incarceration, we included them in the Chicago population in order to most thoroughly examine educational experiences of formerly incarcerated youth, including those most at risk of being disconnected from the public educational system. Therefore our population of Chicago youth exits includes all former Chicago public school students who could be enrolled after incarceration. In the findings section, we note differences in educational involvement after incarceration between those who were active vs. inactive in CPS just prior to being incarcerated. Table 2 provides a description of the Chicago population.

Table 2. Description of the Chicago Population: Exits among CPS Students

Exit Year	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**[a]	**Total**
N=	*397*	*543*	*576*	*529*	*520*	*433*	*453*	*211*	*3,662*
	%	%	%	%	%	%	%	%	%
Gender									
Male	96.7	96.3	95.3	94.9	93.8	92.4	95.1	94.3	94.9
Female	3.3	3.7	4.7	5.1	6.2	7.6	4.9	5.7	5.1
Race									
African American	78.1	79.6	81.3	80.0	82.3	80.6	81.0	79.6	80.4
Caucasian	6.8	4.1	4.0	3.0	3.7	4.6	4.2	4.7	4.3
Hispanic	15.1	15.5	14.1	16.4	13.5	14.3	14.6	15.6	14.8
Other	0	.9	.7	.6	.6	.5	.2	0	.5
Education[b]									
Some grade school	9.3	11.6	15.5	23.8	26.0	22.9	21.6	19.9	18.8
Grade school graduate	42.8	39.2	44.3	43.3	47.9	47.8	43.3	43.6	44.0
Some high school	43.1	44.9	34.9	30.4	23.7	25.6	32.7	35.5	33.7
High school graduate/GED	1.0	.7	.2	.2	.4	.5	.4	0	.4
Age at exit									
Age 13	0	.6	.7	.4	.6	.5	.2	0	.4
Age 14	1.5	3.9	2.3	3.8	3.5	3.2	3.5	3.8	3.2
Age 15	13.4	15.1	16.1	15.3	14.6	15.7	12.6	16.1	14.9
Age 16	34.8	33.3	34.0	35.3	31.7	29.1	30.5	32.2	32.7
Age 17	50.4	47.1	46.9	45.2	49.6	51.5	53.2	47.9	48.8
Drug use	73.6	70.7	78.3	84.7	85.0	88.0	86.5	87.2	81.2
Alcohol use	60.7	55.8	61.6	69.9	71.7	74.8	77.5	73.9	67.5
Gang affiliation	95.5	93.6	87.8	88.3	82.9	-	-	-	89.3[c]
Type of Offense									
Drug	23.7	31.7	38.4	35.5	36.9	34.9	35.1	29.4	33.8
Property	25.7	24.1	24.0	24.0	22.3	25.2	28.0	31.8	25.0
Person	50.6	44.2	37.7	40.5	40.8	40.0	36.9	38.9	41.1
# of prior arrests Mean, (std. deviation)	4.15 (4.90)	3.90 (4.91)	3.90 (4.80)	2.88 (3.63)	1.89 (2.82)	2.19 (3.37)	1.90 (2.84)	1.86 (2.77)	2.93 (4.06)
Length of prison stay in days[d] **Mean, (std. deviation)**	299.7 (210)	268.9 (171)	258.4 (166)	264.4 (163)	276.8 (208)	240.6 (200)	240.6 (213)	199.3 (173)	260.00 (190)

[a] The 2003 cohort includes data through June 30th.

[b] Percentages do not add up to 100 due to a small amount of missing data on highest education level.

[c] Data on gang affiliation were incomplete from 2001-2003; the total percentage is calculated from cases (N=9,116) in 1996-2000

[d] Length of prison stay reflects the number of days incarcerated in the juvenile facility; Additional time may be spent in detention, mental health custody, on probation, etc.

[4] An additional 1,610 youth were enrolled in CPS at some point prior to incarceration, but had either graduated or transferred out of the CPS district before being incarcerated. Because we would not have education information on these youth during the reentry period, we excluded them from the Chicago population.

A Note on the Statewide and Chicago Populations

We note that the Chicago population is a sub-set of the full statewide population. We included these Chicago exits within the statewide population because our main research purpose was to examine reentry experiences across the state in order to identify if and how these experiences differ when comparing regions of the state, including Chicago. Thus, for this purpose, it is critical that analyses first be conducted on a statewide population.

Our purpose in examining a Chicago only population is less to serve as a comparison to the statewide population findings and more to allow us to examine school enrollment and public housing residence as indicators of system involvement during the reentry period. These data are only available in Chicago, thus necessitating the analysis of a separate Chicago population.

Although our purpose is not to compare the statewide and Chicago populations, particularly because the Chicago population is actually a sub-set of the full statewide population, we do note some differences between exits within Chicago only and exits including the full state. The Chicago population had fewer exits by females than the statewide population (5% vs. 11%, respectively). The racial make-up also varied between the two populations. The proportion of African American incarcerated youth statewide (53%) was much lower that in Chicago (80%) and the proportion of Caucasian youth incarcerated statewide (36%) was much higher than in the Chicago population (4%). Education levels, substance use, and gang affiliation were similar throughout the state.

We also saw differences in terms of offense related characteristics. The largest percentage of exits in the statewide population were followed a property offense (48%), while the greatest percentage of exits in the Chicago population followed a person-related crime (42%) or drug related crime (34%). In addition, the mean number of days spent in prison was slightly

higher (mean=260 days) in the Chicago population than in the population statewide (mean=234 days). Thus, including Chicago exits within the statewide population somewhat masks what are likely notable differences between Chicago and the rest of the state, excluding Chicago. However, again because our main concern is looking statewide, as opposed to Chicago versus the rest of the state as might be of more interest for other research purposes, we have chosen here to include Chicago cases in all analyses examining exits statewide.

Data and Measures

Data for this study came from multiple state and local agency databases. Because data come from different agency information systems that do not share a common ID, linking data records reliably and accurately across different data sources is an important issue. The databases of each agency have been linked for the purposes of this study on the basis of common information on each of the individuals in each of the databases (including such variables as name, birth date, and Social Security Number) using a technique called probabilistic record linkage (Goerge et al., 1994). The method was first developed by researchers in the fields of demography and epidemiology (Newcombe, 1988; Jaro, 1985, 1989). The method is known as a reliable means of matching records across multiple data files. A description of the agency data sources utilized in this report is provided in Appendix A.

In addition to these administrative data from agency sources, we also examined contextual characteristics using 2000 U.S. Census data and 2000 FBI Uniform Crime Reports (UCR). Census data provide information on the social context of counties from which youth are incarcerated. The UCR provides information on county crime rates.

Measures of Systems Involvement

From the agency data sources described in Appendix A, we created measures of involvement across child-serving systems during the year following release from a correctional setting. Therefore, for every youth exit, the exact period in which we examined system involvement differed. Although youth may be involved in these systems prior to incarceration and at some point after their first year back in the community, our measures reflect any involvement only during the first year post release for each exit (e.g. during a one-year period from the date of exit

from incarceration).[5] We computed 10 initial measures of system involvement across 4 domains, including public assistance, public health care assistance, child welfare, and public education. A list of these measures and the agency data source is provided in Table 3.

Table 3. System Involvement Indicators

Indicator	**Agency Data Source**
Public assistance	
Any Food Stamps benefits	Department of Human Services
Any TANF benefits	Department of Human Services
Any public housing residence*	Chicago Housing Authority
Public health care assistance	
Medicaid enrollment	Department of Healthcare and Family Services/Department of Human Services
Any non-mental health treatment claim	Department of Healthcare and Family Services
Any mental health treatment claim	Department of Healthcare and Family Services
Any substance abuse rehabilitation claim	Department of Healthcare and Family Services
Child welfare involvment	
Any out-of-home care placement	Department of Children and Family Services
Any indicated maltreatment report	Department of Children and Family Services
*Public education involvement**	
Any enrollment in public school	Chicago Public Schools

*Indicators available for Chicago population only.

Public assistance utilization, as measured separately by receipt of Food Stamps and TANF (Temporary Aid to Needy Families) cash assistance, identifies the extent of involvement among youth and their families with welfare benefits. Family units are eligible for TANF if they contain a child, caretaker relative, or pregnant woman. Eligibility is largely income-based. Eligibility for Food Stamps is based on household composition. Households are automatically eligible for Food Stamps if all members are 1) SSI recipients, GA or TANF recipients or 2) disabled persons living in a group living arrangement. The Food Stamp program does have some work requirements. Eligibility is also based on assests and income, based on the household size and composition. For the purposes of this study, youth whose family or household have an

[5] School involvement is measured during the semesters that fall within a year following exit from incarceration.

active case for TANF or Food Stamp benefits duringthe year following an exit are considered to be receiving these benefits.

For the Chicago population, we also included a measure of public housing residence to indicate involvement with public housing assistance. Any youth who were known to be living in Chicago public housing or in Section 8 housing during the year following an incarceration exit were recorded as receiving any public housing assistance.[6] According to Chicago Housing Authority policy "All household members age 18 and over will be subject to a three year criminal background check. Sealed juvenile records will not be reviewed." (Chicago Housing Authority, 2005, p. 11). Thus, sealed juvenile records should not be used in determining whether a formerly incarcerated youth can reside in public housing and there is no specific policy addressing any special requirements for handling readmission of youth under 18 years of age back into a household following incarceration.

In addition to public economic assistance, we identified involvement with government supported health care. This was measured both by enrollment in the Medicaid Program and services reimbursed through Medicaid, based on longitudinal paid claims data. These data come from the Medicaid Management Information System (MMIS), operated by the Illinois Department of Healthcare and Family Services (formerly the Illinois Department of Public Aid). Records in the MMIS contain the primary diagnosis, procedure code, provider type, category of service, and dates of service for claims reimbursed by Medicaid, which we used to determine whether individuals received any health care related services reimbursed through the Medicaid program during the one year period following their exit from incarceration. Using these MMIS paid claims data, we distinguished non-mental health treatment, to indicate general health needs, mental health treatment, to indicate general mental health needs, and rehabilitation for specific

substance abuse needs. A detailed description of how these treatment types were determined is provided in Appendix B.

As noted earlier, Medicaid eligibility is terminated upon incarceration and individuals must again be determined eligible after release before benefits are re-instated. We note that our measures of public health care assistance may not include all services youth receive for health care needs. The data reflect only treatment services for which claims had been submitted by the provider and approved as covered by Medicaid. During the period of study (1996-2003), some non-matchable service claims were not submitted to the MMIS. Thus, our measures of services received through Medicaid benefits may be underestimated. In addition, it is possible that health related services covered by private insurance or other (non-Medicaid) public sources were received by youth in our population. Such services would not be reflected in this study. This study only examines services reimbursed through the Medicaid program. While there are certainly limitations to these measures as indictors of health and mental health treatment, they do reflect receipt of services through one public service system, the Medicaid program, which is the focus of this report.

Involvement with the child welfare system was measured through two variables. First, we identified any out-of-home care placements experienced by a youth in the year following an incarceration exit. These placements may include traditional foster care, kinship care, group home/residential care, and independent living settings. Second, we identified any indicated reports of maltreatment against the youth filed during the year following an exit. Youth who were either placed in out-of-home care or had an indicated maltreatment report filed were treated as being involved with the child welfare system. Because a very small number of youth had an

[6] Complete data on public housing residence was available for the 2000-2003 cohorts only.

indicated maltreatment report (<1%) we combined the two measures to reflect any involvement with the child welfare system.

Finally, for the Chicago population, we examined public education involvement through a measure of school enrollment, based on student records from the Chicago Public Schools. School records that are able to be linked to the other systems described above are currently only available within the Chicago Public School system, therefore limiting these data to the Chicago population rather than statewide. Youth were identified as being enrolled in school if they were recorded in the CPS student information database as having an active status in a CPS school within any semesters during the year following an incarceration exit, who had graduated, or who had transferred to a non-CPS school or evening program. This includes enrollment in CPS transition centers that serve youth who have had juvenile justice contact. For those that were not active in CPS during their one year reentry period, we examined reasons for not being enrolled. These included reasons such as dropout or having been committed to a correctional institution. Youth cannot be denied enrollment in CPS due to their prior incarceration status. Thus, having been convicted of a crime and incarcerated should not by law result in denial of enrollment.

