U.S. Department of Housing and Urban Development
Office of Policy Development and Research

Costs Associated With First-Time Homelessness for Families and Individuals

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Prepared for:

U.S. Department of Housing and Urban Development
Office of Policy Development and Research
Office of Special Needs Assistance Programs

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March 2010

Preface

This study examines costs associated with the use of homeless and mainstream service delivery systems by families and individuals experiencing homelessness for the first time in six study communities. Assigning costs to public programs is a first step toward developing measures of the value of public interventions compared to the public costs incurred by ignoring or avoiding the problems those interventions are intended to address. The study finds that the experience of homelessness is diverse and the associated costs vary tremendously depending on the pattern of homelessness and family or individual status. It is not, however, a study of either cost-effectiveness or quality of care, but rather a calculation of costs associated with homelessness.

Homeless Program Costs

The study examines average costs per month across sites for emergency shelter, transitional housing, and permanent supportive housing. It finds that:

- For individuals, overnight emergency shelter has the lowest cost per day (and provides the fewest services and often limited hours).
- For individuals, transitional housing proves more expensive than permanent supportive housing, since services for transitional housing were usually offered directly by the homeless system rather than by mainstream service providers.
- For families, emergency shelters are usually equally or more expensive than transitional housing and permanent supportive housing, because families are often given private rooms or apartments. Emergency shelters for families are also likely to be open 24-hours, provide supportive services, and have fewer units, yielding higher fixed costs.
- In almost all cases, the costs associated with providing housing for individuals and families who are homeless within a program exceeds the Fair Market Rent cost of providing rental assistance *without supportive services*.
- Homeless system and mainstream service costs were difficult to calculate, largely due to challenges in accessing local administrative data.

Costs Associated with First-Time Homelessness

Average homeless system costs for individuals ($1,634 to $2,308) are much lower than those for families ($3,184 to $20,031), who usually have higher daily costs and stay much longer. The 50 percent of individuals with the lowest homeless system costs incurred only 2 to 3 percent of the total system costs; whereas the 10 percent of individuals with the highest daily costs incurred up to 83 percent of total costs. The distribution of costs for families is also quite skewed, though less so than for individuals.

The emergency shelter system may be an “adequate” response to an immediate housing crisis for most individuals, but is an expensive solution to family homelessness. More than half of individuals studied used only emergency shelters, yet the costs of this facility type represent less than one-third of total costs for individuals.

Individuals and families who remain in homeless programs for extended periods incur the highest percentage of costs, presenting the greatest opportunity for homeless system cost savings. Cost savings may be realized if permanent supportive housing were more readily available to these households. Permanent supportive housing tends to be less expensive to the homeless system than transitional housing because most service costs are borne by mainstream systems.

Individuals and families who use homeless programs multiple times with long gaps between stays represent less than one-fifth of those studied. Although costs for this group are proportionately smaller than for those with extended uses of homeless programs, the episodic homelessness of these households indicates that resources currently may not be used effectively. These individuals and families tend to have high levels of interaction with the criminal justice system (though gaps were not explained exclusively by incarceration), and a majority of families with long gaps also experience changes in household composition between stays.

Demographics

Nearly three-quarters of first-time homeless individuals in the communities studied were male. Per-person costs for first-time homeless women are 97 percent higher than for men, due largely to greater privacy arrangements in female emergency shelters and a higher proportion of women in transitional or permanent supportive housing. Women also stay in homeless programs 74 percent longer than men (this is controlled for in the cost differential above). In all sites but one, African-Americans are over-represented among first-time homeless individuals in comparison to the general population of people in poverty.

The first time homeless family in the study most frequently has one adult member (usually female) and an average of 3 to 3.5 members. Homeless families headed by younger persons tend to use less expensive program types, stay for shorter periods, and, consequently, incur lower costs than those headed by older persons.

Patterns of First-Time Homelessness

The majority of households studied, 50 to 65 percent of individuals and 58 to 72 percent of families, stayed in a homeless program only one time during the 18-month period the study covered. Families cycled less in and out of homeless facilities, but remained in programs longer. Extended stays were associated with escalating costs; each additional month in a program is associated with 35 percent higher costs for individuals and 22 percent higher costs for families.

Mainstream System Costs

The question of whether mainstream service costs can be offset by appropriate housing interventions is left open by this study. However, consistent with past research, significant mainstream system cost savings may be achieved by targeting individuals or families with high levels of involvement in mainstream systems prior to homelessness. Most first-time homeless individuals in the study do not have high involvement in mainstream systems, and less than 10 percent received care in these systems during the period of homelessness. At two sites, criminal justice and mental health involvement increased substantially immediately before first-time individual homelessness. This finding suggests a need for discharge planning to ensure that individuals leave mainstream programs, such as inpatient treatment or jails, with adequate housing. In contrast, first-time homeless families had very high enrollment in Medicaid and low to moderate use of other mainstream systems.

Conclusions

The study concludes that communities should explore strategies to:

- Avoid extensive use of high-cost homeless programs (i.e., transitional housing) for individuals or families who primarily need permanent housing without supports or those whose service needs can be met by mainstream systems.
- Alter the way that homeless assistance systems respond to households that are unable to remain stably housed and face repeated instances of homelessness. Communities could consider models such as Homeless Prevention and Rapid Re-Housing.

- Work with mainstream systems (especially criminal justice, mental health, and substance abuse systems) to design appropriate discharge planning strategies and ways to identify clients at-risk of homelessness to prevent homelessness.

Acknowledgments

This study was conducted by Abt Associates Inc. for the Department of Housing and Urban Development under Task Order C-CHI-00838, CHI-T0001 ("The Costs of Homelessness Study") and CD-TA Cooperative Agreement MAMV-001-06.

The authors of this report wish to acknowledge the assistance provided to the study by many individuals. First, we appreciate the guidance and support of Paul Dornan, the study's Project Officer in HUD's Office of Policy Development and Research, who has provided sensible and thoughtful insight, as well as tremendous support, throughout the study. We are also thankful to HUD's Office of Special Needs Assistance Programs for funding follow-up analysis and writing.

We are especially grateful to the individuals who assisted us in the six study sites: Des Moines, Iowa; Houston, Texas; Jacksonville, Florida; Kalamazoo, Michigan; Upstate South Carolina; and Washington, DC. These individuals—leaders and members of the Continua of Care (CoC); Homeless Management Information System administrators; program and administrative staff of homeless service providers; mainstream agency staff; and other local champions—contributed their time, data and ideas to make this study possible. In particular, we would like to highlight the contributions of Julie Eberbach, Eileen Mitchell, and David Eberbach, Des Moines, Iowa; Tuan Nguyen, Clarissa Stephens, Anthony Love, Cathy Crouch, Julia Thompson, Buddy Grantham, Brandon LeBlanc, Horace Robinson, Houston, Texas; Molly Petersen, Melissa Pociask, Thomas Shull, and David Anderson, Kalamazoo, Michigan and Barbara Ritter, Michigan Coalition for the Homeless; Wanda Lanier, Bob Arnold, Stephen Caravella and Diane Gilbert, Jacksonville, Florida and Dr. Annette Christy and Kristen Turner, University of South Florida; Michael Chesser and Kay Perry, Upstate South Carolina CoC and Diana Tester and Charles Bradberry, State of South Carolina; and Darlene Mathews, Sue Marshall, Steve Cleghorn and Laura Zeilenger, Washington, DC.

We also appreciate the guidance of the leading researchers who participated in a research design expert panel meeting: Martha Burt, Dennis Culhane, Joe Harkness, David Long, Lori Megdal, and Sandra Newman. Denise DiPasquale advised the study team on development of appropriate methods to calculate nightly unit costs associated with capital investments for homeless programs.

At Abt Associates, a number of staff members played important roles in designing the study and in collecting, assembling, analyzing, and interpreting the data and writing the report. The authors of this study are Brooke Spellman, Jill Khadduri, Brian Sokol, and Josh Leopold. Dr. Jill Khadduri was the Principal Investigator, and Brooke Spellman was the Project Director for the study; both were involved in all aspects of the study. Dr. Larry Buron, Project Quality Advisor, provided thoughtful and constructive input throughout all phases of the research. Brian Sokol led the HMIS and mainstream data analysis, with analytical support from Josh Leopold and Evan Volgas. Ken Lam conducted the multivariate cluster analysis of the study cohort and regression analysis of cost and cohort data. Megan Tiano and Nichole Fiore assisted with document review and cross-checking the data. Eileen Fahey and Katheleen Linton provided production support. Jill Khadduri, Josh Leopold, Pedram Mahdavi, Louise Rothschild, Matt White, and Erin Wilson were responsible for collecting the programmatic and cost data on the homeless systems for each of the sites and writing portions of the case studies, with support from subcontractors and consultants, Martha Burt, Kat Freeman, Ann Oliva and Daria Zvetina. Consultants Eric Jahn and Heidi Burbage played significant roles in researching and coordinating access to mainstream data.

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Appendix A:

Executive Summary

This study measures costs associated with first-time homeless families and individuals incurred by homeless and mainstream service delivery systems in six study communities. Unaccompanied individuals were studied in Des Moines, Iowa; Houston, Texas; and Jacksonville, Florida. Families were studied in Houston, Texas; Kalamazoo, Michigan; Upstate South Carolina; and Washington, DC.

Past research has primarily documented costs associated with homelessness for individuals with chronic patterns of homelessness or severe mental illness. Newer work has been published on the costs incurred within the homeless system for families experiencing first-time homelessness. This study provides additional findings that help to improve our understanding of homelessness and its associated costs. It presents ideas about opportunities for cost savings, and it advances an approach for measuring costs that, coupled with other evaluation methods, can help communities understand the cost-effectiveness of different homelessness interventions.

The study demonstrates that the experience of homelessness is diverse and the associated costs vary tremendously depending on the pattern of homelessness. Across the six sites, the study identifies three primary patterns of first-time homelessness. Most first-time individuals and families experience homelessness only once or twice and use emergency shelter for a limited period of time at fairly low cost. Some experience much longer stays, usually in transitional housing, and some have very high associated costs. A third group uses the system sporadically, moving in and out of homeless programs multiple times during long periods. We recommend that communities consider specific responses to homelessness that target the needs of those who use the system in different ways.

We also identified certain demographic characteristics and limited patterns of first-time homelessness that were associated with greater mainstream system involvement, but the analysis did not identify clear opportunities for cost savings in the mainstream systems through the implementation of alternative responses to homelessness. However, the results also do not eliminate the possibility of mainstream system cost savings. Analysis of more comprehensive client-level data may yield more conclusive findings in this area.

The study does not attempt to isolate which of the mainstream costs are attributable to homelessness, and it does not compare the benefits of different programs with the costs of their use. Thus, the study is not a cost-effectiveness study and is most accurately characterized as a study to measure homeless and mainstream costs *associated* with homelessness.

The findings from these communities are not intended to be nationally representative. In fact, findings presented in this report show that the community in which individuals and families received services frequently had a strong effect on both their length of stay and costs. Thus, local factors and particular Continuum and program-level decisions can have a large effect on patterns of homelessness and associated homeless system costs. Despite these local differences, the study finds trends that cut across communities. We hope that policymakers will review these findings and consider whether similar conclusions can be drawn about their own communities. Policymakers can also use similar methods to help assess: how people who are homeless use homeless and mainstream systems in their communities; whether these patterns of use are appropriate; whether their homelessness systems are

efficient in achieving positive outcomes for people who become homeless; and whether there are opportunities for cost savings through alternative program models.

After a brief summary of the methodology used for the study, the remainder of the executive summary highlights the key results and policy implications of this research. All of these findings are discussed in detail in the main body of the report.

Methodology

This study breaks new ground methodologically in homelessness research in the following areas:

- rigorously calculating the costs of providing a family or individual with a day of shelter in specific residential programs for homeless people;
- incorporating distinctions among program types and their housing models (e.g., facility-based transitional housing) into our analysis of both patterns and costs of first-time homelessness; and
- analyzing both individuals and families, as well as vastly different types of communities or geographic areas, using the same research design, facilitating direct comparisons.

For purposes of this study, persons were considered homeless if they used a street outreach or residential homeless program that is represented in the site's homeless management information system (HMIS) data. People were considered first-time homeless if they did not have a recorded encounter with an outreach program or stay in a residential homeless program in the HMIS at any point prior to the study enrollment period. Periods in which persons were precariously housed, doubled up, or staying in a non-participating program are not represented as "during homelessness," with one exception. If study subjects had more than one stay in residential homeless programs during the study period, then the time between stays, referred to in the study as a "gap," is also considered "during homelessness." Homeless system costs are based on the actual days stayed in programs, but mainstream costs incurred during "gaps" are counted in the "during homeless" period.

Homeless systems are limited to programs within a community that are designed and dedicated to providing housing and services to people who are homeless. The homeless programs accounted for in this study are: outreach programs, emergency shelters, transitional housing, and permanent supportive housing. Programs that only provide supportive services to homeless people are not included.

Mainstream service systems are those that are not dedicated exclusively to serving people who are homeless, yet provide services that are needed and often used by them. Mainstream system cost data examined for this study include: Medicaid primary healthcare, mental healthcare and substance abuse treatment; state-funded mental healthcare and substance abuse treatment; law enforcement and criminal justice; and income supports.

Using telephone outreach and in-person site visits, we collected information about the homeless system within each community. From this information we developed a homeless program typology, which sometimes differed from local definitions of homeless program types, as a framework for the study. We also derived daily costs for a sample of homeless programs of each type. The homeless program costs account for operational and agency overhead costs associated with each program, in addition to services that are provided as part of the program. Capital costs of facilities owned by programs or donated to them also are included in daily costs per unit for programs in Jacksonville,

Des Moines, and Upstate South Carolina. To account for programs from which we did not collect costs directly, we calculated weighted averages for each type of homeless program within each site.

For each community, we analyzed Homeless Management Information System (HMIS) data to identify the individuals and families who accessed homeless programs for the first-time during the 12-month period between July 1, 2004 and June 30, 2005.[1] We also used HMIS data to examine homeless program use for each household in the 18 months (30 months in DC) following the day each household (or a member of the household) first accessed a homeless program. Using multivariate cluster analysis, we analyzed four aspects of each household's pattern of homeless system use to derive "path groups," that is groups of households with similar homeless system use, for each community. The variables used to define path groups are: total number of days each household stayed in homeless programs during the 18-month period in which we analyzed homelessness (across all program stays); number of distinct homeless program stays within the 18-month period; types and sequences of homeless programs used; and total number of days between all homeless program stays, also referred to as total number of "gap" days.

Combining homeless program usage and daily cost data, we calculated estimated homeless system costs for each individual or family household in the study. When possible, we also acquired and analyzed utilization data for mainstream systems in order to measure how mainstream systems interact with people who are homeless and to estimate the costs associated with the use of mainstream systems by first-time homeless people. Finally, we analyzed homeless and mainstream costs, using regression analysis to understand the demographic characteristics, homelessness patterns, and path groups associated with lower and higher costs.

Homeless Program Costs

Among homeless programs serving individuals, overnight emergency shelter for individuals has the lowest costs per day, typically offers the fewest services in the least private settings, and is often open only during evening hours. Transitional housing is the most expensive model for individuals and frequently offers private settings and a range of supportive services. Permanent supportive housing also generally offers private living space and supportive services. Permanent supportive housing providers indicate that residents are offered services equivalent in intensity to or even greater than services offered in transitional housing; however, the types of services provided may differ. In most cases, we found that permanent supportive housing programs arrange for residents to receive the "support" piece of the supportive housing directly from mainstream systems, and in fact many residents of the permanent supportive housing projects we examined are believed to be clients of mainstream programs prior to being placed in the housing.[2] Services paid directly by permanent supportive housing programs appear to be limited to housing-focused services and basic case management. As a result of this structure, permanent supportive housing programs do not have to secure resources to fund these services directly, and the costs are on average comparable to the less expensive 24-hour emergency shelter programs from the perspective of the homeless system.

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[1] In Kalamazoo, we studied families who became homeless for the first-time in calendar year 2005.

[2] Because these clients receive services that they would otherwise be eligible for and could continue to receive these services if they moved to alternative housing, we did not include this cost as part of the housing program. Services paid for with the program budget and those dedicated to the project are accounted for in the program daily costs, when possible.

In contrast, emergency shelters for families are as expensive, if not more expensive, than transitional housing and permanent supportive housing offered in the four communities in which we studied homeless families. This is because families often get private rooms or apartments in emergency shelter; the programs are small and have few units over which to prorate fixed costs; and emergency shelters for families are likely to be open 24-hours and provide supportive services. Permanent supportive housing for families is generally less expensive than emergency shelter from the perspective of the homeless system.

More expensive programs typically have higher costs across all major budget categories: housing operations, services, agency overhead, and the daily cost equivalent of capital investments. Higher overall costs may reflect more supervision, more services, increased private space, or lower program capacity (e.g., decreased economies of scale).

Exhibit 1 shows the average cost per month incurred by the homeless system for each program type in each community in relation to HUD's Fair Market Rents (FMRs) for a private market unit in the same community. The FMR is a way to quantify the value of a rental subsidy for a month and therefore to compare the costs associated with providing housing for persons who are homeless within a homeless program with the cost of providing rental assistance without supportive services in the private market. Except for overnight emergency shelters in Jacksonville and permanent supportive housing in Des Moines, the FMR is lower than the average monthly cost of all types of homeless residential programs in all six of the communities in which we studied homelessness.

Exhibit 1: Average Cost Per Household Per Month for Homeless Program Types[a]

Individual Sites	Emergency Shelter	Transitional Housing	Permanent Supportive Housing	2006 Fair Market Rent for One-bedroom Unit[b]
Des Moines	$581	$1,018 – $1,492	$537	$549
Houston	$853 - $1,817	$1,654	$664 – $1,757	$612
Jacksonville	$408 - $962	$870	$882	$643
Family Sites	**Emergency Shelter**	**Transitional Housing**	**Permanent Supportive Housing**	**2006 Fair Market Rent for Two-bedroom Unit[b]**
District of Columbia	$2,496 - $3,698	$2,146 - $2,188	$1,251	$1,225
Houston	$1,391	$1,940 – $4,482	$799	$743
Kalamazoo	$1,614	$813	$881	$612
Upstate South Carolina	$2,269	$1,209	$661	$599 (Greenville MSA)

Note: All costs reported in 2006 dollars.

[a] *Costs shown reflect weighted averages by program type. Ranges represent the averages of different housing models within a program type. Costs only represent homeless system costs and do not include the value of mainstream system costs that may be incurred while individuals or families reside in these programs.*

[b] *Source: (HUD, 2005)*

Chapter 3 of this report describes each program type, the costs associated with providing each type, and the extent to which programs are providing both shelter and supportive services to clients—in contrast to the Fair Market Rents, which represent only the cost of housing. Since rental subsidies are often permanent or long-term, it may not be realistic to assume that a community would provide a single month of rental assistance; whereas, it is very common for a household to use emergency shelter for only one month. It also would be important to assess whether people using rental subsidies use mainstream systems to a greater or lesser extent and cost than people who use residential programs for homeless people either during or after their period of homelessness. Such an examination is outside the scope of this study..

Characteristics of First-time Homeless Individuals and Families in this Study and Costs to the Homeless Services System

Among the three sites in which we studied single adult homelessness, we identified 7,502 individuals as first-time homeless, with the majority in Houston, Texas. The total number of unduplicated families who experienced first-time homelessness across the four family sites was 1,374 households. Exhibit 2 includes descriptive information about the individuals and families we studied, focusing in particular on demographic characteristics associated with costs.

Exhibit 2: Study Cohort Characteristics [a]

	Individual Sites			Family Sites			
	Des Moines	Jacksonville	Houston	Houston	Kalamazoo	Upstate SC	Washington, DC
Total Households	1,124	1,972	4,406	477	342	145	410
Male Adults	73%	81%	74%	13%	15%	10%	18%
African American	21%	48%	57%	65%	60%	49%	97%
Average Age of Adults at First Entry	39 yrs	41 yrs	41 yrs	32 yrs	30 yrs	31 yrs	32 yrs
Adults over 40	47%	54%	53%	16%	12%	12%	20%
Household Size				3.2 people	3.2 people	3.0 people	3.5 people
One Adult Household				88%	89%	88%	80%
Household Change[b]				25%	13%	17%	34%

[a] *Null demographic values are excluded from percentage calculations.*
[b] *Household change reflects a change in household membership from one program entry to another. Household change usually occurs across multiple program stays. However, household change can also occur when a new member a joins a family already staying in a program.*

The first-time homeless individuals in the communities we studied were predominantly male (73 to 81 percent) and had an average age of 39 to 41 years at program entry. With the exception of Jacksonville, African-Americans are over-represented among first-time homeless individuals in comparison to the general population of individuals in poverty. Multivariate analysis showed that among individuals, single women had fewer stays but used homeless programs 74 percent longer than single men. And women dominate groups with certain patterns of homelessness, such as those who use more expensive types of programs.[3] Even when controlling for length of stay, program type, and

[3] Data from victim service providers, such as domestic violence shelters, were not available for this study, so these findings are for other type of homeless residential services.

other demographic characteristics, multivariate analysis shows that single women have 97 percent higher costs than men. Relatively older adults have longer lengths of stay than younger adults, and when controlling for other factors, costs for individuals older than 40 are 10 percent higher than for those between 31 and 40 years. African-American individuals are more likely to spend longer cumulative periods of time homeless, have a greater number of stays, and to incur 19 percent higher homeless system costs than white individuals.

The first-time homeless families in the study primarily had only one adult member (80 to 89 percent), were comprised of female adults accompanied by children (82 to 90 percent), and had on average 3 to 3.5 members. On average, adults were 30 to 32 years old when they first used a homeless program, and 41 to 50 percent of the children were 6 years old or younger. While the majority of families in the study cohort at each site had constant membership, a very high percentage of those who used more than one program experienced a change in their household membership from one program stay to another.

Homeless families headed by people between 18 and 24 use less expensive program types, stay for shorter periods, and, consequently, incur costs that are approximately one-third less than those headed by 31 to 40 year olds. Unlike results for individuals, African-American families are likely to spend shorter periods of time in homeless programs and to be associated with lower costs than white families. Families with household change are associated with 35 percent greater homeless system costs than those with stable membership, even when controlling for other factors.

These findings show that different types of first-time homeless individuals and families use homeless system resources differently, which suggests opportunities for communities to develop specific strategies to meet the needs of each of these types of individuals and families. For example, communities may want to reevaluate their systems for serving single women rather than serving them primarily in programs alongside families with children. Communities should also explore prioritizing African-American families for prevention and rapid rehousing interventions that address housing and income issues with less focus on services for non-economic issues, since our analysis suggests that a large portion of African-American families may be homeless primarily due to extreme poverty rather than issues related to mental illness or substance abuse. Finally, we recommend strategies to identify and refer households with greater needs to lower-cost interventions, such as permanent supportive housing for individuals, transitional housing for families, or even alternative program types that have not yet been developed.

Patterns of First-time Homelessness for Individuals and Families in this Study

The majority of households we studied, 50 to 65 percent of the first-time homeless single adults and 58 to 72 percent of families, stayed in a homeless program only one time during the 18-month period in which we studied homelessness (30 months in DC). However, individuals who used homeless programs more than once used them frequently; individuals in the study had an average of three distinct program stays. The average for individuals was more than double the average number of stays for families. Although families had fewer stays, they stayed in programs for longer than individuals. Individuals averaged 5 to 10 weeks in a homeless program, whereas families averaged 3 to 10 months. For both, the median number of days spent in homeless programs was well below the average number of days. This means that half of the individuals and families stayed for much shorter

periods than the average, and that a small number of individuals and families had very long stays that substantially increased the average for each group as a whole. Households in the study also had gaps averaging 25 to 75 days between all homeless programs stays. Since the majority of households had only one stay, this statistic really means that those with multiple program stays had quite lengthy gaps between all homeless program stays. Exhibit 3 provides some basic information about the patterns of homelessness for the individuals and families within each community.

Exhibit 3: Homelessness System Utilization

	Individual Sites			Family Sites			
	Des Moines	Jacksonville	Houston	Houston	Kalamazoo	Upstate SC	Washington, DC[a]
Households with only one stay	53%	50%	65%	72%	68%	65%	58%
Average Number of Stays	3.0 stays	3.3 stays	3.0 stays	1.4 stays	1.5 stays	1.4 stays	1.2 stays
Average Days In Homeless Programs	73 days	57 days	39 days	113 days	94 days	186 days	309 days
Median Days In Homeless Programs	24 days	10 days	22 days	49 days	31 days	103 days	258 days
Average "Gap" Days Between Stays	63 days	75 days	44 days	31 days	61 days	25 days	73 days

[a] *Homeless system utilization was analyzed over a 30-month period for the DC case study.*

Greater length of time in homeless programs and (to a lesser extent) longer periods between stays in homeless programs are associated with greater homeless costs for first-time homeless individuals and families. Controlling for other household characteristics and for the type of program used, each additional month in a homeless program is associated with 35 percent higher costs for individuals and 22 percent higher costs for families. The type of program used has an even greater impact on homeless system costs, as will be discussed later in this summary.

Costs Associated with First-time Homelessness

The average homeless system costs incurred for individuals and families in the communities are provided in Exhibit 4. The average costs for individuals ($1,634 to $2,308) are much lower than those for families ($3,184 to $20,031). The difference in costs between individuals and families is not surprising, since the average daily costs for programs serving individuals are generally much lower than for those serving families (Exhibit 1), and the average length of stay for first-time homeless individuals is much shorter than for first-time homeless families (Exhibit 3).

Exhibit 4: Average Homeless System Cost per Household

	Individual Sites			Family Sites			
	Jacksonville	Houston	Des Moines	Kalamazoo	Upstate South Carolina	Houston	Washington, DC[a]
Average Cost per Household	$1,634	$2,257	$2,308	$3,184	$9,663	$11,627	$20,031

Note: All costs reported in 2006 dollars.

[a] *The DC cost per family does not include families who used only the Community Care Grants program. Including such families would drop the average cost per family in DC to $17,962.*

Average costs offer a general picture of the costs associated with homelessness, but they obscure important information about the wide variation in costs associated with first-time homelessness. Only a small group of households incurred high costs at each site, while the majority had minimal or more moderate costs. For individuals, the 50 percent of individuals with the lowest homeless system costs incurred only 2 to 3 percent of the total homeless system costs; whereas the highest-cost 10 percent of the cohort incurred 62 percent of the homeless system costs in Jacksonville, 70 percent in Des Moines, and 83 percent in Houston. Transitional housing for individuals is more expensive per day on average than other program types, and programmatic factors also encourage longer lengths of stay, which also drive up costs. Thus, it is not surprising that the cost to the homeless services system of the most expensive 10 percent of individuals in the study cohort at each site generally reflects continuous use of expensive transitional housing programs for much or all of the 18-month observation period.

The distribution of costs for families is also quite skewed, but not to the same extent as for individuals. In the four sites in which we studied first-time homeless families, the lowest-cost half of families accounts for less than one-seventh of the total cost incurred by the community for first-time homeless families. The proportion ranges from 13 percent in Upstate South Carolina to 5 percent in Houston. In Upstate South Carolina, the highest-cost 10 percent of the study cohort accounts for 32 percent of the total cost to the system, while in Houston the 10 percent highest-cost group accounts for 57 percent of the total homeless system costs for first-time homeless families.

Costs for Groups of Households with Common Patterns of System Utilization

The study defined "path groups" as a way to group people who use the homeless system in similar ways, that is, those who follow similar "paths" through the homeless system. Although path groups were derived separately for each community in the study, several broad patterns of use were present across all six communities: households that use only emergency shelter for brief periods, households that used homeless programs for extended periods, and households that use homeless programs multiple times with long gaps between stays.

Households that Use Only Emergency Shelters for Brief Periods

Households that use only emergency shelter for brief periods represent the majority of all first-time homeless households in the study, although their costs represent less than one-third of total costs

incurred by first-time homeless households, as shown in Exhibit 5. On average, "short-stayer" individuals used emergency shelter programs for only 1 to 3 weeks at an average cost per household of $321 to $686. The stays for families were on average longer than those of the individuals we studied. One group of short-stayer families in South Carolina remained in shelters for only 9 days on average, but other short-stayer families in all four communities stayed an average of one to three months. The average costs per short-stayer family ranged from less than $1,000 to almost $9,000, depending on the average number of days spent in programs and the relative cost of the programs used.

Exhibit 5: Households that Use Only Emergency Shelter for Brief Periods

Population	Utilization description	% of Each Study Cohort [a]	Average Homeless System Costs Per Household [b]	% of Homeless Costs Represented by Path Group Within Each Site
Individuals	Emergency shelter only, for 1 or 2 brief stays totaling 1 to 3 weeks.	57% - 69%	$321 - $686	8% - 28%
Families	Emergency shelter only, for 1 or 2 brief stays totaling 10 days to 3 months.	33% – 66%	$784 - $8,890	9% - 30%

Note: All costs reported in 2006 dollars.
[a] In this table, the universe of individuals excludes individuals in Houston who were only contacted by street outreach. And the universe of families in DC excludes families who participated only in the Community Care Grant program.
[b] Ranges in this column represent distinct path groups within each site.

These short-stayers all had much lower costs than other groups of first-time homeless individuals and families. We suggest that the emergency shelter system may be an "adequate" response to an immediate housing crisis for most individuals and a place in which individuals who are not able to quickly resolve their housing crisis can be referred to more intensive interventions. It would be very difficult to fund a prevention response at such low cost, and it would be difficult to identify up front which of the individuals' homelessness could be prevented with minimal assistance.

In contrast, we found that emergency shelter is an expensive solution to family homelessness, in comparison to transitional housing, permanent supportive housing, and traditional rental subsidies. As an alternative, we suggest that communities consider three approaches: 1) offering shelter diversion or rapid-rehousing interventions that optimize the use of resources to get families back into housing, rather than shelter; 2) examining the cost structure of current emergency shelter programs to determine if the environment and services offered can be scaled back and still meet the needs of those who are using them; and 3) referring more quickly those who need intensive assistance to transitional housing (facility-based or scattered site), permanent supportive housing, or other new interventions.

Households Who Remain in Homeless Programs for Extended Periods

Up to one-quarter of first-time homeless individuals and a larger portion of first-time homeless families used homeless programs for extended periods at substantial cost per household (Exhibit 6). Cumulatively, individuals with extended stays incurred 40 to 73 percent of homeless system costs associated with first-time homelessness for individuals. Families with extended use of homeless programs incurred 47 to 82 percent of costs associated with first-time family homelessness.

Therefore, the greatest opportunities for homeless system cost savings lie with the individuals and families who remain in homeless programs for extended periods. Most often, this long-term, high-cost use of the homeless system reflects extended use of transitional housing either alone or in combination with other programs, which is consistent with the fact that transitional housing is typically designed for long lengths of stay.

For individuals, extended use of homeless programs costs an average of $9,000 to $14,000 per person, with the exception of a group with average costs of $3,103 for use of a low-cost form of shared transitional housing in Des Moines. For families, heavy use of transitional housing costs an average of $15,500 to $38,800 per family, with the exception of costs for families in Kalamazoo, which were $6,574 on average.

Exhibit 6: Households that Use Homeless Programs for Extended Periods

Population	Utilization description	% of Each Study Cohort [a]	Average Homeless System Costs Per Household [b]	% of Homeless Costs Represented by Path Group Within Each Site
Individuals	Used emergency shelter, transitional housing, or permanent supportive housing exclusively or in combination for average of 4 to 12 months.	7% - 25%	$3,103 – $14,418	40% - 73%
Families	Used transitional housing exclusively or in combination with emergency shelter or permanent supportive housing for average of 8 to 18 months.	24% – 42%	$6,574 - $38,742	47% - 82%

Note: All costs reported in 2006 dollars.
[a] The universe of individuals in this table excludes individuals in Houston who were only contacted by street outreach, and the universe of families in DC excludes families who participated only in the Community Care Grant program.
[b] Ranges in this column represent distinct path groups within each site.

In all cases, the costs to house individuals and families in homeless programs for extended periods are significantly higher than rental subsidies based on Fair Market Rents for an equivalent period. Strategies for identifying cost-savings, include examining: 1) whether patterns of extended use or transitional housing or other program types are cost-effective and whether there are opportunities to reduce costs without diminishing client outcomes; 2) whether some households are using transitional housing as a form of subsidized permanent housing, in which case actual rent subsidies without extensive services would be a more cost-effective approach; 3) whether some households should be referred more aggressively to permanent supportive housing to address long-term needs at lower costs; and 4) whether the permanent supportive housing model of leveraging services from mainstream systems could be used to deliver transitional housing at lower cost to the homeless system.

Households Who Use Homeless Programs Multiple Times with Long Gaps Between Stays

Our analysis also identified a small group of first-time homeless individuals and families who return multiple times for homeless assistance but have long gaps between stays. Their patterns suggest that the assistance they receive from the homeless system the first and even second or third time is not

sufficient to help them regain stable housing. These households sometimes only use emergency shelter and sometimes use a combination of program types. As shown in Exhibit 7, costs for individuals who repeatedly used homeless programs with long gaps between stays averaged approximately $1,000 for groups that only used emergency shelter to as high as $10,705 for a group of individuals in Houston who used a range of program types. Costs for families averaged from $3,295 in Kalamazoo for a group that used only emergency shelter for an average of 38 days across all stays to $17,314 for a group in DC that spent an average of 9 months in a range of program types.

Exhibit 7: Households that Use Homeless Programs Multiple Times with Long Gaps Between Stays

Population	Utilization description	% of Each Study Cohort [a]	Average Homeless System Costs Per Household [b]	% of Homeless Costs Represented by Path Group Within Each Site
Individuals	Used emergency shelter only or used a range of programs, returning to emergency shelter after using transitional or permanent supportive housing. Average gaps between all stays total 6 months to a year.	12% - 18%	$910 - $10,705	14% - 24%
Families	Repeated use of homeless programs with long gaps between stays totaling 4 to 17 months.	5% - 16%	$3,293 - $12,475	2% - 20%

Note: All costs reported in 2006 dollars.
[a] The universe of individuals in this table excludes individuals in Houston who were only contacted by street outreach, and the universe of families in DC excludes families who participated only in the Community Care Grant program.
[b] Ranges in this column represent distinct path groups within each site.

Although costs are proportionately not as large for these households as for those with extended use of homeless programs, the current system does not appear to be working well and therefore, resources currently used to serve these households may not be used effectively. In addition, our analysis of mainstream costs shows that these individuals and families had high levels of interaction with criminal justice systems. In Jacksonville, Kalamazoo, and Upstate South Carolina, rates of arrest or incarceration were above 60 percent for individuals and families with long gaps between homeless stays. The criminal justice involvement occurred across all time periods relative to homelessness - before the first homeless stay, between stays, and in the period following the last homeless stay. By comparing the number of days between homeless stays and the number of days spent in jail during those same times, we know these households are not exclusively staying in jail between homeless stays. We surmise that they spent time in many different types of places, including living on their own, living doubled up with others, staying on the streets, or in other residential facilities. The high rates of arrest and incarceration coupled with high levels of housing instability suggest that the individuals and families in this group would benefit from targeted assistance to secure and maintain housing and reduce criminal justice recidivism.

A significant percentage (53 to 92 percent) of families with long gaps also had changes in household composition from one program stay to the next. These high rates of household change are evidence of household instability and may also suggest high involvement in child welfare systems. This theory is supported by statistics from DC, the only site in which we obtained rates of child welfare involvement, that show that 55 percent of the group with long gaps had child welfare involvement at

some point during the study period. The significant housing and family instability experienced by this group suggests that neither homeless nor mainstream systems are addressing sufficiently the needs of these families and that targeted interventions may be needed to achieve positive housing and family-related outcomes. Communities should explore whether funds currently used to serve these households over repeated stays, in addition to resources from the criminal justice and possibly the child welfare system, could be used to fund alternative interventions to meet the specific needs of these households.

Costs Associated with Mainstream System Use By First-time Homeless Individuals and Families

The question of whether mainstream system costs can be offset by appropriate housing interventions is left open by this study. Our analysis suggests that there are few opportunities for mainstream cost reductions when targeting groups based on their patterns of homelessness. However, consistent with past research, significant mainstream system cost reductions may be achievable when targeting individuals or families with high levels of involvement in mainstream systems prior to homelessness.

Most first-time homeless individuals do not have high involvement in mainstream systems. This means that there is only a small group of individuals with the possibility of cost offsets. For instance, only a quarter of individuals in Jacksonville received publicly funded mental healthcare, only 22 percent received substance abuse treatment, and only 20 percent had Medicaid physical healthcare claims at any point in the approximately three-year period for which we collected cost data. And less than 10 percent received healthcare in any of these domains *during* the period of homelessness. Exhibit 8 shows that the total per person costs of mainstream involvement in each domain during homelessness for first-time homeless individuals, totaling approximately $1,000 in Jacksonville and approximately $500 in Houston. However, when looking only at the costs per person for those who were involved in each mainstream domain, costs increase substantially per person as do opportunities for cost savings. The difference in average costs for mainstream users and the cohort average illustrates why narrowly targeted interventions to reduce or shift use by those who are involved with each system have the greatest potential to yield cost savings, whereas broadly targeted interventions are not likely to realize substantial savings.

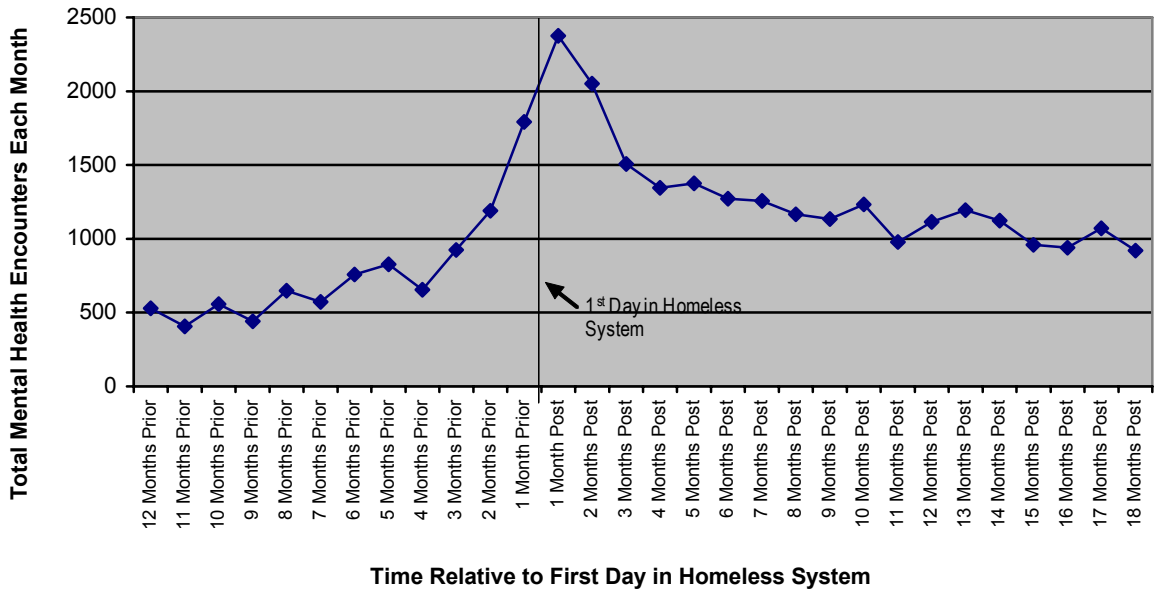
Exhibit 8: Average Mainstream System Costs per Person Incurred "During" Homelessness

	Jacksonville			Houston		
	% of Cohort involved in this Domain	*Average Costs During Homelessness Per Person Involved in this Domain*	*Average Costs During Homelessness Per Person in Cohort*	*% of Cohort involved in this Domain*	*Average Costs During Homelessness Per Person Involved in this Domain*	*Average Costs During Homelessness Per Person in Cohort*
Medicaid Primary Health	9%	$2,436	$219			
Mental Health	8%	$1,318	$106	9%	$4,157	$391
Substance Abuse	7%	$2,265	$158			
Criminal Justice	13%	$3,057	$397	2%	$6,520	$157
Income Supports	22%	$627	$138			

We also found that criminal justice and mental health involvement in Jacksonville and Houston increased substantially immediately before first-time homelessness, peaking in the period just after the individual entered the residential homeless system.[4] Nine percent of the individuals we studied in Houston received services from the mental health system at some time in the 12 months prior to homelessness or the 18 months following the first day the individual entered a homeless program. The total encounters are graphed in Exhibit 9, with the total number of encounters for all of those who received services during each month shown in the y axis and the month relative to the start of homelessness shown on the x-axis. The exhibit shows that the highest number of encounters occurred in the month following the day these individuals became homeless for the first time, followed by the second month after that day. These individuals also had a high number of encounters in the month immediately prior to homelessness. This finding suggests a need for discharge planning to ensure that individuals leave mainstream programs, such as inpatient treatment or jails, with adequate housing. It also suggests that that mainstream systems may be able to help identify risk of homelessness for their clients and that targeted alternative interventions could avoid costly homeless system use. We also conclude that homeless systems should use emergency shelter to proactively identify individuals with severe mental illness who would benefit from permanent supportive housing before they experience long-term homelessness.