Exit, Individual and Contextual Covariates

In addition to systems involvement, we examined a variety of demographic and offense-related characteristics that are unique to each youth and offense or case related characteristics that may change for individuals over time, but are unique to each correctional exit. These characteristics are used to more fully understand differences across collective reentry experiences with system involvement, as well as to predict recidivism in multivariate models. In addition, we examined characteristics of each Illinois county to contextualize reentry experiences and the likelihood of recidivism.

From corrections exit data, we obtained demographic information, including gender, race, and age at exit, as well as offense-related information, including length of incarceration (in days), number of prior arrests, and type of offense that led to the current incarceration spell. Type of offense was broadly defined as drug, property, or person crimes. We also used these data to identify the county from which youth were committed to the correctional system. In addition to examining county level differences in multivariate models, we also make comparisons in systems involvement, where applicable, between Cook County, collar counties (DuPage, Kane, Lake, McHenry, and Will), and the remaining downstate counties.

Because we were also interested in understanding how reentry experiences with system involvement differ based on employment, we measured whether or not a youth received any formal earnings through employment in the year after an incarceration exit. This measure was based on Unemployment Insurance (UI) Wage Reporting data. We note that this measure includes data on most, but not all employment. Most notably, our measure does not include employment that is informal, military, or out-of-state.[7]

Measures of county contextual characteristics include the percentage of each county's 2000 population living below the poverty level, the percentage foreign born residents, and the percentage that moved in the past five years. These measures indicate disadvantage, immigrant concentration, and residential mobility. Each of these measures comes from 2000 U.S. Census data. County crime rate, measured as the number of reported Uniform Crime Reports Part I offenses (including murder and non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson) per 100,000 in the county population, was also included.

[7] These data do include employment records for youth under the age of 16, although formal employment for such younger youth is rare among our population.

Recidivism

Recidivism was measured as any re-arrest during an 18 month period following release from incarceration, as reported by the Illinois State Police. Arrests include a range of offenses, from technical violations to serious, violent crimes, although we do not make distinctions between the types of arrest in our measure of recidivism.

Analytic Techniques

Describing Systems Involvement

To address the first aim of this study, we conducted descriptive analyses of the statewide and Chicago populations to show the percentage of exiting youth who are involved with each of the child-serving systems, as reflected across the measures of system involvement described above. These are conducted by exit cohort years and for the combined study period.

Developing Profiles of Multiple Systems Involvement: Latent Class Analysis

To address the second and third research aims, we identified classes of youth exits for the combined cohorts, based on youths' experiences across the indicators of service system involvement within the first year following each exit from a correctional setting. For this purpose, we used latent class techniques (Clogg, 1995; Lazarsfeld & Henry, 1968) to categorize exits into classes based on experiences of youth across multiple systems during the first year of reentry after each exit experienced. Latent class modeling allows one to classify cases into a set of mutually exclusive groups based on the proportion of cases who share each of the characteristics across a selected set of indicators (McCutcheon, 1987). Analyses were conducted using Vermunt and Magidson's (2003) Latent Gold program. This program overcomes many common difficulties with latent class modeling, including the use of a Bayesian approach to

prevent boundary solutions, automatic generation of multiple starting values to best obtain global maxima, and the use of cases with missing data. The Latent Gold program provides indices, such as the chi-square statistic and the Bayesian Information Criterion (BIC), which are used to evaluate the fit and parsimony of the model and aid in determining the number of latent classes necessary to describe the population without differing significantly from the data.

The classes derived from the latent class analysis are meant to describe various reentry experiences, as characterized by involvement in one or many child-serving systems after a correctional exit. The reentry experience is unlikely to be the same for all youth (Visher & Travis, 2003). Rather, youth may take various pathways during the reentry process and the process may be different over time even for the same youth. Some youth may find themselves in contact with many of the systems, while others are involved in only one or two. Still there may be some youth who are not involved in any of the systems, even if need is high. These analyses are useful in that they go beyond the basic description of service systems involvement by identifying how indicators combine to describe different reentry experiences among a single population.

It is important to note that the unit of analysis for the latent class analysis is the "youth exit". In other words, we classified exits from incarceration, not individuals, into groups based on the system involvement within the first year following the exit. We chose to classify exits in order to maximize the information available about reentry experiences and because we cannot assume that the reentry experiences of youth with multiple incarceration and exit spells are the same over time. An examination on the data showed that system involvement during a one-year reentry period can and does change for some individuals experiencing multiple exits. Thus, the

same individuals can have different reentry experiences (e.g. be assigned to different latent classes) depending on the time point at which they exited prison.[8]

After classifying exits based on the systems involvement following the exit from a correctional setting, we examined differences in the classes across gender, race, age at exit, and employment status during the one-year reentry period. Examining differences across these characteristics may help interpret different experiences with multiple system involvement during reentry. For the statewide population, we also examined differences in classes of systems involvement across regions in Illinois.

Bivariate and Multivariate Modeling of Recidivism

To address the fourth and fifth specific aims of the research, we first examined the bivariate relationship between multiple systems involvement and recidivism during reentry. Next, we conducted logistic regression analyses to examine whether different classes of multiple systems involvement have more or less likelihood of being re-arrested within the 18 months following release, controlling for demographic characteristics and offense-related factors. In other words, we examine whether the odds of recidivism are lower or higher depending on different levels of involvement in these child-serving systems during reentry, independent of other characteristics.

These logistic regression analyses were conducted through multilevel modeling techniques using Hierarchical Linear Modeling (HLM) software (Raudenbush, Bryk, Cheong, & Congdon, 2000). A multilevel analysis is appropriate for these data due to the hierarchical or

[8] Although most individuals in the population experience only one exit, an individual can be represented by multiple exits. Future analyses would benefit from the use of advanced statistical software that allows for multilevel latent class modeling in order to account for the dependence that may exist in these data. The goal of the latent class analysis is to simply classify the reentry experiences with system involvement that follows each exit. Characteristics of individuals are not used in this classification, which minimizes the potential for biased analyses resulting from lack of independence. However, when examining stable individual characteristics as predictors in a multivariate regression, the assumption of independence is violated if the nested structure of the data, e.g. exits within individuals, is not taken into account. Therefore, multilevel models are used in the regression analyses presented here.

nested structure of the data (i.e. exits nested within individuals and individuals nested within counties), allowing us to examine predicators of recidivism that are related to unique exits from correctional settings that can change over time, as well as stable characteristics of individuals. Using the Chicago population, we analyzed a two-level model, with exits at level 1 and individuals at level 2. For the statewide population, these analyses also allow us to examine whether there are differences in recidivism across counties, whether any relationship between reentry experiences and recidivism varies by county, and whether contextual characteristics of counties predict the likelihood of recidivism. Thus, for the statewide population, we analyzed a three-level model, with exits at level 1, individuals at level 2, and counties at level 3.

FINDINGS

Description of Systems Involvement

Statewide Population Systems Involvement

The percentage of exits after which youth were involved with each public system during the first year following the exit is shown in Table 4. In general, receipt of public assistance in the form of Temporary Aid to Needy Families (TANF) decreased over the study period, while Food Stamps receipt fluctuated only slightly. Averaging across the study period, we found differences in public assistance receipt when comparing Food Stamps to TANF. While over one-third of exits were characterized by receipt of Food Stamps during the first year of reentry, only 13 percent were characterized by receipt of TANF benefits.

Involvement with the child welfare system, either through an out-of-home care placement or an indicated maltreatment report remained consistently low over the study period. Of those who were involved, this was mainly through an out-of-home care placement (e.g. less than 1 percent of exits were followed by involvement in the child welfare system through an indicated

maltreatment report). Fewer exits were followed by involvement with the child welfare system than were involved with public assistance. This low involvement with child welfare is likely due to fact that the majority of youth were age 16 or 17 upon exit. Although youth may remain under the care of the child welfare system in Illinois until age 21, being placed in out-of-home care in late adolescence is less common than among younger children and youth. An examination of involvement with the Department of Children and Family Services (DCFS) at any time point, however, revealed that nearly 65 percent of youth had some involvement during their childhood or adolescence, largely prior to their incarceration. This suggests that, as hypothesized, incarcerated youth have histories of abuse and/or neglect that may result in DCFS involvement. However, it not likely that youth are involved with the child welfare system during the year after they release from incarceration.

Table 4. Description of Systems Involvement: Statewide Exits Population

Exit Year	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**[a]	**Total**
N =	*1,589*	*1,972*	*1,857*	*1,903*	*1,795*	*1,625*	*1,852*	*918*	*13,511*
INDICATORS	%	%	%	%	%	%	%	%	%
Public assistance									
Any Food Stamps	35.7	33.2	31.2	30.2	32.8	34.6	39.1	40.4	34.2
Any TANF benefits	21.1	18.9	18.3	12.6	11.3	9.4	6.4	4.7	13.4
Public health care									
Medicaid enrollment	48.1	49.7	55.6	57.3	58.0	58.8	58.0	61.8	55.6
Any non-mental health treatment	19.8	21.5	26.2	23.9	23.0	25.5	31.5	37.7	25.4
Any mental health treatment	11.6	12.0	16.5	17.5	15.1	18.0	19.3	24.5	16.3
Any substance abuse treatment	9.0	9.4	13.1	13.3	11.3	13.0	11.3	13.5	11.6
Child welfare									
Any out-of-home care placement or indicated maltreatment report	8.2	7.5	8.5	9.3	9.4	10.1	10.2	8.8	9.0

[a] The 2003 cohort includes data through June 30th.

Medicaid enrollment and government assisted receipt of health related services increased over the study period. On average, over half of the exits were followed by Medicaid enrollment.

Yet, only one-quarter of the exits were among youth who received non-mental health services through Medicaid after their exit. Even fewer received mental health services or substance abuse rehabilitation during their one year reentry period. A closer examination of Medicaid enrollment and health services received further illustrates the finding that not all youth eligible for government assisted health care received health related services. Of the 7,506 exits among youth who were enrolled in Medicaid during the year following the exit, 4,140, or 55.2 percent, had any Medicaid paid claim. Most of these claims were for non-mental health related issues, with 45.8 percent of Medicaid enrolled youth receiving a non-mental health service. Fewer Medicaid enrolled youth received mental health services (29.4%) or substance abuse rehabilitation services (20.9%).

Table 5 shows a further breakdown of Medicaid enrollment and health-related service receipt. In particular, we calculated the percentage of the statewide exits population that were not enrolled in Medicaid and that were enrolled in Medicaid but received no services, received non-mental health services only, or received both mental health (including substance abuse rehabilitative services) and non-mental health services.

Table 5. Medicaid Enrollment and Health Service Receipt in the Statewide Population, 1996-2003

	#	%
Not enrolled in Medicaid	6,005	44.4
Enrolled, but no health related claims	3,366	24.9
Enrolled, only non-mental health related claims	1,935	14.3
Enrolled, mental and non-mental health claims	2,205	16.3
Total	*13,511*	*100*

Chicago Population System Involvement

In general, we found moderate system involvement when examining only the Chicago population (see Table 6). Again, averaging across the eight exit year cohorts, Food Stamps

receipt was higher (41%) than cash assistance through TANF (22%). Medicaid enrollment was also the highest type of system involvement, with 61% of the Chicago population being enrolled. However, much like the pattern seen statewide, a smaller percentage of youth received health care assistance for non-mental health, mental health, or substance abuse rehabilitation care than might be expected given the rate of Medicaid enrollment. Receipt of mental health or substance abuse rehabilitation services was particularly low in the Chicago population. Involvement with the child welfare system was, as seen statewide, low across the exit year cohorts. Almost none of the youth were recorded as living in public housing after an incarceration exit.

Table 6. Description of Systems Involvement: Chicago Population

Exit Year	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003[a]**	**Total**
N =	*397*	*543*	*576*	*529*	*520*	*433*	*453*	*211*	*3,662*
INDICATORS	%	%	%	%	%	%	%	%	%
Public assistance									
Any Food Stamps	44.6	42.5	42.5	36.9	39.4	40.9	39.3	45.5	41.1
Any TANF benefits	31.5	29.3	29.0	20.6	21.7	17.8	11.3	8.1	22.3
Any public housing residence[b]	---	---	---	---	.6	1.6	1.8	1.4	1.2
Public health care									
Medicaid enrollment	54.4	59.3	60.6	59.7	63.8	65.4	61.6	68.2	61.2
Any non-mental health treatment	27.0	27.6	30.9	23.1	23.5	28.2	28.9	35.5	27.5
Any mental health treatment	8.6	6.4	8.0	7.2	7.5	11.3	11.3	14.2	8.8
Any substance abuse treatment	6.3	4.6	6.8	5.1	4.6	6.7	5.5	3.8	5.5
Child welfare									
Any out-of-home care placement or indicated maltreatment report	8.1	8.8	9.4	14.2	10.2	11.5	12.6	11.4	10.7
Public education									
Any enrollment	35.8	40.1	37.5	38.0	32.9	33.5	34.7	41.2	36.5

[a] The 2003 cohort includes data through June 30th.
[b] Data on public housing were incomplete from 1996-1999; the total percentage is calculated from cases (N=1,617) in 2000-2003

Only 1,337 exits, or 36.5 percent of the Chicago exits population, were characterized by school involvement during the one year reentry period. This includes 1,178 (32%) exits after

which youth were actively enrolled in CPS during the year following the exit or who had graduated from high school (13 youth). Another 124 of these exits were among youth were recorded by CPS as having transferred to a non-CPS school, and therefore we coded these as being enrolled in school. Finally, 35 exits were among youth who were recorded as having transferred to a CPS evening program. Although CPS does not record these youth as being active, we considered this small number of youth to have been enrolled in school during their reentry period. Again we note that students should not be denied enrollment in CPS due to a prior incarceration.

To further understand involvement, or lack of, in school during reentry, we examined education enrollment status after incarceration exit by enrollment status just prior to incarceration. We do so because a number of youth, 33 percent, in the Chicago population were known to have been inactive prior to their incarceration. Of these youth, the main reasons for inactive status included being legally committed to a state correctional institution (33.9%), unable to be found by a truant officer (17.4%), and various dropout reasons (34.5%). These youth could, however, re-enroll in school. Table 7 describes the relationship between enrollment status prior to and after incarceration. More specifically, for youth who were inactive *prior to* incarceration compared to those who were active, we calculated the percentages that were inactive vs. active *after* exit from incarceration.

Table 7. School Enrollment Status Prior to Incarceration and During Reentry

	School Enrollment Status Prior to Incarceration		
	Inactive (n=1,216)	Active (n=2,446)	Total (n=3,662)
School Enrollment Status After Incarceration			
Inactive	76.4%	57.1%	63.5%
Active (Enrolled in CPS, graduated, transferred to non-CPS school or evening program)	23.6%	42.9%	36.5%

Of those youth who were inactive prior to incarceration, over three-quarters were also inactive after their incarceration exit. Conversely, almost a quarter of previously inactive students were either active or had graduated during the reentry period. The majority of students were active prior to incarceration. Of these students who were active prior to incarceration, however, 57 percent were inactive after their incarceration exit. This supports the hypothesis that young people have trouble re-enrolling in school after being incarcerated. For those youth who were not known to be enrolled in school and who had not graduated, we examined the reasons for their inactive status after release. The majority were inactive due to having been legally committed to a state correctional institution (64%). Thus, it appears that for many students, re-enrolling in school after being incarcerated is unlikely. Most other students were inactive for various reasons related to dropping out.

Among those youth enrolled in school following their correctional exit, however, we found that over one half were enrolled in alternative schools designed for youth with current juvenile justice system contact (e.g. students who had been arrested and placed in detention). Thus, it appears that most youth who are re-enrolled in public school following their incarceration exit are there specifically because they have been re-arrested and thus are required to attend schools for youth who have been arrested.

Profiles of the Collective Reentry Experience: Multiple Systems Involvement

After examining the variation in each of the measures of system involvement, we conducted a Latent Class Analysis (LCA) on both the statewide and Chicago exits populations to identify the collective reentry experiences, as characterized by involvement across multiple systems, of different classes of youth exits. These analyses were conducted on the combined 1996-2003 exit

year cohorts. We begin by describing findings of the LCA for the statewide population and follow with findings for the Chicago population.

Statewide Collective Reentry Experience

The latent class analysis for the statewide population included seven indicators of system involvement during the year following an incarceration exit across the domains of child welfare (any out-of-home care placements or any indicated maltreatment reports), public assistance (any Food Stamps benefits, any TANF benefits), and public health care assistance (Medicaid enrollment, any Medicaid claims for non-mental health services, any Medicaid claims for mental health services, any Medicaid claims for substance abuse rehabilitation services).

The latent class analysis suggested four distinct classes of systems involvement after an incarceration exit. A technical description of the statewide latent class analysis is provided in Appendix C. Each exit was assigned to one of the four latent classes in which the highest probability of membership was given. Based on this modal classification, 44 percent of the statewide population was assigned to Class 1, 23.8 percent was assigned to Class 2, 23.8 percent was assigned Class 3, and 8 percent was assigned to Class 4. The latent class analysis revealed that, empirically, experiences with child-serving systems during the reentry period describe an underlying level of involvement across multiple, as opposed to separate systems.

Description of the Latent Classes Statewide

Latent Class 1 – "Uninvolved"

The largest class, representing approximately 44 percent of the statewide exits, is best described as consisting of youth who are "Uninvolved" in any child-serving systems during the year following the incarceration exit. Thus, while we found moderate levels of involvement in each

of the systems when examined separately, the LCA indicates a large proportion of youth who, collectively, are not involved in *any* of the systems.

Latent Class 2 – "Welfare Linked"

The second class, with just under a quarter of the population, is distinguished from other classes by having the highest probability of public assistance receipt through both Food Stamps and TANF benefits. Youth exiting into this class also had the highest probability of being enrolled in Medicaid, yet had the lowest probability of receiving non-mental health, mental health, or substance abuse rehabilitation services of any class with Medicaid enrollment. Because the system involvement of Class 2 is largely limited to receipt of public assistance we consider this the "Welfare Linked" class.

Latent Class 3 – "Marginally Served"

Also with nearly a quarter of the statewide population, Class 3 has the highest probability of being involved with the child welfare system. Unlike Class 2, youth exiting into Class 3 have a lower probability of receiving Food Stamps or TANF benefits. But these youth also have a higher probability of receiving Medicaid non-mental health, mental health, and substance abuse rehabilitation services than Class 2. Yet overall the level of public health care services is moderate. Thus, we consider youth in this class to be "Marginally Served".

Latent Class 4 – "Comprehensive"

The smallest of the four classes at only 8 percent of the statewide population, Class 4 differs from the other classes in that these exits are characterized by involvement in most all systems during the one year reentry period. Although child welfare involvement is not as high as seen by the Marginally Served and involvement in TANF is not quite as high as seen among the Welfare Linked, there is some degree of involvement in all of these systems among Class 4. In stark

contrast to the other classes, Class 4 also has a high probability of receipt of Medicaid health services, particularly mental health and substance abuse rehabilitation services. Because this class is represented across the multiple systems examined here, we consider the system involvement in Class 4 to be "Comprehensive".

Characteristics of System Involvement Experiences During Reentry Statewide

To further understand differences between these experiences during reentry, we compared the four latent classes across gender, race, age at exit, employment status during reentry, and region. Table 8 shows the percentage of exits within each class across these characteristics.

In general, we found few substantively large differences in the characteristics of the four latent classes. Thus, overall it appears that multiple systems involvement during reentry is not merely a function of demographic characteristics. Our Comprehensive class was, however, more likely to contain a higher percentage of females than the other classes. Given that this class is distinguished by having the highest probability of receipt of mental health related services, it is perhaps not surprising that females, who have been shown to have a higher rate of mental health problems than males, are disproportionately represented in this class. In terms of race/ethnicity, the Welfare Linked class has a particularly high percentage of African American youth and a low percentage of Caucasian youth. We found the Uninvolved class to contain youth that were slightly older at the time of exit. There was little difference across classes in employment after exiting prison. Employment was uncommon among this statewide population, with less than 10 percent of exits followed by formally employed during the one-year reentry period. This was true for all youth and for 16 and 17 year olds more specifically.[9]

[9] We report employment separately for the full sample and for 16 and 17 year olds to account for the possibility that youth under the age of 16 are not formerly employed. In Illinois, child labor laws allow youth under the age of 16 to be employed (with certain restrictions placed on hours, type of employment, etc.) provided an employment certificate is filed.

Table 8. Characteristics of the Statewide Population by Latent Class

	Class 1 Uninvolved	Class 2 Welfare Linked	Class 3 Marginally Served	Class 4 Comprehensive	Total
N=	*6,005*	*3,221*	*3,210*	*1,075*	*13,511*
	%	%	%	%	%
Gender					
Female	8.5	11.0	13.8	15.2	10.9
Male	91.5	89.0	86.2	84.8	89.1
Race					
African American	46.4	72.7	49.4	45.3	53.3
Caucasian	38.6	20.6	41.7	48.1	35.8
Hispanic	14.0	6.4	8.5	6.1	10.3
Other	.9	.4	.4	.5	.6
Age at exit					
13	.9	.20	1.5	2.0	1.4
14	4.9	8.8	6.5	7.4	6.4
15	15.2	21.6	17.6	19.8	17.7
16	33.3	34.0	33.6	35.5	33.7
17	45.7	33.6	40.7	35.2	40.8
Employed during one-year reentry period (all youth)					
No	94.4	90.3	89.3	90.8	90.6
Yes	8.6	9.7	10.7	9.2	9.4
Employed during one-year reentry period (16 & 17 year old youth)[a]					
No	91.1	90.7	89.4	91.1	90.6
Yes	8.9	9.3	10.6	8.9	9.4
Committing region of state					
Cook	35.8	42.2	30.2	17.0	34.5
Collar counties[b]	13.9	6.0	9.1	8.3	10.4
Downstate	50.3	51.8	60.7	74.7	55.1

[a]Percentage employed calculated among 16 and 17 year olds only, N=10,069
[b]Collar counties include DuPage, Kane, Lake, McHenry, and Will

We did see substantive differences across the four classes in region of the state. Exits in the Comprehensive class were less likely than the other classes to have been committed to a correctional facility from Cook County and more likely to have been committed from a county downstate, particularly when compared to the Uninvolved or Welfare Linked classes. To further

examine regional differences in systems involvement, we calculated the percentage of exits *within* each county that were assigned to each of the four latent classes. These percentages are shown in Figures 1-4.