[4] Other research analyzing rates of homelessness among ex-offenders found that individuals released from state prisons or jails have a greater risk of homelessness than individuals with similar characteristics who have not been recently incarcerated. In the communities studied, risk of homelessness among ex-offenders was higher for individuals with certain demographic characteristics. The same research also found that longer periods of incarceration were associated with greater risks of homelessness after release. (Graham, D., Locke, G., Bass Rubenstein, D. & Carlson, K., unpublished) This finding supports the conclusion above that discharge planning strategies targeting the ex-offenders most at risk of homelessness, based on gender, race, age, and length of incarceration, may be effective in preventing homelessness for this group.

Exhibit 9: Total Mental Health Encounters Each Month by First-time Homeless Individuals in Houston Shown Relative to First Day of Homelessness



In contrast, first-time homeless families in the communities for which we obtained mainstream data had very high enrollment in Medicaid (over 90 percent) and low to moderate use of other mainstream systems across the entire period for which we collected costs. Medicaid costs across the entire study period totaled $21,770 per family in Kalamazoo and $15,615 per family in Upstate South Carolina, as compared with mental health costs in Houston of $722 per family and criminal justice costs of $175 to $597 per family. Average monthly mainstream costs per family were highest during periods of homelessness, as shown in Exhibit 10.

Exhibit 10: Rate of Mainstream System Involvement and Costs Per Family Per Month

	Mental Health	Medicaid	Criminal Justice	Financial Assistance	Food Stamps
Kalamazoo					
Rate of Involvement [a]		94%	42%	> 39% [b]	
Pre-Homelessness		$657.58	$13.33	$5.18	
During Homelessness		$929.59	$12.99	$22.05	
Post-Homelessness		$471.90	$19.36	$21.55	
South Carolina					
Rate of Involvement [a]		> 90% [b]	34%		92%
Pre-Homelessness		$319.66	$4.65		$187.30
During Homelessness		$433.70	$4.70		$229.34
Post-Homelessness		$493.28	$4.86		$190.78
Houston					
Rate of Involvement [a]	16%		8%		
Pre-Homelessness	$13.01		$6.55		
During Homelessness	$32.87		$1.57		
Post-Homelessness	$20.67		$16.36		

[a] *Percentage of the families studied who were involved in the mainstream domain at any point from 12-months prior to the first day of homelessness through December 31, 2006 (June 30, 2007).*

[b] *De-duplicated data across types of involvement with this domain were not available.*

As with individuals, we surmise that families interact with mainstream systems on an ongoing basis, but that use rises immediately preceding homelessness and peaks immediately following homelessness. Some of the increased Medicaid costs may reflect health crises related to homelessness or use of expensive acute care systems for routine medical needs during homelessness. Increased coordination between homeless and mainstream systems, and potentially some interventions targeted to specific high-users of mainstream services, could result in more appropriate use of mainstream services and potential cost savings.

Aside from the observations about criminal justice and potential child welfare involvement for households with long gaps between homeless stays, we did not find sufficient relationships between patterns of homelessness for families and mainstream costs to warrant recommendations related to targeting households based on their homeless system use in order to achieve mainstream cost savings. It is possible that more complete data would identify additional cost saving opportunities.

Conclusion

This study does not show which homelessness interventions are cost-effective or indicate whether mainstream systems are appropriately used during periods of homelessness. However, it does illuminate the diverse patterns and costs of homeless and mainstream system use that are essential to answer two critical policy questions. Are high-cost interventions an appropriate response to homelessness for specific subgroups? Are there more efficient and effective ways of meeting people's needs?

In brief, we conclude that communities should explore strategies to 1) prevent homelessness for the majority of families facing first-time homelessness, 2) avoid extensive use of high-cost homeless

programs for individuals or families who primarily need permanent housing without supports or those whose service needs can be met by mainstream systems, 3) alter the way their homeless assistance systems respond to households that are unable to remain stably housed and face repeated instances of homelessness, 4) work with mainstream systems to design appropriate discharge planning strategies and ways to identify clients at-risk of homelessness so their homelessness can be prevented.

This research also raises a number of additional questions that should be the focus of new research. These questions center around understanding the cost-effectiveness of different types of homeless programs, identifying program features that drive costs and therefore present opportunities for reducing costs, and identifying client-level indicators associated with high costs that can be used to predict and avoid unnecessary or ineffective high cost system use.

1. Introduction

This study measures costs associated with first-time homeless families and individuals incurred by homeless and mainstream service delivery systems in six study communities. Unaccompanied homeless individuals were studied in Des Moines, Iowa; Houston, Texas, and Jacksonville, Florida. Homeless families were studied in Houston, Texas, Kalamazoo, Michigan; Upstate South Carolina; and Washington, DC.

Past research has primarily documented costs associated with homelessness for individuals with chronic patterns of homelessness or severe mental illness. Newer work has been published on the costs incurred within the homeless system for families experiencing first-time homelessness. The emerging body of research on homelessness piqued the interest of many. It also raised additional questions about the comparability of these findings to individuals and families with different characteristics or patterns of homelessness and about opportunities for savings through alternative responses to homelessness.

This study was designed to allow policy makers at the national and community levels to have a better understanding of:

- the comparative costs of different types of homeless programs;
- the wide-ranging experience of homelessness among individuals and families and the costs associated distinct patterns of homelessness;
- some of the mainstream costs that can be associated with homeless individuals or families during the periods before, during, and after their period of homelessness
- characteristics of first-time homeless individuals and families that are related to higher or lower homeless or mainstream system costs; and
- the implications of these findings for homeless policy and planning.

Homeless systems include programs within a community that are designed and dedicated to providing housing and services to people who are homeless. The homeless programs accounted for in this study are outreach programs, emergency shelters, transitional housing, and permanent supportive housing for homeless people with disabilities. Programs that only provide supportive services to homeless people are not included in this study.

Mainstream service systems are those that are not dedicated exclusively to serving people who are homeless, yet provide services that are needed and often used by them. Mainstream system cost data examined for this study include: Medicaid primary healthcare, mental healthcare and substance abuse treatment; other state-funded behavioral health care; law enforcement and criminal justice; and income supports.

In each site, we examined the system of homeless service provision, patterns of homelessness for a cohort of homeless families or individuals based on analysis of Homeless Management Information System (HMIS) data, and the costs associated with the use of homeless programs by the study cohort based on cost data collected directly from homeless programs. We also acquired and analyzed utilization data for mainstream systems in order to measure how mainstream systems interact with

people who are homeless and to estimate the costs associated with the use of mainstream systems by homeless people. Finally, we analyzed homeless and mainstream costs together.

We follow a growing body of literature in identifying groups of people who experience similar patterns of homelessness and analyzing homeless and mainstream service utilization and costs based on these patterns. However, this study breaks new ground methodologically in homelessness research in the following areas:

- rigorously calculating the costs of providing a family or individual with a day of shelter in specific residential programs for homeless people;
- incorporating distinctions among program types and their housing models (e.g., facility-based transitional housing) into our analysis of both patterns and costs of first-time homelessness; and
- analyzing both individuals and families, as well as vastly different types of communities or geographic areas using the same research design, facilitating direct comparisons.

The study does not attempt to isolate which of the mainstream costs are attributable to homelessness, and it does not compare the benefits of different programs with the costs of their use. Thus, the study is not a cost-effectiveness study and is most accurately characterized as a study to measure the costs associated with homelessness, rather than the costs of homelessness.

The study does not attempt to measure the broader costs of homelessness to individuals who become homeless or to society as a whole. For example, we do not attempt to measure the costs of increased morbidity or mortality for individuals who become homeless, nor do we measure the costs to businesses and property owners that may result from concentrations of sheltered or unsheltered homeless individuals in cities or neighborhoods. And to the extent that the data we used are not comprehensive of all homeless program utilization or all relevant mainstream systems, the findings somewhat underrepresent the costs for some first-time individuals and families.

Yet even with its limitations, we anticipate that this information will prompt future research and policy discussions on whether resources are being used efficiently to provide services to people who are homeless and whether better outcomes might be achieved by triaging clients to specific paths or by examining current strategies and designing targeted interventions to serve specific subpopulations.

Chapter 2 of this report continues with an overview of the research questions and methodology used to conduct the study. Chapter 3 discusses the range of unit costs (that is, costs per day for each individual or family) associated with various types of residential homeless programs within each site. Chapter 4 analyzes costs associated with first-time homeless individuals across the three individual study sites, and Chapter 5 analyzes costs associated with first time homeless families across the four family study sites. Chapters 4 and 5 begin with a discussion of previous research and a discussion of the characteristics of the cohort at each site. The chapters continue with an analysis of the patterns and costs of homeless system utilization, followed by a discussion of mainstream system costs. Each of these chapters concludes with a discussion of policy implications and areas for future research. Chapter 6 provides summary conclusions that encompass both families and individuals.

Appendix A is a standalone case study for Jacksonville, which is the site where we obtained and analyzed data covering the most comprehensive set of mainstream programs. Appendix B contains data tables for the Jacksonville case study. Appendix C contains detailed data for the individual study sites. Appendix D contains detailed data for the family study sites. Appendix C and Appendix D both include summary data for each study site and the results of cross-site multivariate regression analyses.

Aside from Jacksonville, complete case studies for each site are not included in this document. However, stand-alone case studies for the six sites are available, along with comprehensive data tables, on www.huduser.org.

2. Methodological Framework for Analysis of Costs Associated with Homelessness

This chapter covers the methodological framework for the Costs of Homelessness study. It presents the research questions for the study, our approach to answering these questions, the key domains of costs that were measured in each community, and some of the methodological challenges that we encountered.[1]

2.1. Research Questions

The primary research questions for the study are: **What are the combined homeless and mainstream system costs for people who become homeless for the first-time? How do these costs vary across patterns of homeless system use?**

We pursued the following six specific research questions to help us understand the primary research questions.

1. How do people who become homeless use homeless and mainstream systems?
2. Are there common patterns of homelessness system utilization (homeless paths) that can be used to group people who access homeless services?
3. Do people who use homeless system resources in similar ways share characteristics that can be used to describe each group?
4. What is the cost of the homeless and mainstream system service use associated with first-time homelessness and the periods immediately before and after it? How do these costs vary by path group?
5. What is the total cost associated with the period of homelessness for the study population?
6. How do mainstream system costs change when a person becomes homeless and in the period after homelessness?

Exhibit 2.1 shows the data that we generated to answer each question.

[1] This methodology applies to this report as well as to each of the six individual case studies.

Exhibit 2.1: Research Questions and Outputs for the Study

Research Questions	What this study reports.
How do people who become homeless use homeless and mainstream systems?	• Number, type, and sequence of homeless and mainstream service encounters and lengths of stay (or number of service units) during the study period. Use of systems is reported separately for types of programs that comprise the residential homeless services system, and for each mainstream system studied.
Are there common patterns of homelessness system utilization (homeless paths) that can be used to group people who access homeless services?	• Description of groups of homeless families or individuals following different paths is based on cluster analysis of the number of homeless program enrollments, the types of programs used, the sequence of program types, the durations of program stays, and the overall length of the period of homelessness. • Percent of clients that fall into each path group. • Similar path groups generated at the site level are grouped together for overall analysis.
Do people who use homeless system resources in similar ways share characteristics that can be used to define each group?	• Analysis of demographic characteristics and special needs (defined by service use) of persons in each path.
What is the cost of the homeless and mainstream system service use associated with first-time homelessness and the periods immediately before and after it? How do these costs vary by path group?	• Costs incurred by the homeless system for outreach, emergency shelters, transitional programs, and permanent supportive housing • Costs incurred by selected mainstream service systems reported separately for time periods before, during, and after homelessness. • Analysis of each of these costs for different path groups.
What is the total cost associated with the period of homelessness for the study population?	• Total estimated homeless and mainstream system costs for the study population. • Analysis of costs by demographic characteristics and path groups.
How do mainstream system costs change in relation to homelessness?	• Comparison of mainstream system costs for the periods before, during and after homelessness.

2.2. Research Domains

At the start of the study, we convened an expert panel of homelessness researchers and economists to advise us on the design of the study. In preparation for the panel meeting, we conducted a literature review on previous attempts to analyze costs associated with homelessness and methods that have been used to measure costs of homeless and mainstream service systems. We also explored methods to measure indirect costs of homelessness, such as costs associated with premature morbidity and mortality and indirect costs to businesses that are located near spots inhabited by persons living "on the streets." After discussing extensively the priorities among cost domains, available methods for analyzing different domains, and the feasibility of implementing the methods, we decided to focus this study on the direct costs associated with the homeless system and the following mainstream systems: mental health, substance abuse, and primary health care treatment; criminal justice; child welfare; and Food Stamps and Temporary Assistance to Needy Families (TANF).

2.3. Study Sites, Period, and Population

2.3.1 Site Selection

We based our data collection strategy on administrative records whenever possible. For the homeless services system, this meant using local homeless management information system (HMIS) data to understand the utilization of homeless assistance programs. However, these administrative data sources did not include information on the costs incurred by these programs, so we collected cost data directly from a sample of homeless programs to develop unit costs for various types of homeless programs. For mainstream systems, we used local or state administrative data systems to analyze service utilization and to measure actual tracked costs. When actual tracked costs were not available, we consulted with local officials to derive an average unit cost for each service type within each system. These research design decisions influenced our site selection, as we had to select sites where these sources of data were available.

The criteria used to select sites were: HMIS data coverage of at least 75 percent of homeless system beds serving homeless families or 75 percent of beds serving individuals; high quality HMIS data for client identifiers, basic demographic characteristics, and program utilization or services received; a strong likelihood we could obtain mainstream client data, based on local relationships between the homeless services system and mainstream systems or on the existence of a data repository; and the site's willingness to participate in the study. In addition to these criteria, efforts were also made to select an equal number of sites where we would study families and sites where we would study individuals and to achieve a mix of different community types and geographic locations. Site selection was based on analysis of HUD's Housing Inventory Charts for homeless programs, data on HMIS participation rates and data quality, and telephone interviews with CoC staff and homeless providers in potential study sites.

Through this process, we selected six communities to participate in this study: Des Moines, Iowa; Houston, Texas; Jacksonville, Florida; Kalamazoo, Michigan; Upstate South Carolina; and Washington, DC. We also attempted to include Sacramento, California in the study, but were unable to secure access to the required client-level HMIS data due to local interpretation of California State privacy laws. Based on the availability and quality of HMIS data, we chose to study either homeless individuals or homeless families in each community. In Houston we studied both individuals and families, because the HMIS data met our criteria for both populations. The study population for each site is shown in Exhibit 2.2.

Exhibit 2.2: Case Study Sites and Study Population

#	Case Study Site	Case Study Population
1	Des Moines, Iowa	Single Individuals
2	Jacksonville, Florida	Single Individuals
3	Houston, Texas	Single Individuals Families
4	Kalamazoo, Michigan	Families
5	Upstate South Carolina	Families
6	Washington, D.C.	Families

We first analyzed each site independently and drafted six distinct case studies. We then analyzed overarching patterns as well as distinctions that emerged across each of the six sites. This report provides the overall findings across all six sites. In addition, each of the six distinct case studies produced as a result of this research is available as a stand-alone report.[2]

2.3.2 Study Period and Study Population

This study examined the costs associated with a cohort of individuals or families (depending on the case study) who became homeless for the first time between July 1, 2004 and June 30, 2005.[3] For purposes of this study, an individual or family was considered homeless if the household stayed in a residential homeless program or was served by a street outreach program. The length of time the household was homeless was also defined based on use of these programs, as documented in local HMIS databases. Individuals and families were considered to be homeless for the first-time if they did not appear in the community's HMIS at any point prior to the study enrollment period.

Periods in which members of the study cohort were precariously housed, doubled up, or staying in a program that did not report to the HMIS are not included in the homeless system costs estimated by this study. However, if the studied family or individual had more than one stay in a residential homeless program during the study period, then the time between stays is also considered "during homelessness" when we analyze patterns of homelessness or analyze time-adjusted costs to the homeless services system. The period of homelessness is considered to begin on the first day of a program entry and to end on the date of the last program exit.

As will be discussed in more detail in Section 2.4, we followed each individual or family's homeless service utilization for eighteen months from the household's point of entry into the homeless system. In Washington, D.C, we followed families for thirty months. To the extent that data were available, we measured the individual or family's mainstream service utilization for twelve months prior to and for at least eighteen months after the household's point of entry into the homeless system.

To identify the study population, a single individual was defined as a homeless adult who was served within our study timeframe and was unaccompanied by any other persons at any point during the study period. A homeless family was defined as at least one adult and at least one child (under 18 years at first program entry) who used residential services together at some point during our study period. If a member of a family also used homeless programs as a single individual, we included those stays as part of the family's homeless utilization patterns and costs.

Because of federal law related to HMIS data, the study was not able to analyze services provided to people who are homeless by providers of services for victims of domestic violence. Since the study aimed to capture the complete costs associated with individuals or families who become homeless, households that included a person who was served by a victim services provider at any point preceding or during the study period, as determined by HMIS records, were excluded from the study population. In addition, unaccompanied youth under age 18 were excluded from the study.

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[2] A "Bibliography of Cost of Homelessness Case Studies" appears at the end of this report.

[3] Kalamazoo is the only site for which we used a different study enrollment period. We identified people for the Kalamazoo study cohort based on first entry into the homeless system between January 1, 2005 and December 31, 2005, because homeless system utilization data for 2004 were incomplete.

2.4. Data Sources

The study relies primarily on three types of data:

1. HMIS data maintained by the local Continuum of Care (CoC);
2. Homeless program cost data collected directly by the study team; and
3. Mainstream system administrative data maintained by a data warehouse or by local or state agency administrators.

Each data source and the process for obtaining the data are described in the subsections that follow.

2.4.1 Homeless Management Information Systems Data

HMIS data are longitudinal, client-level data that record demographic details and program utilization for all persons served by agencies participating in the HMIS at each study site. We used HMIS data to identify the study population, to identify each individual or family household's period of homelessness, and to follow each household's homeless system utilization for eighteen months from the date the household's homelessness first began. [4]

HMIS data are maintained by a local HMIS Lead Agency, which acts on behalf of the CoC to manage community data on homelessness. In 2004, HUD published HMIS Data and Technical Standards that outline data collection, privacy and security requirements for HMIS (Housing and Urban Development [HUD], 2004). As a result of the 2004 Standards, HMIS databases across the country store client-level data uniformly, so that we knew the types of data on homeless clients that we would be able to obtain and were able to use a common data analysis strategy across all of our study sites. We purposely selected communities with high levels of residential homeless provider participation in HMIS to ensure that we could get a comprehensive picture of who became homeless within each study site during the study's enrollment period and could understand the types of programs people used and their patterns of use.[5]

As part of site selection, we examined the level of HMIS participation (which is an indicator of how well HMIS data represent the homeless service system) for each community, indicators of data quality, and whether the community had authorized the use and disclosure of client data for research purposes in its privacy policies. We chose only sites with high residential program coverage rates, good quality data, and authority to release their data for research purposes. Thus, we were confident that we could obtain access to the client-level HMIS data for each of our selected study sites. Once sites were selected, we began negotiating with the HMIS Lead Agency to obtain access to the data. We developed data use agreements that were executed between Abt Associates Inc., and each HMIS Lead Agency and that specified the terms of our access, protection, use, and further disclosure of the data. The process and timeline for negotiating access to HMIS data varied by site, depending primarily on the extent to which the process of granting access to data for research purposes already

[4] The period was thirty months in Washington, D.C.

[5] We also attempted to include sites with strong participation from homeless programs that provide supportive services only. As we analyzed the HMIS data, we determined that most such programs did not enter service utilization data sufficient to support a cost analysis; therefore, we did not include costs associated with use of supportive service programs.

had been defined by local policies and procedures. In most cases, time delays were associated with administrative reviews or approval processes rather than with substantive local concerns. We were able to secure direct access to HMIS data for all six study sites.

2.4.2 Homeless Program Cost Data

This study includes homeless system costs associated with the use of residential homeless programs for all programs that report client utilization data to the HMIS. While HMIS provides information on client use of homeless programs, HMIS does not record costs associated with each program. Within the industry of providers of homeless services, there are no standardized unit costs based on funding reimbursements or other estimates. Therefore, we collected program costs directly from a sample of programs within each community and used these data to derive estimates of daily costs of residential programs (and in some cases costs per outreach encounter) for each program type at each site. The daily costs represent all aspects of each residential program's costs: operating, leasing, services provided as part of the residential program, administration, and, in some cases, the capital costs of the program's facility. This process is described in detail in Section 2.5.2. Chapter 3 contains a detailed discussion of our findings related to homeless program costs

2.4.3 Mainstream System Administrative Data

The third primary data source used for this study was administrative data from mainstream service systems. Mainstream systems are those that do not exclusively target people who are homeless. The primary mainstream systems that we attempted to include in the study were:

- primary health care;
- mental health care;
- substance abuse treatment;
- law enforcement and criminal justice;
- child welfare (including financial support, foster care, and protective services); and
- Food Stamps and TANF entitlements.

We were able to obtain mainstream cost data from at least one site for each of these systems, except child welfare. However, in Washington, D.C., we obtained and used data on whether each family in the study cohort had at least one encounter with the child welfare system over a five-year period.

We used the mainstream administrative data to track mainstream utilization and estimate the costs associated with that utilization for the twelve months prior to each household's homelessness, for each household's period of homelessness, and for the period following homelessness through December 31, 2006 (or June 30, 2007 for Kalamazoo).

In contrast to homeless services, mainstream system administrative data can be used to estimate both utilization and costs. Mainstream services, such as those funded by Medicaid or state health resources, are frequently funded based on standard state reimbursement rates. Mainstream income support systems such as Food Stamps or TANF provide assistance that is quantified at the household level. Other systems, such as local jails, track actual utilization, and their administrators have estimated nightly costs or arrest costs for budgetary or reimbursement purposes, so that the estimated costs of these mainstream systems can be estimated. We also determined through discussions with the expert panel that obtaining data on mainstream utilization from client case files or self-reports

would not be as accurate or comprehensive as administrative data and that using administrative data would be much less expensive than primary data collection.

We found that the largest challenge inherent in using mainstream administrative data systems was negotiating access to them. First, we had to identify all of the appropriate local or state administering agencies that maintained data on primary healthcare, mental healthcare, substance abuse treatment, police and/or sheriff arrests, police and/or sheriff jail incarcerations, Food Stamps benefits, TANF benefits, and other relevant mainstream assistance provided to the individuals or families studied at each site.

Once we identified the agencies and began discussions with appropriate staff, we had to convince the agencies to provide data for the study. We offered numerous analytical methods to ease the burden of participation, ranging from the agency sending us their complete identifiable client-level dataset for the study period to the agency conducting all of the analysis and sending only aggregate, tabulated data in table shells defined by the study team. While a formal commitment to participate in the study was an important benchmark, we experienced many delays after that point—for example, in securing formal legal approval to exchange client-level data. Therefore, agreement to obtain the necessary data was not considered complete until we had a signed, data use agreement in hand. Once we had such an agreement, we worked with the information technology staff at the mainstream agency to link records and analyze the utilization data according to our study specifications. This phase of the process was the least complicated, but still yielded many opportunities for project delays.

These steps had to occur for each separate mainstream administering agency within each community. We tried to achieve economies of scale by approaching state agencies that consolidated data across multiple service providers within a community, but in many cases we were not able to penetrate the appropriate bureaucracy at the state level. To support this process, we prepared a Mainstream Data Analysis Guide that we shared with mainstream administrators in advance to explain the process, options, and final table shells. At all sites, the success of accessing mainstream data depended on the motivation of our CoC and mainstream agency contacts. In communities where the mainstream contact was motivated and invested in the study, we had much greater responsiveness.

For each mainstream domain, Exhibit 2.3 lists the case study sites in which we were able to successfully access and incorporate cost data.

Exhibit 2.3: Mainstream Domains included in the Study

Mainstream Domains	Jacksonville	South Carolina	Kalamazoo	Houston (Individuals and Families)	Washington DC	Des Moines
Primary health care	✓	✓	✓		**	
Mental health care	✓	*	*	✓	**	
Substance abuse treatment	✓	*	*		**	
Law enforcement and criminal justice	✓	✓	✓	✓		
Child welfare					**	
Food Stamps and TANF	✓	✓ (FS)				
Other mainstream data			✓		**	

** Included if funded by Medicaid.*

*** Data on whether there was any system utilization, but not types of services, extent of utilization, or costs.*

2.5. Data Analysis Approach for Case Studies

The data analysis repeated for each distinct case study had five major components:

1. analyzing HMIS data to identify the study population and measure the use of homeless services;
2. developing homeless program typologies, calculating homeless unit costs for each program type, and deriving homeless system costs for each person;
3. identifying common groups of homeless system users, i.e. those with common "paths";
4. extracting mainstream service data to measure mainstream costs associated with the study population; and
5. analyzing homeless and mainstream costs by path groups and other variables.

Each of these components is described below. Each section provides a discussion of the data sources, filtering and analysis that occurred, and the output that was used as a basis for the case study findings.

Analyzing HMIS Data to Identify the Study Population and Measure Homeless Service Use (HMIS Analysis)

Measurement of homeless service utilization was based on analysis of HMIS data to determine each homeless individual or family's length of stay within each program. In some cases, we were able to obtain data on program utilization maintained outside of the HMIS by specific agencies and to merge it with the HMIS data. We also attempted to measure costs associated with supportive services that were provided outside a residential program. However, these unit costs were difficult to quantify, and we determined that most service programs reported only partial information on service utilization to

the HMIS. Therefore, the estimates of total homeless program costs do not reflect stand-alone homeless supportive service program utilization unless otherwise noted.

The three steps in the process of analyzing HMIS data to identify the study population and measure homeless service use were:

1. de-duplicate client records and create a Master Household ID;
2. identify the study population; and
3. calculate the length of each program stay.

Each step is detailed below.

Step One: De-duplicate client records and create master household ID
First, we compiled personal identifiers and basic demographic characteristics, such as HMIS Client ID, first, middle, and last names, social security number, date of birth, gender, ethnicity, race, and household IDs. We used The-Link-King software[6] to de-duplicate client records within the HMIS and merged client records if the same individual was associated with multiple HMIS Client IDs. We did not rely on the de-duplication procedures of the HMIS itself.

Most HMIS databases allow persons to be associated with multiple household IDs. This reflects the reality that people sometimes enter a program for homeless people alone and sometimes enter a program with various combinations of other adults and children. This phenomenon made it very challenging to count the number of distinct households served within the study sites during the study period and to follow particular households over time. We defined our study population according to household composition: for example, a single adult must never be accompanied by other persons; a person in a family is sometimes if not always accompanied by at least one other person and must at some point be accompanied by a child. Therefore, we had to be able to determine each household's composition throughout the study period and, once categorized as a single member household or a family household, to measure its total utilization of homeless services and patterns of use over time. For family households that changed composition during the period of homelessness, this meant that we had to identify utilization of homeless programs (and associated costs) by each member of the household at any time during the study period.

To accomplish this goal, we created master household IDs—one Master Household ID for each household—that are shared by all persons who were ever in the same household or had a household member in common in any program within our study period.[7] For example, if a mother and two children entered a program together, in the HMIS they may have been referred to as HMIS Household ID 1. For purposes of this study, we assigned them Master Household 1. If they later went to another program and were joined by a third child, they may have been assigned HMIS Household ID 2. By contrast, for this study, all four persons (the mother and all three children) were then considered part of Master Household 1. If two of the children left and joined their father in a different program, the children and their father were then also considered part of Master Household 1. The master household approach may in some sense undercount the number of households or merge costs of

[6] The Link King tool is designed for de-duplication and matching of client data for research purposes using both probabilistic and deterministic record linkage algorithms.

[7] For single individuals, the Master Household ID is the same as the Client ID.

households that purposely separated. However, other options would have over-counted households and suggested lower costs per household. Also, our approach allowed us to track change in household composition over time, which turned out to be an important variable in the study.

Step Two: Identify the study population

The selection criteria for the study population required the member of the study cohort (individual or family) to be served by a residential homeless program for the first time during the study "enrollment" period. After examining household associations to group persons by Master Household IDs and select only individuals or groups of people that met our definition of family, we analyzed program entry dates to determine whether the individual or any family member had been in the homeless services system before the enrollment period. Households were excluded if any member of the household was ever homeless prior to the enrollment period.

For family sites, once a Master Household was determined to be part of the study cohort, then all members of the family who were housed in a residential homeless program at any time during the complete study period, including after the one year-enrollment period, were included as part of the family cohort for analyzing use of homeless programs and measuring costs.

Step Three: Calculate Length of each Program Stay

A key building block of homeless system costs is homeless program utilization, which can be described in terms of the number of days stayed in a residential program.

We calculated the length of each program stay, chronologically sequenced and tallied program stays for each household, cleaned the program stay data to merge concurrent stays and truncate overlapping stays, and assigned Program Stay IDs. We defined all program stays associated with a master household and the gaps in time between these stays as that household's homeless "path." The first program entry date for each household's first program stay was designated as that household's "Household Start Date," and the program exit date of the household's last program stay was designated as that household's "Household Exit Date." For program stays that did not have valid exit dates, we assumed that the household exited a residential program on the day it started another residential program. In cases where there was no exit date for the final stay, we imputed exit dates using a "hot deck" imputation approach based on the length of stay for other client records within the same program type. Finally, if a household was still enrolled in a program as of the end of the eighteen-month follow-up period, the length of stay was truncated to the maximum client end date based on 548 days (18 months)[8] from the household start date. These lengths of stay were used to calculate homeless program costs for each household and to group individuals or families into similar patterns of homeless system use.

Developing Homeless Program Typologies and Deriving Homeless Unit Costs for Each Program Type

To determine the unit cost for each program used by a member of the study cohort (usually a cost per day), we inventoried all homeless programs within the system at each site (HUD-funded and not HUD-funded), interviewed CoC and program staff to learn more about each program, and developed homeless program typologies for each site. The typology's primary purpose was to identify like programs for which unit costs derived from a sample of the group would reasonably represent the

[8] The period was thirty months (913 days) in Washington, D.C.

costs of the full group. Thus, the typology was based on key cost drivers, including: whether a residential program was operated in a facility or scattered-site environment, the extent of privacy afforded, the level of supervision, and the nature and intensity of services provided as part of the program. In addition to these cost drivers, we also considered the role of the program within the homeless assistance system and time limits for participants. The resulting typologies were tailored to each site. This means that some program types appear in more than one case study, and some appear in only one.

To derive homeless unit costs by program type within each site, we:

1. selected a sample of programs within each type from which to collect unit costs directly;
2. used on-site interviews, review of financial documentation, and extensive follow-up to document total costs for each program, calculated separately for housing operations (including rent, where applicable), supportive services provided as part of the program, administration, and the capital costs associated with facilities owned by the program or donated to the program rather than rented;
3. calculated unit costs (household nightly costs for family programs and bed night costs for single programs) for each program, with and without capital costs included;
4. calculated average unit costs for each program type, weighted by the number of occupied units or beds, and assigned a cost code to each program designating whether its unit costs should be represented by its own actual costs, the costs of another program within the same type that was substantially similar, or the weighted average unit costs of the program type.

Cost Data Collection Strategy

During visits to each of the study sites, we attempted to collect all costs for each sampled homeless program and, sometimes, all homeless programs of a particular type. Costs were collected using a standard data collection instrument that guided probes for information in various cost categories to ensure that all aspects of program operations, services provided as part of the residential program, and program administration were included. We collected information on sources of funding and made sure that the sources and costs balanced, as a check on the total costs. As described in more detail in the section that follows, we also spent extensive effort collecting costs on capital expenditures for program facilities that were paid for or donated to the agency and, therefore, do not appear in the program's operating budget. All homeless costs are based on 2006 program budgets or actual expenses; therefore all homeless program costs are expressed in 2006 dollars.

We collected comprehensive data on costs of programs providing supportive services only while we were on site. We intended to divide the total program figures by appropriate units to derive average unit costs that could be multiplied by each person's actual program utilization. This effort was confounded by two issues—our ability to accurately define units that represented the various types of services offered by each program, and our ability to accurately track individual client-level utilization of service units.

- We found that programs that offered a uniform type of service, such as outreach services, could generally be valued in terms of a contact or hour of client-staff interaction. But multi-service programs, such as drop-in centers, might provide a $2 bus token, utility assistance, case management, healthcare, medication, employment support, or a shower.

Therefore, it was virtually impossible to estimate the value of administering each service type without conducting a thorough time-study of the program.

- Even when we could define units of service and measure their costs, we found that most programs providing only social services did not accurately record service utilization in the community HMIS.

Ultimately, we included only the costs of outreach contacts and only for two case studies, Jacksonville and Houston. Thus, the homeless system costs reported in the case studies should be interpreted as residential homeless program costs. Fortunately, the work we did to inventory programs and collect their costs at each site suggests that there are very few non-residential service programs targeted to homeless people at our study sites and that many of the programs provide modest levels of service. In each case study, we provide information about the extent of missing costs to the homeless services system that may result from not including stand-alone homeless supportive services programs.

Capital Costs

We consider it important to include capital costs for the buildings in which the homeless programs operate as part of the total cost of providing residential services to homeless individuals and families. When facilities are leased in the private market, we can assume that the costs associated with prior or future capital investments are included as part of the lease rate. If the agencies own or are donated the use of the facility, operating costs do not include rent and, therefore, we would capture only part of the facility cost if we did not find another sources of capital cost information.

We collected two types of information on capital costs:

- Costs incurred to construct and rehabilitate buildings, based on administrative records and interviews. We found it very difficult to find complete information, as many of the facilities did not have the records associated with a mortgage loan (e.g., a pro forma). Some were built several decades ago, some were government property, and some were gifts from individuals. In addition to the difficulty of determining original development costs, we found that records of property rehabilitation not reflected in annual operating budgets were difficult for many providers to assemble.
- 2006 property values from tax assessment data. We decided that this was a more consistent and comprehensive way of determining capital costs than historical data on capital expenditures. However, not all communities systematically record the values of tax-exempt properties. We converted all costs to 2006 dollars using the Consumer Price Index less Shelter for the MSA or appropriate region and amortized the total investment over a 30-year period with a three percent inflation rate.

We prorated the resulting capital values to calculate a daily per unit capital cost. However, we found some property values and resulting estimates of daily costs that were not easily explained by the property's size, location, and other characteristics. The scope of the study did not accommodate further econometric analysis to explain and validate the reasonableness of the capital cost component of estimates of daily unit costs.

In this report, we have included capital costs in the daily unit costs for the three sites for which we are most confident about the validity of the cost estimates, either because many of the programs pay

market rents for the facilities they use or because of the quality of the tax assessment data. For Jacksonville, Upstate South Carolina, and Des Moines, our cost analysis incorporates estimates of all capital costs in the costs reported for the homeless services system.

Homeless System Costs for Each Household in the Study

Homeless system costs were calculated for each household in the study sample based on the following formula, where LOS represents that household's length of stay in the specified program:

$$\text{Homeless System Costs for each Household} = \begin{array}{c} \text{Program Stay 1 LOS} \times \text{Program 1 Unit Cost} \\ + \\ \text{Program Stay 2 LOS} \times \text{Program 2 Unit Cost} \\ + \\ \text{Program Stay n LOS} \times \text{Program n Unit Cost} \end{array}$$

We calculated utilization statistics and total, mean, and percentile values of homeless system costs for the study cohort and for selected subgroups within the cohort. Thus, these costs reflect the actual costs associated with participation of the study cohort in residential homeless programs. The costs are represented in the case studies as homeless system costs "during homelessness," although it is important to note that the costs may be spread across an extended period in which there are days or months during which the individual or family was not being served by residential homeless programs, which we refer to as "gaps." Some of these gaps may result from incomplete HMIS data, but, since we deliberately targeted communities with high rates of HMIS participation, they most probably represent the intermittent use of homeless residential services by many individuals and families. More extensive discussion on the time periods used to present the findings is provided in Section 2.5.4.

Identifying Common Groups of Homeless System Users (Path Groups) and Calculating their Costs and Characteristics

Analysis of "path" groups, or groups of users who share similar patterns of homelessness, is an area in which this study breaks new ground. For each of the case studies, we analyzed the pattern of program stays for individual households and used cluster analysis to group households with similar patterns of homeless system utilization. We refer to this process as the path group analysis.

We based the path group analysis on four types of information about the person's homeless system use:

- types and sequence of homeless programs used (sequence categories);
- number of program stays;
- duration of Program Stays (cumulative days across all stays); and
- gaps between programs stays (cumulative days across all gaps).

To develop the sequence categories we created a sequence analysis file, which reports the program type sequences used by each client and aggregates like sequences. Three or four members of the study team independently grouped the sequences into similar "sequence categories" and then worked together to develop consensus sequence categories. The sequence categories became one variable used in the multivariate cluster analysis. We then applied multivariate cluster analysis to derive the

path groups based on the four variables listed above.[9] We did not determine in advance the number of path groups desired. For each site, we reviewed various analytical outputs, and chose the model that resulted in the most coherent clusters with sufficiently sized path groups. Thus, the number of clusters varied across sites. Finally, we assigned a Path Group ID to each of the client records in our research database to make possible the analysis of costs and demographics by path group.

Extracting Mainstream Service Utilization Data for the Study Population

We used the mainstream data to estimate the mainstream system costs associated with our study population that were incurred anytime from 12 months prior to each household's homelessness (Household Start Date) through December 31, 2006. In Kalamazoo, the study period began and ended six months later, so mainstream data collection ended on June 30, 2007. We analyzed mainstream costs for three time periods:

- *Prior to Homelessness:* 12 months prior to Household Start Date through Household End Date
- *During Homelessness:* Household Start Date through Household End Date
- *Following Homelessness:* Household End Date through December 31, 2006 (June 30, 2007, in Kalamazoo).

For example, if someone experienced homelessness from July 15, 2004 through November 30, 2004, the time periods for the mainstream service utilization were:

- Prior to homelessness: July 15, 2003 – July 14, 2004
- During homelessness: July 15, 2004 – November 30, 2004
- Following homelessness: December 1, 2004 – December 31, 2006
- Full period: July 15, 2003 – December 31, 2006

Costs following homelessness represent mainstream costs incurred after the household's last exit from the homeless system during the 18-month period in which we tracked homelessness and any costs incurred after the 18-month period. Mainstream costs were calculated for each timeframe for each individual and summed into master household totals.[10]

The steps used to match HMIS data with mainstream service data and calculate mainstream costs were:

1. **Finder File.** We produced a finder file for each study site that we provided to each agency to use to identify people in our study who used the mainstream system.
2. **Agency Services Information.** We worked with the mainstream system administrator or mainstream agency contacts to document general agency information, types of agency services provided, and the unit or costs of client services and allocated client benefits.

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[9] The study team used a cluster analysis algorithm that can handle both continuous and categorical variables (Chiu, Fang, Chen, Wang & Jeris, 2001; Zhang, Ramakrishnon & Livny, 1996).

[10] In Washington, D.C. we only received information on whether households received any services in specified domains at any time. The time period for these results was from July 2003 through July 2008.

3. **Matching Client Records.** Either Abt or the mainstream system administrator matched client records in the mainstream database(s) to clients in the finder file. Once shared records were identified, mainstream records associated with these individuals were extracted for the full study period.
4. **Client Service Utilization**. Depending on whether client-level data could be released to Abt, either Abt or the mainstream system administrator analyzed mainstream service utilization data and generated standard mainstream table shells for pre-, during, and post-homelessness and the full study period by path group and by specified demographics and household variables. These were used as the basis for the case study reports.

Analyzing Homeless and Mainstream Costs

To calculate total costs associated with homelessness in each site, we started by summing homeless and mainstream costs for each individual or family for each period and then aggregated the costs across time periods and households to convey the costs associated with a particular group of homeless individuals or families in the study cohort.

$$\textit{Costs associated with Homelessness} = \textit{Total Costs incurred by the Homeless System} + \textit{Total Costs incurred by Mainstream Systems}$$

Most of the analysis reported in the case studies shows household medians and averages and total costs for specific domains during the periods before, during, and following homelessness. However, members of the study cohorts spent varying amounts of time homeless and, therefore, had shorter or longer periods following homelessness, as well as varying amounts of time homeless, and this can make the cost estimates misleading. For example, if Medicaid costs are lower for the study population during homelessness than after homelessness, one might assume that people become disconnected with mainstream medical care during homelessness. However, if the period of homelessness averages three months and the period after homelessness averages fifteen months, the difference in costs may just reflect that the households had longer time period in which to incur costs following homelessness. We addressed this issue by calculating time-adjusted average monthly household costs for each period and group to allow for meaningful comparison of costs associated with different time periods and across groups that may have varying lengths of homelessness.

Multivariate Analysis of Determinants of Costs

To examine how demographic characteristics and patterns of homelessness are related to costs, the study team used a multivariate analysis technique called multiple regressions. Multivariate analysis is useful because it allows us to identify the *independent* impact or effect of each variable of interest on costs, while holding all other variables constant. This analysis helps us to answer questions, such as:

- Which demographic factors are associated with higher costs, after controlling for the duration of homelessness and path groups?
- Everything else being equal, what is the relationship between the duration of homelessness and total costs incurred? What is the relationship between the duration of homelessness and total mainstream costs?

- Which path group tends to incur the highest costs, holding the demographic variables constant? Which path group tends to incur the lowest costs?
- Is there a correlation between mainstream system costs and homeless costs?

To conduct the multivariate analysis, we developed regression models to explain homeless system costs. The explanatory variables used in the models included:

- homeless path group or path group constituent variables (length of stay, number of stays, and length of gaps);
- gender (individuals sites only);
- race (individuals sites only);
- age (individuals sites only);
- number of adults (family sites only);
- number of children (family sites only); and
- changes in household composition (family sites only).

A central research question for this study is the relationship between homeless paths (e.g. groups of people who use the system in similar ways) and costs. Thus, homeless path group was used as an explanatory variable. However, we were also interested in gaining a more nuanced understanding of the impact of cumulative length of homeless stays, number of homeless stays, length of gaps between stays, and types of programs used. These two analyses could not be done in the same model, since the path group variable was derived from the variables on homeless patterns. Thus we ran two families of models related to homeless costs, one set using the path group variable itself, and another using the three independent variables related to patterns of homelessness.[11] Within each family of models, we layered different combinations of the independent variables to understand their relative influence.

For Houston and Jacksonville, the sites in which we had access to client-level mainstream data, regression models were also developed to explain the variations in total homeless system and mainstream costs per household. Separate models were estimated for the following categories of costs:[12]

- total costs (total homeless costs + total mainstream costs);
- total homeless costs;
- total mainstream costs;
- specific mainstream costs

[11] A fourth variable used in the cluster analysis, program sequences, was not included.

[12] The study team used the logarithm (log) scale of the costs as the dependent variable. The log specification is commonly used in the cost modeling literature. It has a number of appealing characteristics. First, the estimated model coefficients can be interpreted as percentage changes in the dependent variable for a 1-unit change in the explanatory variable. Second, it implies non-linearity and joint determination of the cost level by all the explanatory variables in the model. Third, the specification mitigates a common form of heteroskedasticity in the model's error term (Wooldridge, 2001). One exception is that, for regression models developed for the mainstream domain costs in Jacksonville, we used the cost amounts in their original metric.

To measure the relationship between these categories of costs and homelessness, three families of models were developed to separately test independent variables for 1) homeless path group, 2) the four variables related to patterns of homelessness, and 3) homeless system costs as an independent variable and excluding path group variable and the four variables related to patterns of homelessness. The models also included versions with and without covariates for involvement in mainstream domains. For instance, the model for criminal justice measured whether people who had received mental health treatment (as well as the other mainstream systems) were associated with higher criminal justice costs, when controlling for the other independent variables.

2.6. Cross-Site Analysis

The cross-site findings presented in this report are the result of two analytical approaches. First, we synthesized the findings from the separate case studies and identified common themes as well as salient differences that emerged among the various sites. Second, we integrated data across sites into a combined cross-site cohort dataset and analyzed the records using multivariate regression analysis, adding a dummy site variable to model the influence of site differences. In some cases, we also had to standardize the variables that diverged across sites prior to creating the cross-site dataset. The latter analytical approach was only possible for analysis of the homeless system patterns and costs, which were gathered consistently across all sites. It was not possible to conduct a similar analysis of mainstream costs, since we were unable to collect client-level mainstream costs in most sites and since the mainstream domains obtained differed from one site to another.

The steps for the cross-site multivariate analysis are described in more detail below.

Standardization of Variables

While an important part of the case studies was to generate both program and path typologies that were tailored to the site and household type, for the cross-site analysis, we re-categorized these typologies using the generic groupings of emergency shelter, transitional housing, permanent supportive housing, and non-residential program types. For example, in Houston, we originally categorized individual emergency shelters as either short-term shelter or extended stay shelters. In Jacksonville, the distinction between overnight shelters and 24-hour shelters was a more important typological distinction. For the cross-site analysis, these programs were all re-categorized as "Emergency Shelter." The "non-residential type included outreach programs as well as programs that were involved in direct placement of clients into mainstream housing with a short rental subsidy and case management.

For each individual or family, we then created a program type use variable, based solely on which of these general program types the household used. The basic groupings created were as follows:

- cohort members using emergency shelter only;
- cohort members using transitional housing only;
- cohort members using emergency shelter and transitional housing only; and
- cohort members using any other combination of program types.

The last combination included households that were served by non-residential programs as well as those served by permanent supportive housing. Unlike the path groups used in the case studies, these

groupings were not based on cluster analysis and did not account for length of stay, number of stays, or gaps, or the sequence in which households used the particular programs. However, these other factors (except sequence) were re-introduced as variables in the cross-site multivariate regressions.

Finally, we ensured that the data were comparable across sites. This was particularly necessary for Washington D.C., which used a 30-month study period instead of an 18-month study period. In order to compare Washington, D.C. data directly to the other sites, we re-analyzed the patterns of the Washington, D.C. cohort, and incorporated only the data on costs, length of stay, number of stays, and gaps that were incurred during each family's first 18-months.[13] In addition, the Washington D.C. cohort included 87 families that only used a program that placed families into mainstream housing. These families were excluded from the cross-site analysis, since they were never literally homeless, and this program did not have equivalents in other sites.

Cross-site Multivariate Analysis

We conducted two sets of additional regressions to support the cross-site analysis. One set of analyses was conducted for the four family sites, and another set of analyses was conducted for the three individual sites. Models were developed to explain two outcome variables: length of homelessness and homeless system costs.

These regressions used the same variables that were used to understand site-specific correlations (see section 2.5.5), with the exception of homeless path group, which was not comparable across sites. Instead, the models included the new program type use variable, as well as the length of stay, number of stays, and gap days. Each model in the cross-site regressions also included a variable for the site to control for differences in program costs across communities. Also, the family sites incorporated demographic data that were not used on the case study level, including gender of adults in households, race of head of household, age of head of household, and age of youngest child. Follow-up analyses were also conducted to address additional questions that arose:

- For families, we modeled the relative risks of households falling into one or other of our program type use categories, based on the explanatory variables.
- For individuals, we modeled the impact of the explanatory variables on number of stays, and another model to explain the cumulative length of gaps between homeless stays.

2.7. Limitations of the Study

Although this study of the costs associated with homelessness paves new ground and provides important findings in many areas, the results of this study also have several limitations.

Perhaps most importantly, the study does not attempt to isolate which of the mainstream costs are caused by homelessness, and it does not compare the benefits of different programs with the costs of their use. Thus, the study is not a cost-effectiveness study and is most accurately characterized as a study to measure the costs associated with homelessness, rather than the costs of homelessness.

[13] We did not re-generate information on changes in household composition, which might have occurred after the first 18 months.

Specific limitations of our methodology include the following:

1. The study does not include homeless or mainstream system costs associated with individuals or families who may have experienced homelessness but who were not entered into the HMIS.
2. The study explicitly excludes households that were served by residential domestic violence providers at any point during their homelessness.
3. The estimates of costs to the homeless system do not reflect costs associated with the programs that do not report data to the HMIS.
4. Some capital costs are missing, as noted in Section 2.5.2.
5. Mainstream costs are limited to the domains for each case study listed in Section 2.4.3.

For all of these reasons, the estimates in this study may underrepresent costs associated with homelessness in our study sites.

Further, real world data is "messy." The reliance on administrative data rather than direct data collection requires both trusting in the validity of the data entered by local system users and confronting inevitable gaps in data completeness. The actual data includes numerous data fields that were left blank and others that were inaccurate. Missing or inaccurate information in identifying fields, such as name, social security number and date of birth, inhibited our ability to match records within the HMIS itself in order to construct a complete homeless path or even to determine whether a client met the basic criteria for inclusion in the cohort. It also hampered our ability to match data with mainstream domains. Missing program exit dates was a frequent occurrence and affected our ability to precisely calculate length of stay, which is a critical part of determining homeless system costs as well as establishing the period of homelessness itself.

While we used state-of-the-art tools and statistical techniques to compensate for data entry shortcomings, such as using probabilistic record matching to link client records and hot-deck imputation to fill in missing exit dates, these techniques are only as accurate as the original input and decline in validity as the proportion of available data declines in relation to the missing data. Finally, not all of the data administrators of mainstream systems were able to use Link-King, which supports advance record-matching algorithm. In these cases, a more direct, deterministic record matching approach was used, which may have led to an undercount in the number of matches found.

3. Homeless Program Costs

This chapter reports on the costs of residential programs for homeless people across the six study communities. Little has been documented nationally about the program budgets or daily costs of providing different types of homeless programs. Estimates for homeless programs used in other studies of the costs of homelessness have been based primarily on levels of reimbursement available from public agencies. For this study, homeless program costs are based on actual budgets collected from examples of different types of residential programs in each of the case study sites.[1] Using actual program costs provides a more detailed understanding of the variation in costs across homeless programs. It also provides insight on the main cost components of homeless residential programs: operations, services, administration, and in some cases capital investments in facilities owned by programs.[2]

This chapter discusses daily program costs by program type within our study sites, starting with program costs for individuals and followed by a discussion of program costs for families. Within each section, the costs per person per day are discussed in two different ways:

1. *Community costs*: average daily costs for all programs types in the community for which we collected cost data, ***weighted by program size***; and
2. *Cohort costs:* average daily costs for the program types ***as they were used by the study cohort***.

The distinction is subtle but important. The average costs per day weighted by program size represent the costs of the sample of programs for which we collected costs at each site weighted by the typical number of individuals or families using the program each day.[3] These average costs fulfill the interest in the field in understanding the cost per day of different types of homeless programs. They also allow us to compare the variability of costs from one community to another. However, community weighted averages do not reflect the way the study cohort used the various programs. Averages weighted by program size assume that households use each program in proportion to its size.[4] In contrast, the average cost per day for members of the study cohort reflects the actual levels of use of each program by the cohort. For example, if the study cohort used more expensive

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[1] Daily unit costs were calculated by taking a program's 2006 annual budget, divided by 365 days to get the average daily cost of the program and then divided by the average number of occupied units per day to arrive at the average daily cost per unit. See Section 2.5.2 for a detailed discussion of the methodology. Homeless program costs are expressed in 2006 dollars.

[2] To explore the relative value and influence of capital costs for programs that owned their own properties (and therefore invested real or in-kind resources to build, acquire and/or rehabilitate them), capital daily cost estimates were developed for the Des Moines, Jacksonville, and Upstate South Carolina case studies.

[3] The sample was selected to achieve an understanding of the costs of each homeless program type operated in each community; however, the average costs are not statistically representative of all homeless programs within each the community.

[4] For example, assume that a community has one 10-unit and one 90-unit emergency shelter. The weighted average assumes that if the cohort spends ten days in emergency shelter, one day will be spent in the 10-unit program and nine days will be spent in the 90-unit program. In practice, members of the study cohorts did not use programs according to these proportions.

emergency shelter programs extensively, then the cohort's average costs per day are higher than the weighted averages for all programs for which we collected data, and vice-versa.[5]

As we discuss throughout this report, the cost findings illustrate the powerful influence of variation in costs among particular programs, as well as variations in costs among types of programs.

3.1. Homeless Program Costs for Individuals

We identified three primary types of homeless residential programs for individuals in Des Moines, Houston, and Jacksonville: emergency shelter, transitional housing, and permanent supportive housing. Sometimes we went beyond this three-part classification and created further categorizations based on the "housing model"—the type of residential space provided or amount of time an individual was expected to spend in the program.

The average cost per day is shown for each program type within each site in Exhibit 3.1. Overnight emergency shelter has the lowest cost per day, typically offers the fewest services in the least private settings, and is often open only during evening and nighttime hours. Transitional housing is generally an expensive model and frequently offers individual room or apartment settings and a range of supportive services. In Houston, Extended Stay Emergency Shelter, in many respects very similar to transitional housing but with shorter intended lengths of stay, has slightly higher costs than transitional housing. Permanent supportive housing also generally offers private living space and supportive services. Providers who operate it indicate that residents are offered services equivalent in intensity to or even greater than services offered in transitional housing; however, in most cases, we found that permanent housing programs arrange for residents to receive services directly from mainstream systems.[6] Services paid for by permanent supportive housing programs directly appear to be limited to housing-focused services and basic case management. As a result of this structure, permanent supportive housing programs do not have to secure resources to fund these services directly, and the costs are on average comparable to the less expensive 24-hour emergency shelter programs *from the perspective of the homeless system*. Scattered Site Permanent Supportive Housing has higher costs than transitional housing in Houston primarily due to the costs of leasing private apartments.[7]

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[5] If we did not directly collect costs from a program, we used the costs of another program within the same type that was substantially similar. If there was no substantially similar program, we used the weighted average costs of the program type.

[6] Because these clients receive services that they would otherwise be eligible for and could continue to receive these services if they moved to alternative housing, we did not include this cost as part of the housing program. Although the resident may be enrolled in this service as a direct result of being accepted into the housing, anecdotally we heard that clients moving into PSH are already enrolled in mainstream care and may even be referred to the permanent supportive housing by their mainstream providers. Our analysis of PSH client enrollment in mainstream services, reported in Chapter 4, is consistent with this assertion. Services paid for with the program budget and those dedicated to the project are accounted for in the program daily costs, when possible.

[7] The Houston site does not include the daily equivalent value of capital investments. Therefore, the daily costs of facility-based programs may under-represent the housing operations costs in comparison to programs that lease space in the private market.

Exhibit 3.1 also presents the proportion of costs spent for housing operations, services, agency overhead, and the daily cost equivalent of capital investments for programs that are operated in a facility owned by the agency. When facilities or individual housing units are leased, the capital costs are reflected in the housing operations budget.

Exhibit 3.1: Average Cost Per Person Per Day of Homeless Residential Programs Serving Individuals by Program Type and Site [a]

Site – Program Type	Housing Model	Average Cost Per Person Per Day[b]	Housing Operations	Supportive Services	Agency Overhead	Capital Costs[c]
Des Moines						
Emergency Shelter	Congregate	$19	$8 (42%)	$9 (44%)	$2 (9%)	$1 (5%)
Transitional Housing	Shared Rooms	$34	$11 (33%)	$14 (43%)	$7 (20%)	$1 (4%)
Transitional Housing	Individual Rooms	$50	$17 (34%)	$11 (21%)	$7 (13%)	$16 (31%)
Permanent Supportive Housing	Shelter Plus Care	$18	$17 (94%)	< $1 (2%)	< $1 (4%)	$0 (0%)
Houston						
Emergency Shelter	Short Stay	$28	$7 (25%)	$17 (60%)	$4 (15%)	
Emergency Shelter	Extended Stay	$61	$14 (23%)	$27 (44%)	$20 (33%)	
Transitional Housing	Facility-based	$55	$16 (29%)	$30 (55%)	$9 (16%)	
Permanent Supportive Housing	Facility-based	$22	$14 (64%)	$5 (25%)	$3 (12%)	
Permanent Supportive Housing	Scattered Site	$59	$31 (52%)	$18 (31%)	$10 (17%)	
Jacksonville						
Emergency Shelter	Overnight	$14	$7 (54%)	$3 (25%)	$1 (8%)	$2 (13%)
Emergency Shelter	24-hour Shelter	$32	$22 (70%)	$5 (16%)	$5 (14%)	$0 (0%)
Transitional Housing	Facility-based and Scattered Site	$29	$13 (46%)	$11 (37%)	$4 (15%)	< $1 (2%)
Permanent Supportive Housing	SRO, Facility-based and Scattered Site	$29	$14 (48%)	$9 (30%)	$2 (7%)	$4 (14%)

[a] *Costs represent the average across programs within each type, weighted by the typical number of individuals served in each program each day. Costs only represent homeless system costs and do not include the value of mainstream system costs that may be incurred while individuals or families reside in these programs.*

[b] *Total weighted daily unit cost may not equal the sum of the budget component estimates due to rounding*

[c] *Capital costs were available for Jacksonville and Des Moines, but not for Houston.*

More expensive programs generally have higher costs across all budget categories. Higher costs of housing operations may reflect more supervision when comparing an overnight program to a 24-hour program, or increased private space and smaller program capacity (i.e., decreased economies of scale) when comparing transitional and permanent supportive housing programs to emergency shelters. Often more expensive programs provide more services to clients, in the form of either lower case loads or a broader range of services. Agency overhead costs frequently are higher in more expensive programs, again in part due to smaller program capacity and associated decreases in economies of scale. It also appears that many of the more costly programs have higher management and overhead expenses and may be operated by agencies that have a professional management structure. As the

break-down of costs in Exhibit 3.1 shows, the higher cost of transitional housing is generally driven by higher costs across all areas: housing operations, services, overhead, and capital costs.

Often cost differences reflect idiosyncratic features of particular programs. Nonetheless, there are trends in costs by program type that appear to be tied to the programmatic and physical requirements of the different program types. As we discuss in Chapter 4, transitional housing that is used by the study cohort of homeless individuals is consistently more expensive than emergency shelter used by the cohort. Multivariate analysis that controls for other cost drivers shows that individuals who use transitional housing, or transitional housing in combination with emergency shelter, have costs more than double costs of individuals who only use emergency shelters.

3.1.1 Monthly Program Costs and Local Costs of Housing

Exhibit 3.2 shows the average costs per month for each program type in each community compared to HUD's Fair Market Rents (FMRs) for a one-bedroom unit in the same community. The FMR is one way to quantify the value of a rental subsidy for a month.

Exhibit 3.2: Average Cost Per Person Per Month for each Homeless Program Type for Individuals and FY2006 One-Bedroom Fair Market Rents[a]

	Emergency Shelter	Transitional Housing	Permanent Supportive Housing	2006 Fair Market Rent for One-bedroom Unit[b]
Des Moines	$581	$1,018 – $1,492	$537	$549
Houston	$853 - $1,817	$1,654	$664 – $1,757	$612
Jacksonville	$408 - $962	$870	$882	$643

[a] *Costs shown reflect weighted averages by program type. Ranges represent the averages of different housing models within a program type, also shown as daily costs in Exhibit 3.1.*

[b] *FMR Source: HUD, 2005. The FMR does not include the monthly fee paid to a public housing agency for administering the voucher program, which was approximately $58 per unit per month in these three communities. (HUD, 2007)*

In Chapter 4 we discuss average and median lengths of homeless program stays and report that the majority of individuals who become homeless in each of the three study sites use homeless programs for considerably less than one month. However, for individuals who do use homeless programs for longer than one month, the monthly figures provide a way to compare the cost of the assistance that is being provided by these programs to a rent subsidy. The FMRs are much more similar across the three sites than the average homeless program costs per month, reflecting in part the great variability from site to site in what is provided within each homeless program type and how it is provided. Except for overnight emergency shelters in Jacksonville and permanent supportive housing in Des Moines, the FMR is lower than the monthly costs of all types of homeless residential programs in these communities. The sections below describe each program type, the costs associated with providing it, and the extent to which programs are providing both shelter and supportive services to clients—in contrast to the Fair Market Rents, which represent only the cost of housing.

3.1.2 Emergency Shelters for Individuals

All three sites provide emergency shelter for individuals, primarily in large facilities with congregate sleeping arrangements, communal meals, and short expected lengths of stay. Jacksonville has two

models of shelter: overnight shelter and 24-hour shelter. The overnight facilities offer minimal assistance (a hot meal, a cot, and chapel services) and often limit the number of consecutive nights clients can stay. For example, one overnight shelter allows three free nights per month and then charges $5 per night. Although overnight shelters are not very large, they serve more people than other program types because they have the highest turnover rates. Jacksonville's 24-hour emergency shelter has continual supervision, on-site supportive services, and no explicit limits on length of stay. Des Moines' emergency shelter beds are similar to Jacksonville's 24-hour shelter model. Houston also has two models of shelter, referred to in this study as Short-Stay Emergency Shelter and Extended Stay Emergency Shelter. The short-stay programs serve either single men only or single women alongside women with children. Short-stay shelters offer beds, food, and assistance in moving clients back into housing as quickly as possible. The shelters for men are overnight shelters. One of them allows clients to stay for free for up to 8 nights a month and then begins charging a nightly fee. The women's short-stay shelters have 24-hour staffing and allow stays of up to 90 days.

The category that we refer to as Extended Stay Emergency Shelters offers a rich variety of supportive services and accommodates stays of 3 to 6 months. Extended stay shelters provide clients a greater level of privacy and have a wider array of services than the shorter-stay model, in many ways paralleling the environment and programming provided at a transitional housing program but with the expectation of shorter stays. Programs in this category are primarily targeted to women with a history of substance abuse.

Exhibit 3.3 reports the average cost per person per day, the range of costs per day across programs within each program type at each site, and the average cost per day of each program type as it was actually used by the study cohort.

Exhibit 3.3: Average Cost Per Day of Emergency Shelter for Homeless Individuals

Site	Housing Model	Average Cost Per Person Per Day	Range of Costs Per Person Per Day[a]	Average Cost Per Day As Used By The Cohort
Des Moines	Congregate	$19	$19	$19
Houston	Short Stay	$28	$19 - $73	$36
Houston	Extended Stay	$61	$31 - $85	$67
Jacksonville	Overnight	$14	$14	$14
Jacksonville	24-hour	$32	$32	$32

[a] *If only one number is provided, costs were only collected from one program.*

While emergency shelter costs are generally low, they are quite varied. Overnight and short-term emergency shelters have relatively low daily costs. In Jacksonville, the overnight emergency shelter has a cost of only $14 per day. Des Moines' congregate shelter program is provided for $19 per day. Jacksonville's 24-hour shelter serves both singles and families and has a daily cost more than double the cost of the overnight emergency shelter, $32. Houston's short-stay programs have a similar average daily cost, $28, although costs ranged from $19 per day to $73 per day depending on the program. Houston's extended stay shelter model has a cost almost triple the daily cost of the short-stay shelters, $82. The lower cost emergency shelter programs all have high capacity (more than 100

beds) and are able to achieve significant economies of scale that are not achievable with programs that have only 20 to 40 beds.

Single women are frequently served in shelter programs that also serve families and that also have much higher daily costs.[8] A single agency in Houston operates a short-stay program for single men and another program for families and single women. The shelter for men, a large facility with more than 300 beds, operates at a daily cost per person of only $19, compared with $73 for the program for families and single women. Half (51 percent) of the $54 difference in cost can be attributed to services, for which the agency spends $40 per single woman compared with $13 per single man. But the program also spends $26 more per night for single women on housing operations and agency overhead, since the women and families program provides more privacy and individual space and there are fewer units in the facility over which to prorate fixed housing operations and agency overhead costs.

Exhibit 3.3 also shows that the average daily cost of emergency shelter in Houston as it was actually used by members of the study cohort is higher than the cost per person per day weighted by program capacity. This means that individuals in the study cohort of first-time homeless individuals used the expensive programs slightly more than the less expensive programs within each category.

3.1.3 Transitional Housing Programs for Individuals

Transitional housing programs serving single adults in our study sites are offered in both facility-based and scattered site settings. Of the programs we examined, those designed exclusively for single adults use a facility-based model, whereas programs that serve families with children or both families and single women use both models. In the facility-based model, clients are housed in a single building or a campus of buildings owned or leased by the program. In the scattered site model, households are placed in independent apartments located in larger complexes where most of the buildings' tenants are not homeless. The difference in privacy and independence associated with scattered site transitional housing (which was offered for single women but not for single men in our study sites) may contribute to longer lengths of stay for single women. And since single women were often served in more expensive programs that were designed to accommodate families, their associated costs were also higher when compared with single men in the study cohort, as we discuss in Chapter 4.

Most transitional housing programs offer supportive services, including case management, assistance in securing benefits, and job training. In Jacksonville, many of the transitional programs screen out persons who are actively using drugs or alcohol and cite employment, sobriety, and obtaining permanent housing as their primary program goals. By contrast, most programs in Houston target persons with substance abuse histories. One large program targets tuberculosis patients who are in recovery, and another serves persons with HIV/AIDS. Several transitional programs in Houston serve only women.

Des Moines has two models of transitional housing: one with individual rooms or apartments and another with shared rooms. The facilities used by the programs with individual rooms are large

[8] This is an important point that is discussed in more depth in Chapter 4, since we find that, even when patterns of homelessness such as lengths of stay are controlled for, single women are associated with substantially higher costs than single men, implying that women use more expensive programs.

buildings in downtown Des Moines, some of which are valuable properties. This has implications for the programs' daily costs per person, since we included a daily cost equivalent of capital infrastructure in the estimates for Des Moines. Programs providing transitional housing with shared rooms generally are group homes and have a completely different housing and capital cost structure. They target homeless people with particular types of need. Three of the five programs in this category serve people who are homeless and have a history of incarceration and, therefore, a need for specialized services that help to address barriers imposed by a criminal history and to mitigate behavior that may lead to reincarceration. Another is a program for veterans operating within an emergency shelter building but with more privacy, longer lengths of stay, and extensive client services funded by the Veterans Administration. The final program is targeted to homeless men recovering from substance abuse.

Exhibit 3.4 shows the range of daily program costs for transitional housing within each site and compares average program costs per day overall with the costs of the programs as they were used by the study cohort.

Transitional housing has the highest program cost per person per day across the three residential program types in Des Moines ($46) and Houston ($55). In Jacksonville, the cost of transitional housing ($29 per person per day) is comparable to the cost of the 24-hour model of emergency shelter. As shown earlier in Exhibit 3.1, approximately half of the costs of transitional housing are expended for housing operations and agency overhead, ranging from 45 percent in Houston, to 57 percent in Des Moines, to 61 percent in Jacksonville. In Houston, where we are unable to include the daily cost equivalent of capital investments, services account for 55 percent of costs, whereas services represent only 26 percent in Des Moines and 37 percent in Jacksonville. The remaining 2 percent in Jacksonville and 25 percent in Des Moines represent the daily equivalent capital costs of transitional housing facilities owned by the agencies. Since many of the transitional housing programs identified in Houston were facility-based, the proportion of costs for both housing and services would be lower if capital costs were included.

In Des Moines, the two types of transitional housing have quite different cost structures due to their different models and locations. The combined housing and capital daily equivalent cost of the private room model ($32.62) is more than 2.5 times that of the shared model ($12.58), primarily due to the high value of the properties in which the private room model operates. The supportive services cost for the shared room model, which targets special populations, is 37 percent higher ($14.46 versus $10.55), offsetting some of the differences in facility-related costs. The cost of administration (~$7) is approximately the same for both models. The net cost of the private room model is 47 percent higher than the shared room model, a result that affects the average cost of transitional housing as used by the study cohort in Des Moines, since the private room transitional housing model was used for 35 percent more total days than the shared room model. (The number of days used is not shown in the exhibit.)

Within each type of transitional housing program in Des Moines, the study cohort used lower cost programs somewhat more extensively than higher-cost programs. Since many programs in Des Moines were targeted to special needs populations, the actual program use and resulting costs may reflect the extent to which the study cohort met various eligibility requirements. In Houston and Jacksonville, the study cohort used the more expensive transitional housing programs more often than the less expensive ones. This could reflect the fact that higher cost units often offer more privacy and are more attractive to residents, thereby resulting in longer lengths of stay and higher utilization.

Exhibit 3.4: Average Cost Per Day of Transitional Housing for Homeless Individuals

Site	Housing Model	Average Cost Per Person Per Day	Range of Costs Per Person Per Day	Average Cost Per Day As Used By The Cohort
Des Moines	Shared Room Transitional Housing	$34	$10 - $80	$28
Des Moines	Individual Room Transitional Housing	$50	$22 - $204	$43
Houston	Transitional Housing	$55	$19 - $144	$65
Jacksonville	Transitional Housing	$29	$13 - $46	$31

3.1.4 Permanent Supportive Housing for Individuals

Permanent supportive housing provides indefinite housing assistance and supportive services to residents, directly or guaranteed based on formal relationships with mainstream providers. Permanent supportive housing in the three study sites is commonly offered in both facility-based and scattered site models. Houston has made a considerable investment in permanent supportive housing. These units are almost evenly split between facility-based and scattered-site programs. The biggest provider of supportive housing units targets persons with HIV/AIDS. Houston also has large permanent supportive housing programs for disabled veterans and individuals with severe mental illness. The only permanent supportive housing program serving individuals in Des Moines is a Shelter Plus Care (S+C) program providing subsidies for homeless people with disabilities who rent private market units. Under agreements with several providers of mental health and substance abuse services, a local non-profit sponsor of affordable housing make slots in the S+C program available to clients referred by those agencies.

While permanent supportive housing is generally limited to persons with a chronic disability that inhibits independent living, the majority of permanent housing units considered part of the residential system for homeless individuals in Jacksonville are Section 8 Moderate Rehabilitation Single Room Occupancies (SROs). Unlike permanent supportive housing, these programs do not exclusively serve persons with disabilities, although local providers said that most residents do have disabilities. Aside from meals, these permanent housing SROs do not include on-site supportive services. Services are provided through formal relationships with mainstream service providers and by referral. Jacksonville also has some permanent supportive housing programs that offer more intensive on-site supportive services.

In all three of the study sites for individuals, the cost per person per day of permanent supportive housing is less than or equal to the cost of transitional housing, with the exception of the scattered site permanent supportive housing model in Houston, which has slightly higher average costs per day (Exhibit 3.1). The cost of permanent supportive housing averages $18 per day in Des Moines and $29 per day in Jacksonville. In Houston, the cost is $22 per day for facility-based housing and $59 per day for scattered site housing. Because most services are delivered by mainstream agencies that residents are otherwise eligible for (and would be eligible to continue to receive if they moved to alternative housing), we did not include the costs of mainstream services as part of the permanent supportive housing program cost estimates. Although the resident may be enrolled in this service as a

direct result of being accepted into the housing, anecdotally we heard that clients moving into permanent supportive housing already are enrolled in mainstream care and may even be referred to the housing by their mainstream providers. Our analysis of enrollment of users of permanent supportive housing in mainstream services (reported in Chapter 4) is consistent with this premise. Services paid for within the program budget or otherwise dedicated to the project are accounted for in the program daily costs to the extent possible.

Martha Burt conducted two self-report surveys (2004 and 2007) of more than 90 permanent supportive housing providers that enable us to place these costs in context. The surveys were part of a multi-year study of the Taking Health Care Home evaluation for the Corporation of Supportive Housing (Corporation for Supportive Housing [CSH], 2005; CSH, 2008).[9] These programs housed primarily individuals with chronic patterns of homelessness and used mainly facility-based models. From the 2007 survey, Burt reports costs averaging $46 per unit per day, with housing costs of $27 and services costs from all sources of $19. These costs are higher than the estimates of the average cost per person per day presented in Exhibit 3.5 for permanent supportive housing in Des Moines and Jacksonville, and for facility-based permanent supportive housing in Houston. These lower overall costs in the study sites reflect lower services costs, but also lower housing operations costs, as shown in Exhibit 3.1. Perhaps the programs surveyed in the Burt study are more comparable to properties in this study with costs at the higher end of the ranges shown in Exhibit 3.5.

Exhibit 3.5: Average Cost Per Day of Permanent Supportive Housing Programs for Homeless Individuals

Site	Housing Model	Average Cost Per Person Per Day	Range of Costs Per Person Per Day[a]	Average Cost Per Day As Used By The Cohort
Des Moines	Scattered Site	$18	$18	$18
Houston	Facility-based	$22	$13 - $69	$54
Houston	Scattered Site	$59	$35 - $80	$47
Jacksonville	Scattered Site and Facility-based	$29	$21 - $41	$24

[a] *If only one number is provided, costs were only collected from one program.*

Another analysis, conducted by Abt Associates Inc. (2005) for HUD, reviewed the costs of permanent supportive housing projects serving individuals with a history of chronic homelessness. That cost review also found lower costs than the Burt survey. The Abt Associates analysis was based on program budget data collected on-site and included costs of services unless we concluded that they were mainstream costs readily available to all people with qualifying conditions regardless of their homelessness. That study found average daily costs per person of $21 for older facility-based models (62 percent for housing, 38 percent for services), $22 for newly developed properties (46 percent for

[9] This information was self-reported in response to a survey and not based on direct examination of program budget documents. Some survey respondents reported that they were unable to include costs reimbursed by certain mainstream systems, such as Medicaid.

housing, 54 percent for services), and $40 for scattered site models (57 percent for housing, 43 percent for services).[10]

The comparison of average costs per day with the costs per day actually incurred by the study cohort within each site (Exhibit 3.5) again illustrates how client-specific or systemic decisions that determine who uses which particular program can make a significant difference in costs incurred by the homeless services system. This is most clear for Houston. On average, the scattered-site permanent supportive housing model in Houston costs almost three times as much as the facility-based model. However, the individuals we studied who used facility-based models generally used the more expensive programs, whereas those who used scattered site housing used less expensive programs than the community average. As a result, the average cost per day for members of the Houston cohort using facility-based housing was greater than the average cost per day for those who used scattered site housing, exactly opposite what we would have surmised from the overall averages for the program types.

Des Moines has only one permanent supportive housing program, so there is no difference between the two average costs. In Jacksonville, the difference between the average cohort cost and the community-wide average cost shows that members of the Jacksonville study cohort used less expensive programs more heavily than more expensive models.

Very few individuals in our study cohort used permanent supportive housing at any time during the study's 18-month tracking period. For example in Des Moines, we found only four individuals in the Shelter Plus Care program from among the 1,124 who became homeless for the first time between July 1, 2004 and June 30, 2005. Across all three sites, this phenomenon may be a result of two patterns. First, most people using permanent supportive housing programs were not included in this study because they had been housed in a homeless residential program before July 1, 2004. Second, some individuals in our study cohorts who used permanent supportive housing were not placed there until well into the 18-month observation period, so some permanent supportive housing stays may have been truncated. Regardless, costs associated with permanent supportive housing are not a major part of the costs associated with homelessness for our study cohort.

3.2. Homeless Program Costs for Families

As we did for individuals, we identified three primary types of homeless residential programs for families in our four family study sites—emergency shelter, transitional housing, and permanent supportive housing—and also made further distinctions among "housing models" for some program types in some communities. The average cost per family per day is shown for each program type in Exhibit 3.6 for DC, Houston, Kalamazoo, and Upstate South Carolina. The exhibit also shows the proportion of costs spent for housing operations, services, agency overhead, and—only for Upstate South Carolina--the daily cost equivalent of capital investments for programs that are operated in a facility owned by the agency. (Rental or leasing costs for facilities not owned by the agency are factored into housing operations.) These are the average costs per day for the programs for which we collected cost data, weighted by program capacity. Costs for the programs as used by the study cohorts of first-time homeless families are presented later.

[10] These figures do not include daily equivalent costs for capital investments.

Exhibit 3.6: Average Cost Per Family Per Day of Homeless Residential Programs Serving Families by Program Type and Site[a]

Site – Program Type	Housing Model	Average Cost Per Family Per Day[b]	Housing Operations	Supportive Services	Agency Overhead	Capital Costs[c]
District of Columbia						
Emergency Shelter	Congregate	$123	$67 (54%)	$41 (33%)	$16 (13%)	
Emergency Shelter	Apartment-style	$83	$45 (55%)	$30 (36%)	$8 (10%)	
Transitional Housing	Facility-based	$73	$19 (26%)	$32 (45%)	$21 (29%)	
Transitional Housing	Scattered Site	$72	$33 (47%)	$27 (38%)	$11 (16%)	
Permanent Supportive Housing	Shelter Plus Care[d]	$42	$39 (94%)	$0 (0%)	$3 (6%)	
Houston						
Emergency Shelter	Congregate and Apartment-Style	$46	$9 (19%)	$31 (66%)	$7 (15%)	
Transitional Housing	Facility-based	$149	$37 (25%)	$82 (55%)	$30 (20%)	
Transitional Housing	Scattered Site	$65	$22 (34%)	$30 (46%)	$13 (20%)	
Permanent Supportive Housing	Shelter Plus Care and Facility-based	$27	$13 (48%)	$7 (27%)	$7 (25%)	
Kalamazoo						
Emergency Shelter	Congregate	$54	$27 (50%)	$25 (46%)	$2 (4%)	
Transitional Housing	Facility-based and Scattered Site	$27	$16 (58%)	$8 (31%)	$3 (11%)	
Permanent Supportive Housing	Shelter Plus Care	$29	$19 (65%)	$0 (0%)	$10 (35%)	
Upstate South Carolina						
Emergency Shelter	Congregate and Single Family	$76	$26 (34%)	$32 (43%)	$13 (17%)	$5 (6%)
Emergency Shelter	Church Hospitality	$297	$68 (23%)	$194 (65%)	$35 (12%)	$0 (0%)
Transitional Housing	Scattered Site	$40	$20 (50%)	$15 (37%)	$5 (12%)	< $1 (<1%)
Permanent Supportive Housing	Shelter Plus Care	$22	$21 (96%)	$0 (0%)	$1 (4%)	$0 (0%)

[a] *Costs represent the average across programs within each type, weighted by the typical number of families served in each program each day.*

[b] *Total weighted daily unit cost may not equal the sum of the budget component estimates due to rounding.*

[c] *Capital costs are included for Upstate South Carolina only. Capital costs are only applicable to programs that own their own facilities.*

[d] *The District has both scattered site and facility-based programs, but costs were only collected from the City-funded scattered site program.*

As we found for programs for individuals, the more expensive family program types tend to have higher costs across all budget categories. That is, cost differences among programs are not explained by only one budget category. For example, in Houston, facility-based transitional housing costs more than 3 times as much as emergency shelter ($149.39 vs. $46.37). The housing operations cost is 4.2 times higher ($37.35 vs. $8.87 per family per day), and the services cost is 2.7 times higher ($82.11 vs. $30.62 per family per day). The higher cost of housing operations probably reflects both increased private space and lower program capacity, which decreases economies of scale. The higher

cost of services probably reflects more intensive services, as would be expected for transitional housing.

In DC, apartment-style emergency shelter is more expensive than scattered site transitional housing ($83 vs. $72). The housing operations cost is one-third higher ($45 vs. $33), and the services cost is one-tenth higher ($30 vs. $27). The apartment-style emergency shelter is facility-based, with 24-hour staffing, and the higher cost of housing operations may reflect this additional on-site supervision.

Often more expensive programs provide more services to clients, in the form of either lower case loads or a broader range of services. Agency overhead costs frequently are higher in more expensive programs, again in part due to smaller program capacity and decreased economies of scale. Cost differences also reflect idiosyncratic features of particular programs, such as program, size, amount of private space per family, level of volunteer or in-kind services, or the value of the physical location.

Unlike transitional housing for individuals, transitional housing for families is not consistently more expensive than emergency shelter. Emergency shelters are more expensive on average than transitional housing programs in DC, Kalamazoo, and Upstate South Carolina. One reason is that families often get private rooms or apartments in emergency shelter, in contrast to emergency shelter programs for individuals. Emergency shelters that serve families also are small and therefore have few units over which to prorate fixed costs, such as on-site supervision. Emergency shelter programs for families are likely to be open 24 hours a day and often provide fairly intensive supportive services. In Upstate South Carolina, the church-based shelter programs have particularly high in-kind costs associated with volunteer labor and donated materials. We counted the value of these contributions as costs since the program could not be operated without them. Thus, the physical and programmatic differences between family shelters and family transitional programs are not as great as they are between these program types for individuals. At the same time, there usually are very different philosophies, program goals, and intended lengths of stay between family emergency shelters and family transitional housing programs.

The characteristics of specific programs have more influence on costs for each program type within the family sites compared with the individual sites, because most communities had only a few family programs. Thus, the average program costs reflect heavily the costs of specific programs, such as a high-cost publicly-operated congregate shelter in the District of Columbia,[11] the small church-based shelters in South Carolina, a large and service-rich facility-based transitional housing program in Houston, and a particularly low-cost transitional housing program in Kalamazoo.