Figure 1: Percentage of County's Youth Exits in "Uninvolved" Class

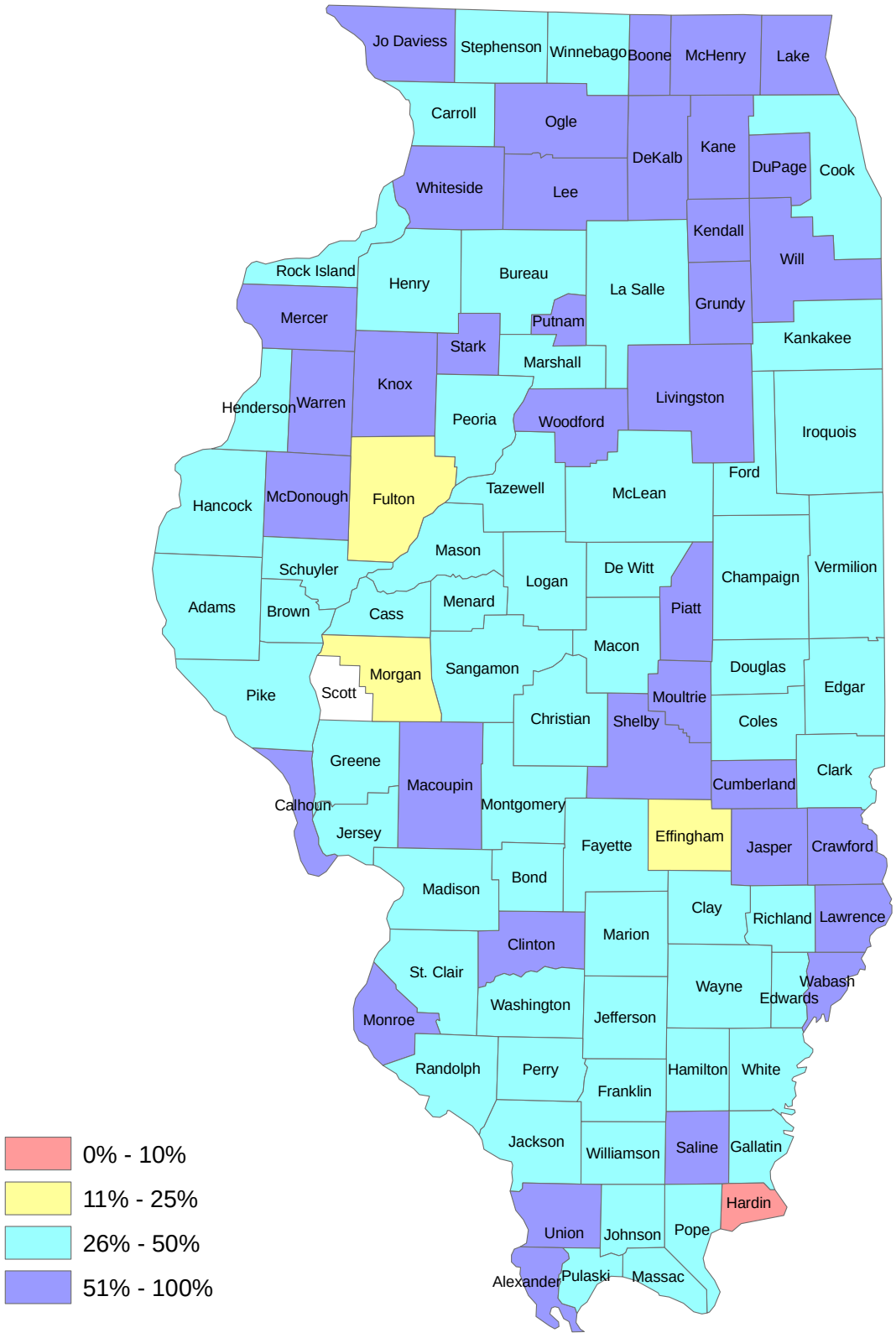


Figure 2: Percentage of County's Youth Exits in "Welfare Linked" Class

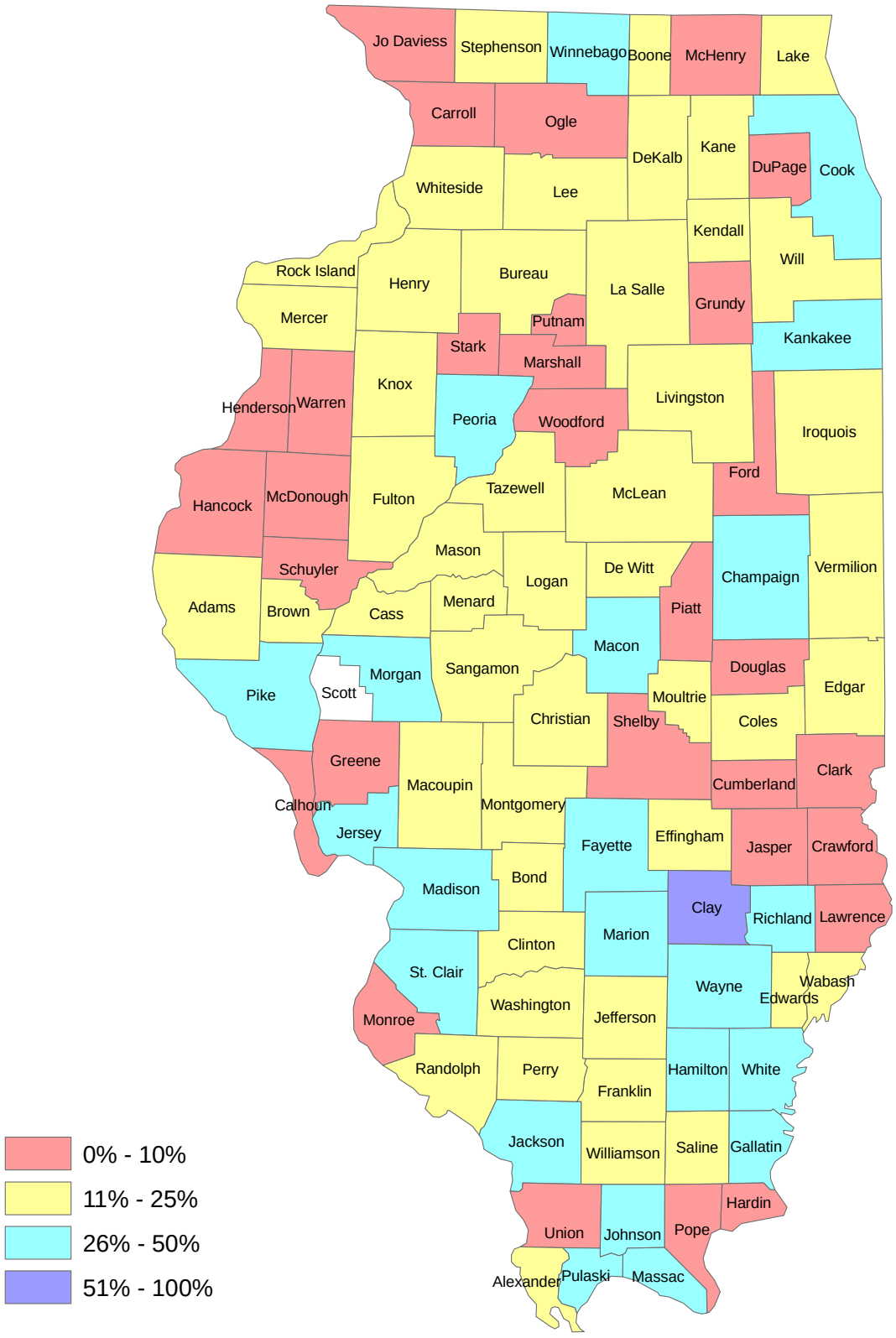


Figure 3: Percentage of County's Youth Exits in "Marginally Served" Class

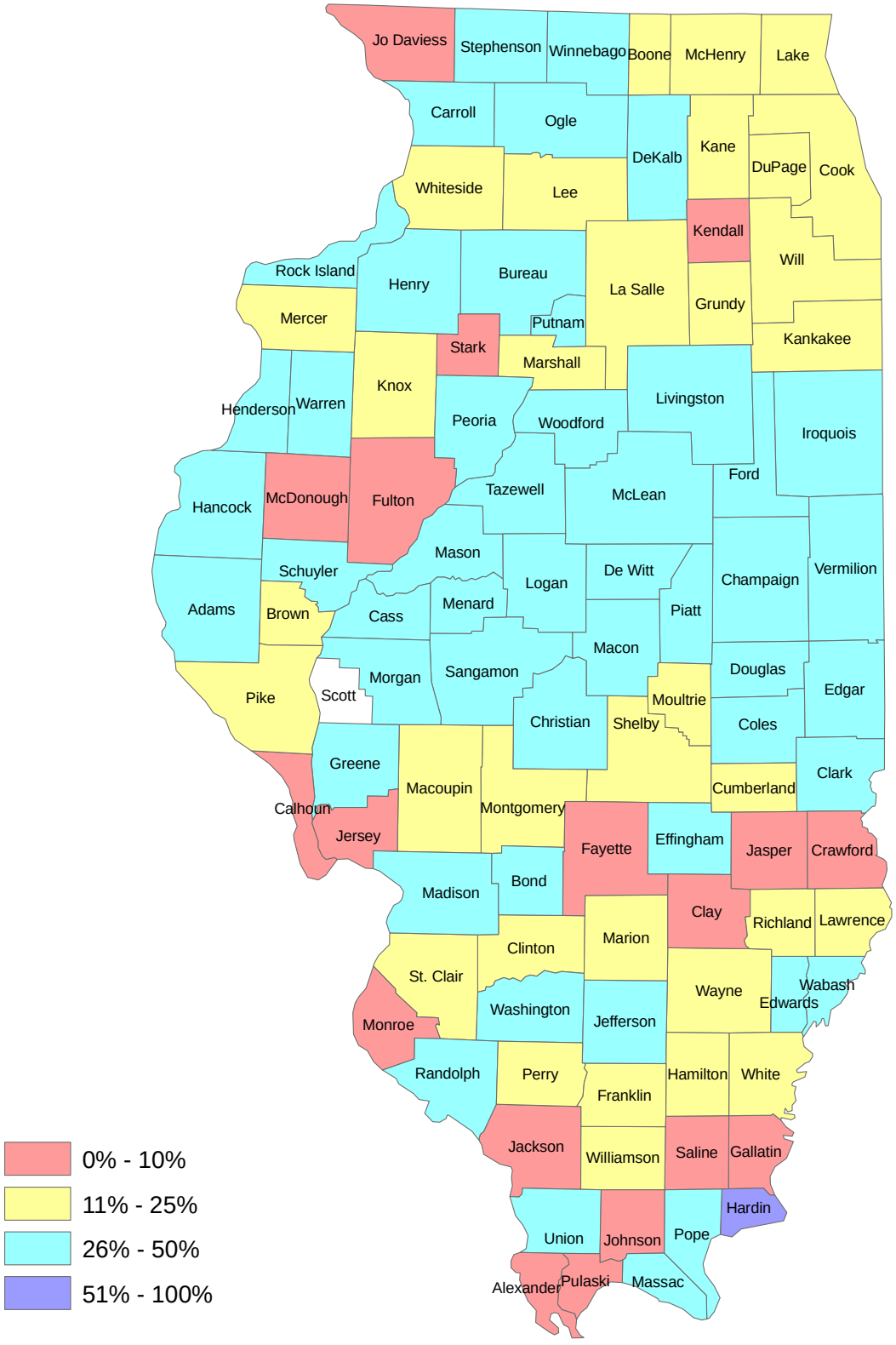
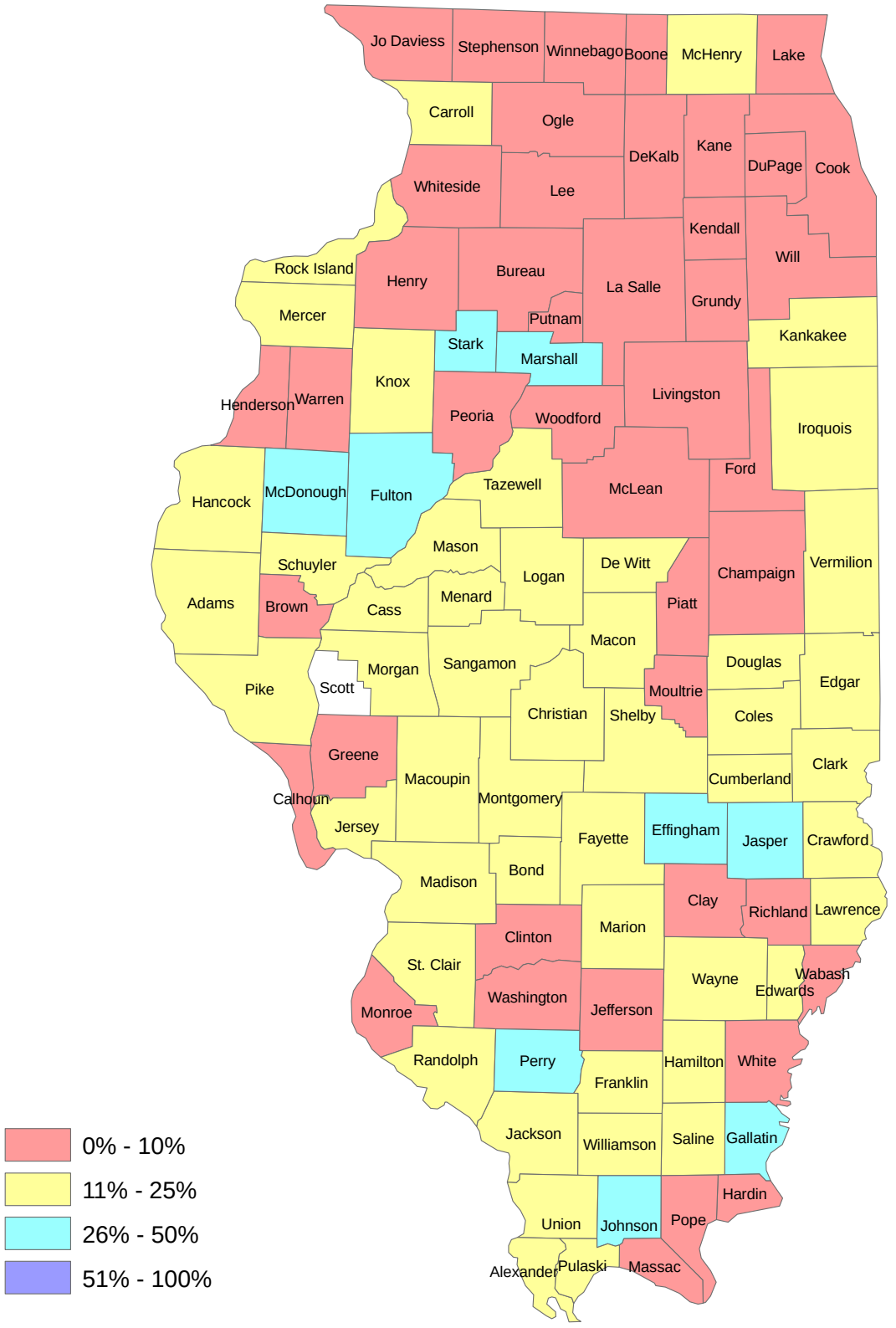


Figure 4: Percentage of County's Youth Exits in "Comprehensive" Class



The maps displayed in Figures 1-4 illustrate how exits within counties are distributed across the four latent classes. Not surprisingly, given that nearly half of the statewide population falls in Class 1, nearly all of the Illinois counties have 26-50 percent or 51-100 percent of its youth exits assigned to this Uninvolved class, as shown in Figure 1. Conversely, in Figure 2, we see that fewer counties have between 26-50 percent of youth exits assigned as Welfare Linked (Class 2) and only one county, Clay County, has more than 50 percent of youth exits in this class. However, of those counties with a fair percentage (above 25 percent) of youth exits assigned to this class, most tend to cluster in the lower regions of the state. Exceptions include Cook, Kankakee, Peoria, and Winnebago, which have a relatively high percentage of its youth exits classified as Welfare Linked in addition to having a high number of incarcerated youth in general. But overall, most counties had under 25 percent of its youth exits represented as Welfare Linked. Thus, it seems that although the Welfare Linked class contains a quarter of the youth exits statewide, these youth do not appear to be heavily concentrated in certain counties. Rather, this class is represented in small percentages across the state. As shown in Figure 3, only one county, Hardin, has more than 50 percent of youth in Class 3, the Marginally Served. We note that in absolute numbers, however, very few youth were incarcerated from this county. Although about a quarter of the sample also is described as Marginally Served, unlike the regional pattern seen for the Welfare Linked, a large number of counties have between 26-50 percent of their youth falling into Class 3. This class is particularly represented in the middle of the state. This regional clustering is particularly striking when compared to Figure 4, which shows the percentage of each county's youth exits that are in Class 4, the Comprehensive class. Although overall this class accounted for only 8 percent of the statewide population, counties in the northern portion of the state, in general, had very low representation in this class.

Conversely, the counties in the middle and lower portion of the state had had a higher percentage of Comprehensive systems involvement.

Chicago Collective Reentry Experience

The latent class analysis for the Chicago population was conducted in the same manner as was done with the statewide population, with the inclusion of one additional systems involvement indicator, educational enrollment. Thus, we initially included eight indicators of system involvement during the year following an incarceration exit including any out-of-home care placements or any indicated maltreatment reports, any Food Stamps benefits, any TANF benefits, any Medicaid enrollment, any Medicaid claims for non-mental health services, any Medicaid claims for mental health services, any Medicaid claims for substance abuse rehabilitation services, and any enrollment in public school. Because public housing residence was so low, and thus, there was essentially no variation on this indicator, we did not include public housing in the latent class models.

Our initial latent class analysis, however, indicated that school enrollment did not play a large role in distinguishing individuals across classes. For example, each class had approximately the same probability (between .35-.40) of being enrolled in school. Additionally, only .07 percent of the variation in this school enrollment indicator was explained by the latent class model. Therefore, we removed school enrollment as an indicator of multiple systems involvement and chose to examine this measure independently. The technical description of the Chicago latent class analysis is provided in Appendix C.

After removing educational enrollment, the latent class analysis suggested three distinct classes of systems involvement after an incarceration exit for Chicago youth. Again, we assigned each individual youth exit to membership in the single class with the highest probability

of membership. This resulted in 46.8 percent of the Chicago population being assigned to Class 1, 38.1 percent being assigned to Class 2, and 15.1 percent assigned to Class 3.

Description of the Latent Classes in Chicago

Latent Class 1 – "Uninvolved"

The largest class included nearly half of the Chicago population. Like the largest class in the statewide population, Class 1 has a very low probability of being involved in any of the child-serving systems during the year following an incarceration exit. This suggests that although involvement in any single system may be likely among Chicago youth, a high percentage of these youth are completely disconnected[10] from all child-serving systems examined here during the reentry period. These exits are therefore also labeled "Uninvolved".

Latent Class 2 – "Welfare Linked"

The second class, with nearly 38 percent of the Chicago population, has similar systems involvement as Class 2 in the statewide population. This class has the highest probability of public assistance receipt through both Food Stamps and TANF benefits. Although these youth also have a high probability of Medicaid enrollment, service receipt, particularly those beyond non-mental health services, is unlikely. Again, because system involvement is largely limited to public assistance, we labeled this group "Welfare Linked".

Latent Class 3 – "Marginally Served"

The smallest class, with about 15 percent of the Chicago population has the highest probability of being involved with the child welfare system. The probability of receiving Food Stamps or TANF is low, yet these youth tend to receive more Medicaid health services than the other two

[10] This may also indicate that these youth simply do not show up in the administrative data, but are involved in other systems not represented here.

classes. However, even involvement with health services is moderate. Given the moderate involvement across most of the systems, we also labeled this class "Marginally Served".

It is notable that the systems involvement of the Chicago population is best described by three classes, as opposed to the four class model that best described the statewide population. The main reason for this difference appears to be due to the low receipt of public health care services, and mental health services more specifically, among Chicago youth. Compared to the statewide population, we found no class that is involved at a high probability across many of the systems.

Characteristics of System Involvement Experiences During Reentry in Chicago

We also compared the three latent classes described above across gender, race, age at exit, and employment and educational status during reentry. Table 9 shows the percentage of youth within each class across these characteristics.

Table 9. Characteristics of the Chicago Population by Latent Class

	Class 1 Uninvolved	Class 2 Welfare Linked	Class 3 Marginally Served	Total
N=	*1,715*	*1,395*	*552*	*3,662*
	%	%	%	%
Gender				
Female	4.2	5.2	7.4	5.1
Male	95.8	94.8	92.6	94.9
Race				
African American	74.0	87.1	83.5	80.4
Caucasian	6.4	1.8	4.0	4.3
Hispanic	19.0	10.8	12.1	14.8
Other	.7	.3	.4	.5
Age at exit				
13	.1	.6	.7	.4
14	2.2	4.4	3.1	3.2
15	12.5	18.7	12.3	14.9
16	30.7	36.1	30.6	32.7
17	54.5	40.1	53.3	48.8
Employed during one-year reentry period (all youth)				
No	90.1	90.1	89.5	90.0
Yes	9.9	9.9	10.5	10.0
Employed during one-year reentry period (16 & 17 year old youth)[a]				
No	89.9	90.3	89.0	89.9
Yes	10.1	9.7	11.0	10.1
Educational status during reentry				
Not enrolled	67.1	58.6	64.7	63.5
Enrolled	32.9	41.4	35.3	36.5

In the Chicago population, Class 1, the Uninvolved class, is slightly less likely to be African American and more likely to be Caucasian or Hispanic than the other classes. We found little substantive difference across classes in terms of gender, age at exit, employment, or educational status during reentry.

Because educational status was *not* found to distinguish latent classes, we next examined educational experiences as an independent measure. We were particularly interested in noting

any differences in employment between those youth enrolled in school and those not enrolled. Characteristics of those enrolled and not enrolled in school during the reentry period are shown in Table 10.

Table 10. Characteristics of Chicago Educational Experiences

	Educational Status During Reentry		
	Not enrolled	Enrolled	Total
N=	*2,325*	*1,337*	*3,662*
	%	%	%
Gender			
Female	4.8	5.5	5.1
Male	95.2	94.5	94.9
Race			
African American	80.3	80.6	80.4
Caucasian	4.6	3.7	4.3
Hispanic	14.7	15.0	14.8
Other	.4	.7	.5
Age at exit			
13	.1	.9	.4
14	1.1	6.8	3.2
15	8.4	26.1	14.9
16	31.8	34.3	32.7
17	58.6	31.9	48.8
Employed during one-year reentry period (all youth)			
No	90.0	90.1	90.0
Yes	10.0	9.9	10.0
Employed during one-year reentry period (16 & 17 year old youth)[a]			
No	89.8	90.2	89.9
Yes	10.2	9.8	10.1

Youth who were enrolled in school during reentry looked similar to those who were not enrolled in school, although those not enrolled in school tended to be older at exit. In particular, those not enrolled in school were more likely to be age 17 upon exit. On the other hand, a much higher percentage of those enrolled in school were 15 or younger upon exit. A further examination of educational status by age (e.g. the percentage enrolled in school within each age

at exit group) revealed that school enrollment decreases with age. For example, of all exits among 13 year olds, 80 percent were enrolled in school following their exit. This figure drops to 78 percent among 14 year olds, 64 percent among 15 year olds, 38 percent among 16 year olds, and only 24 percent among 17 year olds. Thus, although there are few younger youth in the population, the percentage enrolled in school is higher than seen among older youth. Still, it is striking that 20 percent of 13 and 14 year olds are not known to be enrolled in public school after their incarceration exit.

Also striking is that there was no difference in the percentage of enrolled vs. not enrolled youth that were employed during the reentry period. This suggests that while re-enrolling in school may be difficult for formerly incarcerated youth, working is not likely to be a substitute for school. About two-thirds of the Chicago population was not enrolled in school following their incarceration, yet only 10 percent of these youth obtained employment. Thus, the vast majority of youth are disconnected from both school and work during the reentry period.

Recidivism among Youth with Different Reentry Experiences

Bivariate Analyses

Within the statewide population, 49.2 percent of exits were followed by an arrest during the 18 months following release. Limiting the population to Chicago exits, this figure increased to 66.8 percent. Table 11 shows the percentage of exits in each of the statewide latent classes that were followed by an arrest. Results for the Chicago population are provided in Table 12.

Table 11. Arrests among the Latent Classes: Statewide

	Class 1 Uninvolved	Class 2 Welfare Linked	Class 3 Marginally Served	Class 4 Comprehensive	Total
N=	*6,005*	*3,221*	*3,210*	*1,075*	*13,511*
Arrested during 18-month reentry period	%	%	%	%	%
No	58.0	41.0	48.7	46.8	50.8
Yes	42.0	59.0	51.3	53.2	49.2

The Uninvolved youth had the lowest percentage of arrests during reentry among the statewide population, followed by the Marginally Served. Conversely, the Welfare Linked had the highest percentage of arrests.

Table 12. Arrests among the Latent Classes: Chicago

	Class 1 Uninvolved	Class 2 Welfare Linked	Class 3 Marginally Served	Total
N=	*1,715*	*1,395*	*552*	*3,662*
Arrested during the 18-month reentry period	%	%	%	%
No	36.3	29.0	34.1	33.2
Yes	63.7	71.0	65.9	66.8

We found a similar pattern within the Chicago population, such that the Uninvolved youth had the lowest percentage of arrests, followed closely by the Marginally Served, while the Welfare Linked had the highest percentage of arrests.

Multivariate Analyses

To examine whether systems involvement predicted the likelihood of arrest during reentry, independent of other factors, we next conducted multilevel logistic regression models. Logistic regression is appropriate given the dichotomous measurement of the outcome, where youth can either be re-arrested (coded '1') or not be re-arrested (coded '0'). Logistic regression analyses model the predicted probability of experiencing a re-arrest versus not, given the value on the

independent variable. Descriptive statistics, including mean and standard deviation, of the covariates that were included in the logistic regression models are provided in Appendix D.