Despite the lower average cost per day for family transitional housing compared with family emergency shelter, we found that families in our study cohort who use transitional housing programs have higher costs than families who only use emergency shelter, as will be discussed in Chapter 5. Families in the study cohort who used only emergency shelter used less expensive shelter programs more heavily, while those who used transitional housing only or in combination with shelter used transitional housing programs higher-cost shelter programs more heavily.

[11] This program has subsequently been closed and the DC system has shifted entirely to an apartment-based emergency system.

As we found for individuals, permanent supportive housing was the least expensive program type *from the perspective of the homeless system*. In most cases, we found that permanent housing programs arranged for residents to receive services directly from mainstream systems rather than from the permanent supportive housing programs directly, so permanent housing programs did not have to secure resources to fund these services directly and the services costs are not accounted for in these estimates. However, even setting aside the issue of services, permanent supportive housing for families usually has equivalent or lower housing operations costs than the emergency shelter or transitional housing programs in the same site. Having said that, the cost of permanent supportive housing plays only a small role in the cost of homelessness for the study cohort of first-time homeless families. Very few families in the study cohort used it, because of a combination of capacity constraints and lack of families qualifying for permanent supportive housing on the basis of a disability.

3.2.1 Monthly Program Costs and Local Costs of Housing

Exhibit 3.7 shows the average costs per month for each program type in each community along with the average 2006 HUD Fair Market Rents for a two-bedroom unit in the same community.

Exhibit 3.7: Average Cost Per Family Per Month for Each Homeless Program Type for Families and FY2006 Two Bedroom Fair Market Rents[a]

	Emergency Shelter	Transitional Housing	Permanent Supportive Housing	2006 Fair Market Rent for Two-bedroom Unit[b]
District of Columbia	$2,496 - $3,698	$2,146 - $2,188	$1,251	$1,225
Houston	$1,391	$1,940 – $4,482	$799	$743
Kalamazoo	$1,614	$813	$881	$612
Upstate South Carolina	$2,269	$1,209	$661	$599 (Greenville MSA)

[a] *Costs shown reflect weighted averages by program type. Ranges represent the averages for different programs within a program type.*

[b] *FMR Source: HUD, 2005. The FMR does not include the monthly fee paid to a public housing agency for administering the voucher program, which ranged from $50 to $90 per unit per month in these four communities. (HUD, 2007)*

In Chapter 5 we discuss the total homeless system costs incurred for each first-time homeless family over an 18-month tracking period. Many families remain in homeless programs for a month or more. In most cases, a month of assistance provided within the homeless system exceeds the local Fair Market Rent—that is, the maximum subsidy cost of providing a housing voucher to the family. The sections below describe each program type, the costs associated with providing it, and the extent to which programs are providing both housing assistance and supportive services—in contrast to the Fair Market Rents, which only represent housing assistance.

3.2.2 Emergency Shelters for Families

All four study sites provide emergency shelter for families, but shelter for homeless families looks quite different from shelter for homeless single adults.[12] Two types of shelter are offered in the District of Columbia: congregate emergency shelter and apartment-style emergency shelter. Congregate Emergency Shelters have communal eating and bathing facilities and little privacy. Families may share rooms, depending on the size of the family and the space available at the facility. During our study period, the largest of the congregate programs, DC Village, was the main point of entry into the emergency shelter system for families in DC. DC Village closed in October 2007, just before the end of the period during which we tracked families. Policy-makers were aware of the high daily cost of DC Village, and advocates for homeless people objected to its remote location and its lack of privacy. The factor that precipitated the facility's closing was the DC government's need to use the property for another purpose. [13]

The District of Columbia also houses families in Apartment-Style Emergency Shelters in which each family has a private apartment. However, there is 24-hour supervision, and access by visitors is restricted. During the study period, entry into these facilities usually was by referral from DC Village. The programs are funded by the DC government, and they must take any family referred to fill a vacancy.[14] Emergency shelters for families have fairly high per family costs (Exhibit 3.6). In DC congregate shelter is the most expensive homeless program type, averaging $123 per family per day. Apartment-style shelter costs two-thirds as much ($83) per day in comparison, with the savings relatively evenly distributed across housing, services, and administration.

In Houston, emergency shelter programs for families provide both dormitory-style shelter units with shared kitchen and bath facilities and individual apartments that provide families more privacy and autonomy over their daily routines. Services include basic emergency support services such as food, immediate crisis intervention and de-escalation, and referral to more intensive services at other programs. The length of stay in congregate dormitory programs is intended to be shorter than in individual apartment emergency shelters, with an emphasis on referring families into more intensive service programs such as apartment-based shelters or transitional housing. Apartment-Style Emergency Shelter programs are structured as 90-day shelters with a level of service and linkage that is intended to be more intensive than congregate dorm emergency shelters. These programs focus on placing families directly into permanent housing. Exhibit 3.8 presents the costs of these two program types together. The average cost of emergency shelter for families in Houston is $46 per family per day, with the services budget 66 percent of that total.

In Kalamazoo, families are served primarily by two shelter programs. One is a large house that is shared by up to six families. The other is operated for both families and single women in a large facility with shared common areas and private sleeping rooms. This facility also has a transitional housing program for families on another floor. Across the two programs, the average cost is $54 per

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[12] Except when single women are served alongside families in a women and families program.

[13] After the closing of DC Village, another congregate program, DC Hypothermia, remained open but with plans to close. The number of apartment-style shelters was expanded to offset the loss of beds at DC Village.

[14] The only exception is that the program can refuse to accept a family that would threaten the safety of other residents.

family per day, but the program operated in the single-family home is significantly more expensive due to lower economies of scale for housing and overhead and substantially more supportive services.

South Carolina provides three types of emergency shelters: congregate shelters, single family homes, and church hospitality networks. Congregate Facilities have open bed space or small sleeping rooms with shared living space and bathrooms. Occupancy is often fluid between families and single women based on need that day. Length of stay typically is less than six weeks. Single Family Houses are shared by multiple families, but offer private space for each family and have somewhat longer lengths of stay. Church Hospitality Networks provide housing sponsored by various congregations around the 13-county area covered by the Upstate South Carolina Continuum of Care. The actual shelter space rotates weekly in church rooms, and the programs are heavily staffed by volunteers. Lengths of stay typically are short but can last several months. The cost per family per day for the church-based program type is very high ($297), in part reflecting actual paid costs and in part reflecting the estimated value of volunteer hours and donated space and supplies.[15] Together the congregate and single family shelters cost an average of $76 per family per day, of which 43 percent funds services.

Exhibit 3.8 reports the average cost per family per day, the range of costs per day across programs within each program type at each site, and the average cost per day of each program type as it was actually used by the study cohort.

Exhibit 3.8: Average Cost Per Day of Emergency Shelter for Homeless Families

Site	Housing Model	Average Cost Per Family Per Day	Range of Costs Per Family Per Day[a]	Average Cost Per Day As Used By the Cohort
District of Columbia	Congregate	$123	$123[b]	$123
District of Columbia	Apartment-style	$83	$67 - $102	$80
Houston	Congregate and Apartment-style	$46	$23 - $175	$61
Kalamazoo	Congregate	$54	$32 - $179	$75
Upstate South Carolina	Congregate and Single Family	$76	$37 - $135	$82
Upstate South Carolina	Church Hospitality	$297	$229 - $348	$229

[a] *If only one number is provided, costs were only collected from one program.*

[b] *Costs were also collected for DC Hypothermia overflow shelter, which has daily costs of $28 per family; however, these costs were not included in the program type average, since the Hypothermia shelter serves only a limited purpose. Members of the study cohort also used shelters for single individuals at times, whose costs are included in the DC case study and analysis reported in Chapter 5. They are not reported here, since this section discusses costs associated with family programs.*

[15] Many emergency shelter programs rely on substantial volunteer support to operate. Our cost calculation methodology shows the costs that would be required to replicate the level of effort provided by these programs.

Emergency shelter programs for families have huge variations in costs, ranging from $23 per day on the low end to $348 on the high end, as shown on Exhibit 3.8. The range of costs reflects differences in both the housing model and the type and level of services provided. Exhibit 3.8 also illustrates the influence of the specific programs used by the study cohort on the costs of homelessness reported in this study. The average costs per family per day for members of the cohort are slightly higher than the overall average daily costs of emergency shelter in Houston and for congregate and single-family shelters in Upstate South Carolina, meaning that the cohort spend a greater number of nights in more expensive programs than the lower cost ones. No one in the study cohort in Upstate South Carolina used the more expensive of the two church hospitality programs, so the cohort's costs represent only the relatively lower cost church program. The Kalamazoo cohort's daily costs for emergency shelter are almost 40 percent higher than the overall program average, since one-third of the cohort's shelter nights were spent at the more expensive shelter program. In DC the cohort used less expensive programs slightly more than higher cost programs within the Apartment-Style Emergency Shelter program type.

3.2.3 Transitional Housing Programs for Families

The four family study sites have transitional housing programs that aim to help the head of household become stably employed, maintain sobriety, and move to market-rate housing with or without the assistance of a Housing Choice Voucher. Facility-based programs are operated in a building owned by or rented exclusively for the program, while scattered site programs are provided in individual apartments that are rented on behalf of the program's clients. In some programs, families must find and move into different permanent housing units at the end of the transitional period. Other scattered-site programs allow families to remain in the same housing unit after graduating from the transitional program, assuming the families can assume the lease payments. Some housing units in a scattered-site program may be in the same larger rental development or may be located in particular neighborhood and serve families with ties to that neighborhood.

The District of Columbia, Houston, and Kalamazoo all offer both facility-based and scattered site transitional housing models. In Kalamazoo, one of the transitional programs is operated within the same facility as an emergency shelter, and almost all participants have graduated from the shelter program. One transitional housing program that was heavily used by the study cohort in Kalamazoo is facility-based and has very low housing operations costs. All transitional housing programs for families in Upstate South Carolina use a scattered-site housing approach.

The cost to operate transitional housing programs varies widely from one program to another, within and across sites, ranging from a weighted average cost per day of $27 for the transitional housing programs in Kalamazoo to a weighted average of $107 per day in Houston (Exhibit 3.9). The structure of the housing (e.g., facility-based vs. scattered site) does not seem to drive costs up or down consistently. On average, housing operations consumes a greater proportion of the program cost and services a lower proportion of the cost in scattered site models than it does in facility-based models. However, for the three sites that have both types of transitional housing, we were not able to include an estimate of capital costs for transitional housing programs that owned their facilities. Had we done this, it would reduce the percentage of total cost represented by services for these programs. The absolute dollar value of the average cost per day used to fund services is higher for facility-based programs than for scattered site programs in DC and much higher in Houston (Exhibit 3.6). It is possible that facility-based programs provide more living-support services, such as child care or informal resident mediation, while the case management and self-sufficiency related services on

average are comparable in intensity for facility-based and scattered-site transitional housing. It is also possible that scattered site programs provide more of their services through referral to mainstream employment or treatment programs, and that these services costs do not show up in their direct budgets.[16] In interviews conducted for the study, program staff described similar levels of services across the two housing models.

Exhibit 3.9 reports the average cost per family per day, the range of costs per day across programs within each housing model at each site, and the average cost per day of each program type as it was actually used by the study cohort.[17]

Exhibit 3.9: Average Cost Per Day of Transitional Housing for Homeless Families

Site	Housing Model	Average Cost Per Family Per Day	Range of Costs Per Family Per Day	Average Cost Per Day As Used By the Cohort
District of Columbia	Facility-based	$73	$30 - $109	$77
District of Columbia	Scattered Site	$72	$40 - $112	$68
Houston	Facility-based and Scattered Site	$107	$52 - $177	$134
Kalamazoo	Facility-based and Scattered Site	$27	$14 - $66	$22
Upstate South Carolina	Scattered Site	$40	$26 - $44	$40

In addition to the considerable range of program costs per day within each site, there is huge variation among sites, with the most expensive transitional housing program in Kalamazoo comparable in cost to some of the least expensive programs in Houston. These site differences have a substantial impact on the overall costs associated with first-time homeless families from one community to another. (See further discussion in Chapter 5.) The exhibit also shows that families in the study cohort who use transitional housing in Houston and families who use facility-based transitional housing in the District of Columbia make relatively heavy use of the more expensive transitional housing programs. The difference is most notable in Houston, where the study cohort used a high-cost, service-rich transitional program more heavily than other programs. This Houston program provides very high-levels of services ($100 per day), including extensive services for the children of families enrolled in the program. In contrast, in Kalamazoo, families in the study cohort used the least expensive transitional housing program two-thirds of the time, increasing the differences in costs for first-time homeless families among the four communities.

[16] For homeless system costs, we recorded costs of all housing and services provided directly by the program. The homeless system costs do not include costs of services provided by mainstream systems if the services were also available to other people who were not enrolled in the homeless program. To the extent that families received services from mainstream programs that were included in the mainstream system cost analysis for that site, these costs would be reflected in the mainstream system cost analysis for that site. Some mainstream services such as employment and training were not included in either the homeless system or mainstream system costs, whereas services such as mental health and substance abuse treatment services were included more frequently.

[17] If only one number is provided in the Range column, costs were only collected from one program.

3.2.4 Permanent Supportive Housing Programs for Families

For families, permanent supportive housing is most commonly provided using a Shelter Plus Care, scattered-site model, and services are primarily brokered through mainstream agencies. Most target families have severe and persistent mental illness or chronic substance abuse, although some programs also target families with HIV/AIDS. Kalamazoo and Upstate South Carolina both use only a scattered-site model and target families with mental illness. The District of Columbia also uses mainly Shelter Plus Care, making units available to the clients of agencies serving homeless families with various types of qualifying disabilities. The few small facility-based supportive housing programs for homeless families in DC are privately funded, not integrated into the homeless services system, and not included in this study.

Houston provides both facility-based and scattered-site permanent supportive housing. Under agreements with providers of mental health and substance abuse services, slots in permanent housing are made available to homeless clients referred by those agencies. The referring agencies commit to providing case management while their clients are living in the housing and provide or link their clients to behavioral and physical health care and to other services such as job training and job support.

In all four of the family study sites, the cost of permanent supportive housing per family per day is less than the cost of any other program type in the residential system for homeless families (Exhibit 3.6), with an average cost of $22 in Upstate South Carolina, $27 in Houston, $29 in Kalamazoo, and $42 in the District of Columbia. The costs of operating the housing (i.e., for renting the housing units) and for managing the program (i.e. for administering the program) constitute all of the costs recorded in DC, Kalamazoo and Upstate South Carolina, and represent 73 percent of the cost of permanent supportive housing in Houston. Service costs explain the other 27 percent in Houston. This does not mean families in Shelter Plus Care or other scattered-site permanent supportive housing programs do not receive services. Rather, most services are delivered by mainstream agencies, and residents were eligible to receive them before they moved into permanent supportive housing and will continue to receive if them if they move to alternative housing. Anecdotally we heard that clients moving into permanent supportive housing already are enrolled in mainstream care and may even be referred to the housing by their mainstream providers. Analysis of Medicaid records in Kalamazoo, discussed later in Chapter 5, supports this hypothesis, since 89 percent of families in the group who used permanent supportive housing were enrolled in Medicaid in the period prior to homelessness.

Exhibit 3.10 reports the average cost per family per day, the range of costs per day across programs within each housing model at each site, and the average cost per day of each program type as it was actually used by the study cohort.

Exhibit 3.10: Average Cost Per Day of Permanent Supportive Housing for Homeless Families

Site	Housing Model	Average Cost Per Family Per Day	Range of Costs Per Family Per Day[a]	Average Cost Per Day As Used By The Cohort
District of Columbia	Scattered Site	$42	$42	$42
Houston	Scattered-Site and Facility-based	$27	$16 - $59	$38
Kalamazoo	Scattered Site	$29	$19 - $58	$20
Upstate South Carolina	Scattered Site	$22	$22	$0[b]

[a] *If only one number is provided in the Range column, costs were only collected from one program.*

[b] *None of the families in the Upstate South Carolina cohort used permanent supportive housing.*

Only a small percentage of permanent supportive housing units in most communities are dedicated to families, and an even smaller percentage of families in our study cohorts used permanent supportive housing during our study period. None of the families in the South Carolina cohort used permanent housing, so while the average cost per day of permanent supportive housing is $22, the cost for the cohort shown on Exhibit 3.10 is $0. Low utilization occurred across all of the family sites. In Houston, the cohort spent only two percent of its total days in residential homeless programs in permanent supportive housing. In DC, five percent of the cohort's days were spent in permanent supportive housing programs. The higher percentage for DC is affected by the 30-month observation period, which is one year longer than in the other sites. While the Kalamazoo study cohort spent 8 percent of its days in homeless programs in permanent supportive housing; these stays represent only 11 families or 3 percent of the cohort. These 11 families were in permanent supportive housing for most of the observation period.

The relatively low use of permanent supportive housing by first-time homeless families is related to a number of factors. Most families do not have a disability sufficient to qualify them for the program. Furthermore, many communities do not have many permanent supportive housing units for families, and the low turnover among those housed within them limits opportunities for families who are eligible to be housed in permanent supportive housing. Finally, other families in our study cohort may eventually have been housed in permanent supportive housing, but the 18-month observation period for three of the four communities in this study may not have been long enough to include these stays.

3.3. Policy Implications of Program Costs

This chapter summarized the wide-ranging costs of providing residential homeless programs to individuals and families. Several key policy considerations emerged related to the costs of different types of homeless programs, as well as individual programs within a community.

Emergency shelters for families are generally similar in cost and sometimes even more expensive than transitional housing programs, whereas transitional housing for individuals is generally more expensive than shelter. This broad finding has several policy and planning implications. First, given the low daily cost of emergency shelter for individuals, it would be very difficult to fund a prevention response that would yield cost savings. However, the higher costs of emergency shelter for families

may make homelessness prevention programs more cost-effective than emergency shelter for some families. Communities could also look at the cost structure of current emergency shelter programs for families to determine if the environment and services offered are appropriate to the needs of those who are using them. If shelter is intended to house families only briefly, it may not be necessary or cost-effective to provide non-crisis-related services within shelter. Therefore, it may be possible to reduce daily costs of shelter programs for families by scaling back on the therapeutic resources offered to families on-site. For those with greater needs who need longer stays or more intensive services, it may be more cost effective to quickly move them into transitional housing (facility-based or scattered site), permanent supportive housing, or permanent housing with mainstream supportive services.

Given, the high costs of transitional housing for both individuals and families, communities may want to consider whether alternative interventions or combinations of rent subsidies and standalone supportive services could achieve similar outcomes at lower costs. Permanent supportive housing is generally less expensive from the perspective of the homeless system than other types of residential homeless programs for families, often similar in cost to a deep rental subsidy. To the extent that individuals or families have disabilities that qualify them for permanent supportive housing, communities should expedite their placement into these units. The low cost of permanent supportive housing is largely attributable to lower homeless system service costs made possible by formally linking clients to mainstream services. Communities could also explore creating transitional housing modeled like permanent supportive housing with housing and limited housing-focused services provided by the homeless system and non-housing services intentionally provided by mainstream systems.

In general, communities may want to examine program costs to determine if there are less expensive ways of delivering comparable interventions. The huge range of costs within program types—for example among transitional housing programs for families—may or may not reflect differences in the quality of services delivered or in the outcomes for families.

Individual program features can also have substantial impacts on the costs of delivering homeless assistance. For instance, we discussed the substantially higher costs of an extended stay emergency shelter program in Houston for single women compared with an extended stay shelter program serving single men. The women's shelter provided more services and more privacy and also had higher per-person administrative costs due to its smaller size. The study did not explore whether programs with higher costs also have better outcomes. Nonetheless, the agency operating both of these may want to consider whether it would be more cost-effective to develop a program for single women with housing costs and administrative overhead more similar to those of the program for single men. Compounding the variability of daily costs from one program to another, homeless families and individuals do not use homeless programs evenly. Communities will be able to reduce homeless system costs the most by reducing costs of programs used most heavily by homeless individuals and families. The converse is also true: adding a program feature that raises the cost of a heavily used program will have a disproportionate effect on the costs associated with homelessness in that community.

The differences between community average costs for each program type and the costs associated with each study cohort discussed in this chapter illustrate the point that costs are driven by actual program utilization. Further, utilization varies for people with different demographic characteristics and needs. For instance, first-time homeless individuals may use a different set of programs than

individuals with chronic medical needs. Local efforts to shift costs to create a more effective response to homelessness must be conducted within the context of the programs serving the group of greatest interest to the community.

None of this is to suggest that communities should always seek to lower program costs. Strong outcomes may require a sizable investment; however, policymakers should understand what drives costs in their communities, so they can consider cost implications as part of the decision-making.

Cost per day is only one dimension of the costs of homelessness to the homeless services system. Lengths of stay, or the number of days an individual or a family uses residential programs for homeless people, also have a powerful influence on costs. The next two chapters combine information on costs per day and on patterns of utilization of the homeless services system, first for individuals (Chapter 4) and then for families (Chapter 5).

4. First-time Homelessness for Individuals and its Associated Costs

This study confirms the findings of some prior research on homelessness for individuals and presents new findings about first-time homelessness for individuals and its associated costs. The most important themes about costs of first-time homelessness for individuals that emerged from the study are that:

- The overall experience of homelessness, program utilization, and associated costs vary widely from one subpopulation of first-time homeless individuals to another, with only a small subgroup incurring substantial costs. The half of the cohort with the lowest homeless system costs—individuals who only briefly use emergency shelter—incurred only 2 to 3 percent of the total homeless system costs. The highest-cost 10 percent of the cohort incurred 62 percent of the homeless system costs in Jacksonville, 70 percent in Des Moines, and 83 percent in Houston.
- The type of program used by individuals who are homeless appears to have the greatest influence on costs and certain program types and specific programs within those types are more expensive than others. The cost to the homeless services system of the most expensive 10 percent of individuals in the study cohort at each site generally reflects continuous use of expensive transitional housing programs for much or all of the 18-month observation period.
- For some subgroups, total homeless system costs incurred per person exceed the cost of an annual direct housing subsidy. Communities may want to consider whether housing assistance (without supportive services) would be a lower cost and potentially equally effective intervention for some of these groups.
- Single women are associated with statistically significant higher homeless system costs, even when controlling for their longer stays and the types of programs they use. Combining all of these factors, single women over 40 years old frequently have high system costs in the current system structure and may benefit from alternative interventions designed specifically to meet their needs. Other demographic groups, such as African-Americans and older adults are also associated with statistically significant higher costs.
- Cost savings may be achievable within the homeless system for first-time long-stayers based on providing housing assistance in different ways. However, the relationship between intensive use of the homeless system and high-cost mainstream use is not strong enough to expect significant cost savings within mainstream systems by ending homelessness for long-stayers as a whole.
- Higher mainstream costs in some domains were associated with individuals who had multiple episodes of homelessness. Communities could target individuals who return to shelter for a second (or third) non-consecutive program stay. This group may particularly benefit from intentional prevention-oriented discharge planning strategies.
- Mainstream system utilization and associated costs spike during homelessness, but costs also increase substantially immediately before first-time homelessness. Thus, costs peak

in the period just after the individual enters the residential homeless system. This finding suggests a need for discharge planning to ensure that individuals leave mainstream programs, such as inpatient treatment or jails, with adequate housing.

This chapter begins with a discussion of existing research, presents the findings of this study and then discusses the findings within the context of existing research.

4.1. Existing Research

4.1.1 Patterns of Homelessness among Individuals

Analysis of longitudinal shelter administrative data conducted a decade ago by Kuhn and Culhane (1998) in New York and Philadelphia provided a new typology of patterns of homelessness: transitional homelessness, episodic homelessness, and chronic homelessness. Although there had been prior research and discussion of typologies of homelessness, Kuhn and Culhane's framework was popularized by the National Alliance to End Homelessness (NAEH, 2000) and by the federal government when it adopted a ten-year goal to end chronic homelessness as part of its FY2003 budget (OMB, 2002). Transitional homelessness was characterized by short, single episodes of homelessness and described the pattern experienced by 80 percent of homeless individuals. Episodic homelessness described repeated short episodes of homelessness experienced over the course of years, often by younger individuals with chronic addictions. Chronic homelessness described a pattern of continuous stay in shelters extending over a year or more, generally by older individuals with mental illness. Ten percent of the individuals in Kuhn and Culhane's dataset experienced episodic homelessness, and the remaining ten percent were chronically homeless. The ten percent who experienced chronic homelessness consumed close to half of the emergency shelter bed nights, since they were present almost every night of the year, whereas other homeless individuals moved in and out of the system relatively quickly. While their study did not quantify the costs associated with each of these patterns of homelessness, the findings gave rise to a view among policymakers that communities could free shelter space and homeless system resources by identifying and addressing homelessness for the 10 to 20 percent of individuals who experienced episodic and chronic homelessness.

4.1.2 Mainstream Service Use by Homeless Individuals

Culhane, Metraux & Hadley (2002) also contributed to the literature on homelessness with a study of formerly homeless individuals with severe mental illness housed in permanent supportive housing in New York City, ("the NY/NY Cost Study"). Almost three-quarters of these individuals had used city-funded shelters within the two-year period prior to placement in permanent supportive housing, with an average shelter use of 137 days.[1] The study also found that these individuals experienced very high use of mainstream service systems (such as emergency rooms, inpatient psychiatric hospitals, and jails) in the two-year period prior to placement in permanent housing. The NY/NY study cohort incurred an average cost of $40,500 per year (Exhibit 4.1). In the absence of other research covering multiple mainstream programs used by homeless individuals, the costs associated

[1] A history of homelessness was an eligibility requirement for the study, so the other quarter of the study sample presumably had some type of homeless episode in non city-funded shelters prior to placement or spent time on the "streets".

with the two-years prior to placement in permanent supportive housing have become for many a proxy of the costs of chronic homelessness.

Exhibit 4.1: NY/NY Cost Study Service Use during Two Year Period prior to Placement in Permanent Supportive Housing

	Average days during 2 yr period prior to placement	Per Diem	Cost for 2 Year Period prior to placement	Annualized Cost
City Homeless Services	137	$68	$9,316	$4,658
State Inpatient Psychiatric Hospitals	57.3	$437	$25,040	$12,520
City Inpatient Public Hospitals	16.5	$755	$12,458	$6,229
Medicaid (inpatient)	35.3	$657	$23,192	$11,596
Medicaid (outpatient)	62.2	$84	$5,225	$2,613
Veterans Affairs	7.8	$467	$3,643	$1,822
State Corrections	9.3	$79	$735	$368
City Corrections	10.0	$129	$1,290	$645
TOTAL			$80,899	$40,451

Source: Culhane et al., 2002

Other studies have shown that homeless people use emergency rooms at a much higher rate than the general population, attributing this greater use to many different factors, including a higher rate of assault-related and unintentional injuries, general poor health status, barriers to accessing routine healthcare, and a high rate of substance abuse and mental illness among homeless people (D'Amore, Hung, Chiang, & Goldfrank, 2001; Kushel, Vittinghoff & Haas, 2001; Mandelberg, Kuhn & Kohn, 2000; Padgett, Struening, Andrews, & Pittman, 1995). Kushel, Perry, Bangsberg, Clark and Moss (2002) analyzed a sample of 2,500 homeless and marginally housed adults in San Francisco and found that the 40 percent who went to the emergency room were more likely to be homeless rather than marginally housed, after controlling for other characteristics of study sample members. Kushel et al. (2002) also found that 8 percent of the study cohort visited emergency rooms four or more times within a year, accounting for 54.5 percent of all emergency room visits by the study sample. These high users also were more likely to be homeless than marginally housed. A 1998 study by Salit, Kuhn, Hartz, Vu and Mosso found that, after controlling for co-occurring substance abuse disorder or psychiatric disability and other patient characteristics, homeless patients had hospital stays 4.1 days (36 percent) longer than non-homeless patients. Folsom et al. (2005) found similar patterns of inpatient and crisis service use within the public mental health system. All of these findings suggest that homelessness is likely to be associated with high mainstream health costs.

Other studies have found a correlation between homelessness and involvement with the criminal justice system. Caton, Wilkins and Anderson (2007) cite findings of high rates of criminal history among individuals who experience long-term homelessness and suggest that the criminal justice system may be a safety net of sorts for individuals with severe mental illness who lack sufficient housing and treatment.

4.1.3 Opportunities for Cost Savings

With a growing body of research correlating costly mainstream system utilization with the chronic homelessness of people with significant levels of disability, policymakers and advocates became interested in understanding which interventions reduce the costs of mainstream system use associated with homelessness.

The NY/NY Cost Study concluded that placement in permanent supportive housing significantly reduced homeless and mainstream expenditures for formerly homeless, severely mentally ill individuals. This finding suggests that permanent supportive housing is an effective strategy to address chronic homelessness for persons with severe mental illness at little additional cost.[2] An experimental study of the cost-effectiveness of HUD-VA sponsored permanent supportive housing (VASH) for homeless veterans with severe mental illness (Rosenheck, Kasprow, Frisman, & Liu-Mares, 2003) found that the costs of permanent supportive housing were approximately 18 percent higher ($2,067 annually) than the costs of standard care. Higher costs were largely attributable to the additional intensive case management costs and increased outpatient treatment costs incurred by this group. Rosenheck et al. did not observe differences between the intervention groups (VASH intervention, case management only, and standard care) in VA or other system costs significant enough to achieve cost offsets; however, the housing outcomes were greater for supported housing study participants so the study concludes that the intervention was most likely cost-effective.[3] Different methodologies between the Rosenheck et al. and Culhane et al. studies limit the ability to compare results.

In a paper synthesizing findings on cost effectiveness—Rosenheck (2000) observes that while mainstream service use is frequently positively associated with homelessness, not all persons who are homeless and mentally ill have high service use. Interventions that target directly those individuals with high service use can more easily show cost-effectiveness than those that serve a broad group of homeless mentally ill persons. Rosenheck points out that in the evaluation of two programs targeting persons who were homeless and mentally ill but not necessarily high service users, only 10 percent of participants had annual inpatient costs sufficient to offset the costs of the intervention.[4] He concludes that, while cost offsets are achievable, resource-intensive interventions must be narrowly targeted to high service users to realize the savings.

These studies are just a few among a growing body of research on costs associated with individuals who are homeless with severe mental illness. In addition, many localities have conducted, with varying degrees of rigor, their own cost studies of individuals who are chronically homeless or

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[2] The NY/NY Cost Study found that the cost reductions in mainstream and homeless systems resulting from placement in permanent supportive housing were almost equal to the costs of providing the permanent supportive housing itself. This finding has fueled substantial investment in developing permanent supportive housing for chronically disabled homeless individuals around the country.

[3] Cost-effectiveness is defined relative to societal value. In the absence of an established societal value for housing, Rosenheck reports cost-effectiveness for various monetary values.

[4] The study evaluated the VA's Chronically Mentally Ill Veterans Program and the Access to Community Care and Effective Supportive Services Program evaluations. Rosenheck et al. measured fewer mainstream domains than Culhane et al. (2002) in the NY/NY Cost Study. With more comprehensive data, it is possible that more than 10 percent of participants would have realized cost savings equal or greater than the costs of the intervention.

individuals who are identified as frequent high-cost users. (See Culhane, Metraux, Park, Schretzman & Valente, 2007 for examples.) In many cases, this research has been used to build support and secure funding for interventions to assist individuals who may benefit from permanent supportive housing. The research has also left policymakers and advocates eager for parallel research on other populations.

Our study is intended to expand the base of knowledge on costs associated with other populations who experience homelessness, besides those with chronic patterns of homelessness or severe mental illness. Kuhn and Culhane (1998) noted that most other populations have relatively short episodes of homelessness and therefore can be expected to have much lower costs than those measured for homeless individuals with severe mental illness, but there has been little work to quantify the level and nature of those costs. This study examines first-time homelessness for individuals and the level of resources associated with their use of the homeless and mainstream systems in Jacksonville, Florida; Houston, Texas; and Des Moines, Iowa.[5] While these results are not representative of the nation as a whole, they can help build our understanding of costs associated with homelessness to inform national and local policymaking.

4.2. Characteristics of First-time Homeless Individuals

We studied first-time homelessness among single adults in three study communities: Jacksonville, Florida; Houston, Texas; and Des Moines, Iowa.[6] Across the three sites, we identified 7,502 individuals who became homeless for the first time between July 1, 2004 and June 30, 2005. More than half the study population was homeless in Houston, Texas. The characteristics of the study cohort in each site are shown in Exhibit 4.2.

Individuals who experienced first-time homelessness in the study communities were predominantly male, 73 to 81 percent across the three sites. On average, first-time homeless individuals were between 39 and 41 years of age at first program entry; only 15 to 18 percent were older than 50. In comparison to the national estimates in HUD's 2007 Annual Homeless Assessment Report (AHAR) (HUD, 2008), first-time homeless individuals in our three study sites were more likely to be male and somewhat younger. The AHAR estimates that the single adult homeless population who used emergency shelter or transitional housing is 69 percent male and that 24 percent are older than 50. The proportion of the study cohort that was African-American varied across the three communities, from 21 percent in Des Moines to 48 percent in Jacksonville to 57 percent in Houston.[7]

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[5] Past research has also found wide regional variations in costs of both homeless and mainstream services (Culhane et al., 2007).

[6] Any adult who was served as part of a family at any time during the study period was not considered a single adult and was excluded from the study cohort. In Houston, these persons were studied as part of the family study cohort.

[7] Information on ethnicity was missing from a high percentage of the HMIS records at our study sites. Therefore, ethnicity is not included in our demographic analysis. People who identified themselves as white and Hispanic were simply categorized as white.

Exhibit 4.2: Characteristics of the Study Cohort of Individuals Who Became Homeless between July 1, 2004 and June 30, 2005 as compared with National Estimates[a]

	Size of Study Cohort	Women	African-American	Average Age	Age over 50 years
Jacksonville	1,972 persons	19%	48%	41 yrs	18%
Houston	4,406 persons	26%	57%	41 yrs	16%
Des Moines	1,124 persons	27%	21%	39 yrs	15%
National estimate[b]		31%	33%	N/A	24%

[a] Percentages are based on sample members for whom we have data for the characteristic.

[b] AHAR estimate for individuals who used emergency shelter or transitional housing between October 2006 and September 2007 (HUD, 2008).

Some of the differences between our study population and national estimates of the characteristics of homeless individuals may reflect differences among the three study sites and other communities or the fact that our study includes some individuals who used only outreach and some who used only permanent supportive housing programs, neither of which are included in the AHAR. However, the comparison with the AHAR estimates may also suggest differences between first-time homeless individuals (our study) and all homeless individuals (AHAR). In addition to describing the study cohort and placing it in a national context, demographic data about the study cohorts also were used to understand relationships between demographic characteristics and costs. Findings from multivariate regression analysis presented later in Section 4.3.2 show that higher homeless system costs are associated with being female, African-American, or older, even when controlling for homeless utilization patterns such as lengths of stay.

Section 4.3 focuses on utilization and costs of the homeless system itself; costs of mainstream services are discussed in Section 4.4.

4.3. Patterns of First-Time Homelessness and Associated Homeless System Costs

4.3.1 Homeless System Utilization

As shown in Exhibit 4.3, we found that more than half of the study cohort experiencing homelessness stayed "in the system" for substantially less than one month. The median length of time spent in homeless residential programs was 2 days in Houston, 10 days in Jacksonville, and just over 3 weeks in Des Moines. Average lengths of stay are longer than these medians: almost 6 weeks in Houston, 8 weeks in Jacksonville, and just over 10 weeks in Des Moines. The differences between the median and average lengths of stay reflect the skewed distribution of the homeless experience for individuals. While half of the first-time homeless population in Houston spends only a couple of days in homeless programs over an 18-month period, a sizable population has very long lengths of stay that substantially increase the average. As we show in the next section, costs for individuals in our study communities are similarly skewed. This finding on patterns of homelessness confirms the research by Kuhn and Culhane (1998) on patterns of homeless service utilization, extends those conclusions to communities other than New York and Philadelphia, and provides an important context for understanding the costs associated with homeless individuals. Local communities, such as Columbus

Ohio, have analyzed their own HMIS data and found similarly skewed patterns of use of the homeless services system.

Exhibit 4.3: Use of the Homeless System by the Study Cohorts of First-Time Homeless Individuals During an 18 Month Period

	Average Days in Homeless Programs	Median Days in Homeless Programs	% of Cohort with One Program Stay	Average Number of Program Stays	Average "Gap Days" Between Stays
Jacksonville	57 days	10 days	50%	3 Stays	75 days
Houston	39 days	2 days	65%	3 Stays	44 days
Des Moines	73 days	24 days	53%	3 Stays	63 days

In addition to lengths of stay, other patterns also show a dramatically skewed distribution of the homeless experience. The average number of program stays (continuous days in a particular program) across the sites was three, as shown by Exhibit 4.3, but at least 50 percent of the cohort had only one stay, and the remainder of the cohort in each site averaged five or more stays.[8] The "gap days" shown in the exhibit (days during the entire period of homelessness when an individual was not in a residential homeless program) are, by definition, associated with individuals with more than one stay and show that those with more than one stay were not just bouncing among residential homeless programs from one day to the next. In many cases, months elapsed between when an individual exited one program and when he entered another program. We cannot tell whether any particular individual was homeless on the streets during "gap," living in his own housing unit, unstably housed with friends or family, or in an inpatient or institutional program.[9]

Multivariate regression analysis with covariates for demographic characteristics, program type, and sites was used to understand the factors that drive longer cumulative lengths of stay in homeless residential programs for the 7,502 individuals in the study cohort. The model's results are presented in Exhibit 4.4.[10] When multiplied by 100, the coefficients for the covariates can be interpreted as percentage differences in the number of days spent in homeless programs from the reference category because the outcome variable is in logarithm scale.

[8] For purposes of this study, a stay is defined by continuous residence in a specific program. A new stay is counted each time the person enrolls in a new program. A "stay" is not to be confused with an "episode" as defined by Kuhn and Culhane (1998) as residence in homeless programs with gaps no longer than 30 days.

[9] Some of these "gaps" may also represent incomplete data, since not every homeless program enters data about their clients in the HMIS.

[10] See Appendix C.2.1, Model 2, for more detailed multivariate regression analysis results, including a model without the program type variable.

Individuals using both emergency shelter and transitional housing stayed more than 3 times longer than people who used only emergency shelter, the omitted category.[11] Individuals using only transitional housing stayed about 3 times longer. People served by outreach[12] or permanent supportive housing programs alone or in combination with emergency shelter or transitional housing stayed more than twice as long as those who used only emergency shelter. The shorter lengths of stays for people who use only emergency shelters likely reflect both the shorter-term nature of their need for residential assistance and the environment and design of most emergency programs, which encourage shorter stays or have explicit limits on days that can be spent in shelter. Shorter stays result in lower costs, as will be detailed in the next section.

The model results also highlight the influence of the nature and composition of the homeless services system at each site. After controlling for the program type used and demographics, individuals in Des Moines stayed 23 percent longer in homeless programs than individuals in Jacksonville (the reference category). Many members of the study cohort in Des Moines used a form of transitional housing in which residents have private living space and lengths of stay that suggest that outplacements to mainstream permanent housing are not a high priority for the programs. Everything else being equal, individuals in Houston stayed 47 percent *fewer* days in homeless programs

Exhibit 4.4. Regression Analysis of Lengths of Stay for First-Time Homeless Individuals in Des Moines, Houston, and Jacksonville

Explanatory Variables	Total Days Spent in Homeless Programs (log scale)
Types of Homeless Programs Used+	
Only Used TH Programs	2.029***
	(0.063)
Used both ES and TH Programs	2.294***
	(0.088)
Used Other Program Types or Combinations[a]	1.261***
	(0.067)
Site Variables+	
Iowa	0.227***
	(0.061)
Houston	-0.465***
	(0.046)
Demographics+	
Age 18 – 24	-0.232***
	(0.075)
Age 25 – 30	-0.043
	(0.070)
Age 41 – 50	0.190***
	(0.051)
Age 51 and over	0.261***
	(0.062)
Female	0.735***
	(0.047)
African-American	0.300***
	(0.040)
Other Races	0.100
	(0.080)
Constant	1.685***
	(0.054)
Observations	7502
R-squared	0.36

+ Reference categories are: Used ES Only, Jacksonville, Age 31 – 40, Male, White.
*Standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%*
Definitions: ES is emergency shelter, TH is transitional housing, and PSH is permanent supportive housing.
[a]Used Outreach Alone, Used PSH Alone, Used Outreach or PSH in Combination with ES or TH

[11] The coefficient of 2.294 indicates that these individuals spend 2.3 additional days for each reference day, or 3.3 times the reference category.