Data were analyzed through multilevel logistic regression models to account for the hierarchical nature of the data. For the statewide population, youth exits that occur over time are "nested" within individual youth who are also then "nested" within counties, necessitating the use of a three-level model.[11][12] For the Chicago population, in which there is no county variation, a two-level model is appropriate exits nested within individuals. This multilevel technique allows for the simultaneous modeling of predictors at the various levels (e.g. exit, individual, and county level). A technical description of the multilevel models analyzed, can be found in Appendix E.

In both the statewide and Chicago population analyses, we first modeled the likelihood of recidivism for each latent class compared to the Uninvolved class. We chose this class as the reference group for two reasons. First, this represents the highest percentage of youth in each of the populations. Second, in both populations, this class describes a group of youth who are not involved in any of the child-serving systems during the year following an incarceration exit. We initially wanted to examine whether recidivism was more or less likely among this class of system *un*involved youth compared to youth in classes that experienced higher, but varying, levels of system involvement. After presenting these results, we note differences in the prediction of re-arrest between the remaining classes.

[11] The three-level model allows us to examine both exit-related and stable individual characteristics without violating the assumption of independence in the regression analyses. However, we note that regression coefficients and standard errors do not differ in the models shown here and a two-level model in which exits are nested within counties, with stable individual characteristics entered at the exit (level-1) level. This suggests that the dependence is not a large problem in these data.

[12] A small number of youth with multiple incarcerations and exits included in the statewide population were committed to different counties in subsequent spells, and thus were cross-classified within counties. These subsequent exits (N=73) were deleted from the multivariate analyses.

Predicting Recidivism Statewide

The logistic regression coefficients (b), standard errors (SE), and odds ratios Exp (b), from two multilevel models predicting re-arrest are shown in Table 13. Odds ratios less than one indicate a decrease in the likelihood of being re-arrested while odds ratios greater than one indicate an increase in the likelihood of a re-arrest. As shown in Model 1, in which only exit and individual level covariates were included, all of the exit and individual level covariates significantly predicted recidivism. The odds of recidivism were higher following an exit that occurred among older youth, those who were employed after their exit, and among youth with a high number of prior arrests at the time they were incarcerated. Compared to youth incarcerated for a person offense, those who committed a drug or property crime also had higher odds of being re-arrested. This supports previous research that also finds recidivism to be higher for property and drug offenders (Kubrin & Stewart, 2006; Lanza-Kaduce, Parker, & Thomas, 1999). The likelihood of re-arrest was higher among males and African American and Hispanic youth compared to white youth.

Compared to youth classified as Uninvolved after a correctional exit, Welfare Linked, Marginally Served, and Comprehensive classes all had higher odds of a re-arrest after an exit. After controlling for characteristics of exits and individuals, the regression analysis confirms our earlier bivariate findings which showed a lower percentage of Uninvolved youth experiencing a re-arrest compared to the other three classes.

Table 13. Multilevel Logistic Regression of Covariates on Recidivism: Statewide

	Model 1			Model 2		
	b	*SE*	*Exp(b)*	*b*	*SE*	*Exp(b)*
Exit Level						
Age at exit (in years)	.446**	.021	1.56	.445**	.021	1.56
Length of incarceration (in days)	-.0003**	.0001	.99	-.0003*	.0001	.99
Drug offense	.198**	.062	1.22	.199**	.062	1.22
Property offense	.127**	.044	1.13	.131**	.044	1.14
Number of prior arrests	.014**	.005	1.01	.013**	.005	1.01
Employed during reentry	.196**	.060	1.21	.197**	.066	1.21
System involvement latent class (versus Uninvolved)						
Welfare Linked	.786**	.050	2.19	.790**	.050	2.20
Marginally Served	.489**	.049	1.63	.488**	.049	1.63
Comprehensive	.716**	.074	2.04	.726**	.074	2.07
Individual Level						
Male	.588**	.067	1.80	.591**	.067	1.80
African American	.266**	.053	1.30	.244**	.055	1.28
Hispanic	.257**	.075	1.29	.230**	.076	1.26
Other race	-.475*	.258	.62	-.494	.257	.61
County Level						
Percent living under poverty level	---	---	---	-2.188	1.237	.11
Percent foreign born	---	---	---	-.011	1.07	.98
Percent moved in past 5 years	---	---	---	1.678	.925	5.935
Crime rate	---	---	---	.00002	.00003	1.00
Intercept	-7.75**	.344	.0004	-7.80**	.345	.0004

**p<.05, **p<.01*

As shown in Model 2, which added the four county level contextual factors, we found that nearly all of the exit and individual level covariates remained significant predictors of recidivism. We did not, however, find that any of the county level contextual factors were significantly related to re-arrest. One possibility is that our contextual level, the county, is too wide a geographic area to impact individual youth outcomes. It may be that the context of neighborhoods is more important. Future research examining a smaller geographic area, such as neighborhoods, would be useful.

County Variation

Although our contextual factors were not significant predictors of re-arrest, we assessed the degree to which the likelihood of recidivism varies across counties by examining random effects variance components for three models. Multilevel modeling allows one to partition the variance within and between counties. Multilevel logistic regression analyses estimate the between county variance component, which is the amount of variation in the outcome that can be explained between counties, or at level 3. To examine between county variation, we first estimated an unconditional model (e.g. a model with no predictors). This model provides a baseline measure of how much variation in the recidivism outcome exits between counties. The between counties variance component for this unconditional model of .081 (χ^2=594.25, df=99, p<.01) indicated that recidivism does vary significantly across counties. However, given that our county level factors did not significantly predict recidivism, it is likely that our county level predictors do not explain much of this variation. It is possible that exit or individual level characteristics can explain some of this between counties variation in the recidivism outcome. While variation in recidivism between counties can be explained by characteristics of counties that put youth at risk for re-offending, this variation can also be explained by differences in characteristics of those exits and individuals that comprise counties. In other words, it may be that recidivism is higher in some counties because youth in those counties have greater individual level risk factors. Comparing the variance component from Model 1 of .068 (χ^2=286.00, df=99, p<.01) in which only exit and individual level factors were estimated, to the unconditional model reveals that approximately 16 percent of the between county variation in recidivism is explained by the characteristics of exits and stable individual traits included in our

model. This suggests that other factors, not estimated here, also explain the variation in recidivism.

Because we were particularly interested in whether the relationship between different experiences with systems during reentry and recidivism varied by region, we estimated additional random coefficients models, in which we allowed the effects (i.e. slopes) of being in a particular latent class to vary across counties, using a two-level model with exits nested within counties.[13] The random effects variance components from these models are shown in Table 14.

Table 14. Estimation of Random Effects Variance Components

	Variance Component	Chi square χ^2	p-value
Intercept	.078	390.10	.000
Welfare Linked	.024	98.02	.072
Marginally Served	.036	109.19	.014
Comprehensive	.185	119.68	.002

NOTE: Chi-square tests are based on 79 degrees of freedom

The significant variance component for the intercept indicates that there were significant differences between counties in the mean proportion of exits that were followed by a re-arrest. We found each of the variance components for the Marginally Served and Comprehensive classes to be significant. This indicates that the likelihood of being in either of these classes and being re-arrested varies significantly across counties.

Alternative Regression Analyses: Comparing Latent Classes

Our initial interest was in comparing each class to Uninvolved youth, as this was the largest class and the class which was distinguished by no systems involvement. Through the models described in the previous section, we found that being in each class resulted in higher odds of re-arrest when compared to Uninvolved youth. As a final step in examining whether different

[13] We chose to examine the random effects in a two-level rather than the three-level model because we did not have enough degrees of freedom to estimate random effects in the three-level model. These findings also support

reentry experiences with system involvement predict recidivism, we re-analyzed the models described above allowing each of the remaining latent classes be specified as the reference category. These alternative regression analyses allow each class to become the reference class in order to compare youth who are a) Welfare Linked to Marginally Served and Comprehensive, and b) Marginally Served to Comprehensive. Each model included all of the individual and county level predictors, and resulted in no change to the general pattern of coefficients. Therefore, Table 15 shows only the coefficients and odds ratios for the latent class predictors.

Table 15. Alternative Multilevel Regression of Covariates on Recidivism: Statewide

	Model 3			Model 4		
	b	*SE*	*Exp(b)*	*b*	*SE*	*Exp(b)*
System involvement latent class						
Uninvolved	-.790**	.050	.45	-.488**	.049	.61
Welfare Linked	---	---	---	.301**	.056	1.35
Marginally Served	-.301**	.056	.74	---	---	---
Comprehensive	-.063	.078	.94	.237**	.078	1.26

**p<.05, **p<.01*

In Model 3, Welfare Linked youth were treated as the reference category. As we saw from Model 1, being Uninvolved versus Welfare Linked resulted in lower odds of being re-arrested. Being Marginally Served versus Welfare Linked also resulted in lower odds of recidivism. In particular, being Marginally Served rather than Welfare Linked resulted in a 26 percent decrease in the odds of being re-arrested. There was no significant difference between Comprehensive and Welfare Linked classes. In Model 4, Marginally Served youth were assigned as the reference category. Again, we see that being Uninvolved resulted in lower odds of recidivism when compared to being Marginally Served. Being Welfare Linked or Comprehensive versus Marginally Served, also resulted in greater odds of recidivism. More specifically, being Welfare Linked was associated with a 35 percent increase in the odds of

bivariate analyses in which we found variation between counties in the latent classes (e.g. counties with different

recidivism and being Comprehensive was associated with a 26 percent increase in the odds of recidivism when compared to Marginally Served youth. Examining these findings collectively suggests that youth in the Uninvolved and Marginally Served classes had the lowest likelihood of being re-arrested during reentry, even after controlling for characteristics of the individual and their county, while the Welfare Linked class had the highest likelihood of recidivism.

Predicting Recidivism in Chicago

Table 16 presents the results of a two-level logistic regression analysis predicting recidivism within the Chicago population only. Again, logistic regression coefficients, standard errors, and odds ratios are provided. The odds of getting re-arrested were higher after exits in which youth were older and when the charging offense was a drug or property crime versus a person crime. As in the statewide models, we compared exits assigned to each latent class to Class 1, the group with no system involvement following an exit. In terms of reentry experiences with system involvement, Welfare Linked youth had higher odds of being re-arrested than Uninvolved youth. More specifically, Welfare Linked youth were 1.5 times as likely to be re-arrested as Uninvolved youth, independent of individual characteristics. The odds of recidivism were also higher for males and African American or Hispanic youth.

standard deviations).

Table 16. Logistic Regressions of Covariates on Recidivism: Chicago

	b	*SE*	*Exp(b)*
Exit Level			
Age at exit (in years)	.382**	.046	1.46
Length of incarceration (in days)	-.0002	.0002	.99
Drug offense	.321**	.092	1.38
Property offense	.254**	.096	1.29
Number of prior arrests	-.010	.009	.98
Employed during reentry	.118	.027	1.13
Enrolled in school	.103	.082	1.11
System involvement latent class (versus Uninvolved)			
Welfare Linked	.409**	.085	1.50
Marginally Served	.139	.110	1.15
Individual Level			
Male	.648**	.168	1.91
African American	.534**	.183	1.70
Hispanic	.741**	.202	2.09
Other race	-.225	.535	.80
Intercept	.713**	.038	2.04

**p<.05, **p<.01*

To further examine the relationship of system involvement and recidivism, we next estimated a model in which Welfare Linked served as the reference category. This model allows us to estimate whether being Marginally Served versus Welfare Linked is related to greater or less likelihood of recidivism. Results of this model are shown in Table 17. Again we see that Uninvolved youth have a lower likelihood of recidivism than Welfare Linked. Marginally Served youth also have a lower likelihood of recidivism. Being Marginally Served compared to Welfare Linked resulted in a 24 percent decrease in the odds of being re-arrested.