[12] In an attempt to capture the period of time that people experienced homelessness on the streets as part of length of homelessness calculations, each contact with a street outreach team was counted as one-day of homelessness—equivalent to a one-day program stay in a residential program—unless the contact was made on a day that the individual stayed in a residential homeless program, in which case the outreach contact was disregarded for length of stay calculations.

than individuals in Jacksonville. This probably reflects the time limits imposed on individuals in some of the emergency shelters and the fact that many individuals who were identified on the street did not use residential programs. Thus, individual program environments and rules may substantially influence lengths of stay. It is important to recall that this study does not measure the benefits of stays in the homeless services system, so we cannot say whether shorter or longer lengths of stay are positive or negative or whether the costs associated with these stays are worth the investment.

Ways in which the utilization of homeless programs varies by gender and race also are shown in Exhibit 4.4 and discussed below, along with cost variations by gender and race, in Section 4.3.3.

4.3.2 Costs to Homeless System of First-time Homelessness

The cost to the homeless services system for serving each first-time homeless individual is the sum of the costs of each program stay. The cost of each stay is the daily cost of the particular program used by the individual times the number of days in the stay. Daily costs varied tremendously from one program to the next. Differences in daily costs of programs used by members of the cohort generally explain differences in homeless costs from one person to another for individuals with otherwise similar patterns of homeless system use. (See Chapter 3 for a discussion of variations in the costs of homeless programs by site and program type.)

On average, individuals incurred $2,101 in homeless system costs across the three study sites. The average homeless system cost incurred for each individual homeless person in the study cohort is similar in Houston and Des Moines ($2,257 and $2,308) and somewhat lower in Jacksonville ($1,634).

Exhibit 4.5: Average Homeless System Cost per Individual

	Jacksonville	Houston	Des Moines
Average Cost per Individual	$1,634	$2,257	$2,308

Houston and Des Moines have similar average costs per first-time homeless individuals, despite having very different lengths of stay. Houston's shorter lengths of stay than Des Moines are offset by the higher daily program costs of the program types used by the Houston study cohort. Though average lengths of stay in Jacksonville were only slightly lower than the average for Des Moines, the Jacksonville cohort spent over half of its days in emergency shelter at an average cost of $29 per day; whereas the Des Moines cohort spent over half of its days in transitional housing with individual rooms at an average daily cost of $43 per day.

Average costs offer a general picture of the costs associated with homelessness, but they obscure important information about the wide variation in costs associated with first-time homelessness. Only a small group of homeless individuals incurred high costs at each site, while the majority had minimal costs. The half of the cohort with the lowest homeless system costs incurred only 2 to 3 percent of the total homeless system costs; whereas the highest-cost 10 percent of the cohort incurred 62 percent of the homeless system costs in Jacksonville, 70 percent in Des Moines, and 83 percent in Houston. As was discussed extensively in Chapter 3, transitional housing for individuals is more expensive on average than other program types, and programmatic factors also encourage longer lengths of stay, also driving up the costs for individuals who use transitional housing. Thus, it is not surprising that

the cost to the homeless services system of the most expensive 10 percent of individuals in the study cohort at each site generally reflects continuous use of expensive transitional housing programs for much or all of the 18-month observation period.

A multivariate regression model was also used to identify the relationship of different factors, including length of stay, to total homeless system costs per person (Exhibit 4.6) to better understand what is underlying the wide distribution of costs. The model R-squared statistics of 0.68, meaning that the set of explanatory variables used in the model was able to account for 68 percent of the variation in costs.

The model results suggest that, for these study cohorts of first-time homeless individuals, the influence on total cost per individual of the program type used is much greater than the influence of staying in the program for an additional month. Each additional month adds only 35 percent to the cost per individual, whereas using transitional housing (alone or in combination with emergency shelter) more than doubles an individual's total cost. Once both length of stay and program type are taken into account, the community in which the individual becomes homeless has no significant effect on the total cost per individual.

In addition to the length of stay and the type of program used, additional stays and the greater lengths of time between stays were both also associated with increased costs, but only with small increases.

4.3.3 Variations in Homeless System Utilization and Costs by Gender, Race, and Age

The multivariate analysis that predicts lengths of stay (Exhibit 4.4) shows that women stay in homeless programs 74 percent longer than single men. An alternative model specification excluding the program type covariate shows that women have 38 percent fewer distinct

Exhibit 4.6. Regression Analysis of Total Homeless System Costs for First-Time Homeless Individuals in Des Moines, Houston, and Jacksonville

Explanatory Variables	Total Homeless Costs (log scale)
Type of Homeless Program Used+	
Only Used TH	1.299***
	(0.049)
Only Used ES and TH Programs	1.114***
	(0.067)
Used Other Program Types or Combinations[a]	0.793***
	(0.051)
Site Variables+	
Iowa	0.068
	(0.045)
Houston	0.012
	(0.033)
Homeless System Utilization	
Number of Homeless Program Stays	0.037***
	(0.003)
Length of Stay (in months)	0.351***
	(0.005)
Homeless Gap Days (in months)	0.073***
	(0.004)
Demographics+	
Age 18 – 24	0.074
	(0.055)
Age 25 – 30	0.105***
	(0.051)
Age 41 – 50	0.098***
	(0.037)
Age 51 and over	0.098**
	(0.046)
Female	0.974***
	(0.035)
African-American	0.192***
	(0.030)
Other Races	0.051
	(0.059)
Constant	3.953***
	(0.041)
Observations	7,502
R-squared	0.68

+ Reference categories are: Used ES Only, Jacksonville, Age 31 – 40, Male, White.
*Standard errors in parentheses.*significant at 10%; **significant at 5%; ***significant at 1%*
[a]Used Outreach Alone, Used PSH Alone, Used Outreach or PSH in Combination with ES or TH

stays.[13] This may reflect the different causes of homelessness for men and women. Men may be more likely to be asked to leave housing shared with family or friends due to disputes than women, resulting in short-term but repeated shelter stays. Or, alternatively, men may be more willing to leave unappealing shelter conditions for the streets. With longer lengths of stay, it is not surprising that women are also associated with higher homeless system costs. However even controlling for length of stay, being female is associated with 97 percent greater homeless system costs than being male, as shown in the model in Exhibit 4.6. Both the longer lengths of stay and higher costs are most likely a reflection of the specific homeless programs used by females.

As was discussed in Chapter 3, emergency shelters that serve women are more likely to be 24-hour, full-service shelters rather than overnight shelters, which have much lower daily costs. In addition, some women stay in service-intensive programs that also serve families. These programs have higher costs per day on average than those that exclusively serve single adult populations. Like single women, families tend to have fewer distinct stays, but their cumulative lengths of stay are longer on average than those of men. These similarities may be a reflection of the program influences, if single women and families are frequently served within the same setting, or they may reflect that the needs and decisions of single women are more similar to women with children than they are to single men.

Less dramatic, although still statistically significant, the models presented in Exhibits 4.4 and 4.6 also show that African-Americans have 30 percent longer stays than whites and 19 percent greater costs than whites after controlling for lengths of stay and program types. Again, the higher costs after controlling for lengths of stay probably reflect the fact that African-Americans used programs with more expensive daily costs than those used by whites within each program type. Nothing from our review of homeless programs suggests that certain programs encourage those who are African-American to stay in programs longer or that the homeless services system encourages African-Americans to use more expensive programs. However, African-Americans also have 14 percent more stays than Whites, which may also contribute to the greater cumulative number of days in homeless programs. Reasons related to the circumstances that led to homelessness, reduced housing stability after exit from a residential program for homeless people, more limited access to informal or formal supports, and greater involvement with criminal justice or other mainstream systems may help to explain the longer lengths of stay and more frequent stays for African American individuals.

Finally, the length-of-stay model (Exhibit 4.4) shows that relatively older individuals have longer stays than younger persons.[14] For example, relative to the 31 to 40 year olds in the study population, individuals between the ages of 18 and 24 have stays 23 percent *shorter*, 41 to 50 years olds stay 19 percent *longer*, and individuals 51 and older stay 26 percent *longer*. Although this study examined only individuals who experienced homelessness for the first-time, the finding that longer lengths of stay are associated with older individuals is consistent with Kuhn and Culhane's (1998) research, which found that individuals who were chronically homeless were older than other homeless groups. The longer lengths of stay for older adults may be a function of age-related disabilities and associated barriers to housing stability, barriers to employment, or more fractured family relationships. Conversely, younger adults may have shorter lengths of stay related to the circumstances that led to their homelessness (e.g., if they became homeless due to family conflict or temporary income loss),

[13] For details of the models that predict numbers of stays and gap days, see Appendix C.2.2.

[14] In this study cohort, as in the homeless population in general (HUD, 2008), few people are elderly, that is, 62 or older.

have fewer employment barriers, have fewer long-term disabilities, or have greater access to family and other support networks that may be able to help resolve their homelessness. Older adults also have 10 percent greater costs than the 31 to 40 year old group after controlling for length of stay and program type, potentially attributable to residence in relatively more expensive programs within the transitional or permanent supportive housing program types. Somewhat counter-intuitively, the slightly younger group of 25 to 30 year olds was also associated with 11 percent higher costs. Again, this is likely a reflection of the specific programs used by this group. For instance, in Des Moines individuals who used only the more expensive form of transitional housing were younger than those who used other program types.

4.3.4 Costs for "Path" Groups: Individuals Who Use the Homeless System in Similar Ways

To better understand the heterogeneity of the homeless experience and its associated costs, we used multivariate cluster analysis to categorize individuals into "path groups" based on their lengths of stay, number of stays, length of gaps between stays, and the types and sequences of programs used. Cluster analysis was conducted independently for each site.

The following path groups emerged that described similar patterns of use across all three sites, representing 79 to 94 percent of the study cohort in each site:

- Emergency Shelter Short Stayers
- Emergency Shelter Long Gappers
- Sequential Program Users
- Circling Program Users

Exhibit 4.7 briefly describes each of these four common patterns of use of the homeless services system by first-time homeless individuals and shows the relative size of each group within each site.[15] Each of the path groups making up these common patterns is discussed in more depth in the text that follows, followed by discussion of path groups unique to particular sites. Data on all path groups for each of the three sites are provided in Appendix 4.7.

[15] For purposes of this section, the universe of individuals in the Houston study cohort is 3,535 adults. The full Houston study cohort of 4,406 individuals included 871 adults who were only found on the streets; who have been excluded from the discussion of path groups. The HMIS lacked identifiers for a large percentage of these individuals, and, therefore, it was not possible to determine if any of these people also used other programs.

Exhibit 4.7: Path Groups Common to All Three Sites and their Relative Sizes

Common Path Groups	Brief Description	Jacksonville (% of Study Cohort)	Houston (% of Study Cohort)[a]	Des Moines (% of Study Cohort)
Emergency Shelter Short Stayers	Used only emergency shelter, 1 or 2 brief stays totaling 1 to 3 weeks.	66%	65%	57%
Emergency Shelter Long Gappers	Used emergency shelter only, 7 to 40 times over 13 months, though only 1 to 5 months actually spent in shelter.	10%	10%	14%
Sequential Program Users	Used at least 2 program types (in this sequence): emergency shelter, transitional housing, and/or permanent housing.	12%	3%	4%
Circling Program Users	Used transitional housing or permanent supportive housing and later returned to emergency shelter.	7%	2%	4%
Total % of Study Cohort represented by these Common Path Groups in each Site		95%	80%	79%

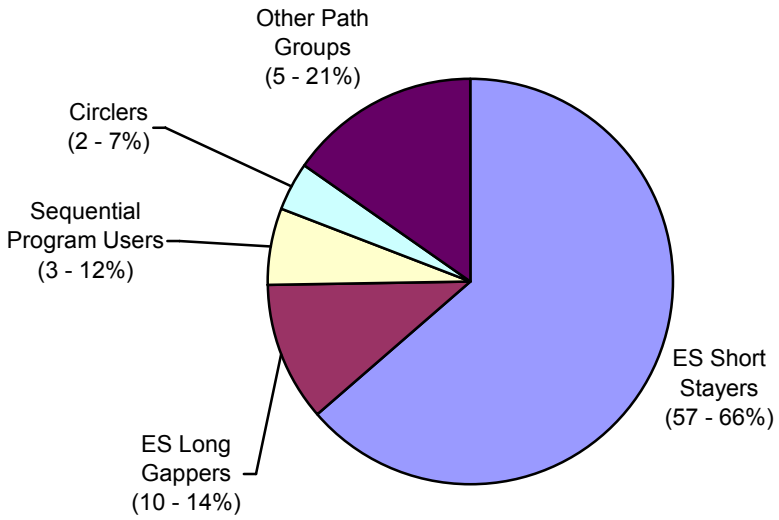
[a] *Percentages exclude the portion of the Houston Study Cohort that was only found on the streets.*

The Emergency Shelter (ES) Short Stayers path group represents the majority of the study cohort of first-time homeless individuals in each site. The Sequential Program Users and Circling Program Users are the only two path groups that involve use of multiple program types, including those not combined into these common path groups. This means that 81 percent of individuals in Jacksonville, 92 percent of individuals in Des Moines, and 95 percent of individuals in Houston used only one type of homeless program over an 18-month period.

Very few individuals in our study cohort ever used permanent supportive housing. This may be because most people using permanent supportive housing programs were excluded from this study since they were homeless prior to the start of the study. Also, capacity of permanent supportive housing may be limited enough that turnover may not be sufficient to accommodate continued demand from individuals with chronic disabilities who become newly homeless.

The common path groups are shown graphically in Exhibit 4.8.[16]

Exhibit 4.8: Proportion of Study Cohort Represented by Common Path Groups



The groups are characterized by differences in their patterns of use of the homeless services system, but analysis of their demographic characteristics and mainstream program involvement[17] help to describe further the differences among these common path groups. (Exhibit 4.9)

[16] The pie chart is intended only to illustrate the relative size of each path group and should not be interpreted literally. The size of pie chart represents the size of the path group averaged across the three sites.

[17] Based on mainstream domains collected in Jacksonville (Medicaid, mental health, substance abuse, entitlements, and jail) and Houston (mental health, City and County jail).

Exhibit 4.9: Characteristics of Individuals in Common Path Groups

Common Path Groups	Jacksonville	Houston	Des Moines
ES Short Stayers	Relatively fewer women Slightly fewer African Americans Relatively younger Average healthcare use Less substance abuse and criminal justice involvement	Very few women Fewer African-Americans Relatively younger adults Lowest rates of mental health care Lowest rates of criminal justice involvement	Not demographically distinct from other common path groups
ES Long Gappers	Almost no women More likely to be African-American Lowest rates of Medicaid managed care Highest criminal justice involvement	Very few women Slightly more African-Americans Slightly older (Frequent ES Longer Gappers much older) Fairly high mental health use High rates of criminal justice involvement	Not distinct from other path groups in percent women and African American Younger than other common path groups
Sequential Program Users	Relatively more women Fewer African-Americans Slightly older High use of Food Stamps Highest rates of mental health and substance abuse treatment prior to homelessness Low criminal justice involvement	Relatively more women Slightly more African-Americans Slightly older Moderate rates of mental health care Moderate criminal justice involvement	Relatively fewer women Oldest path group
Circlers	More likely to be African-American Slightly older Moderate use of mental health care, lower use of other healthcare High criminal justice involvement	Predominately women Slightly more African-Americans Slightly younger Highest rates of mental health care and State mental health Inpatient hospitalization Highest rates of criminal justice involvement	Very few women Older adults

Path Groups Using Only Emergency Shelter

Two of the common path groups describe individuals who only use emergency shelter: Short Stayers and Long Gappers. These two groups represent roughly three-quarters of each homeless individual study cohort.

Emergency Shelter Short Stayers are by far the largest path group in each of the three sites, representing 57 to 68 percent of each study cohort (Exhibit 4.7). Emergency Shelter Short Stayers use only emergency shelter and have one or two brief stays, totaling one to three weeks. In Des Moines, the demographic characteristics of this group do not appear substantially different from those of the other path groups, but in Jacksonville and Houston this group is younger (20 to 23 percent of the group are 30 years or younger), has fewer women, and has a slightly higher proportion of whites than other groups. In Jacksonville, this group had the lowest rates of substance abuse; in Houston, this group had the lowest rate of mental health system involvement and criminal justice involvement. Not surprisingly, this group incurs minimal homeless system costs, averaging only $321 to $686 total per person over the 18-month period (Exhibit 4.10). Despite the large size of this path group, the total homeless system costs associated with Emergency Shelter Short Stayers is disproportionately small, representing only 8 percent of the total homeless costs for the cohort in Des Moines and in Houston and 28 percent in Jacksonville.

All three sites had a sizable group, 10 to 14 percent, that stayed in emergency shelter an average of 7 to 11 times over the course of a year, but spent an average of only 23 to 124 cumulative nights in shelter (Exhibit 4.7).[18] These are referred to as **Emergency Shelter Long Gappers** because of the long gaps between shelter stays. A small number of individuals within this group in Houston had a huge number of stays (more than 40 brief stays with gaps averaging less than a week between stays), and this group is much older than the study cohort as a whole or the other Houston Long Gapper Groups (Appendix C.1.2). Emergency Shelter Long Gappers are almost entirely male (95 percent in Jacksonville, 90 percent in Houston, and 72 percent in Des Moines), and slightly more likely than members of other path groups to be African-American. In Houston, more than a third of this group had mental health involvement, and more than a quarter had criminal justice involvement. In Jacksonville, this group had very high criminal justice involvement (62 percent). These individuals also had involvement in substance abuse and mental health treatment (26 and 21 percent), although other path groups had similar treatment rates. Even though individuals in this group experienced homelessness on and off for a full year, their total homeless system costs averaged only $910 to $2,494 per person since most of that time was not spent in shelter (Exhibit 4.10).

The cost variations for these two groups, all of whom used emergency shelter exclusively, relate primarily to the sheer differences in lengths of stay. However, another key cost driver is the cost per day of the programs used by each group. The total homeless system costs for Emergency Shelter Long Gappers represent 5 to 10 percent of the each study cohort's costs, slightly lower than the proportion of the study cohort they represent.

[18] Although this study examined first-time homeless individuals, a number of individuals we studied such as members of this path group experienced patterns of chronic homelessness over time.

Path Groups Using Multiple Program Types

The other two common path groups describe individuals who used multiple types of programs either sequentially or in a circling fashion, using transitional or permanent housing and later circling back to emergency shelter.

Sequential Users, 3 to 12 percent of the study cohort at each site, used a combination of emergency shelter, transitional housing, and permanent supportive housing programs. Not all individuals used all three program types, but those they used were accessed in the emergency-transitional-permanent sequence. Jacksonville had two groups of Sequential Users: short stayers with an average of two stays totaling two months, and long stayers with an average of six stays totaling more than a year. In Houston and Des Moines, Sequential Users stayed an average of six and nine months over three and four stays respectively. Individuals generally had cumulative gaps of more than one month between stays (Appendix C.1 tables). In all three sites, more than half of this group's days in homeless programs were spent in transitional housing.

In Jacksonville, the combined Sequential Users groups were almost one-third female. The Sequential Long Stayers group had an average age of 47 years—the oldest of all of the path groups, although similar to Permanent Housing Long Stayers. More than 30 percent of Jacksonville's Sequential Users were shown by the match with mainstream data to have received substance abuse treatment, compared with an average of 22 percent for the Jacksonville cohort as a whole.

In Houston, almost half of Sequential Users were female, and almost 20 percent were over 50 years of age, compared with a cohort average of 12 percent. The Houston transitional housing system offers many possibilities for single women, including access to much of the scattered site transitional stock offered in conjunction with family programs. This helps explain the high percentage of women in Houston path groups that used programs other than emergency shelter.

The average homeless system cost in Jacksonville for Sequential Users was $1,585 for Sequential User Short Stayers and $10,416 for Sequential User Long Stayers. The figure for Long Stayers can be compared with the average total cost per person of $8,539 for Sequential Users in Des Moines and $14,418 in Houston. The costs for Sequential User Long Stayers were the highest of all path groups in Jacksonville and Houston, and in Des Moines the costs for Sequential Users were outpaced only by a path group that used only transitional housing (Exhibit 4.10). The total costs for Sequential Users represents 13 to 22 percent of the cohort's total homeless costs, two to four times higher than the proportion of the cohort they represent.

The high costs for the Sequential Users were driven both by the long lengths of stay and by the high percentage of nights (59 percent to 84 percent) that this group spends in transitional housing programs. Transitional housing for individuals has high costs in all sites compared with other program types (see Chapter 3 for further discussion), although particular programs of other types used by this path group are also expensive: for example, extended stay emergency shelter and permanent supportive housing with intensive services.

Circlers, 2 to 7 percent of the study cohort in each site, are individuals who used transitional housing or permanent supportive housing and later returned to emergency shelter. By definition, individuals in this group used more than one program type and, therefore had multiple stays. On average, each person had three stays in Houston, seven in Des Moines, and eight in Jacksonville. The cumulative length of gaps between stays is similar to the length of time actually spent in programs (Appendix

5.x). Circlers do not appear have distinguishing demographic characteristics that might help to identify them when they first enter the homeless services system. In Houston they were predominately women and slightly younger, while in Des Moines very few were women and they were relatively older than other path groups. In Jacksonville, Circlers had low rates of access to medical care (15 percent), high mental health involvement (30 percent), and high criminal justice involvement (44 percent). For Houston, Circlers had the highest rates of mental health (48 percent) and criminal justice (27 percent) involvement of all path groups. We do not have enough information to draw conclusions about why these individuals returned to shelter. For instance, the individuals may have been terminated from a transitional or permanent housing program without finding sustainable long-term housing or may have experienced barriers accessing appropriate permanent housing related to their mental health or criminal history. Alternatively, they may have had involvement with inpatient treatment or jail that disrupted housing and resulted in repeat homelessness.

The group had average homeless system costs of $3,987 in Jacksonville, $6,374 in Des Moines, and $10,705 in Houston (Exhibit 4.10). In Jacksonville, the Circlers represented 18 percent of total cohort costs though the path group only comprised 7 percent of the cohort's population. The Des Moines Circlers represent only 4 percent of the cohort but incurred 12 percent of the cohort's total costs, and the Houston Circlers represent only 2 percent of the cohort but incurred 9 percent of the total costs.

Length of stay is a key factor driving this group's costs, but it does not explain the difference in costs across the sites. Houston's costs were significantly higher than Jacksonville's, in large part because the daily costs of the specific programs used by the individuals in this path group were higher and partly because the Houston group spent 89 percent of nights in extended emergency shelter, transitional housing and higher cost permanent supportive housing programs, whereas Jacksonville's cohort spent only 59 percent of nights in more expensive transitional or permanent programs. Des Moines Circlers' costs were higher than Jacksonville's in part because this path group spent 76 percent of its sheltered homeless days in transitional programs and more than half of its transitional housing days in the more expensive of the two transitional housing program models. (More detail about the costs of these models can be found in Chapter 3.)

Other Path Groups

The remaining portion of each site's study cohort was represented by path groups with other patterns. These groups all represent individuals who used a single program type for extended periods, and as a result, most are fairly high cost groups. However, the types of programs each group used differed, so they are described individually for each site. Very few individuals in this study used permanent supportive housing, either immediately upon entering the homeless services system or after a stay in emergency shelter or transitional housing.

Jacksonville Emergency Shelter Long Stayers. This group represents only 2 percent of the Jacksonville cohort, but they had almost year-long continuous stays in emergency shelter. The Emergency Shelter Long Stayers are the only path group across all three sites with patterns of homelessness consistent with Kuhn and Culhane's original chronically homeless group (Kuhn & Culhane, 1998), though not all members of this group would meet HUD's current definition of chronically homeless which has a disability component.[19] While the size of this group is smaller than

[19] HUD's definition of chronic homelessness also incorporates Kuhn and Culhane's episodically homeless, which is more parallel to the Emergency Shelter Long Gappers.

the percent identified by Kuhn and Culhane, the Jacksonville cohort only includes first-time homeless individuals; thus, one would not expect to find a sizable chronically homeless population. Rather, the small size of this path group may provide an indication of the proportion of first-time homeless individuals who may continuously use emergency shelters without an appropriate re-housing intervention.

In contrast to the study cohort as a whole, 54 percent of emergency shelter long stayers were female, and the group had the highest percentage of African Americans, 73 percent, compared with 47 percent for the Jacksonville study cohort as a whole. Compared with other first-time homeless individuals in Jacksonville, members of this group were more likely to receive income support from the Food Stamps program prior to homelessness (48 percent) or during their long stays in shelter (77 percent), but this does not appear to have helped them avoid homelessness or leave it quickly. Their use of mainstream systems suggests that medical illness may have contributed to their extended homelessness. Their rate of involvement with the criminal justice system was low (Appendix C.1.1).

The cost to the homeless system to house these individuals was very high, $9,756 per person (Exhibit 4.10). Yet, due to the small size of the group, their total cost to the homeless services system was modest, representing 13 percent of the cohort's total costs. The average cost per Emergency Shelter Long Stayer is equivalent to 15 months of maximum rent subsidy at the FY2006 Fair Market Rent of $643 per month for a one-bedroom unit (HUD, 2005) (Exhibit 4.11). Given the pattern of long-term homelessness that emerged over the 18-month observation period and the high costs associated with individuals in this group, an alternative permanent housing intervention may be a more appropriate intervention for this group than shelter.

Jacksonville Permanent Supportive Housing Long Stayers spent an average of one year in residential homeless programs, primarily in permanent supportive housing. This group was about one-third female, compared to 20 percent for the study cohort as a whole, and a similar percentage was more than 50 years old, much higher than in any other path group in Jacksonville. Not surprisingly, for a group that used mainly programs available only to persons with disabilities, their rates of use of mental health and substance abuse treatment were high (Appendix C.1.1). The homeless services system incurred approximately $8,500 per person for this group (Exhibit 4.10), slightly greater than a maximum annual rent subsidy based on the Fair Market Rent. Permanent Supportive Housing Long Stayers represent 15 percent of the total Jacksonville cohort's homeless system costs, though these individuals represent only 3 percent of the overall cohort. Most of these expenses were incurred for project-based SRO housing or Shelter Plus Care vouchers, so conceptually these costs to the residential system for homeless people are essentially equivalent to paying rent in the private market and therefore are quite different from the residential homeless system costs incurred on behalf of other path groups. Most of the services associated with these units were provided through relationships with mainstream providers and may be reflected in the mainstream service system costs incurred for this path group or may not be fully captured.

Houston Users of Extended Stay Emergency Shelter. In Houston, 3 percent of the study cohort used extended stay emergency shelter programs for an average of 158 days, slightly more than 5 months. This subset had average per person homeless system costs of $10,540. Extended stay programs are a hybrid model that provide clients a greater level of privacy and have a wider array of services than the shorter-stay model, in many ways paralleling the environment and programming provided at a transitional housing program. They are more expensive than less service-rich emergency shelters. The Extended Stay programs are primarily targeted to women with a history of

substance abuse. Fifty-five percent of the people in this group were women, and 69 percent were African American.

Houston Users of Transitional or Permanent Supportive Housing Only. In Houston, 16 percent of the study cohort went directly to transitional housing or to permanent supportive housing. These individuals were mainly women (77 percent), in sharp contrast to the users of transitional or permanent supportive housing programs who arrived there sequentially or who used them and then "circled" back to emergency shelter. This group is somewhat less likely to be African American than the study cohort as a whole. Their use of mental health care and encounters with the criminal justice system were not different from the study cohort as a whole. Their lengths of stay in the residential system for homeless people were slightly lower than Sequential Users or Circlers in Houston, and their costs to the homeless services system were slightly lower, $8,799 on average (Exhibit 4.10). Nonetheless the average costs per person are still very high compared with the average cost per person of $2,257 for the cohort overall. This path group represented the majority (52 percent) of homeless costs within Houston, substantially larger than the proportion of the cohort (16 percent) they represent.

Des Moines Transitional Housing Only, Shared Rooms. In Des Moines, 13 percent of the study cohort used transitional housing provided in shared rooms and, therefore, with relatively little privacy. This group was 42 percent female (compared with 27 percent for the study cohort as a whole) and less likely to be African American (12 vs. 21 percent). They were somewhat younger than the study cohort as a whole and stayed an average of just over 4 months (133 days), substantially less than Sequential Users, Circlers, or those who used only Transitional Housing provided in independent rooms, described below. We have no mainstream data for Des Moines from which to speculate further on the possible causes of their homelessness or the way in which they were served by transitional housing. However, one of the shared room transitional housing programs in Des Moines serves women who have recently been incarcerated. The average total cost to the homeless services system for members of this group is only $3,103 (Exhibit 4.10), reflecting their use of a relatively low cost model for transitional housing for a relatively short period of time. Because of the relatively low costs per person, this group was associated with only 18 percent of the homeless system costs incurred by the cohort, a proportion only slightly higher than the size of the path group.

Des Moines Transitional Housing Only, Independent Rooms. Eight (8) percent of the study cohort in Des Moines used only a form of transitional housing that provides private rooms to clients. This group had lengths of stay averaging almost 8 months (237 days), perhaps due to the higher levels of privacy and relative independence provided to this group. Members of this path group were predominately male (85 percent compared to 73 percent of the study cohort as a whole), but similar to the rest of the study cohort in other respects. Given the long lengths of stay for this group and their use of an expensive type of transitional housing (see Chapter 3), they had the highest cost per person of any path group in Des Moines, $11,731 (Exhibit 4.10). Cumulatively, they incurred 42 percent of the total homeless costs for the Des Moines cohort even though the group comprised only 8 percent of the cohort.

The average per person costs for individuals in each path group are shown in Exhibit 4.10.

Exhibit 4.10 Average Homeless System Costs Per Person By Path Group

	ES Short Stayers	ES Long Gappers	Sequential Users	Circling Users	Other Path Groups	Average for Overall Cohort
Jacksonville	$686	$910	$1,585 Short Stayers $10,416 Long Stayers	$3,987	$8,493 PSH Long Stayers $9,756 ES Long Stayers	$1,634
Houston	$353	$880 ES Long Gappers $2,494 Frequent ES Long Gappers	$14,418	$10,705	$8,799 TH or PSH Only	$2,257
Des Moines	$321	$1,224	$8,539	$6,374	$3,103 TH – Shared Rm $11,731 TH – Indiv Rm	$2,308

Exhibit 4.10 clearly illustrates the range of average homeless system costs per person for each of the path groups, as discussed in the previous section. The highest cost path groups (long stayers in expensive programs) in each of the three sites had average costs per person 15 to 41 times the average costs per person of the lowest cost path group, Emergency Shelter Short Stayers. Since path groups correspond strongly with costs, policymakers could use information like this to determine how much they could invest in alternative interventions for different path groups while staying cost-neutral. This could be a simple as assessing whether there are less expensive ways of delivering similar services to single women, who are frequently served in a higher-cost family program environment.

For higher cost path groups, the CoC could also assess the level of housing and service assistance currently provided to long stayers relative to alternative interventions. Fair Market Rents (Exhibit 4.11) represent the equivalent of funding a deep rental subsidy for an individual for a month. For example, Jacksonville could fund a rental subsidy for 16 months with the resources currently spent on average to house a Sequential Long Stayer in homeless programs for one year. To determine the relative cost-effectiveness of the current strategy to alternative interventions, policymakers can compare the costs and long-term outcomes of the housing assistance and services provided to Sequential Long Stayers in these programs with the costs and outcomes that might be achieved by using these funds to support alternative interventions, such as a rental subsidy.

Exhibit 4.11: 2006 Fair Market Rent for One-bedroom Unit in Individual Study Sites

	Jacksonville MSA	Houston MSA	Des Moines MSA
2006 Fair Market Rents: monthly rent for one-bedroom[a]	$643	$612	$549

[a] *FMR Source: HUD, 2005. The FMR does not include the monthly fee paid to a public housing agency for administering the voucher program, which was about $58 per unit per month in these three communities. (HUD, 2007)*

Thus, an important policy question is whether there is alternative prevention, housing, or other homeless interventions that could be offered at similar or lower costs that would achieve improved outcomes or be preferable for other moral, programmatic, or policy reasons? If the response is affirmative, then in addition to developing the alternative interventions, the CoC would also need to identify the individuals that need to be assisted differently. The path group analysis provided in this section provides some clues about what to look for in an assessment process, though more research in this area is needed.

A related finding is that all program types and all programs within each type do not have equal costs; thus, long-stayers do not have universally high-costs. For example, Jacksonville's Emergency Shelter Long Stayers (the group with homeless system use most comparable to Kuhn and Culhane's chronically homeless cluster) have lower average per person costs than the Sequential Long Stayers in Jacksonville who used transitional housing extensively. Setting aside ethical or programmatic reasons, Jacksonville may benefit more financially by seeking an alternative intervention for the Sequential Program Users than for other path groups. Similarly, if stakeholders in Houston undertake efforts to reduce lengths of stays in Houston's standard emergency shelters, they will not achieve cost-savings remotely approaching those that could be realized from efforts to reduce lengths of stays in the higher-cost extended stay emergency shelters. Again, that is not to say the extra investments in more expensive programs are not warranted based on additional benefits or outcomes for program clients. This cost analysis may help to identify programs about which cost-effectiveness analysis would be helpful.

4.4. Costs Associated with Mainstream System Use

In contrast to homeless residential system costs, mainstream system costs can occur before or after an individual's period of homelessness and there may or may not be a relationship between homelessness and increased or decreased involvement in mainstream systems. As described in section 4.1, prior research suggested that periods of homelessness are related to increased costs across most mainstream domains and that certain interventions may reduce acute care costs and other mainstream costs associated with crises that lead to homelessness. This research also assumes that reduced costs over time reflect positive client outcomes brought about by the intervention. At least theoretically, the cost reductions can be used to fund the homelessness interventions. This study was not designed to understand the client outcomes or cost-effectiveness of specified homelessness interventions. However, the study attempts to measure the study cohort's mainstream system involvement and associated costs incurred to serve these individuals before, during, and following

first-time homelessness. This information may help policy makers assess the extent of potential mainstream cost savings possible or recognize the limited opportunities for them.

For Jacksonville, we were able to obtain mainstream utilization and cost data for the Medicaid primary health care, Medicaid and State-funded mental health and substance abuse treatment, food stamps, and Temporary Assistance for Needy Families (TANF) systems aggregated by path group for the periods before, during and following homelessness. We also received client-level total mainstream costs for each domain and each study period. We were not able to obtain access to individual client encounter data, so we do not know the exact dates of the mainstream involvement or costs of individual services within these domains. The limitations of data aggregated by time period will be discussed later in this section. We were able to obtain client-level data documenting each arrest and jail stay throughout the full study period. In Houston, we were able to obtain client-level service utilization and cost data for City and County jails, mental health treatment, and inpatient stays in the state psychiatric hospital. For Des Moines, we were not able to obtain any data on any mainstream systems; therefore, this section discusses costs only for Jacksonville and Houston.

This section presents estimates of mainstream costs for the study cohorts in Jacksonville and Houston and also compares them with the results of previous research. Like past cost studies, these results may understate mainstream costs since we have not accounted for all mainstream domains.

4.4.1 Rates of Mainstream System Involvement

As it is for homeless system costs, utilization of mainstream systems is an essential building block for estimating costs. Examining rates of interaction with mainstream systems also yields a better understanding of the characteristics of the individuals in the study cohorts—at least the minimum percentage of the cohort with certain needs or experiences, since it is likely some members of the cohort have needs for services but did not access them during the study timeframe. Some individuals also may have used non-publicly funded services that were not captured in the datasets we analyzed. Exhibit 4.12 shows rates of cohort involvement with mainstream systems in Jacksonville and Houston across the study period. Use during the 12 months prior to homelessness can help show needs that were present during that period. It can also be compared to the patterns of use after the start of homelessness to suggest how homelessness or involvement with homeless programs may have affected mainstream use.

Exhibit 4.12 Rates of Involvement with Mainstream System Domains Prior to Homelessness, During Homelessness and Overall During the Study Period

	Jacksonville				Houston			
	Prior	*During*	*After*	*Overall*	*Prior*	*During*	*After*	*Overall*
Average days in period	365	132	599	1096	365	83	689	1137
Medicaid Primary Health	13%	9%	16%	20%				
Mental Health	13%	8%	18%	25%	11%	9%	12%	18%
Substance Abuse	9%	7%	15%	22%				
Criminal Justice	19%	13%	22%	38%	6%	2%	9%	13%
Income Support	29%	22%	43%	52%				

In Jacksonville, almost one-third of individuals were receiving income support (mainly food stamps) in the 12-months prior to homelessness, and 13, 13 and 9 percent respectively had accessed publicly funded medical, mental health and substance abuse treatment. Almost one-fifth had been in arrested or in jail.

A relatively smaller percentage of individuals interacted with these systems during homelessness, providing a fairly small group of individuals for policymakers to target for potential cost offsets. The smaller percentage with service encounters primarily reflects the shorter period of time homeless for most of the study cohort, compared with the periods of time before and after homelessness. The average length of each period is shown in the first row of Exhibit 4.12. Food stamps eligibility may have dropped during homelessness for people in programs supplying meals. Nonetheless, as later sections on mainstream costs will show, these small percentages of individuals can incur substantial costs per person.

Use of mainstream systems rises following the end of homelessness. This may be primarily due to the longer period of time in which we tracked people following homelessness. In some cases—income support, Medicaid primary health care, and perhaps mental health and substance abuse services—the increased rates may also reflect the success of the homeless services system in linking homeless individuals to needed mainstream services. In other cases—criminal justice, and again perhaps mental health and substance abuse services—the higher rates of use following homelessness could indicate that spending time in the residential services system for homeless people does not change—and may even exacerbate—the negative behavior of individual homeless people. There clearly are cost implications associated with increased use of mainstream systems following homelessness.

The next section details the costs incurred by certain mainstream systems and sets the stage for the next step of analysis that a community can take: exploring whether the costs are positive or negative, and whether there are opportunities to reduce costs for the percentage of clients who interact with these systems through homeless interventions.

4.4.2 Costs to Mainstream Systems During Homelessness

First we present costs incurred during the study cohort's period of homelessness (Exhibit 4.13),[20] the primary costs that we assume to be influenced by homelessness. The costs shown in the exhibit reflect only the domains for which we were able to obtain data, so they are minimum costs associated with our cohort of first-time homeless individuals.

[20] "During" homelessness is used to describe the period from the first day of the first stay in a residential program to the last day in the last stay within the 18-month study period. For individuals with more than one homeless program stay, during homelessness also includes gaps or periods of time between homeless stays when the individual may be housed.

Exhibit 4.13: Average Mainstream System Costs per Person Incurred "During" Homelessness

	Jacksonville		Houston	
	Average Costs During Homelessness Per Person Involved in this Domain	*Average Costs During Homelessness Per Person in Cohort*	*Average Costs During Homelessness Per Person Involved in this Domain*	*Average Costs During Homelessness Per Person in Cohort*
Medicaid Primary Health	$2,436	$219		
Mental Health	$1,318	$106	$4,157	$391
Substance Abuse	$2,265	$158		
Criminal Justice	$3,057	$397	$6,520	$157
Income Supports	$627	$138		
Average Total Per Person Costs for these Domains		$1,018		$547
Total Incurred During Homelessness by the Cohort for these Domains	$2,006,539		$2,412,227	

For each mainstream domain, Exhibit 4.13 shows the average costs per person for those who were served or interacted with that mainstream system and average per person costs when considering all individuals in the cohort. Per person costs for those who actually interacted with each system were relatively high, ranging from $627 for food stamps and TANF to $3,057 for those arrested or jailed during homelessness. The criminal justice expenses are high in part due to the large number of people who were involved with criminal justice (13 percent of the cohort, Exhibit 4.12). And those who were jailed, stayed in jail a long time—an average of 40 days each. When spread across the entire Jacksonville cohort, the costs are diluted.[21]

Therefore when considering the average mainstream cost per person in the overall cohort, costs during homelessness were relatively low, because most people spent only a brief time homeless and because only a portion of the cohort actually incurred costs in each of the domains. In Houston, average criminal justice costs are much lower than average mental health costs (Exhibit 4.13) for each cohort member, in part because only 2 percent of the study cohort had criminal justice costs during homelessness, compared with 9 percent who received mental health services (Exhibit 4.12). In fact, average costs per person for those who interacted with each system were higher for those involved with criminal justice than for those who received mental health care. As with Jacksonville, the average per person costs for both domains is diluted by the large percentage of individuals (more than 90 percent) who were not involved with either the mental health or the criminal justice system. Thus this further illustrates the point that an intervention can most easily achieve cost savings if it is targeted to those with high use (or any use). Conversely, interventions targeted to subgroups of

[21] The Jacksonville case study Appendix provides greater detail on these mainstream costs.

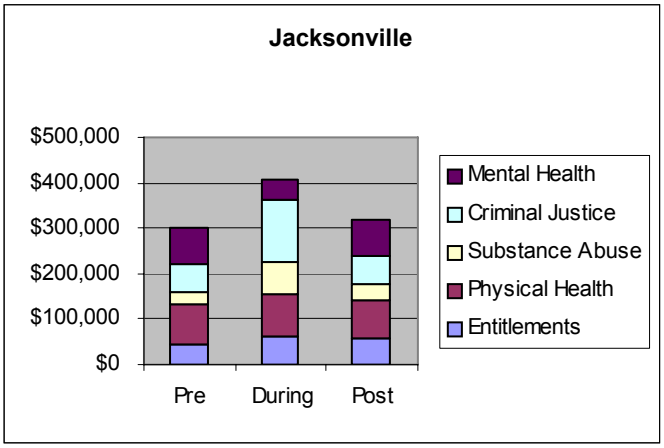
homeless individuals that are not heavily involved in mainstream systems, and probably interventions targeting all first-time homeless individuals, are unlikely to achieve cost savings sufficient to fund them.

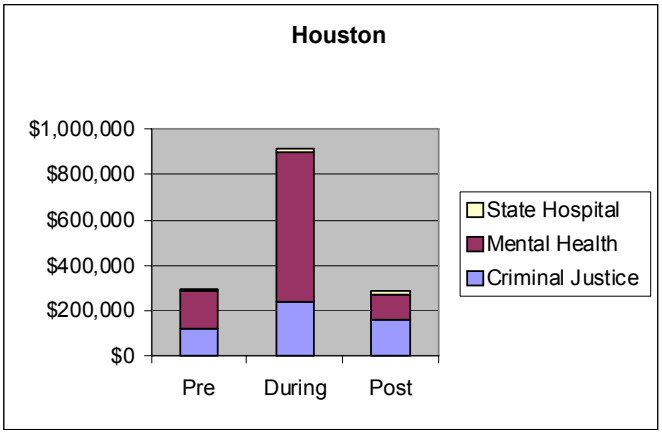
4.4.3 Mainstream Costs Before, During, and After Homelessness

Although utilization rates for the study cohort go down during homelessness, as shown on Exhibit 4.12, this is largely a reflection of shorter time periods. Costs, expressed as one-month costs to control for the different lengths of the time periods before, during and following homelessness, go up during homelessness for most domains, as shown on Exhibit 4.14. In Jacksonville, the total monthly mainstream costs incurred by the study cohort increased from an average of $161 per month per person to $231 per month (43 percent increase) during homelessness and went back down to an average of $166 per month per person following homelessness. (See the Jacksonville case study in Appendix A for more detail.) In Houston, mainstream costs increased from an average of $67 per month per person to $197 per month during homelessness (194 percent increase) and then reduced back to an average of $65 per month per person following homelessness. [22]

A smaller portion of the cohort interacts with each system during homelessness, so the increase in average monthly costs reflects concentrated usage of services by these users within a relatively brief period of time. In the periods before and after homelessness, more people interacted with the systems but the interactions were spread over longer periods and therefore the adjusted monthly cost is lower. More on the relationship of these costs before homelessness is provided in the next section. The lower rates of involvement with mainstream service systems may also reflect that some individuals may have received alternative services from homeless programs alleviating their need for mainstream care, and that those who did not have their needs met by the program internally may have needed higher cost clinical or acute care. However, not all of the change is explained by concentrated service use.

Exhibit 4.14: Monthly Mainstream Costs by Domain and Period, Jacksonville and Houston





In some cases, individuals used, on average, more expensive services during homelessness. For instance, in Jacksonville, the average cost per unit of physical health care covered by the Medicaid fee-for service

[22] See the Houston case study (Sokol, Leopold, Spellman, & Khadduri, 2009) for more detail.

plan was $100 per unit during the period prior to homelessness, $117 during homelessness, decreasing slightly to $110 following homelessness. More dramatic is the change in the Jacksonville cohort's Medicaid-funded mental health average cost per unit: $87 prior, $129 during, and $98 following homelessness. However, for Medicaid substance abuse treatment, the average cost per unit during homelessness was lowest ($426) compared with $471 per unit before and $508 per unit following homelessness. In Houston, the mental health treatment cost per unit was highest ($218) in the period preceding homelessness, dropping to an average cost per unit of $154 during homelessness and $141 per unit following homelessness. While bearing in mind that the average costs could reflect high-cost use by a handful of individuals and limited use by others, the higher cost per unit during homelessness for some domains is consistent with the theory raised in prior research that some people may receive more expensive acute care during periods of homelessness, but this pattern is not universal.

4.4.4 Mainstream Costs Immediately before Homelessness

While total mainstream costs increased during homelessness compared to the period prior to homelessness, suggesting more intensive mainstream use by particular individuals during homelessness, we come to a slightly different conclusion about the pattern by graphing mainstream utilization month by month, as shown in Exhibit 4.15 for jail stays in Jacksonville. The number of jail stays increases substantially immediately before first-time homelessness and peaks in the period immediately following first entry into a homeless program.[23] We see similar patterns for criminal justice involvement and mental health treatment costs in Houston, shown in Exhibits 4.16 and 4.17. The patterns graphed in these exhibits are very similar to those found in analysis of inpatient hospitalizations by homeless individuals in Philadelphia conducted by Culhane, Averyt and Hadley (1997). This pattern is not apparent when the cost analysis relies on average total monthly costs for the time periods before, during, and after homelessness shown in Exhibits 4.14.[24] This examination of data by month requires client-level service utilization data with actual dates of service, which we were not able to obtain from any of the Jacksonville mainstream systems except criminal justice.[25]

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[23] Other research analyzing rates of homelessness among ex-offenders found that individuals released from state prisons or jails have a greater risk of homelessness than individuals with similar characteristics who have not been recently incarcerated. In the communities studied, risk of homelessness among ex-offenders was higher for individuals with certain demographic characteristics. The same research also found that longer periods of incarceration were associated with greater risks of homelessness after release. (Graham, D., Locke, G., Bass Rubenstein, D. & Carlson, K., unpublished)

[24] These findings also corroborate those of Scully and Shank (2007), presented at the Summer 2007 National Alliance to End Homelessness conference. Scully's presentation prompted us to analyze data in this way to better understand patterns of use relative to homelessness

[25] The three period analysis was specified in the original data request to mainstream agencies who were not authorized to disclose client-level data. Now that this spike has emerged consistently for multiple domains, in the future we would explore alternate data specifications to capture this phenomenon more comprehensively.

Exhibit 4.15: Jacksonville Jail Stays Relative to Homelessness

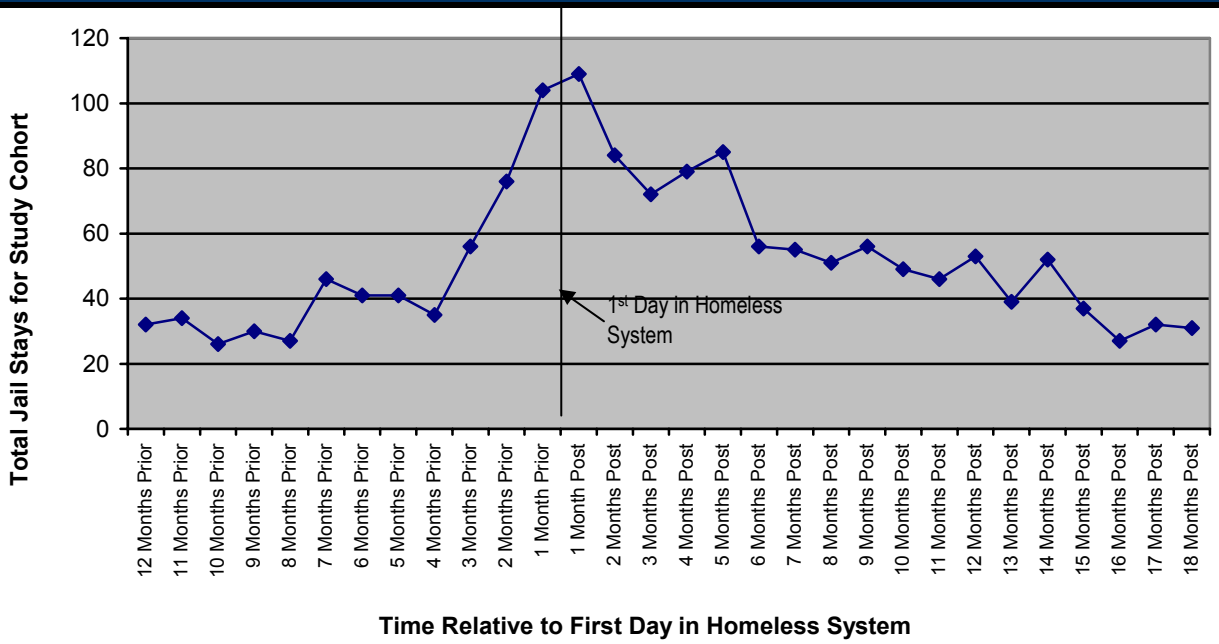
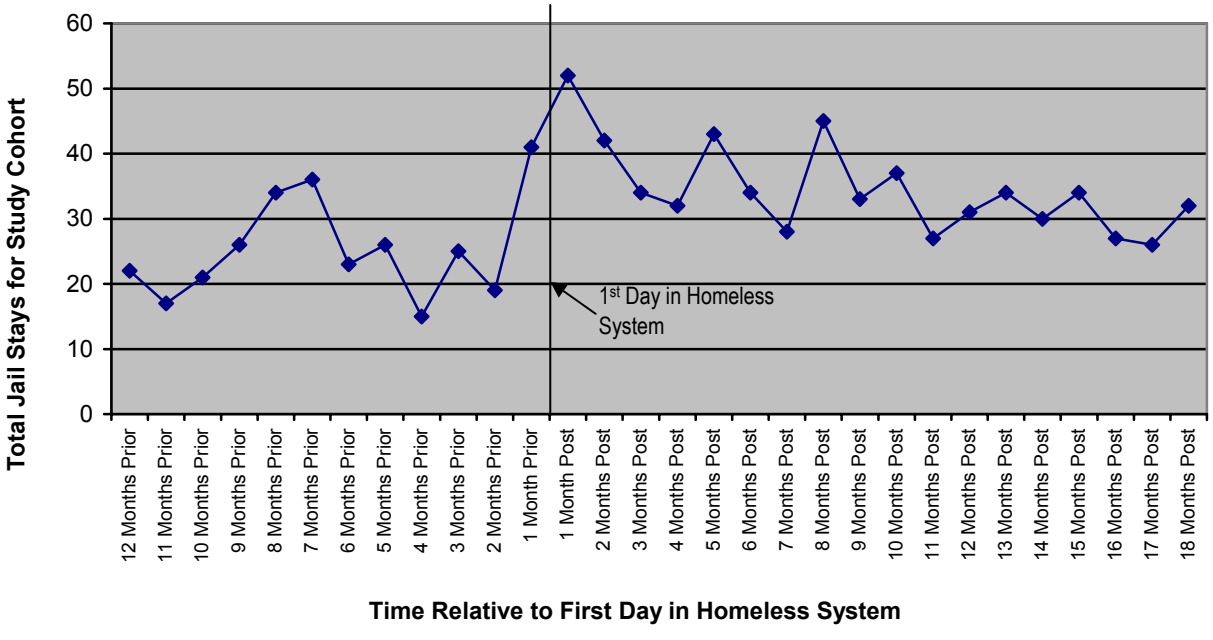


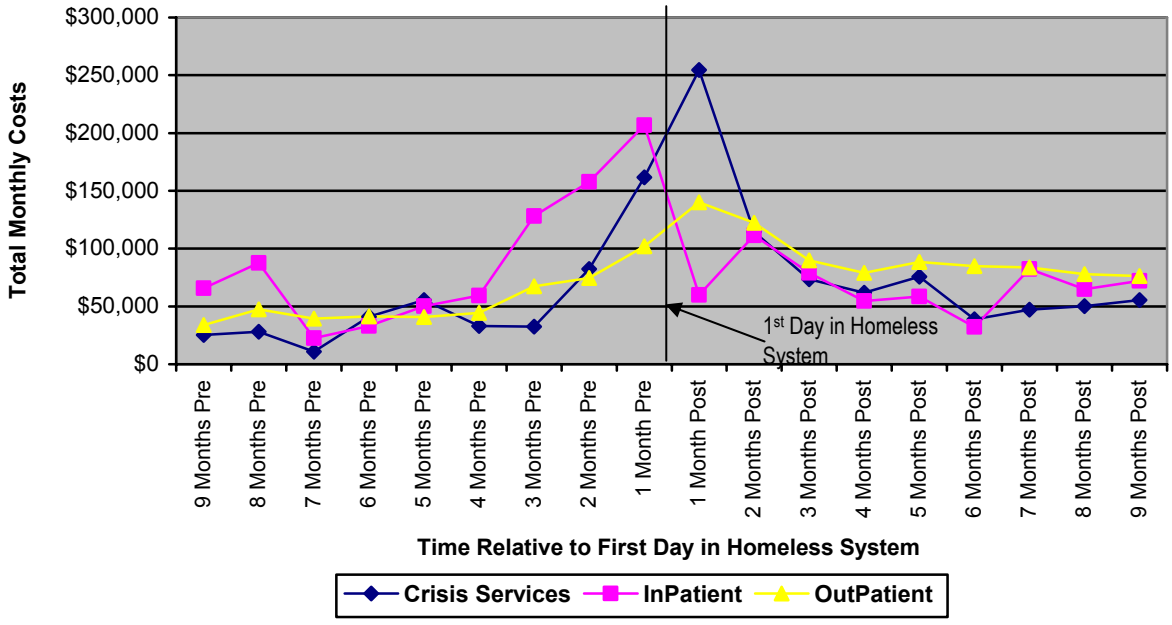
Exhibit 4.16: Houston (Individuals) Jail Stays Relative to Homelessness



Adding another layer of detail to the analysis, Exhibit 4.17 graphs mental health system costs separately for crisis services, inpatient treatment and outpatient treatment in Houston. The exhibit shows a dramatic increase in costs for inpatient and crisis treatment and a slight increase in outpatient treatment immediately before homelessness. Particularly interesting is the fact that inpatient treatment costs peak in the month prior to homelessness and then decline sharply in the month following the start of homelessness, whereas crisis and outpatient service costs peak in the month following the start of homelessness and then drop to levels slightly higher than the period before homelessness. It is logical that inpatient costs would decline once someone enters a residential homeless program, since a person cannot be staying in an inpatient facility at the same time he is in a homeless facility. However, the dramatic increase in use immediately prior to homelessness suggests that individuals may be exiting inpatient programs with inadequate housing placement services or that the mental health crisis that necessitated inpatient care is related to housing instability and homelessness in some other way.

The images are compelling and suggest a strong relationship between mainstream involvement and the start of homelessness. However, the current analysis has several important limitations. These exhibits depict total numbers of jail stays and total mental health costs for the cohort. We would need much more analysis to determine whether the individuals experiencing the crises before homelessness are the same people who later are shifting to outpatient mental health use. Furthermore, the analysis is built up from each individual's service utilization relative to his or her actual first day in the homeless system. The first month in the homeless system is roughly equivalent for all persons in the cohort and exactly the same for the 12 months prior to entry into the homeless system, so the pattern of progressively increasing mainstream costs is defensible for those timeframes. However, following the first day some people in the cohort quickly exit homeless programs, while others stay homeless

Exhibit 4.17: Houston (Individuals) Mental Health Costs by Month Relative to Homelessness



for long time periods or later return to homeless programs. Subsequent episodes of homelessness may also be related to increased mainstream involvement, but later increases are muted in these

graphs, since the costs of those who have subsequent episodes in month 6, for example, are summed with those in the cohort who are no longer homeless.

We did not collect and structure data in ways that facilitate conducting time-series analysis of mainstream system use relative to the end of homeless residential stays or subsequent episodes of homelessness. However, we believe that these interesting exploratory findings suggest opportunities for further research.

4.4.5 Characteristics Associated with Mainstream System Costs

A regression model was used to explain mainstream costs for different systems using covariates for demographic characteristics and homeless system utilization (Exhibit 4.18). Unlike the previous models presented in this chapter, we did not use a logarithm specification for the outcome variable for this analysis. These regression coefficients thus represent the differences in dollar costs between individuals with and without a particular characteristic.

Findings on the relationship between homeless utilization patterns and mainstream system costs over the total study period (before, during, and after homelessness) were somewhat inconsistent between the two sites.[26] In Jacksonville, multivariate analysis controlling for demographics and homeless experience showed a statistically significant relationship between length of stay in homeless residential programs and most mainstream costs (Exhibit 4.18). For each additional 30 days spent in homeless programs, physical healthcare costs increase by about $199, costs for food stamps and TANF increased by $80, and costs for substance abuse treatment increased by $61. In contrast, criminal justice costs dropped slightly for individuals in the Jacksonville study cohort who spent more time in homeless residential programs. Criminal justice costs increased by $150 for every 30 "gap" days spent between homeless program stays, which suggests a possible link between engagement with the criminal justice system and homeless recidivism.

The multivariate analysis for Jacksonville did not show a statistically significant relationship between mental health costs and lengths of stay in homeless programs. This may mean that homeless programs, especially those that encourage longer lengths of stay, link mentally ill clients with routine outpatient treatment or otherwise stabilize clients sufficiently to reduce their need for more expensive crisis or in-patient psychiatric treatment. Alternatively, it is possible that more expensive service-rich programs provide mental health services themselves, offsetting the need for mainstream mental health services. Or perhaps persons who successfully stay in transitional housing or permanent supportive housing are not the individuals with the greatest or most severe mental health needs, therefore suggesting that those with higher needs and associated treatment costs leave earlier or never enroll in the first place.[27] Many other explanations are possible, but the relationship between homeless system and mental health costs is notable.

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[26] We were not able to analyze changes in mainstream costs from one period to another using regression analysis, since we did not have access to client-level data by domain and period in Jacksonville.

[27] A 2006 HUD study of leavers and stayers in permanent supportive housing indicates that higher use of mainstream mental health systems such as inpatient mental hospital admissions and emergency services during residence in permanent supportive housing is a strong predictor of leaving permanent supportive housing rather than staying long-term. (HUD, 2006) This finding supports the idea that people with greater mental health needs or less stable routine mental health treatment may have shorter lengths of stay in some homeless program types.

Exhibit 4.18. Regression Analysis of Mainstream System Costs for First-Time Homeless Individuals in Jacksonville

Outcome Variable: Costs of Mainstream Domains	Physical Health Costs	Mental Health Tx Costs	Substance Abuse Tx Costs	Income Supports Costs	Criminal Justice Costs
Homeless System Utilization					
Number of Homeless Program Stays	-74.742**	-15.781	-15.465	-5.599	-34.855
	(36.628)	(37.545)	(14.559)	(10.013)	(21.201)
Homeless Length of Stay (in months)	198.681***	-47.273	60.639***	80.128***	11.861
	(47.651)	(48.844)	(18.941)	(13.027)	(27.582)
Homeless Gap Days (in months)	13.062	-18.746	40.846**	0.982	149.972***
	(43.528)	(44.618)	(17.302)	(11.900)	(25.196)
Demographics+					
Female	2,170.849***	1,663.730***	257.364	1,770.719***	-992.334***
	(430.825)	(441.617)	(171.251)	(117.779)	(249.377)
Black	560.360*	-907.569***	-378.032***	280.946***	380.364*
	(337.435)	(345.888)	(134.129)	(92.248)	(195.320)
Other race	209.352	575.892	-745.892**	-174.340	814.333
	(925.260)	(948.438)	(367.788)	(252.948)	(535.575)
Age: 18-24	646.639	1,237.724*	-192.726	416.656**	91.847
	(656.886)	(673.342)	(261.110)	(179.580)	(380.230)
Age: 25-30	128.096	636.365	-196.469	248.953	-59.916
	(589.908)	(604.686)	(234.486)	(161.269)	(341.461)
Age: 41-50	47.339	237.133	15.568	-152.958	-639.606***
	(416.223)	(426.649)	(165.447)	(113.787)	(240.925)
Age: 51 or above	912.642*	1,065.059**	-43.218	-104.207	-1,094.955***
	(503.089)	(515.691)	(199.976)	(137.534)	(291.206)
Constant	477.218	1,183.239***	727.681***	394.947***	1,820.685***
	(380.681)	(390.217)	(151.319)	(104.071)	(220.352)
Observations	1972	1972	1972	1972	1972
R-squared	0.04	0.02	0.02	0.16	0.04

+ Reference categories are Males, Whites, and Ages 31 – 40.
Covariates for missing gender, race, and age were included in the full models (Appendix B).
*Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%*

In Houston, unlike Jacksonville, a positive and statistically significant relationship was found between homeless program lengths of stay and mental health costs (Exhibit 4.19), as well as between homeless system costs and mental health costs (Appendix C.3). Among persons who received mental health treatment, on average each additional month spent in homeless programs was associated with an increase of $136 in mental health costs. The Mental Health and Mental Retardation Authority of Harris County offers numerous mental health programs targeting people who are homeless, including mental health programs that work in conjunction with local law enforcement officials and hospitals to divert individuals who are homeless from jail and inpatient hospitals. The higher mental health costs associated with long periods of sheltered homelessness likely reflect this local system of care. Alternatively, higher costs could reflect that individuals with mental illness are more likely to stay longer in the homeless system because their mental illness affects their ability to secure and maintain permanent housing outside the homeless services system.

Exhibit 4.19. Regression Analysis of Mainstream Costs for First-Time Homeless Individuals in Houston

Outcome Variable	Mental Health Costs	Criminal Justice Costs
Homeless System Utilization		
Number of Homeless Program Stays	2.035	-23.043*
	(15.330)	(12.658)
Homeless Length of Stay (in months)	135.568***	-33.204
	(31.638)	(26.123)
Homeless Gap Days (in months)	207.498***	136.029***
	(28.694)	(23.693)
Demographics+		
Females	408.504*	-174.216
	(233.006)	(192.393)
African-Americans	-281.174	62.298
	(216.820)	(179.028)
Other Races	-671.700**	-813.770***
	(308.407)	(254.652)
Ages 18 – 24	-625.156	-388.749
	(414.834)	(342.528)
Ages 25 – 30	-28.563	-321.642
	(369.645)	(305.216)
Ages 41 – 50	-797.297***	-1,250.060***
	(268.755)	(221.911)
Age 51 and Above	-1,498.154***	-1,635.552***
	(334.779)	(276.428)
Another covariate was also included for mainstream system involvement.		
Constant	1,990.985***	2,520.263***
	(262.855)	(217.039)
Observations	4,404	4,404
R-squared	0.04	0.04

+ Reference categories are Males, Whites, and Ages 31 – 40.
*Standard errors in parentheses *significant at 10%; **significant at 5%; ***significant at 1%*

In addition, individuals in Houston who have gaps between homeless program stays have even higher mental health costs. For each additional 30 days of time spent between homeless stays, mental health costs increase by $207. This correlation suggests that in addition to facing challenges remaining in permanent housing, individuals with mental illness may also have a difficult time staying in homelessness programs.

Like the Jacksonville results, criminal justice costs in Houston are associated with gaps between homelessness. For each additional 30 days spent between various homeless program stays, criminal

justice costs for individuals in Houston increase by $136. [28] Data were not available for Medicaid, substance abuse services, or entitlement programs in Houston.

The regression models also included covariates for gender, age, and race (Exhibits 4.18 and 4.19). Controlling for homeless system use, single women are associated with much higher mainstream costs in most domains than men. In Jacksonville, first-time homeless women are associated with $2,171 more in physical health costs, $1,664 in mental health costs, and $1,771 in food stamps and TANF than first-time homeless men in Jacksonville. Women are also associated with $992 less in criminal justice costs. Similarly, first-time homeless women in Houston have higher mental health costs of $409. The cost differences for criminal justice expenses are not statistically significant.

Older age is also associated with statistically significant cost differences. Individuals in Jacksonville and Houston over 40 are associated with lower criminal justice costs, $640 to $1,250 less for individuals between 41 and 50 years of age and $1,095 to $1,635 less for individuals over 50. In Jacksonville, individuals over 50 have $913 *higher* physical health costs and $1,065 *higher* mental health system costs. In Houston, older adults are associated with *lower* mental health costs, $800 for individuals between 41 and 50 years of age and $1,498 for individuals over 50.

Race is also associated with statistically significant cost differences (Exhibits 4.18 and 4.19). In Jacksonville, African-Americans are associated with $560 more in physical health costs, $281 more in food stamps and TANF, and $380 more in criminal justice costs, but $907 less in mental health treatment costs and $378 less in substance abuse treatment costs. These results provide a mixed picture, since they suggest that African-Americans are better connected to income support programs and may have fewer behavioral health needs, but have greater involvement with criminal justice. From this analysis, we cannot tell when the costs occurred in relation to homelessness. In Houston, individuals of "other" races had significantly lower mental health and criminal justice costs, but the results for African-Americans are not statistically significant.

The results for cost differences associated with gender, age, and race are very interesting considering that women, African-Americans, and relatively older individuals are all associated with higher homeless system costs.

4.4.6 Mainstream Costs Associated with Different Path Groups of First-Time Homeless Individuals

The average per person mainstream system costs for each of Jacksonville's path groups in the periods before, during, and following homelessness are shown in Exhibit 4.20. This exhibit illustrates the wide-range of mainstream costs for different subgroups of the study cohort defined by ways in which they use the homeless services system. Permanent Supportive Housing Long-Stayers incur the most mainstream costs when compared with other path groups. For this group, the period during homelessness refers almost entirely to the time individuals spent in permanent supportive housing programs that were part of the homeless system. Since eligibility for permanent supportive housing is contingent upon having a chronic disability, it is not surprising that this group has high mainstream costs across all three periods.

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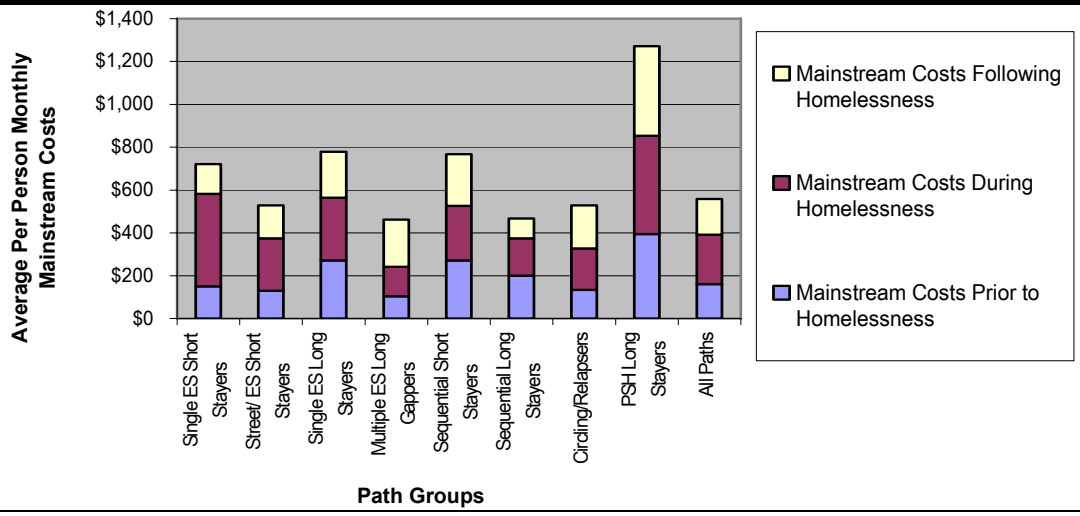
[28] The multivariate regression analysis for criminal justice may be affected by missing identifiers for the street only path group. The matching algorithm and process used for mental health records was more comprehensive.

Exhibit 4.20: Jacksonville Cohort's Average Per Person Monthly Mainstream Costs By Path Group and Period



We conducted multivariate analysis to show the extent to which mainstream costs for the total study period are greater for certain subgroups defined by the paths they take through the homeless services system. An extract of the regression models for each mainstream domain in Jacksonville is shown in Exhibit 4.21, and the complete model is provided in the Jacksonville case study Appendix B. Descriptions of the path groups were presented in Section 4.3.4.

Exhibit 4.21: Modeling Mainstream Costs for First-Time Homeless Individuals in Jacksonville by Path Groups

Mainstream System Costs	Medicaid Costs	Mental Health Tx Costs	Substance Abuse Tx Costs	Entitlement Costs	Criminal Justice Costs
Emergency Shelter Short Stayers	Omitted: reference category				
Emergency Shelter Long Stayers	1,629.965 (1,118.827)	-1,238.011 (1,158.049)	-12.359 (448.596)	2,326.988*** (306.924)	47.142 (656.299)
Emergency Shelter Long Gappers	-540.835 (576.914)	-163.468 (597.138)	349.426 (231.315)	-93.135 (158.263)	1,677.589*** (338.415)
Street/ES Short Stayers	-134.925 (400.498)	-2.881 (414.539)	312.461* (160.581)	-4.741 (109.867)	541.743** (234.931)
PSH Long Stayers	7,562.911*** (1,005.047)	-177.606 (1,040.280)	1,174.122*** (402.976)	439.888 (275.711)	839.736 (589.556)
Sequential Program Users (Short Stayers)	910.630 (577.251)	1,306.901** (597.487)	883.603*** (231.450)	-247.596 (158.355)	43.786 (338.613)
Sequential Program Users (Long Stayers)	-634.893 (1,233.235)	-716.680 (1,276.468)	1,345.077*** (494.468)	43.305 (338.309)	42.512 (723.410)
Circling Program Users	-342.969 (658.072)	-501.256 (681.141)	491.023* (263.855)	325.064* (180.526)	1,099.228*** (386.022)
Model also included covariates for Gender, Race, and Age					
Constant	476.466 (410.918)	978.383** (425.323)	587.542*** (164.758)	467.889*** (112.726)	1,682.568*** (241.042)
Observations	1972	1972	1972	1972	1972
R-squared	0.06	0.02	0.02	0.18	0.04

*Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%*

The model shows that those who go directly to permanent supportive housing and stay there for relatively long periods have on average Medicaid costs $7,563 higher and substance abuse costs $1,174 higher than short-stayers in emergency shelter, the reference category. Surprisingly, long stayers in permanent supportive housing do not have higher mental health costs than short stayers in emergency shelter. This may be because some of the permanent supportive housing programs target individuals with chronic addictions who may have fewer mental health treatment needs. Another possible explanation is that permanent supportive housing programs may be serving as caretakers for individuals with less severe mental health needs rather than a therapeutic model for those with acute needs. However, the model that predicts mental health costs has R-squared statistics of only .02, so patterns of homelessness and demographic characteristics may not be most relevant covariates for explaining results.

The two path groups who move in sequence from emergency shelter to transitional housing or permanent supportive housing and do not come back to emergency shelter have high substance abuse costs and (for one of the path groups) high mental health costs. Sequential Users (Short Stayers) were associated with over $1,300 in additional mental health costs, and an additional $884 in additional substance abuse costs on average, compared with Emergency Shelter Short Stayers. Sequential Users (Long Stayers) were associated with an additional $1,345 in substance abuse costs, but did not have higher mental health costs. As we discussed earlier in this chapter, the Sequential Users spend a long time in transitional housing, in which program staff may play a role in facilitating access to intensive substance abuse treatment. It is not clear whether the higher costs for this path group reflect greater service needs of these individuals or whether they merely had greater access to services.

Three path groups had high criminal justice costs: those who had long gaps between emergency shelter stays; those who spent time on the streets; and those who circled back and forth between program types. This finding clearly links the criminal justice system to those individuals whose needs are not fully met by the homeless residential system. Individuals whose criminal justice costs are rooted in jail time served prior to homelessness may be more likely to follow one of these three paths. At the same time, those who have long gaps between stays are often incarcerated during these gaps.

A similar model, shown in Appendix C.3, predicts which of the path groups in Houston have particularly intensive use of mental health services and the criminal justice system. Four path groups area associated with higher mental health costs. Individuals with long gaps between stays had on average $2,300 to $3,000 more in mental health costs than individuals with brief stays in emergency shelter. These higher mental health costs may reflect recurring stays in in-patient treatment programs prior to and during homelessness. The Sequential Users with long stay in homeless programs, primarily in transitional housing, also have mental health treatment costs $2,085 higher than brief users of emergency shelter. These costs may be related to inpatient treatment prior to homelessness or during, but may also be a reflection of service linkages with mental health programs established as a results of staying in certain types of homeless programs. Two of the groups with multiple homeless stays and long gaps between stays were associated with higher criminal justice costs than emergency shelter short-stayers. Emergency Shelter Long Gappers had $1,179 in higher jail and arrest costs, and Circlers had $1,943 more in criminal justice costs. Individuals who used transitional or permanent supportive housing only were also associated with $791 more in criminal justice costs.

4.5. Homeless System and Mainstream Costs for First-Time Homeless Individuals During the Period of Homelessness

Exhibit 4.22 compares the costs per person for the homeless services system and selected mainstream systems in Jacksonville and Houston and shows that the homeless system costs were much higher. It is important to note that this study was not able to collect utilization and cost information for some high-cost mainstream domains, such as locally funded emergency room care or emergency medical transport. The ratio of homeless to mainstream costs to some degree reflects the relatively low levels of involvement with mainstream systems during homelessness for most in the cohort and the fact that the majority of costs are concentrated among a smaller percentage of the study cohort. This suggests that while there may be limited opportunities for cost offsets in mainstream systems for most of the first-time homeless cohort, there may be opportunities within the homeless system to allocate resources to support better outcomes for homeless individuals. There continue to be opportunities to identify cost-effective interventions targeting individuals with intensive or high-cost use of mainstream systems.

In Section 4.1, we discussed past research on patterns of homelessness and the growing body of research that has been completed on costs associated with homeless individuals who are severely mentally ill or individuals who are identified as frequent users of inpatient or high-cost mainstream systems. Past research on homeless individuals has recognized that costs can be assumed to be quite low for the majority of homeless individuals, but has not quantified them. This study shows that the

Exhibit 4.22: Homeless and Selected Mainstream System Costs per Person Incurred during Homelessness

	Jacksonville		Houston	
	Costs	% of Total	Costs	% of Total[a]
Homeless System	$1,634	62%	$2,257	80%
Selected Mainstream Systems	$1,018	38%	$547	20%

[a]This percentage is not very meaningful, since the Houston case study includes such limited mainstream domains.

overall Jacksonville study cohort incurred an average total cost of just over $2,600 per person during homelessness (totaling homeless and mainstream systems costs shown on Exhibit 4.22), substantially lower than the annual estimates of $40,500 per person from the NY/NY Cost Study (Culhane et al., 2002).[29] However, examining the average costs of the full cohort is not nearly as meaningful for policy purposes as focusing on costs associated with more specific subgroups that could be targeted with alternative interventions.

Exhibit 4.23 presents the costs of five of the eight path groups from the Jacksonville case study (our most comprehensive findings) to illustrate the range of costs that have been identified for different

[29] Note that these figures are provided for discussion purposes only. The two studies are not directly comparable because of the differences in the research objectives and designs, study populations, geographic locations, and timeframes for analysis.

homeless single adult populations in comparison with the NY/NY Cost Study.[30] This discussion assumes that local stakeholders have a mechanism to predict future patterns of homelessness as the basis for targeting various interventions—presumably the subject of future research.

Emergency Shelter Short Stayers represent more than half of the first-time homeless study cohort in Jacksonville. Individuals in this group have average stays of less than one month and could theoretically be targeted for prevention strategies. Thus, a major policy question is whether resources currently used to house these individuals in shelter could be allocated differently to fund a prevention approach. The exhibit shows that, because of their short stays in shelter, the group is associated with only $686 per person in homeless system costs and incurs only $452 in mainstream system costs per person while homeless. While prevention strategies might hope to decrease some of the mainstream costs such as criminal justice involvement ($138), other mainstream use is desirable, such as receipt of food stamps/TANF ($69) and Medicaid Managed Care ($19). Therefore, to be cost-neutral, stakeholders in Jacksonville would need to limit a prevention intervention to an average per person cost of $1,000 if cost offsets from both mainstream and homeless systems were used. Given the difficulty of reprogramming mainstream resources, only the $686 under the control of the homeless system might be available.

Exhibit 4.23: Comparison of Costs During Homelessness Among Select Jacksonville Path Groups and Costs from the NY/NY Study Cohort Prior to Placement in Permanent Supportive Housing

	Jacksonville ES Short Stayers	Jacksonville ES Long Stayers	Jacksonville Circlers	Jacksonville PSH Long Stayers	NY/NY Cost Study SMI Cohort
Path Group Description	Less than one month spent in ES; 43% also had contact with street outreach teams	Continuous stay in ES averaging 10 months	Average 5 months (8 distinct stays) in homeless programs, returning to ES after TH or PSH; spread over 10 months	Average one year in homeless programs across 3 stays, primarily in PSH. Evidence of disability criteria for PSH.	4½ months in shelter over 2 yr period All psychiatrically disabled with severe mental illness
Homeless System	$686	$9,756	$3,987	$8,493	$4,658
Medicaid (Primary Health, Mental Health, Substance Abuse)	$126	$829	$282	$3,716	$14,208
Local Hospitals					$6,229
State Mental Health Treatment	$57	$126	$40	$467	$12,520
State Substance Abuse Treatment	$62	$164	$92	$786	-
Criminal Justice	$138	$57	$1,400	$561	$1,012
Income Supports	$69	$1,777	$243	$667	
Veterans Affairs					$1,822
Total Per Person	$1,138	$12,709	$6,044	$14,691	$40,451

Total may not reflect the sum of the domains due to rounding.

[30] Emergency Shelter Short Stayers combines Jacksonville's ES Short Stayers and Street/ES Short Stayers; therefore, five of the eight Jacksonville path groups are represented by the four groups discussed in this section.

Emergency Shelter Long Stayers represent a small percentage of the Jacksonville cohort, but they had almost year-long continuous stays in emergency shelter and were associated with substantial costs. More than one-third of these individuals received Medicaid-funded primary health care (average $829 per person), so it is possible that medical conditions contributed to their long lengths of stay. If a locality wanted to target these individuals, they could flag individuals with stays longer than a specified length. Three-quarters of the costs associated with this group were incurred within the homeless system itself, an average of $9,756 per person. These costs were equivalent to 15 months of rent subsidy at the FY2006 Fair Market Rent of $643 per month (HUD, 2005). Mainstream costs were substantial, but mainly because 77 percent of the group received food stamps during homelessness with an average total benefit of $1,551 per person. Future research would be required to know if an alternate housing intervention could achieve cost offsets through reductions of primary or behavioral healthcare expenses.

Circlers, 7 percent of the Jacksonville study cohort, spent almost 5 months in residential homeless programs spread over the course of more than 10 months. Individuals in this path group were characterized by a pattern of returning to emergency shelter at some point after an earlier stay in transitional or permanent housing. Because this group had frequent gaps when individuals were not staying in homeless programs, the homeless costs (almost $4,000 per person) were not as high as some other groups. About one-third of this group received mental health care at some time during the study period, but a smaller portion accessed primary health care than in other groups. More than 40 percent were involved with criminal justice at an average cost of $1,400 per person, more than two-thirds of all mainstream costs incurred by this group during homelessness. Arrests and jail sentences may have occurred between homeless stays, or may have caused the disruption in program usage resulting in the return to shelter. Criminal justice agencies may be interested in partnering to design an intervention to target this group.

Permanent Supportive Housing Long Stayers were associated with the highest costs per person, an average of almost $15,000 per person for homeless and mainstream services. The individuals in this group spent an average of one year staying in residential homeless programs, primarily in permanent supportive housing. Thus, rather than identifying costs associated with homelessness, data for this path group essentially illustrates the homeless and mainstream costs that were incurred when the homeless system stably housed disabled individuals who experienced first-time homelessness. Most of the $8,500 in homeless system costs per person in this group was incurred for permanent housing, so conceptually these costs are quite different from costs for the other path groups. These individuals each received an average of $6,200 in mainstream services while in homeless programs, most for primary health care ($3,452) and substance abuse treatment ($950). This group also had a fairly high-level of criminal involvement ($561 per person) during this period. It is somewhat surprising that the individuals in permanent supportive housing did not receive higher levels of mental health treatment, though several of these projects targeted individuals with chronic addictions, rather than persons with severe mental illness. These data would need to be parsed further to understand how homeless and mainstream costs varied when the individuals were in shelters or transitional housing as compared with permanent housing, but most of the mainstream costs were incurred while in permanent housing.