Table 17. Alternative Logistic Regression of Covariates on Recidivism: Chicago

	b	*SE*	*Exp(b)*
System involvement latent class			
Uninvolved	-.409**	.085	.66
Welfare Linked	---	---	---
Marginally Served	-.270*	.115	.76

**p<.05, **p<.01*

DISCUSSION AND IMPLICATIONS

In this report, we have moved beyond research that typically treats reentry experiences as separate indicators to examine collective experiences with the many public systems that formerly incarcerated youth may be involved with upon release from prison. Given the high levels of economic disadvantage and health issues among this population, the reentry period may be marked more by involvement in public service systems than the standard markers of "success" in terms of education and employment. For some youth, however, getting connected to these systems and receiving needed services may be difficult.

Examining exits statewide, we found low to moderate involvement in any individual child-serving system. Involvement in Medicaid was highest across the study period, with nearly 56 percent of the statewide population being enrolled in the Medicaid program at some point during the first year following release from prison. Yet, one quarter or less received any health, mental health, or substance abuse treatment, possibly indicating as prior research has suggested that obtaining health care services is difficult for youth reentering the community. Although involvement in Medicaid was highest among the system examined here, this finding suggests the importance of ensuring adequate funding for the Medicaid program and providing access to health related services for formerly incarcerated youth when needed. Because Medicaid benefits are terminated upon incarceration and determination of eligibility after incarceration can take 30-90 days, it is likely that enrollment in the Medicaid program and services received through Medicaid are not available immediately during the first year after release. Future research is needed to identify the point during the first year of reentry at which youth obtain eligibility in the Medicaid program to better understand whether and for how long youth experience gaps in access to health care services after being incarcerated.

Involvement in systems other than Medicaid was low. Just over a third of youth exiting correctional settings received public financial assistance and less than 10 percent were involved with the state child welfare system. Although prior contact with child welfare was high (about 65 percent), it is likely that contact just after release from prison is low given that most of the exits involved youth over the age of 16, when placement in out-of-home care is less common.

Moving beyond these individual indicators of system involvement, we found four empirically driven, distinctive classes of youth that describe different reentry experiences as characterized by involvement across multiple child-serving systems. When looking across the child welfare system, public assistance, Medicaid, and receipt of health, mental health, and substance use treatment, we found that nearly half of the youth exits were characterized by no involvement with any system or body of services. However, when compared to other classes of youth, those with no collective involvement were the least likely to experience a re-arrest during reentry. Given the positive outcome among this seemingly disconnected group, our findings suggest the need to look specifically at measures of need for services, in addition to receipt of services as we have done here. This will help to determine if those not involved in any systems are uninvolved because they have no need or because they have difficulties connecting to necessary systems.

The remaining three classes displayed involvement in some, but not necessarily all of the child-serving systems examined here. With the next lowest likelihood of recidivism was a marginally served class of youth exits (about 25 percent of the population) characterized by higher involvement in the child welfare system than other classes and marginal receipt of government assisted health services, but a relatively low likelihood of public assistance involvement, suggesting that this class is less likely than others to be comprised of low income

youth. Conversely, we found a small class (about 8 percent) of youth whose system involvement was most likely of any class to be considered comprehensive, in that these youth were likely to be on public assistance, suggesting these are low income youth, and who also were the most likely of any class of youth to be receiving a high amount of health related services, particularly mental health and substance abuse rehabilitation services. Given the high use of services among this class, these youth may be particularly at risk for problem behavior. Indeed, we found high recidivism in this class. However, recidivism was not as high as seen in a class of youth with a high probability of being linked to public welfare (about 25 percent of the population) but who have the lowest levels of health related services despite being enrolled in Medicaid. This appears to be a class of youth with high need, as would be expected among this population of formerly incarcerated youth, yet the class is disconnected from many of the systems that may be in a position to provide needed services. It is also striking that this class was disproportionately represented by African American youth, suggesting that the needs of African American youth in particular are not being met by public service systems.

Focusing on exits among Chicago youth, we found slightly higher involvement with child welfare, public assistance and Medicaid enrollment, yet lower receipt of mental health and substance abuse rehabilitation services than seen in the statewide population. But similar to the population statewide, we found an empirically distinct class of youth, again representing nearly half of the population, with very low involvement across the many child-serving systems. Yet again, this class had a lower likelihood of recidivism than other classes, including a class of youth (over a third of the Chicago population) whose system involvement was largely limited to public assistance and a class of youth experiencing only a marginal level of system involvement (about 15 percent of the Chicago population). Unlike the statewide population, however, we did

not see a class of youth characterized by high health related service receipt. Again, our findings suggest particularly low receipt of mental health and substance abuse rehabilitation services among Chicago youth.

Enrolling in school has been noted as an important, yet difficult, experience for youth reentering the community from corrections. We found only about 36 percent of Chicago youth were enrolled in school following their release. Given that the youth entered prison with relatively low educational attainment and all were school-aged upon release, this finding suggests that nearly two-thirds of formerly incarcerated youth are without connections to school. Furthermore, those enrolled in school are most likely to be enrolled only due to a subsequent arrest.

Yet, we did not find school enrollment, or the lack of, to be related to involvement in other public child-serving systems. Unfortunately, most of the youth not enrolled in school were also unemployed, suggesting a high level of disconnection from both school and work among this population. Nearly half of the Chicago population was age 17 when exiting prison, but very few of these youth re-enrolled in school and even fewer were employed. Given the importance of school and employment in achieving financial independence and future success transitioning to adulthood, these findings present a bleak picture for many of the youth exiting in Chicago.

Results from this study have implications for the development of aftercare policies and practices targeted at and services offered to youthful offenders. In response to the concern for youth transitioning from correctional settings to the community, efforts have been made to identify promising programs to help youth overcome these challenges during the reentry process (Altschuler & Armstrong, 2004; Altschuler et al., 1999; Byrnes et al., 2002; Gies, 2003; Spencer & Jones-Walker, 2004; Stephens & Arnette, 2000). In order to develop effective aftercare

programs for youth during the reentry period, there is a need for documentation of the characteristics of youth after release from incarceration, including the extent of their involvement across the many systems that serve youth and their families. This study has provided a description of the extent of system involvement among formerly incarcerated youth across the state over time.

Our study has also provided much-needed empirical information on the *multiple* system involvement of youth during reentry. Rather than simply noting how many youth are involved in each child-serving system, we have taken a person-centered approach to best determine the collective experience across systems. Doing so has highlighted youth with little to no collective involvement, low income youth receiving limited health related services, youth under state care who receive marginal health related services, and low income but high need youth receiving government assisted care for mental health and substance abuse issues. That there are classes of youth with similar experiences across these systems suggests that practitioners and service providers might coordinate cross-system services to best meet the needs of formerly incarcerated youth.

Findings also suggest that system involvement during reentry varies across the state. Although we found variation in system involvement by county, the mechanism behind this variation remains to be examined. Variation in system involvement may indicate county differences in need for services or it may indicate differences in the resources available and the practices in place within counties. The field would benefit from future research on reentry, or aftercare, polices and practices across the state in order to better understand the county variation in system involvement during reentry that was found in this study.

It is important to note that, although we found classes of youth exits that were more or less likely to be re-arrested, recidivism was high in all classes. Statewide, even the class with the lowest likelihood of recidivism still had 42 percent experiencing a re-arrest in the 18 months after release. Recidivism within Chicago only was even higher. Thus, although these findings suggest that youth with varying involvement across child-serving systems are likely to experience different levels of re-arrest, the overall recidivism rates point to the need for increased attention from these many systems to help meet the needs of youth during reentry and reduce the chances of further crime.

There are, however, limitations to the study that should be noted. First, because we analyzed only administrative data, only those youth actually receiving services[14] or whose families participate in these public systems were considered system-involved. We note that this system involvement may not be entirely reflective of the level of need for the services nor the level of support received within the population of youth leaving correctional facilities. Results from this study, however, suggest the need for coordinated efforts between the justice systems and human and public service systems across the state. The administrative data also do not provide information on informal supports youth may receive from families and communities, and therefore, the study cannot address how these informal supports affect recidivism. Similarly, we cannot address other factors, such as peer or family relationships, which may be critical for recidivism or desistance. However, it is often difficult to impact change at such informal levels. Our study has provided a unique look at the *formal* systems involvement of youth making the transition from corrections to community, through which policies and practices can be altered to best meet the needs of youth during the reentry period.

[14] And in the case of health services, only those paid claims matched in the Medicaid program.

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APPENDIX A. DESCRIPTION OF AGENCY DATA SOURCES

Illinois Department of Corrections Juvenile Exits. Data from the Illinois Department of Corrections contain all juvenile exits from state correctional facilities in each year. The database includes case-related information, including admission and exit date, type of offense, and number of prior arrests. Each case includes flags indicating gang affiliation and alcohol and drug use. Data also contain demographic information, including gender, race/ethnicity, and education level.

Illinois State Police Arrest Data. Chapin Hall has acquired the "electronic rap sheets" developed from reports to the Illinois State Police by all Illinois local police departments. The State Police Arrests data come to Chapin Hall as extracts of the Computerized Criminal History System (CCHS). The system records information on all arrests reported to the Illinois State Police and relates it to associated charges, offenses, court dispositions, and sentences. Because CCHS assigns unique, state IDs on the basis of fingerprint matches, the identification of individuals in these data is considered extremely reliable.

Illinois Department of Children and Family Services. Data from the Illinois Department of Children and Family Services (DCFS), the state child welfare agency in Illinois, includes information on child abuse and neglect and child welfare placement. Included in this database is information from the Child Abuse and Neglect Tracking System (CANTS), which tracks the status of abuse and neglect investigations over time in Illinois. The Child Pull, a monthly extract of the Child and Youth Centered Information System (CYCIS), records information on child welfare cases open on or after July 1, 1976. It contains a main record and living arrangement, legal history, and trust trailers. Every child case opening a child experiences will have a main

record, which provides current case information, including dates of out-of-home care placements.

Illinois Client Database, Illinois Department of Human Services. The Illinois Client Database, part of the Client Information System, is a longitudinal database that tracks participation in the Illinois Department of Human Services public assistance programs. These programs include, but are not limited to, Temporary Assistance to Needy Families (TANF), food stamps, and Medicaid. Chapin Hall receives the data monthly from the Department of Human Services.

Medicaid Paid Claims. Data on health, mental health, and substance abuse service receipt come from a longitudinal database from the Department of Healthcare and Family Services Medical Management Information System. Records in the data contain information on primary diagnosis, procedure code, provider type, category of service, and dates of service.

Unemployment Insurance Wage Report Data. Unemployment Insurance (UI) wage records consist of total quarterly earnings reported by employers to state UI agencies for each employee. The database contains information on quarterly earnings, employee SSN, employer SSN, and employer address. Chapin Hall receives the Illinois Department of Employment Security quarterly UI wage report data from the Illinois Department of Human Services through an interagency data-sharing agreement. The quarterly data are linked over time at the individual level.

Chicago Public Schools. The Student Information System (SIS) is a longitudinal database system that tracks all children enrolled in the Chicago Public Schools (CPS), including enrollment in alternative school settings. Information is available for both active and inactive (e.g., dropout, might return, graduated) students. These data are only available for the city of Chicago.

Chicago Housing Authority Database. The Chicago Housing Authority (CHA) Residents and Relocatees databases tracks residents and households residing in CHA developments or receiving housing vouchers. The data contains historical information on current and former individuals and households covering the period from January 1990 through January 2003 and a cross-sectional data pull 2004 that captures all individuals and families living in Chicago public housing. Again, these data are only available for youth living in Chicago.

APPENDIX B. DESCRIPTION OF HEALTH RELATED SERVICE MEASURES

Youth exiting corrections were each identified by a unique Chapin Hall multi-service ID which was linked to their Recipient IDs used by IDPA (Illinois Department of Public Aid, now Illinois Department of Healthcare and Family Services). This identifies individual patients in the Medicaid claiming process. One person may have multiple Recipient IDs, but each Recipient ID refers to one person only, and the unique Chapin Hall ID can be used to aggregate information from multiple Recipient IDs to describe the activity observed for a unique individual client.

The Medicaid records used were from the paid claims database. Only claims that had been submitted to IDPA by the provider and approved as covered by Medicaid are included in these data. All claims attached to Recipient IDs that were linked to individuals in the study population were pulled, and those that occurred within one year of release from incarceration were retained for further analysis.