The final column of the Exhibit displays the costs incurred by the NY/NY Cost Study cohort in the two years prior to placement in supported housing. This group averaged close to five months in shelter during this period and incurred high levels of mainstream services during this timeframe. The differences in costs between the NY/NY cohort and the Jacksonville path groups reflect several

factors. The most significant is that all members of the NY/NY cohort were severely mentally ill and presumably had greater treatment needs and service utilization than any of the Jacksonville path groups. The figures also reflect significant differences in costs in different parts of the country, as well as state-to-state and city-to-city differences in service levels and access to services.[31] Therefore, communities have varying opportunities to achieve cost offsets when employing alternative interventions. This comparison clearly illustrates the point made by Rosenheck (2000) that high-cost interventions must be targeted to individuals with high-cost service utilization in order to be cost-neutral. That is not to suggest that other populations should not be targeted with high-cost interventions for ethical, social and other reasons.

4.6. Policy Implications and Recommendations for Further Research

This chapter documents the patterns and costs associated with first-time homelessness for individuals, and perhaps most importantly, the wide range of costs incurred by individuals with different patterns of using homeless residential programs. For the majority, stays in homeless programs are a single brief occurrence, and costs are minimal. For a small percentage, stays are long, and costs are significant. High homeless system costs frequently reflect extended use of higher cost transitional housing. Average homeless system costs per person appear to overshadow average mainstream costs per person for most during homelessness, since a relatively small percentage of individuals interact with mainstream systems during homelessness. And those with extended periods of homelessness are not consistently associated with intensive or high-cost mainstream use. Further, while average monthly mainstream costs peak during homelessness, when graphed based on the month-by-month utilization, mainstream system costs actually increase dramatically immediately before homelessness and peak immediately after the individual enters the homeless residential system. Thus, while cost savings may be achievable *within the homeless system* for long-stayers, the data from these three sites do not suggest significant cost savings *within mainstream systems* can be achieved by ending homelessness for first-time long-stayers as a whole.

4.6.1 Opportunities for Cost Savings

From a policy perspective, this study affirms past research and emphasizes that communities should be cautious when extending per person averages to a broad group of homeless individuals. The greatest costs and the greatest potential for cost savings are found among the very small percentage of individuals who stay the longest in the homeless system or who have intensive involvement in high cost mainstream systems. Policymakers seeking cost-effective interventions for homelessness will need to appropriately target strategies to each group.

Communities can use this type of cost analysis to explore in much more detail how individuals use homeless residential programs, the associated costs, and the potential for cost offsets. But communities must recognize that cost offsets may not be possible for some of the largest groups of individuals who become homeless, and saving money is not the only reason to deliver housing and services differently. The majority of individuals who experienced first-time homelessness in this

[31] For instance, in 2006, New York was ranked first with $2,316 in per-capita Medicaid spending for 2006, whereas Florida was ranked 46th with $706 per-capita spending (Public Policy Institute of New York State, n.d.).

study had very short stays with low associated homeless system costs. Nonetheless, communities could consider whether the average shelter cost per person for this subgroup could be reprogrammed (and potentially augmented) to support prevention and shelter diversion strategies.

Other policy considerations and cost saving possibilities are raised or affirmed by this research.

- Emergency shelter has low costs for short stayers, but is expensive and presumably an inappropriate intervention for longer stayers. Although the idea of prevention is appealing, the emergency shelters seem to provide an immediate, low-cost response to homelessness for the majority of individuals. It would be very difficult to fund a prevention response at such low cost, particularly since it may be challenging to identify up front which of the individuals' homelessness could be prevented with minimal assistance. Perhaps the emergency shelter system is an "adequate" response to an immediate housing crisis for most individuals, and a place in which individuals who are not able to quickly resolve their housing crisis can be more deliberately assisted or referred to more intensive interventions. For instance, emergency shelters could target case management or specialized assistance to individuals who have been in shelter for 30 days or more.
- Higher mainstream costs in some domains were associated with individuals with multiple episodes of homelessness (Long Gappers). Communities could target individuals who return to shelter for a second (or third) non-consecutive program stay. This group (and others) may also particularly benefit from intentional prevention-oriented discharge planning strategies and other strategies implemented in conjunction with criminal justice systems to reduce repeat incarceration.
- For some subgroups, total homeless system costs incurred per person exceed the cost of an annual direct housing subsidy. Communities may want to consider whether housing assistance would be a lower cost and potentially equally effective intervention for some of these groups.
- Transitional housing is generally one of the most expensive homeless program models. While this study does not look at long-term efficacy of this program model or its overall cost-effectiveness, communities may want to consider whether it is possible, and still consistent with program objectives, to shorten lengths of stay in transitional housing through more rapid out-placement, to target transitional housing more specifically to those who are less stable or more likely to interact inappropriately with mainstream systems and therefore need longer term housing support with intensive services, or to reduce the costs of the most expensive transitional housing programs.
- We surmise that one reason individual women cost more than individual men is that they may be more likely to be housed in programs that also serve families and therefore have a higher cost structure. Communities that are advancing a transitional housing solution may want to develop transitional housing for single women that can take advantage of a lower cost structure for individuals.
- Very few individuals in this study used permanent supportive housing, either immediately upon entering the homeless services system or after a stay in emergency shelter or transitional housing. We did not examine whether a larger percentage were eligible or appropriate for this model, but communities may want to assess whether capacity constraints in permanent

supportive housing may be contributing to episodic homeless behavior or longer stays in shelter or transitional housing for others.

- Any local system that attempts to change how individuals experience homelessness must presume that there are valid strategies to identify and triage people based on their predicted use of system resources. This study suggests that certain groups, such as single women over 40 years old, have higher costs than others; lower cost strategies may be able to be developed to house these subgroups more effectively. In this case, age and gender could be coupled with other basic screening criteria to triage potential high cost users to alternative interventions. More work is needed to understand both predictors and interventions that may be more effective for various subgroups.
- Some individual homeless programs used by first-time homeless individuals were extremely expensive, as shown in this chapter by the high costs of the homeless services system for particular groups of individuals even when lengths of stay are controlled for. (See Chapter 3 for more detail on program costs.) Communities should examine homeless program cost outliers for possible efficiency gains.

In identifying these ideas, we hope to increase understanding of how diverse the patterns of first-time homelessness are, as are presumably the needs of those who experience it, and the strategies and resources that are deployed to address it. These possibilities for cost-savings are offered to spark discussion about ways to identify opportunities to use existing resources to improve local homeless systems. However, to reiterate, this study did not examine cost-effectiveness and therefore, we do not mean to imply that lower cost assistance is better. This study measured only costs associated with homelessness. Although the methods we use may be useful in other circumstances to measure costs of alternative interventions, any effort to alter current programs or to create new interventions should be conducted with a comparable understanding of their relative effectiveness for different groups.

4.6.2 Methodological Lessons

An important methodological finding of the study is that analysts should be cautious using averages to calculate costs for a group of homeless individuals. Not all people incur the same level of costs, nor do they present an opportunity to achieve the same level of cost savings. If a community intends to target all people who are homeless, then applying an average to understand costs or cost savings is less of a concern, but a community planning a targeted intervention should recognize that most of the cost savings will be achieved for a small minority of homeless individuals and that they must use appropriate subgroup data to estimate the savings for the individuals they are targeting. For instance, if Jacksonville were to develop a prevention initiative for individuals who would otherwise spend less than a week in shelter, analysts in Jacksonville must assume that the homeless system cost offset is approximately $600, not the average homeless cost of $1,600 incurred by the complete Jacksonville study cohort.

Client-level data allowed us to: understand and graph the distribution of costs to the homeless system and some select mainstream systems; conduct multivariate analysis to understand whether costs were associated with certain demographic characteristics or homeless patterns that may be able to be used by communities to predict costs or target interventions; and avoid misusing averages for service utilization, costs, and misleading average costs calculated for broad time periods. Future studies should attempt to collect and analyze client-level data whenever possible.

4.6.3 Recommendations for Future Research

In numerous places throughout this chapter, we have cited limitations of our findings. Future research could examine several areas to further our understanding of costs of homelessness for first-time homeless individuals. One of the most important findings on mainstream data was the pattern of costs peaking around the first day of homelessness. These patterns need more analysis to understand how costs taper off after homelessness, teasing out the associations with subsequent episodes of homelessness. This study also defined the period during homelessness broadly as the period between the first day in a homeless program and the last, inclusive of gaps between stays. More analysis could be conducted on mainstream system costs to understand the frequency and types of service use relative to the times when individuals were staying in homeless programs and gaps between stays, and whether use varied by the type of homeless program used.

Additional data could also be gathered on other mainstream domains (or all of the mainstream domains for the Des Moines case study) to build a more comprehensive understanding of costs. To address methodological limitations, client-level service utilization data should be collected, if at all possible, for all (new and existing) mainstream domains to enable communities to more closely examine trends relative to periods before and immediately following the start of homelessness. With more complete client-level data, additional multivariate regression analysis could also be conducted to further understand the factors that are associated with higher costs for various path groups.

Finally, these methodologies could be employed as part of broader research examining the cost-effectiveness of various interventions for different subgroups—arguably, one of the most important policy question facing communities today.

5. First-time Homelessness for Families and its Associated Costs

This chapter examines the patterns of sheltered homelessness for families and associated costs to the homeless services and mainstream systems. The most important themes about costs associated with first-time homelessness for families that emerged are that the study:

- Confirms earlier research that long stays in the homeless services system are very expensive and makes explicit that most families with long periods of sheltered homelessness use transitional housing, either exclusively or in combination with emergency shelter.
- Shows that housing vouchers are less expensive than transitional housing per day or per month. Whether the cost of transitional housing is ultimately lower than the cost of a permanent voucher--because transitional housing is temporary—is an open question.
- Identifies a group of highly troubled families that cycle in and out of the homeless services system and have very unstable household composition, often including men for part of the total period of homelessness. Unlike heavy users of transitional housing, the outcomes of the use of the homeless services system by these highly unstable families are unambiguously negative in that they are never stably housed. An alternative treatment model for these families that focuses on their family instability rather than their housing instability may be needed.
- Shows that African-American families, shown by other research to be homeless at higher rates than other poor families, are associated with lower average costs per family in comparison to white families.
- Shows that, among the domains for which we were able to collect data, the highest rates of utilization and costs for homeless families are the medical costs reimbursed by Medicaid.
- Concludes that short-term costs to the criminal justice system, while troubling, do not appear high enough to suggest opportunities for offsets. We were not able to collect cost data for the use of the child welfare and foster care systems by homeless families in any of the study communities. This is an area in which additional research might find opportunities for cost offsets.
- Suggests—on the basis of the limited information collected for this study—that local policies designed to prevent families from becoming homeless and divert those on the brink of homelessness can succeed.

5.1. Existing Research

The 2007 Annual Homeless Assessment Report (AHAR) describes some salient characteristics of sheltered homeless families across the nation (HUD, 2008). Most adults who become homeless with their children are women (82 percent), a higher percentage than the two-thirds of adults in all poor families who are women. More than half of sheltered homeless families are African American. Homeless families are particularly likely to include children younger than age six.

Like the AHAR estimates based on HMIS data from a nationally representative sample of communities, most previous research on homeless families describes their characteristics. The literature has focused on trying to predict which poor families are at greatest risk of becoming homeless, given that few families become homeless even among the very poor. Rog, Holupka and Patton (2007) found that only 8.7 percent of a study sample of "fragile families"—recent mothers with incomes below 50 percent of the poverty level—became homeless during a three-year follow up period. Various studies have shown that mental health, substance abuse, and domestic violence are factors that put parents at risk of becoming homeless, but researchers have not been able to predict which families with these risk factors will become homeless (Rog and Buckner, 2007; Shinn, Rog, and Culhane, 2005).

5.1.1 Patterns and Costs of Family Homelessness

Based on a literature review, an expert panel, and some reanalysis of data, Rog, Holupka and Patton (2007) developed a framework for a typology of homeless families, but not a typology itself. They concluded that two typologies of homeless families are needed: a "prevention" typology that would help communities focus their resources on families at highest risk of becoming homeless, and a "resource allocation" typology that would help communities assist families who become homeless in cost-effective ways.

Culhane, Metraux, Min Park, Schretzman and Valente (2007) began to develop a resource allocation typology, based on cluster analysis of administrative data, conducted separately for New York City, Philadelphia, Columbus OH, and Massachusetts. Generalizing across the results of cluster analysis based on number of shelter stays and cumulative days of shelter use over a three year period in New York and Philadelphia and a two-year period in Columbus and Massachusetts, they identify three groups of first-time homeless families:

- Temporary: Families who use shelters or transitional housing for a single, relatively short, period of time and do not return to the residential system for homeless people after leaving it;
- Episodic: Families who cycle in and out of programs for homeless people, with relatively short stays for each homeless episode; and
- Long-Stayer: Families who stay for long periods of time in shelters, transitional housing, or both.

Culhane and his co-authors (2007) find that "Long-Stayer" families are by far the most expensive for the homeless services system. The average lengths of stay for this group ranged from six months (187 days) in Columbus to more than a year (444 days) in New York City, costing $21, 692 per family in Columbus, $30,812 in Philadelphia, $48,440 in Massachusetts, and $55,200 in New York (Exhibit 5.1). They question whether this is a cost-effective use of resources, given that these "Long Stayers," who make up about a fifth of all sheltered homeless families, are not more intensive users of targeted social services than other groups of homeless families. They base this assessment on the rates at which families use such social services as mental health and substance abuse treatment and the foster care system.

Exhibit 5.1: Average Cost per Family to the Homeless Services System, based on Lengths of Stay and Shelter Reimbursement Rates for Each Community

	Columbus, OH	Philadelphia	Massachusetts	New York City
Temporary	$3,828	$4,900	$11,550	$13,900
Episodic	$17,168	$19,043	$21,450	$38,500
Long Stayer	$21,692	$30,812	$48,440	$55,200

Source: Culhane, Metraux, Park, Schretzman, and Valente, 2007.

Culhane et al. (2007) match families in their study sample to selected mainstream systems for which they were able to obtain data. However, they do not report the costs of mainstream system use or suggest whether these costs could be reduced by preventing or ending homelessness for particular families. Such analysis of cost offsets has been confined to the individual homeless population and is discussed in Chapter 4.

As far as we know, this is the only previous analysis of the costs of homelessness for families. Other studies have been program evaluations that have reported on the outcomes of interventions for homeless families, but not systematically on their costs.[1]

5.1.2 This Study and Previous Research on Costs of Family Homelessness

This study of family homelessness in four additional communities—Kalamazoo, MI, Houston, TX, Upstate South Carolina, and Washington, D.C.—builds on and differs from Culhane et al. (2007) in the following ways:

- Like Culhane et al., we use cluster analysis, conducted separately for each of our four communities, to identify groups of first-time homeless families who follow different patterns or "paths" of use of the homeless services system. However, we use additional dimensions—type of program used, sequences of program use, and the lengths of "gaps" during which families are not in a residential program for homeless people—to create these clusters.
- Like Culhane et al., we use data from selected mainstream systems to which we were able to gain access to interpret the relative neediness of families and also to infer what caused them to become homeless.
- Instead of standard reimbursement rates for public funding of residential programs for homeless people, we use actual costs of programs collected from program budgets. This enables us to explore the influence of different types of programs on homeless costs.
- For three of the four communities, we are able to report data on the costs of the use of mainstream systems by homeless families and to make some inferences about potential cost savings and offsets.

[1] For a summary of this literature, see Locke, Khadduri, and O'Hara, 2007.

5.2. Characteristics of First-Time Homeless Families

We studied first-time homelessness among families in Houston, Washington DC, Kalamazoo, and Upstate South Carolina.[2] Across the four sites, we identified 1,374 families as first-time homeless between July 1, 2004 and June 30, 2005.[3] Although Houston is by far the largest community in the study in terms of general population, only 35 percent of the study population is in Houston and Washington DC had almost as many first-time homeless families as Houston (Exhibit 5.2).

The characteristics of the families in the study cohort in each site are shown in Exhibit 5.2. At all sites, most were single-parent families, and most adults were female. However, all sites included some adult men. The percentages of family members identified as black or African American reflect differences among the four communities. At the same time, as is the case for the AHAR national estimate, homeless families at these sites were disproportionately African American, compared with the African American percentage of the poverty population in the same communities. Nevertheless, all sites except for DC have many white families. Because of limitations of the HMIS data for these four communities, we were not able to determine the percentage of families who identified themselves as Hispanic or Latino. The AHAR estimate is that, nationally, 22 percent of homeless families identify themselves as Hispanic (all races), considerably lower than the percentage of all poor families who are Hispanic (HUD 2008). In each of the communities and especially Houston, the percentage of first-time homeless families who are minorities, including families identifying themselves as Hispanic, doubtless is somewhat higher than the percentage who are African American.

Exhibit 5.2: Characteristics of the Study Cohort of Families Who Became Homeless between July 1, 2004 and June 30, 2005

	Number of families	Adults who are male	African American	Average Age of Adults	Average Family Size
Houston	477	13%	61%	32	3.2
DC	410	17%	93%	32	3.5
Kalamazoo	342	15%	61%	30	3.2
Upstate SC	145	11%	53%	31	3.0

The age of adults and average family size for the study cohorts in the four communities are very similar to those characteristics for homeless families nationally, as estimated by the AHAR (HUD 2008). Nationally, adult men are somewhat more common among adults in homeless families (18 percent), compared to the first-time homeless study cohorts in the study communities except for Washington, DC.

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[2] A family was defined as a group of people who were served together at any time during the study period and who, at any time during the study period, included at least one adult (18 or older) and one child (17 or younger) when served by a program for homeless people. As a result, members of homeless families sometimes were found in programs serving homeless individuals at the study sites. "Stays" in individual programs were considered part of the overall period of homelessness, and their costs were included in the costs of serving homeless families.

[3] In Kalamazoo, we identified families for the study cohort based on first entry into the homeless system between January 1, 2005 and December 31, 2005.

We followed all members of each family in the study cohort for 18 months after the family (or one of its members) first appeared in the homeless services system. For DC, we were able to follow the study cohort for 30 months following the beginning of homelessness, and we decided to take advantage of this longer observation period because we found few families in the study cohort in transitional housing or permanent supportive housing when we followed them just for the first 18 months after their first entry into the homeless residential services system for homeless people.

When a family had more than one "stay" in a homeless program during the observation period, we often found that the composition of the household changed over the family's total period of homelessness. Change took a variety of forms: different adults appeared together with children; different children appeared together with adults; adults appeared without children during some program stays and with children in others; two adults were present at some times and not at others. Exhibit 5.3 shows the percentage of families with more than one program stay in each of the sites and also the extent of change in household composition.

Exhibit 5.3: Changes in Household Composition among Homeless Families

	Families with change in composition (entire study cohort)	Families with more than one program stay	Families changing composition among those with more than one program stay
Houston	25%	28%	65%
Washington, DC	34%	42%	76%
Kalamazoo	13%	32%	35%
Upstate SC	17%	35%	43%

At every site, at least one quarter of the families had more than one program stay, and a substantial fraction of those changed household composition when comparing household membership at the start of one program stay to the next. In the District of Columbia, which has the highest rates of composition change, more than a third of the study families changed in composition between stays during their period of sheltered homelessness.

Multivariate analysis presented later in this chapter will show that, after controlling for many other potential cost drivers including total days spent in homeless programs, families that changed composition had substantially higher costs to the homeless services system than those that did not.

5.3. Patterns of Family Homelessness and Associated Homeless System Costs

5.3.1 Homeless System Utilization

Central to costs to the homeless services system is how the system is used and, in particular, how many days a family spends in residential programs for homeless people. As shown in Exhibit 5.4, we found that the average total time that families spent in homeless programs during their period of homelessness varied dramatically across the four communities in the study, from just over 3 months in Kalamazoo to more than 9 months in DC.

The exhibit does not reflect lengths of stay for families in DC who used only a program--Community Care Grants—that places families directly from a central intake system into permanent housing and provides them with case management and short-term rental assistance. The "stays" reported to the HMIS for Community Care Grants reflect long periods of program enrollment during which families may receive case management provided by the homeless system but are not in the residential system for homeless families. Such lengths of stay are not comparable to lengths of stay within emergency shelter, transitional housing, or permanent supportive housing. The observation period in DC was longer—30 months rather than 18 months. The figures in parentheses on Exhibit 5.4 show lengths of stay and other patterns for the DC families for the first 18 months after they became homeless and show that DC still has the longest lengths of stay of any of the four communities.

The communities with relatively shorter lengths of stay, Kalamazoo and Houston, had a more skewed distribution, as shown by the difference between the average days spent in homeless programs and the medians and lowest quartiles (Exhibit 5.4). In Houston, half the study sample spent fewer than two months in homeless residential programs, and a quarter of the families were sheltered for 15 days or less. In Kalamazoo, half the study sample was in a program for a month or less, and a quarter of the families stayed 5 or fewer days. In DC, by contrast, the quarter of the sample with the briefest periods of sheltered homelessness still was in the system for more than a month.

Long periods spent by families in residential programs for homeless people may reflect housing market characteristics—for example a tight and expensive housing market and long waiting lists for assisted housing in Washington, DC—but may also reflect the way the homeless services system is organized and the relative attractiveness of the emergency and transitional housing facilities available in the community. Other factors that may affect long stays in DC include a central intake and screening process that may divert some families who otherwise would be short-stayers. In addition, DC had both congregate emergency shelters and "second stage" emergency shelters that provided private apartments without the time limits imposed by federal law on many transitional housing programs. Kalamazoo and Houston's systems may be structured to move families out faster.

Exhibit 5.4: Use of the Homeless System by the Study Cohorts of First-Time Homeless Families during an 18-Month Period[a]

	Average days in homeless programs	Median days in homeless programs	25th percentile days in homeless programs	Average number of program stays	Average "Gap Days" between stays[b]
Houston	114	50	15	1.4	29
DC	289 (223)	168 (129)	46 (38)	2.6 (2.1)	92 (35)
Kalamazoo	94	31	5	1.5	61
Upstate SC	186	103	27	1.4	25

[a]*For DC, the figures outside the parentheses are for the full 30-month observation period. The figures inside the parentheses show utilization patterns by the same families for the first 18 months following their entry into the homeless services system.*

[b]*Includes the total of all days during entire period of homelessness when no family members were in residential programs for homeless people. If a family had only one program stay or consecutive stays, the gap would be 0 days.*

Families in the homeless services system experienced between 25 and 92 "gap days" on average—that is, days during the family's entire period of homelessness when no family members were in a residential program for homeless people. We cannot tell whether families were living in their own housing units or unstably housed with family or friends during these periods. It is unlikely that all family members were homeless on the street (DC, for example reports to HUD that there are no families with children among its street homeless population) or that all members of the family were incarcerated or in hospitals or other inpatient programs.[4]

Multivariate analysis shows that, even after controlling for other factors that may influence lengths of stay, such as the type of program used (emergency shelter, transitional housing, or a combination of the two) and a large number of family demographic characteristics, the community in which a family was homeless had a powerful effect on its length of stay. Exhibit 5.5 reports the results of the multivariate analysis. When multiplied by 100, the coefficients for the covariates can be interpreted as percentage differences from the reference category, since the outcome variable is in logarithm scale. Compared with Kalamazoo (the reference category), DC families were sheltered 91 percent longer, Upstate South Carolina families 71 percent longer, and Houston families 45 percent longer.

Exhibit 5.5: Regression Analysis of the Length of Stay for First-Time Homeless Families

	Total length of stay (log scale)
Site	
Families in DC[a]	0.913*** (0.115)
Families in South Carolina	0.714*** (0.135)
Families in Houston	0.449*** (0.098)
Household Characteristics	
Total number of adults in household	-0.045 (0.183)
Total number of children in household	0.077** (0.032)
Any change in household composition during the study period	0.443*** (0.104)
Program Types Used	
Transitional Housing-only program type	2.436*** (0.100)
Emergency Shelter and Transitional Housing-only program type	1.988*** (0.137)
Other program type	1.921*** (0.164)
Demographics	
Male adult-only household type	-0.127 (0.271)
Female adult-only household type	-0.361* (0.210)
African American household head	-0.132 (0.097)
Household head of other race	-0.182 (0.191)
Household head ages 18-24	-0.269** (0.113)
Household head ages 25-30	-0.057 (0.105)
Household head ages 41-50	0.145 (0.123)
Household head ages 51 or above	0.538* (0.281)
Household with youngest child born after study entry	0.224 (0.238)
Household youngest child ages 6-12	0.103 (0.101)
Household youngest child ages 13-17	0.176 (0.162)
Household head race missing	-0.312 (0.245)
Household head age missing	-0.522 (0.634)
Youngest child age missing	-0.183 (0.299)
Constant	2.812*** (0.407)
Observations	1285
R-squared	0.48

Reference categories are: clients in Kalamazoo, Emergency Shelter-only program type, mixed-adult household type, white household head, household head ages 31-40, household youngest child ages 0-5

[a] *Excluded CCG/SAFAH-only families in DC*

Standard errors in parentheses.

**significant at 10%; **significant at 5%; ***significant at 1%*

Not unexpectedly, the most powerful factor for determining families' lengths of stay in the homeless services system was the type of program they used. (Again, this analysis does not include families who used only the Community Care Grants program in DC, for which lengths of stay reflect a period

[4] Some of these "gaps" may represent incomplete HMIS data. Not every provider in these communities contributes data to the HMIS.

of case management rather than shelter within the homeless services system.) Controlling for other factors, including the community in which the family was served, those using only transitional housing spent 3.4[5] times as many days in the homeless services system, and those using both emergency shelter and transitional housing spent approximately three times as many days as those who were only in emergency shelters. This model and others for which results are reported in this chapter were quite successful in explaining patterns and costs of family homelessness, as demonstrated by their large R-squared statistics.

Among the demographic characteristics tested, having more children had a small but statistically significant positive effect on length of stay, and changing household composition during the period of homelessness led to a 44 percent longer length of stay, after controlling for study site and type of program used. Race was not found to have a statistically significant effect on lengths of stay among study cohort families. This is an interesting finding, as the 2007 AHAR found that long-stayers in emergency shelter (among all families, not just first-time homeless families) were disproportionately African American (HUD, 2008).

Additional multivariate analysis predicting lengths of stay for first-time homeless families can be found in Appendix D.2.5.

Even controlling for length of stay, the program type a family uses is a powerful determinant of costs to the homeless services. Exhibit 5.6 shows the number of families in the study cohort using each type of residential program for homeless people across the four study sites. In every community, more families used emergency shelter than transitional housing. The numbers of families shown in the exhibit to have used each type of program sum to more families than the study cohort because some families used both emergency shelter and transitional housing or some other combination of programs

As shown in Chapter 3, emergency shelter and transitional programs have roughly equivalent daily costs when congregate shelters are compared with facility-based transitional models and apartment-based shelters are compared with scattered-site transitional models (See Exhibit 3.6). However, the costs of particular programs within each type of emergency shelter and transitional housing varied widely at each site. In addition, the first-time homeless families in our study cohort sometimes used particular programs that were either more expensive or less expensive than the typical emergency or transitional program serving families in that community. For example, in Houston the study cohort used extensively the most expensive transitional program, more costly in part because it offers many on-site services. In DC, use of the least expensive emergency shelter program by the study cohort was relatively rare. Whereas in Kalamazoo, the study cohort tended to use a particularly inexpensive transitional housing program;[6] in Upstate South Carolina, first-time homeless families often used a relatively expensive emergency shelter program with a high ratio of staff to families served.[7]

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[5] The coefficient of 2.4 indicates that these families spent 2.4 additional days for each reference day, or 3.4 times the reference category.

[6] One of the property-based transitional housing programs in Kalamazoo has very low housing operating costs, moderate service costs, and very low administrative overhead. The property also has very low market value, and adding an estimate for capital costs would have increased the daily cost by only $1.

[7] The program is heavily staffed by volunteers, and we included an estimate of the value of their time in the program cost.

Exhibit 5.6: Numbers of First-Time Homeless Families using Basic Types of Residential Programs for Homeless People by the Study Cohorts of First-Time Homeless Families

	Houston	DC	Kalamazoo	Upstate SC
Emergency shelter	400	317	271	109
Transitional housing	131	107	91	63
Permanent supportive housing	16	26	11	0
Other program types[a]	6	119	n/a	1

[a]*Other types include outreach (Houston) and the Community Care Grants program (DC). We have not included families who used only these programs in the multivariate analysis of the determinants of the use of program types or in the multivariate analysis of the determinants of total program costs per family. Among other reasons, the meaning of a "day" is ambiguous for these programs*

As shown in the exhibit, few first-time homeless families in any community used permanent supportive housing (PSH). Permanent supportive housing is available only to families with a disabled adult. However, an examination of overall usage of permanent supportive housing during the study period also suggests a capacity constraint. Most PSH units available for families were already occupied by families who had become homeless before the start of our study period.

We conducted multivariate analysis (Multinomial Logit model) to determine which types of families are most likely to use which types of residential program for homeless people. In this analysis, families who used Permanent Supportive Housing were grouped with the "other" category. Families that used only the Community Care Grants program in DC were not included in the model, so across the four study communities the "other" category usually means permanent supportive housing, either alone or in combination with emergency shelter or transitional housing. The results are reported in Exhibit 5.7. The regression coefficients for the model are expressed in odds ratio format, with values greater than one showing that a particular type of household is more likely to use a program type than the reference group. The coefficients for the community in which a family is homeless show that families in Upstate South Carolina are more likely to use transitional housing in combination with emergency shelter than families in other communities, which may reflect a stronger pattern of referrals from emergency shelter to transitional housing in that community compared with others. Families in DC are relatively more likely than those in other communities to use an "other" program type, which reflects the relatively greater availability of permanent supportive housing units for families in that community.

The model shows that families with only adult women are not more likely to use transitional housing (alone or in combination with emergency shelter) than the small number of families in the study sample that have only adult men or that have both men and women. The odds ratio for families with only adult women is greater than one, but the result is not statistically significant. The only demographic characteristic that helps explain which families use transitional housing, is whether the family has a child born during the family's period of homelessness. Such families are eight times as likely as those without a child born homeless to use both emergency shelter and transitional housing, suggesting that these vulnerable families often get referred from emergency shelter to transitional housing and pass whatever screening criteria transitional programs may use.

Finally, the model shows that African American families and families with a younger head of household (18 to 24 years) are only about a quarter as likely to use the "other" program type (basically permanent supportive housing) as white families or relatively older families. This suggests that young families and African American families who become homeless for the first time are relatively less likely than other first-time homeless families to have a disabling condition that made them vulnerable to becoming homeless. Having an adult household member with a disability condition is a requirement for receiving permanent supportive housing.

Exhibit 5.7: Regression Analysis of Program Types used by First-Time Homeless Families in Kalamazoo, DC, South Carolina, and Houston

Program type Category (ES only; TH only; ES and TH only; Other)	Multinomial Logit Model Base category = Emergency Shelter Only					
	Transitional Housing Only		Emergency Shelter and Transitional Housing Only		Other	
Clients in DC[d]	0.852	(0.201)	1.346	(0.414)	9.246***	(3.822)
Clients in South Carolina	1.622	(0.404)	3.433***	(1.080)	0.224	(0.237)
Clients in Houston	0.990	(0.186)	0.984	(0.283)	1.433	(0.562)
Total number of adults in household	1.102	(0.445)	1.220	(0.603)	2.156	(0.849)
Total number of children in household	0.972	(0.064)	0.890	(0.080)	1.127	(0.096)
Male adult-only household type	0.965	(0.579)	0.899	(0.643)	1.732	(1.190)
Female adult-only household type	1.512	(0.705)	0.925	(0.509)	1.369	(0.688)
African American household head	0.934	(0.173)	1.155	(0.302)	0.286***	(0.101)
Household head of other race	0.713	(0.268)	0.164	(0.171)	0.000	(0.000)
Household head ages 18-24	0.747	(0.168)	1.009	(0.316)	0.265**	(0.118)
Household head ages 25-30	0.961	(0.199)	1.370	(0.395)	0.925	(0.290)
Household head ages 41-50	1.034	(0.261)	1.829	(0.585)	1.319	(0.424)
Household head ages 51 or above	0.780	(0.465)	1.391	(0.948)	0.553	(0.451)
Household with youngest child born after study entry	1.376	(0.745)	7.974***	(3.403)	1.124	(0.703)
Household youngest child ages 6-12	0.763	(0.158)	1.013	(0.274)	1.016	(0.303)
Household youngest child ages 13-17	1.164	(0.365)	1.035	(0.440)	1.454	(0.640)
Household head race missing	0.432	(0.247)	0.290	(0.306)	0.198	(0.215)
Household head age missing	0.575	(0.757)	0.000	(0.000)	0.000	(0.000)
Youngest child age missing	3.324*	(1.685)	0.912	(0.987)	3.284	(2.813)
Constant	0.222	(0.197)	0.086*	(0.094)	0.029***	(0.028)
Observations	1285					
Log likelihood	-1109.4261					

Reference categories are: clients in Kalamazoo, mixed-adult household type, white household head, household head ages 31-40, household youngest child ages 0-5. Coefficients for households with missing values are included in the full model in Appendix Sections D.2.3 and D.2.4.

Coefficients in relative risk ratio format

*Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%*

[d] *Excluded CCG/SAFAH-only families in DC*

Additional multivariate analysis predicting the type of program used by first-time homeless families can be found in Appendix Sections D.2.3 and D.2.4.

5.3.2 Costs to Homeless System of First-Time Family Homelessness

The cost for serving each first-time homeless family is the sum of the costs of each program stay by one or more family members. The cost of each stay is the daily cost of the particular program used by the family times the number of days in the stay. The average cost to the homeless services system for each family in the study cohort ranges from only $3,184 in Kalamazoo, to $9,663 in Upstate South Carolina, to $11,627 in Houston, to $20,031 in Washington DC, as shown in Exhibit 5.8. The cost per family in DC drops to $16,205 if we consider only costs for program stays that occurred during the first 18 months after a family enters the residential system, but is still much higher than any of the other study communities.

Exhibit 5.8: Average Homeless System Cost per Family

	Kalamazoo	Upstate South Carolina	Houston	Washington, DC[a]
Average Cost per Family	$3,184	$9,663	$11,627	$20,031

[a]*The DC cost per family does not include families who used only the Community Care Grants program. Including such families would drop the average cost per family in DC to $17,962.*

With the exception of DC, these costs are substantially lower than the average costs identified by Culhane et al. in their study of homelessness in four other communities.[8] However, like patterns of utilization, the distribution of costs for each family in our study cohort is quite skewed, more so in some communities than in others. In Upstate South Carolina, the highest-cost 10 percent of the study cohort accounts for 32 percent of the total cost to the system, while in Houston the 10 percent highest-cost group accounts for 57 percent of the total system cost. In every study site, the lowest-cost half of the families accounts for less than one-seventh of the total cost incurred by the community for serving first-time homeless families, although this ranges from 13 percent in Upstate South Carolina to 5 percent in Houston.

The multivariate analysis of homeless costs includes covariates for sites, length of stay, program types used and other variables that reflect program use patterns, including number of stays, and number of "gap days." We also included whether the family changed composition during the period of homelessness, and the following basic family demographic characteristics: age of adults, age of children, number of adults, number of children, gender of head of household and race of head of household. Exhibit 5.9 presents the results of this analysis. Since the outcome variable is in logarithm scale, the coefficients for the covariates can be interpreted as percentage differences from the reference category when multiplied by 100.

Appendixes D.2.1 and D.2.2 show how we arrived at this final model specification, using two different model construction approaches. Approach 1 starts with the basic building block of costs per family, first adding length of stay (Model 1) to dummy variables controlling for site differences.

[8] Culhane et al. (2007) found average costs per family to be $24,000 in New York City over three years and $19,690 in Massachusetts over two years.

Model 2 adds program type to site dummy variables and length of stay. Models 3 and 4 add program use, number of stays, number of gap days between stays, and whether the family changed composition between homeless stays. The final models (5 and 6) add basic family demographic characteristics. See Appendix D.2.1 for detailed results for all 6 models in Approach 1.

Exhibit 5.9: Regression Analysis of Total Homeless Costs

	Total homeless costs (log scale)	(cont.)	Total homeless costs (log scale)
Site		**Demographics**	
Washington, DC [a]	0.836***	African American household head	-0.290***
	(0.103)		(0.084)
Upstate South Carolina	0.693***	Household head of other race	-0.042
	(0.119)		(0.166)
Houston, TX	0.862***	Household head ages 18-24	-0.038
	(0.086)		(0.099)
Homeless System Utilization and Program Types			
Length of stay (in days) divided by 30	0.219***	Household head ages 25-30	0.020
	(0.008)		(0.091)
Transitional Housing-only program type	0.475***	Household head ages 41-50	0.086
	(0.111)		(0.107)
Emergency Shelter and Transitional Housing-only program type	0.437***	Household head ages 51 or above	0.156
	(0.133)		(0.245)
Other program type	-0.427***	Household with youngest child born after study entry	-0.465**
	(0.158)		(0.209)
Total number of stays	0.031	Household youngest child ages 6-12	0.205***
	(0.024)		(0.088)
Total gaps between stays (in days), divided by 30	0.028***	Household youngest child ages 13-17	0.195
	(0.009)		(0.141)
Household Composition			
Any change in household composition during the study period	0.350***	Household head race missing	-0.191
	(0.099)		(0.213)
Total number of adults in household	-0.024	Household head age missing	-0.802
	(0.160)		(0.551)
Total number of children in household	0.055**	Youngest child age missing	-0.061
	(0.028)		(0.260)
Male adult-only household type	-0.230	Constant	6.283***
	(0.236)		(0.355)
Female adult-only household type	-0.245	Observations	1285
	(0.183)	R-squared	0.64

Reference categories are: Kalamazoo, MI, Emergency Shelter-only program type, mixed-adult household type, white household head, household head ages 31 - 40, household youngest child ages 0-5.

Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%

[a]Excluded CCG/SAFAH-only families in DC

Approach 2 (Appendix D.2.2) starts with site dummies and basic family demographics (Model 1) and then adds program type (Model 3), length of stay (Model 4), and then numbers of stays and gap days (Model 5). Models 2 and 6 also add the variable that reflects whether the household changed composition. See Appendix D.2.2 for detailed results for all 6 models in Approach 2. These alternative model specifications enable us to grasp the interactions among the variables in the full model.

The analysis shows that DC, Upstate South Carolina, and Houston all have costs per family 70-90 percent higher than Kalamazoo (the reference category). The lower cost per family in Kalamazoo reflects the use by first-time homeless families of particular emergency shelter and transitional housing programs that have low costs. For example, the average daily cost of the transitional housing programs used by the study cohort in Kalamazoo is only $22, much lower than the daily cost of transitional housing used by the study cohorts in the other three communities. Kalamazoo has several transitional housing programs, with a wide range of daily costs per unit, as described in Chapter 3.

The differences in total cost per family among the other three communities are not very large when controlling for type of program used and patterns of use such as lengths of stay. Coefficients range from .693 to .862 and show that the study cohort in Houston used slightly more expensive programs within particular program types compared with the study cohorts in DC and Upstate South Carolina. Houston has a transitional housing program with very high operating and services costs, totaling $177 per day.

Overall, the regression results show that each additional 30 days spent in residential homeless programs compared to the mean length of stay of 144 days adds about 22 percent to the cross-site average total family cost to the homeless services system of $10,311. The effect of long lengths of stay in DC and Upstate South Carolina compound the already high costs in these communities. A model that does not control either for length of stay or for program type (Approach 2, Model 1) shows that first-time homeless families in DC and Upstate South Carolina cost the homeless services system more than twice as much as families in Kalamazoo. The coefficients are 1.630 for DC and 1.442 for Upstate South Carolina. Families in Houston cost twice as much as families in Kalamazoo. (The coefficient is 1.016).

Families who used emergency shelter together with transitional housing and no other programs (8 percent of the study cohort across the three sites) cost 44 percent more than families that use just emergency shelter, whereas families that use just transitional housing (13 percent of the study cohort) cost 48 percent more than families that use just emergency shelter. Those who used "other" combinations of programs beyond emergency shelter and transitional housing incurred 43 percent lower costs than those who used only emergency shelter. These lower costs reflect the relatively low cost of permanent supportive housing for the small number of families in the study cohorts that used it.[9] As detailed in Chapter 3, the cost of permanent supportive housing to the homeless services system is low compared with both emergency shelter and transitional housing since services are primarily provided by mainstream systems, rather than directly by the homeless services system.