The analysis considered three outcomes: whether any Medicaid claim was made within one year, whether Medicaid paid for mental-health related care within one year, and whether Medicaid paid for any substance abuse rehabilitation treatment during within one year. The first outcome was defined as the presence of any type of Medicaid paid claim within the year following release. The other two outcomes required sub-classification of the claims.

Sub-classification of claims was based on two variables: the 'category of service code' and the detailed 'diagnosis code'. Evaluation of the detailed diagnosis codes relied on the standard CCS (Clinical Classification Software), 1999 version to create manageable categories for assessment. A claim was considered a mental health-related claim if any of the following conditions existed:

The category of service was:

Physicians Psychiatric Services	6
DCFS Clinic Option Services	8
DCFS Rehab Option Services	9
Psychiatric Clinic Services “A”	27
Psychiatric Clinic Services “B”	28
Early Intervention Services	31
DMHDD Clinic Option Services	33
DMHDD Rehab Option Services	34
DD/MI non-acute, hospital	39
Psychiatric Drugs	46
DMHDD Targeted Case Mgmt.	47
DCFS Targeted Case Mgmt.	49
Psychologist	59
DMHDD Targ. Case. Mgmt./ EI	68

Or, if the diagnostic category (dxcchpr) was classed as:

Alcohol-related mental health	66
Substance-related mental health	67
Senility	68
Affective disorders	69
Schizophrenia and related dx	70
Other Psychoses	71
Anxiety disorders	72
Pre-adult disorders	73
Other mental conditions	74
History of mental diagnoses	75.

Substance abuse rehabilitation treatment was defined by ‘category of service code’ only, Including both the DCFS and DMHDD Rehabilitation Option categories that were listed above and also category 35 ‘Alcohol and Substance Abuse Services”.

APPENDIX C. TECHNICAL DESCRIPTION OF LATENT CLASS ANALYSES

Latent class analyses were conducted using Vermunt and Magidson's (2003) Latent Gold program. The program uses an iterative maximum likelihood procedure to optimize classification of individual cases to latent classes. The estimation technique allows for calculation of model fit statistics, including a likelihood ratio chi-square statistic (L^2) which emphasize overall model fit, and log-likelihood statistics which emphasize a parsimonious fit to the data, including the BIC (Bayesian Information Criterion).

Latent class models assume that indicators are independent of each other within latent classes. Local dependence can lead to poor model fit and incorrect solutions being chosen. Because we had reason to hypothesize local dependence in our model, given that youth could not receive Medicaid non-mental health, mental health, or substance abuse rehabilitation services unless they were enrolled in Medicaid, we relaxed the assumption of local dependence between these indicators. The Latent Gold program has special features to handle potential local dependence by allowing the residuals between these variables to essentially be correlated.

Statewide Latent Class Analyses

The model fit statistics for six models of systems involvement in the statewide population are presented in Table C1. The chi-square statistic suggests that a four class model provides the best fit to the data (alpha of $p<.05$ for one-, two-, and three-class models rejects the null hypothesis of model and data equivalence). This model has also the lowest BIC values, suggesting that it provides the most parsimonious solution. To gauge the total association explained by this four-class model, we compared the values of L^2 bewteen the model with only one class (e.g. the null model) to the model with four classes. The four-class model results in a 99% reduction in the L^2 from the null model.

Table C1. Model Fit Statistics Comparisons: Statewide Population

	BIC(LL)	L^2	df	p-value
Class 1	76161.52	10327.65	114	<.001
Class 2	67926.33	2016.374	106	<.001
Class 3	66154.54	168.497	98	<.001
Class 4	66128.89	66.7545	90	0.97
Class 5	66159.77	21.5451	82	1
Class 6	66227.7	13.3794	74	1

The profile of each latent class in the empirically derived four-class model is shown in Table C2. The first row indicates the relative proportion of the statewide population in each class based on the LCA probabilistic estimation technique. The remaining rows show the probability within each class associated on each category of the indicators, based on the latent class analysis. In other words, these probabilities illustrate how the classes are related to the indicator variables. These conditional probabilities are useful in showing the differences in patterns across all the indicators that distinguish the classes. For example, youth in Class 2 have a 3.8 percent chance of being involved with the child welfare system and a 94.9 percent chance of receiving Food Stamps. On the other hand, youth in Class 3 have a 32.4 percent chance of being in the child welfare system but only a 5.8 percent chance of receiving Food Stamps.

Table C2: Profiles of the Latent Classes: Statewide Population

	Class 1	Class 2	Class 3	Class4
Proportion of Statewide Population	.4603	.2407	.2225	.0735
Child welfare involvment				
No	.9924	.9619	.6764	.9423
Yes	.0076	.0381	.3236	.0577
Food Stamps benefits				
No	.9298	.0501	.9417	.0769
Yes	.0702	.9499	.0583	.9231
TANF benefits				
No	.998	.5298	.9994	.7262
Yes	.002	.4702	.0006	.2738
Medicaid enrolled				
No	.9634	.0001	.0045	.0004
Yes	.0366	.9999	.9955	.9996
Non-mental health services				
No	.9999	.5925	.5511	.2522
Yes	.0001	.4075	.4489	.7478
Mental health services				
No	1.000	.9712	.6274	.0177
Yes	.000	.0288	.3726	.9823
Substance abuse rehabilitation services				
No	1.000	.9950	.7293	.2633
Yes	.0000	.0050	.2707	.7367

The figures shown in Table C2 represent the results of a probabilistic estimation technique. Although individual cases can be weighted based on their probability of being in each of the latent classes (for an example of such practice, see Osgood, Ruth, Jacobs, Eccles, & Barber, 2005), cases can also be assigned based on modal classification (for an example of such practice, see Keller, Cusick, & Courtney, 2007). Given the purpose of these analyses, cases were assigned to the single latent class in which they had the highest, or modal, probability of membership. Using this modal classification assignment results in approximately 4% of the cases being assigned to different classes than reported based on the probabilistic classification shown in Table C2. The profile of the classes that result from the modal assignment, however, do not change.

Chicago Latent Class Analyses

The model fit statistics for six models of systems involvement in the Chicago population are presented in Table C3. Unlike the statewide population, the fit statistics suggest that a three class model provides an adequate fit to the data and is the most parsimonious solution (e.g. has the lowest BIC value).

Table C3. Model Fit Statistics Comparisons: Statewide Population

	BIC(LL)	L^2	df	p-value
Class 1	26434	3860.066	241	<.001
Class 2	23519.92	872.1409	232	<.001
Class 3	22856.36	134.7229	223	1
Class 4	22895.08	99.5974	214	1
Class 5	22951.27	81.9377	205	1
Class 6	23007.42	64.2313	196	1

Table C4 shows the profile of each latent class in this three class solution. Again, the first row indicates the relative proportion of the Chicago population in each class and the remaining rows show the probability within each class associated on each category of the indicators, based on the probabilistic latent class analysis classification. By using a modal classification assignment, approximately 5% of the cases are assigned to different classes than reported in Table C4. As with the statewide population, the profile of the classes that result from the modal assignment, do not change.

Table C4: Profiles of the Latent Classes: Chicago Population

	Class 1	Class 2	Class 3
Proportion in each class	.4463	.3768	.1769
Child welfare involvment			
No	.9938	.9790	.4538
Yes	.0062	.0210	.5462
Food Stamps benefits			
No	.9015	.0433	.9647
Yes	.0985	.9567	.0353
TANF benefits			
No	.9999	.4095	.9952
Yes	.0001	.5905	.0048
Medicaid enrolled			
No	.8678	.0002	.0038
Yes	.1322	.9998	.9962
Non-mental health services			
No	.9875	.5216	.4961
Yes	.0125	.4784	.5039
Mental health services			
No	.9943	.8860	.7601
Yes	.0057	.1140	.2399
Substance abuse rehabilitation services			
No	.9945	.9296	.8519
Yes	.0055	.0704	.1481

APPENDIX D. DESCRIPTIVE STATISTICS OF COVARIATES IN MULTIVARIATE REGRESSION ANALYSES

	Statewide Population (N=13,511)		**Chicago Population (N=3,662)**	
	Mean	*SD*	*Mean*	*SD*
Independent Variable				
Re-arrested (1=yes)	.49	.50	.67	.47
Individual Level Predictors				
Gender (1=male)	.89	.31	.95	.22
African American	.53	.50	.80	.39
Hispanic	.10	.30	.15	.36
Other race	.01	.08	.01	.07
White	.36	.48	.04	.20
Age at exit (in years)	16.06	.98	16.26	.86
Length of incarceration (in days)	233.97	186.55	260.20	189.77
Drug offense	.15	.36	.34	.47
Property offense	.48	.50	.25	.43
Person offense	.36	.48	.41	.49
Number of prior arrests	2049	3.82	2.93	4.06
Employed during reentry (1=yes)	.09	.29	.10	.30
System involvement latent class:				
Class 1 -Uninvolved	.44	.50	.47	.49
Class 2 – Welfare Linked	.24	.43	.38	.49
Class 3 – Marginally Served	.24	.43	.15	.36
Class 4 - Comprehensive	.08	.27	---	---
County Level Predictors				
Percent living under poverty level	.11	.04	---	---
Percent foreign born	.02	.03	---	---
Percent moved in past 5 years	.39	.06	---	---
Crime rate	2585.35	1375.84	---	---

APPENDIX E TECHNICAL DESCRIPTION OF MULTILEVEL REGRESSION ANALYSES

To analyze the likelihood of recidivism, or re-arrest, within the statewide population, we used a multi-level logit regression model, available in the HLM software program, to implement a three-level approach that simultaneously examines variation in the relationship of exit and individual youth characteristics *and* social context on re-arrest. The general form for the individual youth exit level (level 1) model is:

$$\log_n[\text{odds}(\text{Rearrest}_{ijk} = 1)] = \pi_{0\,jk} + \pi_{1\,jk}\left(X_{1ijk} - \overline{X}_{1\ldots}\right) + \ldots + \pi_{mjk}\left(X_{mijk} - \overline{X}_{m\,..}\right) \qquad (1)$$

where *i* is the index for exits, *j* is the index for individuals, *k* is the index for counties, and $\left(X_{mijk} - \overline{X}_{m\,..}\right)$ is an exit level predictor centered on the grand mean.[15] An equation for the level 1 intercept and each level 1 predictor is estimated at level 2. The general form for this individual level model (level 2) is:

$$\pi_{0\,jk} = \beta_{00k} + \beta_{01k}\left(W_{1\,jk} - \overline{W}_1\right) + \ldots \beta_{0nk}\left(W_{njk} - \overline{W}_{n\,.}\right) + r_{0\,jk} \qquad (2)$$

$$\pi_{1\,jk} = \beta_{10\,k} \qquad (3)$$

$$\pi_{mjk} = \beta_{p0\,k} \qquad (4)$$

[15] After centering on the grand mean, $\pi_{0\,jk}$ is the mean outcome of youth *jk* adjusted for mean differences among youth on the exit level predictors. The effect of grand mean centering is the same for both the dichotomous and continuous predictors. For technical details, see Bryk & Raudenbush (1992).

where $\left(W_{njk} - \overline{W}_{n.}\right)$ is a stable individual level explanatory variable centered on the grand mean, and r_{0jk}, the level 2 variance term, represents the random individual effect**.**[16]

For the statewide analyses, in which a three-level model is estimated, an equation for each level 2 predictor is estimated at level 3. The general form for this county level model (level 3) is:

$$\beta_{00k} = \gamma_{000} + \gamma_{001}\left(Z_{1k} - \overline{Z}_1\right) + \ldots \gamma_{00p}\left(Z_{pk} - \overline{Z}_p\right) + u_{00k} \quad (5)$$

$$\beta_{01k} = \gamma_{100} \quad (6)$$

$$\beta_{0nk} = \gamma_{p00} \quad (7)$$

where $\left(Z_{pk} - \overline{Z}_p\right)$ is a county level explanatory variable centered on the grand mean, and u_{00k}, the level 3 variance term, represents the random county effect**.**

[16] Because the general form of the logit model already includes a specification for the random component, the usual level-1 variance term is not represented in equation 1. Including variance terms in equations 3 and 4 would make our models random coefficients models.