The model results also revealed some differences in total cost per family related to family characteristics. Families that change composition during their period of homelessness have costs about 35 percent higher than families that do not change. Despite the correlation between "gap days" spent in between program stays and changes in family composition, gaps (measured in 30-day increments) also have a statistically significant, although small, positive effect on costs per family to the homeless services system. Given that length of stay and program types are also controlled, these

[9] This model did not include families in DC who used only the Congregate Care Grants or SAFAH programs. SAFAH provides housing placement assistance. Congregate Care Grants provides short-term rental assistance and longer-term case management for families who never enter the residential system for homeless families. The resulting costs are extremely low for each day that the HMIS counts a family as being in the program.

results suggest that families with unstable housing and unstable family composition on average use more expensive programs within each program type.

African-American families (70 percent of the study cohort across the four communities) have costs 29 percent lower on average than white families. The implication is that, within each site and each program type, African American families are using relatively less expensive homeless services programs. This could be because African-American families, shown by other research to be homeless at higher rates than other poor families, have fewer service needs and are homeless related to poverty and limited social supports that do not require intensive social services to address. Use of less expensive programs could also reflect an informal or clinical bias that results in fewer referrals or admissions for African-American families into more intensive programs.

In the full model, there is no significant difference in cost between families headed by people between the ages of 18 and 24 those headed by 31 to 40 year olds. Without controls for program types and length of stay, those between 18 and 24 cost about a third less than those between 31-40 (Approach 2, Models 1 and 2). Adding a control for program type reduces this difference to 25 percent (Model 3). The difference disappears when the control for length of stay is added (Model 4). Thus, younger families are using less expensive types of programs and using them for shorter periods of time than relatively older families.

Larger families (those with additional adults or additional children) cost the homeless services system little more than smaller families. An additional child (compared to the mean of 2.12 children) produces a modest 6 percent increase in costs. Additional adults or adults of different genders have no discernable effect on costs, and this result holds for models with and without a control for whether the composition of the family changed. To some extent, these results may stem from the way we collected program costs. We did not distinguish between the costs of different amounts of space needed for different families (e.g., numbers of beds or bedrooms) or for other costs that might vary by family size such as the number of meals provided. We simply assumed that a particular program incurs on average the same cost for each family using the program. As a whole, larger families do not use programs that, across all families served, have higher costs than the programs used by smaller families.

We did find a relationship between the age of a family's children and its costs to the homeless services system. Families whose youngest child is grade school age (6 to 12 years) cost 21 percent more than families with younger children. Families with children in that age range may choose to use programs—or be directed to programs—with more costly housing types or with additional services, compared with other first-time homeless families.

5.3.3 Costs to the Homeless System for "Path Groups" of Families Who Use the System in Similar Ways

To understand better the heterogeneity of the homeless experience and its associated costs among first-time homeless families, we used multivariate cluster analysis to categorize families into "path groups," based on their total lengths of stay, number of discrete stays, total number of "gap days," and types and sequences of programs used. Cluster analysis was conducted independently for each site, and each of the communities was found to have paths that were not replicated precisely at the others.

However, the following broad categories of path groups emerged in each of the four study sites.

- Brief users of emergency shelter
- Heavy users of transitional housing
- Repeat users of residential homeless programs with long gaps

Exhibit 5.10: Common Paths Taken by First-Time Homeless Families

	Brief users of emergency shelter (% of study cohort)	Heavy users of transitional housing (% of study cohort)	Repeat users of one or more program types with long gaps (% of study cohort)
Houston	66%	29%	5%
DC[a]	33%	30%	16%
Kalamazoo	61%	24%	16%
Upstate South Carolina	49%	42%	10%

Percentages within each site may sum to greater than 100 percent due to rounding.

[a]*DC percentages exclude those who were served exclusively by the Community Care Grants program. In addition, eleven percent of families in DC followed paths not found in other sites, See Section 5.3.4.*

Exhibit 5.10 shows the size of these groups across the four communities. Brief users of emergency shelter make up roughly two-thirds of the families in Houston and Kalamazoo, almost half of the families in Upstate South Carolina, and one-third of the families in DC. Heavy users of transitional housing are more than a quarter of the study cohort in Houston, DC, and Kalamazoo, and 42 percent in Upstate South Carolina. "Long gappers," families with multiple program stays and long cumulative periods in between stays, make up a relatively small portion of all first-time homeless families. They are most common in DC and Kalamazoo.

The path groups are characterized by their shelter use patterns, but analysis of demographic characteristics and mainstream program involvement helps to describe further the differences among the groups. Exhibit 5.11 summarizes some of the ways in which families who followed particular path groups differ from other first-time homeless families in the study cohort.

Brief Users of Emergency Shelter have one or two stays in emergency shelters, spend a few days to a few months there, and then do not return to the residential system for homeless people.[10] Across our four study communities, they had relatively younger and smaller households and, based on their use of mainstream systems, had relatively lower needs than other families in the study cohort (Exhibit 5.11).

[10] This pattern held in DC, where we were able to follow families over a 30-month period after their first appearance in the homeless services system.

Exhibit 5.11: Selected Characteristics of First Time Homeless Family Path Groups

	Brief users of emergency shelter	Heavy users of transitional housing	Repeat users of one or more program types with long gaps
	Compared with other First-Time Homeless Family Path Groups at each site:		
Houston	Younger adults and children Least involvement with mental health treatment and criminal justice systems	Fewer men More likely to be white Heavy users of mental health system	More men More likely to be "other" race 68% experienced household change High arrest rates
DC	Demographics not distinct from rest of cohort Lower use of substance abuse services	Fewer men Somewhat younger adults and children Among highest use of substance abuse and mental health services	More men 92% experienced household change High rates of involvement with child welfare High use of substance abuse services
Kalamazoo	Younger adults, smaller households Lower arrest rates Lower use of Medicaid	More men More likely to be white	58% experienced household change High arrest rates
Upstate South Carolina	Younger adults and children, smaller households Lower use of Medicaid	Demographics not distinct from rest of cohort	More men More likely to be white 64% household change High arrest rates

Across the four study sites, this group represented between 33 percent and 66 percent of each cohort, but accounted for only 9 percent to 30 percent of total homeless system cost. Exhibit 5.12 shows the average household cost to the homeless services system for the path groups in each community following this pattern. They range from under $1000 to almost $9,000, depending on a combination of the average number of days spent in programs (shown on the Exhibit) and the relative cost of programs used. For example, costs in Upstate South Carolina are relatively high for its brief-user families compared with the number of days spent in programs, because many first-time homeless families used a very expensive type of emergency shelter.

Exhibit 5.12: Average Household Cost to the Homeless Services System for Brief Users of Emergency Shelter

	Average Total Length of Stay	Average Total Cost per Family
Houston Emergency Shelter Short Stayers	37 days	$2,321
Houston Emergency Shelter Repeat Users	101 days	$5,748
DC Congregate Emergency Shelter Short Stayers	67 days	$5,098
Kalamazoo Emergency Shelter Single Use Short Stayers	15 days	$1,172
Kalamazoo Emergency Shelter Repeat Users	48 days	$2,977
SC One-Week Single Stayers	9 days	$784
SC One-Month Returners	31 days	$2,508
SC Three-Month Single Stayers	88 days	$8,890

Heavy Users of Transitional Housing use transitional housing exclusively, in combination with emergency shelter, or (in a few cases) together with permanent supportive housing. Their average length of stay ranges from 8 to 18 months, depending on the community and the specific path revealed by the cluster analysis for that community (Exhibit 5.13).

Across the four communities, heavy users of transitional housing were somewhat more likely to be white and had a smaller percentage of men. However, in Kalamazoo this group includes more men, probably because one of the primary transitional housing programs in Kalamazoo accommodates two-adult families. In DC, heavy users of transitional housing are on average somewhat younger families than other path groups.

Unlike Culhane et al., (2007) we did not find that these "long stayers" in the residential services system for homeless families were less likely to be heavy users of mainstream behavioral health services than the study cohort as a whole. In Houston, they were heavy users of the mental health system, and in DC they had among the highest rates of use of mental health and substance abuse services of the path groups.[11] However, Culhane et al. (2007) looked only for use of intensive behavioral health services such as inpatient or acute care (in Philadelphia and Massachusetts), whereas we recorded any contact with the mental health system (in Houston and DC) or the substance abuse agency (in DC).

Like Culhane et al. (2007), we found that the long periods of time spent in the homeless services system made this by far the most costly group of families. Exhibit 5.13 shows that the average cost per family to the homeless services system for heavy users of transitional housing ranged from $6,474 in Kalamazoo, a community with the relatively small percentage of such families and frequent use of a particularly inexpensive transitional housing program by first-time homeless families,[12] to $38,742 in Washington DC for a group that first used emergency shelter and then moved to transitional housing, with an average total length of stay of 551 days. Heavy users of transitional housing represented only 24 percent to 42 percent of the families in each community, but incurred between 47 percent and 82 percent of total homeless system costs.

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[11] Culhane et al.'s "long stayers" group does not distinguish between long stayers in emergency shelter and long stayers in transitional housing. Our most comparable group may be a path group in DC (discussed below in Section 5.3.4) that uses apartment-style emergency shelters as well as congregate emergency shelters and has long stays. The homeless services system in DC may be more similar to New York City and Philadelphia than the systems in our other study communities, in which we did not find a path group of long-term users of emergency shelter. This path group in DC has rates of involvement with the behavior health systems similar to rates for heavy users of transitional housing and a higher rate of involvement with the child welfare agency.

[12] One of the property-based transitional housing programs in Kalamazoo has very low housing operating costs, moderate service costs, and very low administrative overhead. The property also has very low market value, and while we did not record capital costs for any of the programs in Kalamazoo, Houston, or DC, adding an estimate for capital costs would have increased the daily cost by only $1. In contrast, one of the transitional housing programs that was heavily used by the Houston family study cohort, representing 47 percent of the transitional housing stays by families in Houston, has high operating costs and extremely high service costs. The overall program costs are two to seven times higher than other transitional programs in Houston, and the services alone are almost triple those of the other family facility-based transitional housing programs for which we collected costs.

Exhibit 5.13: Cost to the Homeless Services System for Heavy Users of Transitional Housing

	Average Total Length of Stay	Average Total Cost per Family	Average Monthly Cost Per Family (including gap days)	Local Two-Bedroom Fair Market Rent FY 2006[b]
Houston Multi-Program Users	236 days	$26,913	$2,544	$743
Houston Housing-Program Users	284 days	$35,344	$3,584	
DC Progressing Long-Stayers[a]	551 days	$38,742	$1,960	$1,225
DC Transitional Housing Only[a]	477 days	$31,822	$2,001	
Kalamazoo Long Stayers	289 days	$6,574	$664	$612
SC Progressing Long-Stayers	329 days	$16,036	$1,358	$599
SC Transitional Housing Only	375 days	$15,478	$1,226	

[a] *If only the first 18 months following the family's first entry into the homeless services system are counted, the average cost per family for DC is $31,951 for progressing long-stayers and $25,771 for those who use only transitional housing.*
[b] *FY2006 FMR is provided for Greenville, SC MSA, which is part of the Upstate South Carolina CoC geography and appears to have the highest FMR in the CoC (HUD, 2005) The FMR does not include the monthly fee paid to a public housing agency for administering the voucher program, which ranged from $50 to $90 per unit per month in these four communities. (HUD, 2007)*

The exhibit also shows the cost per family standardized to a one-month cost and compares it to the cost of housing a family similar in size to most homeless families with a Housing Choice Voucher, assuming that the family's share of the rent would be the same in both cases—that is, that transitional housing, like the voucher program, would require a family rent payment of 30 percent of income. The far greater cost of transitional housing in every community except for Kalamazoo to some extent may reflect the use of more expensive residential structures by transitional housing programs, but probably mainly reflects higher costs associated with on-site supervision for some programs and case management and other services for all transitional housing programs.

Whether the additional cost of transitional housing produces offsetting benefits, compared with placing a homeless family directly into permanent housing with a voucher, is beyond the scope of this study. For example, the services provided in connection with transitional housing might enable a parent to become economically self-sufficient and pay the cost of a private market rent from earned income. The short-term cost of transitional housing then might offset the cost of a longer-term voucher rent subsidy. The evidence we have to date suggests that is not the case. Burt (forthcoming 2009) interviewed former users of transitional housing deemed by program staff to have left successfully. She found that longer stays in transitional housing were associated with some positive outcomes, but that the most successful leavers of transitional housing did so with a voucher.

Repeat Users of Residential Homeless Programs with Long Gaps may use just emergency shelter or may use a combination of emergency shelter and transitional housing. What distinguishes this relatively small group of families (5 to 16 percent of the study cohort) is that they leave the residential homeless services system and then return—not a few days later, but after long absences. The cumulative "gaps" in service during their entire periods of homelessness range from 134 days for the path group in South Carolina (where the "gapper" pattern was less pronounced than in other communities) to 515 days for families following this path in the District of Columbia, who have an

average of 7.2 discrete program stays and on average remain in a residential program for only 38 days at a time. Their average gap ranges from two and a half months in DC to six months for one of the groups in Kalamazoo (Exhibit 5.14).

Exhibit 5.14: Patterns of Use of the Residential Homeless System for "Long Gapper" First-Time Homeless Families

	Average Number of Program Stays	Average Days per Program Stay	Average Cumulative gap days	Average gap between each stay
Houston Emergency Shelter Long Gappers	3.4 stays	19 days	346 days	144 days
DC Long Gappers	7.2 stays	38 days	515 days	79 days
Kalamazoo Emergency Shelter Long Gappers	3.1 stays	12 days	378 days	180 days
Kalamazoo Multi-Program Long Gappers	3.3 stays	44 days	275 days	120 days
Upstate South Carolina Six-Month Returners	2.3 stays	77 days	134 days	103 days

Note: The average gap is average cumulative gap days divided by one fewer than the average number of stays, since gaps have to take place between stays.

We do not know the extent to which these "long gappers" attempt to establish themselves as leaseholders between homeless program stays or how frequently they temporarily move in with family or friends. Suggestive characteristics of these families are that they experience very high rates of change in household composition and often include men at some point during their periods of sheltered homelessness (Exhibit 5.15). Thus, their housing instability may be linked to unstable situations involving family conflict or, in some cases, arrests and jail time.

Families with long gaps had high arrest rates in Houston, Kalamazoo, and Upstate South Carolina. In Upstate South Carolina, 71 percent of this group of families had a family member arrested at some point during the study period. We did not obtain criminal justice data for DC. In Washington, DC, the only community for which we were able to obtain any data at all from the child welfare system, we found that 55 percent of this group of families had a service record with the child welfare agency during the year before homelessness or following the start of homelessness.

Compared with all first-time homeless families in the community, families in the long-gapper group in Upstate South Carolina were relatively more likely to be white rather than African American. In Kalamazoo, they were somewhat more likely to be African American than the cohort overall (Exhibit 5.15). In DC, where almost the entire study cohort is African American, the long gapper group includes more families identifying their race as white, Asian, or "other." In Houston, where the long-gapper group makes up only 5 percent of the study cohort, this group is slightly more likely to be African American than the study cohort as a whole. At the same time, a relatively high percentage of long gappers in Houston (23 percent) reported their race as "other" or refused to identify their race.

Exhibit 5.15: Selected Demographic Characteristics of "Long Gappers"

	Change in Household Composition	Percent of Adults who are Men	Percentage African American: Gappers/ study cohort
Houston Emergency Shelter Long Gappers	68%	28%	67% / 61%
DC Long Gappers	92%	24%	89% / 93%
Kalamazoo Emergency Shelter Long Gappers	61%	16%	67% / 61%
Kalamazoo Multi-Program Long Gappers	53%	10%	68% / 61%
Upstate South Carolina Six-Month Returners	64%	18%	35% / 53%

Because of the relatively small number of days spent in the homeless services system, the cost to the system for this group of highly unstable families is relatively low. Across the four sites, the group represented only between 5 percent and 16 percent of each cohort and incurred between 1.5 percent and 20 percent of total costs. As shown in Exhibit 5.16, cost per family ranges from $3,295 for a group in Kalamazoo that used only emergency shelter to $17,314 for a group in Washington DC that spent a relatively long time in residential programs, despite being out of the system for long periods as well over their total period of homelessness.

Exhibit 5.16: Average Cost Per Family to the Homeless Services System for Repeat Users of the Residential Services System with Long Gaps

	Average Total Length of Stay	Average Total Cost per Family
Houston Emergency Shelter Long Gappers	63 days	$3,885
DC Long Gappers	273 days	$17,314
Kalamazoo Emergency Shelter Long Gappers	38 days	$3,295
Kalamazoo Multi-Program Long Gappers	144 days	$5,925
Upstate South Carolina Six-Month Returners	176 days	$12,475

Opportunities for cost savings to the homeless services system through helping these families to achieve stable rather than unstable housing when they leave shelter seem to be largest in Washington DC and in Upstate South Carolina. In DC we tracked families for a longer period after they first became homeless, 30 months instead of 18 months, and this is reflected in the relatively large number of days spent in homeless programs, almost 10 months on average and the large number of stays, 7.2.[13] The high cost in DC reflects both this relatively long length of stay for a "gapper" group and

[13] If only the first 18 months following the family's first entry into the homeless services system are counted, the average number of stays per family for DC long gappers is 4.7 and the average total length of stay is 164 days. The average total cost per family is $10,462.

the high cost of the particular programs used. In DC and perhaps in other communities as well, cost offsets may be possible within the homeless services system, as well as for mainstream public systems, if costs over a period of many years are considered.

The group most similar to long gappers in the Culhane et al. (2007) study of New York City, Philadelphia, Columbus OH, and Massachusetts is "Episodic" users of the shelter system, but this group has longer lengths of stay, ranging from 148 days in Columbus to 385 days in New York. The "Episodic" group has considerably higher homeless system costs than the costs of the "long-gapper" groups in Houston, Kalamazoo, and Update South Carolina: $17,168 in Columbus, $19,043 in Philadelphia, $21,450 in Massachusetts, and $38,500 in New York. Only in Washington DC are the costs for "long gappers" similar to the costs of "Episodic" users in the Culhane et al. study.

The longer stays and higher cost measured by Culhane et al. (2007) may be in part a result of how total days in the homeless service system are measured (they ignore program exits if the family returns to shelter within 30 days) and also a three-year observation period in New York and Philadelphia. At the same time, the costs per day of shelter used by Culhane, based on "jurisdictional reimbursement rates" are high compared with the cost per day for many of the programs for which we collected cost data directly from financial records. Columbus reimburses programs at $116 per day, Massachusetts at $110 per day, Philadelphia at $94 per day, and New York City at $100 per day. By comparison, we found the average cost of congregate emergency shelters used by our study cohort was $71 per day in Houston, $85 per day in DC, $75 per day in Kalamazoo, and $81 per day in Upstate South Carolina.

Unlike heavy users of transitional housing, the outcomes of long-gapper families' use of the homeless services system as it currently is constituted are unambiguously negative. An alternative treatment model for these families that focuses on their family instability rather than their housing instability may be needed.

5.3.4 Costs to the Homeless System of Other Patterns of First-time Homelessness in Washington DC

Washington DC has two program types not found at the other sites, and families using those programs are not included in the path groups discussed in Section 5.3.3.

Apartment-style Emergency Shelters in DC are considered emergency shelters because, unlike transitional housing programs, they do not have admission requirements other than homelessness and because they are not subject to the two-year time limit for federally funded transitional housing. During the period in which we conducted the study, almost all families using the three facilities that comprised this program type went there after an initial stay in a congregate emergency shelter.[14] Apartment-style emergency shelters had a cost per day for first-time homeless families in the study cohort of $79.80, slightly lower than the average cost of congregate shelters (despite providing each family with a self-contained apartment) and slightly higher than the daily cost of transitional housing.

We identified a separate path group in DC consisting of families who used both congregate and apartment-style emergency shelters and no other type of residential program, 9 percent of the study

[14] Subsequently, DC's main congregate emergency shelter for families was closed down, and the central intake center for homeless families began sending families directly to apartment-style emergency shelters.

cohort of first-time homeless families.[15] Selected characteristics of this path group are shown in Exhibit 5.17 and compared with the characteristics of the path groups that used transitional housing. In many ways this path group is similar to the group that used both emergency shelter and transitional housing. Lengths of stay are similar, and the total cost per family to the homeless services system is similar. The only notable demographic characteristics for the group using both types of emergency shelter but not transitional housing are the high percentage that have five or more persons in the household and the high percentage of male adults. Other demographic characteristics, not shown on the exhibit, are similar to those of other path groups. This path group also had the highest rate of service encounters with the child welfare agency of any of the DC path groups, 56 percent. These family characteristics may help explain the long stays within what is supposed to be an emergency shelter system: large families and families that include adult men may be hard to place into transitional housing programs or into permanent housing in the private market.

Other factors that may influence the long lengths of stay for families using both congregate and apartment-style emergency shelter may be the fairly rich services available in the apartment-style programs[16] and the relative attractiveness of these apartments that come with some restrictions on privacy and independence but are rent free in a housing market with high rents and long waiting lists for assisted housing.

Exhibit 5.17: First-Time Homeless Families Using both Congregate and Apartment-Style Emergency Shelter (and not transitional housing) in Washington DC

	Total cost per family	Average length of stay	Families with 5 or more persons	Percent of adults who are men
DC Congregate and Apartment ES	$38,444	513 days	42%	23%
DC Progressing Long-Stayers	$38,742	551 days	29%	16%
DC Transitional Housing Only	$31,822	477 days	13%	4%

The Community Care Grants program in Washington, DC, places qualifying families in mainstream permanent housing immediately after intake, without a shelter stay. The Continuum of Care considers this diversion program a key element in its homeless services system. The central intake center first determines that a family qualifies as homeless because the family cannot be stabilized in its own housing unit or someone else's for more than a month—that is, that the alternative to the CCG program would be a placement into emergency shelter. A further assessment determines whether the family should be admitted to emergency shelter or could become a successful

[15] The small size of this group is somewhat surprising, given the capacity of this type of shelter to serve 93 families at a time. However, the long lengths of stay for families using apartment-style emergency shelter in DC meant that many families occupying those units had already become homeless before the start of our study period.

[16] The average daily services cost for apartment-style emergency shelter is $42.32, slightly higher than the services cost for scattered-site transitional housing ($29.59) and only slightly lower than the services cost for facility-based transitional housing ($44.69).

leaseholder immediately. Factors in the assessment are whether the family head has ever been a leaseholder, head of household's employment history, and whether the family has a current problem with substance abuse or untreated mental illness.

Ninety-six families in the DC study cohort of first-time homeless families were placed directly into mainstream permanent housing the Community Care Grants program, and only eight of these families subsequently entered either emergency shelter or transitional housing during the 30-month follow-up period for DC. Thus, the program appears to be successful in diverting families away from the residential system for homeless families, though it is not clear how many of these families would have become homeless without assistance.

The average cost for each family reimbursed by the DC government was $10,677, which includes some combination of move-in expenses, short-term rental assistance (typically for one or two months), and case management provided on an as-needed basis for a year on average. Not surprisingly given the screening criteria for the Community Care Grants program, the path group that is dominated by these families had by far the lowest rates of any path group of service contacts with DC's mental health and substance abuse agencies, less than 14 percent for mental health and only 1 percent for the substance abuse agency. The rate of involvement with the child welfare agency was also low, although still almost 29 percent.[17] Because of the program's screening, had these families been placed into emergency shelter, they likely would have stayed relatively short periods of time. Whether they would have had short lengths of stay in the residential services system as a whole is unclear, because these families may have been considered good candidates for DC's transitional housing programs.

5.4. Costs Associated with Mainstream System Use by First-Time Homeless Families

The literature on individual homeless persons, particularly those with chronic patterns of homelessness, suggests that the costs of providing certain homeless individuals with stable permanent housing may be offset by savings from reduced use of mainstream public systems such as emergency rooms and hospitals by people no longer homeless.[18] No similar claim has been made about cost offsets that might be produced by ending homelessness for families. In this study, we attempted to collect data on the use of mainstream systems and associated costs incurred on behalf of homeless families before, during, and after their periods of homelessness. This data collection had three purposes:

- Helping to characterize the families that follow different patterns of use of the homeless services system, as described in Sections 5.3.3 and 5.3.4;
- Understanding the extent to which homeless families are connected to mainstream income and other supports that might avert or soften financial or health crises that lead to homelessness; and

[17] More information on these programs patterns of program use is available in a separate case study on the study's findings for Washington DC. See Khadduri, J., Spellman, B., Sokol, B., Leopold, J., & Rothschild, L. (2009a).

[18] See the discussion in Chapter 4.

- Exploring whether savings in mainstream costs might result from reducing family homelessness.

As has been true for other studies that have attempted to match data on users of homeless services systems to mainstream data, we were not able to obtain data for all mainstream systems in each community. For DC, we were able to learn which members of the study cohort of first-time homeless families had service records with the Medicaid, child welfare, mental health, and substance abuse systems between July 2003 and June 2008, but we did not obtain cost data, and we do not know the timing of those service encounters in relation to the family's period of homelessness.

For Houston, we obtained client-level service utilization and cost data for City and Harris County arrests and jail stays, and we imputed associated court costs. We also obtained data on mental health treatment, and stays in the state psychiatric hospital, but we did not obtain data on Medicaid, income supports such as Food Stamps and Temporary Assistance for Needy Families (TANF), or on service encounters with the child welfare system.

For Kalamazoo, we obtained data on the use and costs of Medicaid managed care payments, Medicaid fee-for-service care, and state emergency financial assistance, aggregated by path groups of families and by the periods before, during, and following homelessness, on both program utilization and costs. We obtained client-level data from local law enforcement agencies on arrests and jail costs. Here again, we have no data on Food Stamps, TANF, or the child welfare system.

For Upstate South Carolina, we obtained data aggregated by path groups of families and by the periods before, during, and following homelessness on both program utilization and costs for Medicaid, Food Stamps, and the criminal justice system, but not for TANF or the child welfare system.

Thus, for the mainstream domain which may have the greatest potential for cost offsets for a family homeless population—child welfare—we have data only for DC and only evidence of some encounter with the system, not how serious or how costly the encounter was.

5.4.1 Rates of Mainstream System Involvement by First-Time Homeless Families

Exhibit 5.18 shows the rates at which families in the study cohort were involved with the mainstream systems for which we were able to collect data. Use of Medicaid and Food Stamps is high, more than 90 percent in the three places for which we have Medicaid data and 92 percent for Food Stamps in Upstate South Carolina. Earlier studies have shown that homeless families are able to access the income supports available in general to poor families with children (Burt, Aron, and Lee, 2001). We have no data on TANF, other than a statement from the South Carolina data warehouse administrator that the match rate to TANF records for the study cohort was low.[19] Without information on the timing of receipt of TANF by the families in the Upstate South Carolina study cohort, we cannot infer whether the low rate reflects families being sanctioned or exhausting their time limit for TANF assistance before becoming homeless. The match rate would be expected to vary by state because of the flexibility in state administration of TANF, and the low match rate for a study cohort in Upstate South Carolina may not be typical.

[19] The small number of matches and associated privacy concerns was stated as the reason for not providing TANF data even in aggregate tables.

Exhibit 5.18: Rates of Utilization of Selected Mainstream Systems by First-Time Homeless Families

	DC	Houston	Kalamazoo	Upstate SC
Medicaid	95%		94%	>90%[a]
Food Stamps				92%
Child Welfare	43%			
Criminal Justice		8%	42%	34%
Mental Health	36%	16%		
Substance Abuse	9%			
Emergency financial assistance			>39%[b]	

[a] *More than 90 percent of the cohort received both Medicaid Managed Care and Medicaid Fee For Service treatment. A de-duplicated rate of involvement was not provided by the State.*

[b] *De-duplicated data across types of financial assistance types was not provided. Thirty-nine percent of families received rental assistance, which was the greatest proportion for each type. Thirty-three percent of families received cash assistance and 17 percent received food assistance. Only one family received mortgage assistance and four families received security or utility-deposit assistance.*

The emergency financial assistance program used by at least 39 percent of the study cohort in Kalamazoo is a state-funded program operated through local non-profits and intended to help families through financial crises that can lead to homelessness by providing them with cash, food assistance, mortgage payments, rental payments, or security and utilities deposits.

The high rate of service encounters with the child welfare system in DC is interesting, although we do not know the extent to which they happened in response to immediate threats to children's well being and we do not know the extent to which they led to out-of-home placement of children. While we have no information about service encounters with the child welfare system in our other study communities, considered together with the high rates of involvement with the criminal justice systems in Kalamazoo and Upstate South Carolina, we might infer that rates of involvement with child welfare among first-time homeless families would be high in those communities as well.

In Upstate South Carolina, 53 percent of family members between the ages of 18 and 24 had at least one arrest during the study period, which extended from a year before the start of homelessness for each family through December 2006. Fifty-four percent of families that changed composition during their period of homelessness had a family member who was arrested, as did 71 percent of the Upstate South Carolina families we have identified as "long gappers." White families were more than twice as likely to have a member arrested as African-American families. This could be a geographic effect (Upstate South Carolina covers a large area), or it could suggest that black families in Upstate South Carolina become homeless as a result of extreme poverty,[20] while white families are more likely to experience a domestic crisis that triggers both extreme housing instability and an encounter with the criminal justice system. Across the three communities for which we were able to obtain data on involvement with the local criminal justice system, we found that many adult women were arrested, but arrest rates were higher for adult men than for adult women.

[20] Suggested also by the fact that a higher percentage of brief users of emergency shelter in Upstate South Carolina are black, compared to families following other patterns of use of the homeless services system.

The relatively lower involvement with the criminal justice system among first-time homeless families in Houston is difficult to interpret, but consistent with the relatively smaller percentage of families in Houston with a "long-gapper" pattern of homelessness (5 percent, vs. 10 percent in Upstate South Carolina and 16 percent in Kalamazoo).

5.4.2 Costs to Mainstream Systems of First-Time Family Homelessness

The fragmentary nature of our data on mainstream system costs for the three communities for which we have cost information—Houston, Kalamazoo, and Upstate South Carolina—makes it difficult to assess the potential opportunities for cost savings through reducing family homelessness. Exhibit 5.19 shows what we know about the magnitude of costs to the mainstream systems. The exhibit shows average costs for each family over the entire study period, which extended from one year before the start of homelessness to an average of three years after the beginning of homelessness.

Across the study cohorts, most costs were incurred for basic social safety net programs, Medicaid and food stamps. For those at the income levels of most homeless families, reducing food stamps costs does not make sense. Food stamps benefit levels are set by formula based on family size and income, and there is little potential for "excess" or inefficient use of the program by homeless families.[21] Some residential homeless programs, especially emergency shelters, may provide food, and families may be less likely to use Food Stamps during their period of literal homelessness.

Exhibit 5.19: Average Costs for Selected Mainstream Domains per First-Time Homeless Family during the Entire Study Period

	Houston	Kalamazoo	Upstate South Carolina
Medicaid		$21,770	$15,615
Food Stamps			$7,248
Criminal Justice	$409	$597	$175
Mental Health	$722		

Note: The study period varies for each family, depending on when the family became homeless compared to the last date for which mainstream costs were collected. Patterns change little when costs are measured over a uniform period, such as one year, for each family.

Homeless families might use Medicaid in ways that are more costly than other families participating in the program—for example, by using emergency room visits in place of routine outpatient care. The evidence we have from the two communities for which we have Medicaid costs is mixed. In Kalamazoo, Medicaid costs for the children in the study cohort of homeless families were 26 percent higher than statewide average Medicaid costs for children. Medicaid costs for adults were 78 percent higher than the statewide average (Kaiser Family Foundation, n.d.). The data only distinguish between services covered by managed care and services covered by fee-for-service, and the distribution of costs across these types is the same as for other Medicaid recipients in Michigan. Without more detail on types of services received, we cannot tell whether homeless family members have higher medical needs or whether homeless families are using the system inefficiently.

[21] This is not to say that fraudulent use of the program is non-existent, but Food Stamps fraud is unlikely to vary based on whether a family is homeless or housed.

In Upstate South Carolina, Medicaid costs for the cohort of homeless families are similar to statewide averages for children who do not have disabilities and for adults who are neither elderly nor disabled. The type of services used by the study cohort compared with the general Medicaid population shows that homeless families were more likely to use standard medical services such as visits to doctors' offices and less likely to use outpatient hospital care (Kaiser Family Foundation, n.d.).

Exhibit 5.20 shows costs per family for each of the mainstream domains, during the periods before, during, and following homelessness. The costs are standardized to a one-month period to take into account the different lengths of the three periods—in particular, the relatively short period during homelessness for most families.[22] In both Kalamazoo and Upstate South Carolina, the use of Medicaid-reimbursed services rose during the family's period of homelessness, which could suggest that health crises contributed to homelessness or could reflect the success of the homeless services system in referring family members to needed medical care.

While the high rate of arrests for family members in Kalamazoo and Upstate South Carolina is troubling, the relatively brief interactions with criminal justice and low costs for this domain do not seem to provide major opportunities for cost offsets for first-time homeless families. Criminal justice costs, adjusted for differences in time periods, dropped during the period of homelessness in Houston and Kalamazoo and then rose to higher levels following homelessness (Exhibit 5.20). In Upstate South Carolina, after adjusting for differences in the lengths of time periods, the number of arrests of members of the study cohort was very similar before, during, and following homelessness. Neither homelessness nor stable housing seems to have reduced the likelihood of criminal justice encounters. That said, criminal justice costs are incomplete at each study site. For Kalamazoo, we have arrest and jail costs, but not court costs. For Upstate South Carolina, we have only arrest records, and we imputed a cost of $200 per arrest, based on arrest costs for other study sites. For no community do we have costs to state or federal criminal justice systems. It is possible that more complete data would identify additional cost saving opportunities.

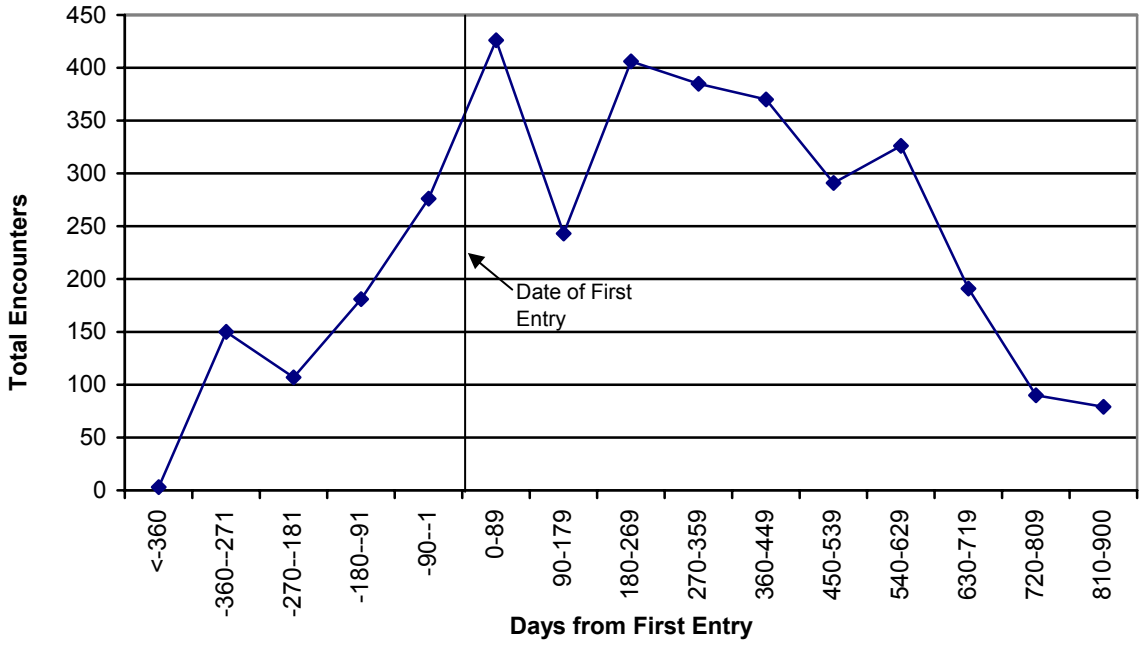
Exhibit 5.20: Mainstream Costs Per Family Per Month Before, During, and Following Homelessness

	Mental Health	Medicaid	Criminal Justice	Financial Assistance	Food Stamps	State Hospital
Kalamazoo						
Pre-Homelessness		$657.58	$13.33	$5.18		
During Homelessness		$929.59	$12.99	$22.05		
Post-Homelessness		$471.90	$19.36	$21.55		
South Carolina						
Pre-Homelessness		$319.66	$4.65		$187.30	
During Homelessness		$433.70	$4.70		$229.34	
Post-Homelessness		$493.28	$4.86		$190.78	
Houston						
Pre-Homelessness	$13.01		$6.55			$0.00
During Homelessness	$32.87		$1.57			$0.00
Post-Homelessness	$20.67		$16.36			$3.02

[22] The period following homelessness depends on when during the tracking period the family's homelessness ended and also may be different from the period preceding homelessness, which is one year for all families.

Mental health costs in Houston averaged only $409 per family but were much higher, $4594, for the 16 percent of families that received at least one mental health service. The use of mental health services by first-time homeless families in Houston rose during the period just before first entry into a residential homeless program, peaked in the first 90 days after the start of homelessness, remained high for 18 months and then began to decline, as shown in Exhibit 5.21. This suggests that homelessness, or the crisis leading to it, exacerbates mental health issues or, alternatively, that a mental health crisis leads to housing instability and homelessness. The higher mental health costs following entry into a homeless residential program may reflect needed engagement in ongoing mental health care and, therefore, may not represent an opportunity for cost saving. However, it is also possible that alternative housing and mental health interventions could provide more cost-effective assistance.

Exhibit 5.21: Mental Health Encounters of First-Time Homeless Families in Houston Compared to Date of First Homeless Entry



Monthly costs per family of the state-funded financial assistance used by many families in the study cohort in Kalamazoo were very low in the period before homelessness (Exhibit 5.20), as were the number of families using financial assistance during the pre-homelessness period (not shown on the exhibit).[23] This pattern suggests that most families receiving prevention funds prior to becoming homelessness did not in fact become homeless and provides evidence for the success of efforts to prevent homelessness through short-term financial assistance.

[23] For more detail, see the separate case study on Kalamazoo (Sokol, B., Spellman, B., Khadduri, J., & Leopold, J., 2009a).

5.4.3 Mainstream Costs for First-Time Homeless Families by Path Group

The costs and patterns just described for the entire study cohorts of first-time homeless in each community do not suggest opportunities for cost savings, with the possible exception of Medicaid costs in Kalamazoo and mental health in Houston. The literature on individual homeless people has focused on potential cost offsets among subsets of the homeless population—for example, individuals with chronic patterns of homelessness or homeless individuals with mental illness.[24] We examined patterns of use of mainstream services for homeless families following particular paths when using the homeless services system to determine if one of these path groups has patterns of use of mainstream services that could provide opportunities for cost savings or offsets.

In Kalamazoo, the "long gapper" groups had the highest Medicaid costs. The average Medicaid cost for families in these groups was $31,177 compared to the cohort average of $21,770. In Upstate South Carolina, Medicaid costs were fairly consistent across the path groups, but twenty percent of families whose composition changed during homelessness had a family member with an in-patient hospitalization during the period of homelessness. These findings suggest that further study of patterns of homelessness and medical costs for families with unstable membership might reveal opportunities for savings in medical costs.

Heavy users of transitional housing in Kalamazoo had similarly high Medicaid costs before and during the period of homelessness, but costs dropped following homelessness. Possibly, families in this group addressed pre-existing health issues during their stays in the homeless system. Or, they may have learned to sustain their ongoing healthcare needs after homelessness by using relatively lower-cost medical services.

Criminal justice costs were highest for the "long-gapper" groups in Kalamazoo, $1,153 per household, nearly twice the overall average for the study cohort of $597. As noted, this does not include court costs. Similarly, in Upstate South Carolina, criminal justice costs were particularly high for the "long-gapper" groups. In Houston, however, the highest criminal justice costs were for a group of heavy users of transitional housing, possibly incurred by one member of multi-adult households while others are in transitional housing.

Overall, families who have repeat episodes of homelessness, difficulty maintaining stable housing, and frequent changes in family composition probably incur, over time, substantial costs to public systems that could be reduced by appropriate interventions. This might be more obvious if we had been able to obtain consistent mainstream system data across all four sites or cost information from the child welfare system at one or more of our study communities. However, the appropriate interventions for these families are not as obvious as placing chronically homeless, mentally ill individuals in permanent supportive housing. A long-term rent subsidy to stabilize the family in mainstream permanent housing might help, but it likely is not sufficient to address the problems associated with unstable household composition, which may include domestic violence, other family conflict, problems with substance abuse, or chronic health problems.

[24] See Chapter 4 for a discussion of this literature.

5.5. Policy Implications and Recommendations for Further Research

This study of the patterns and costs associated with first-time homeless families in four communities:

- Confirms earlier research that long stays in the homeless services system are very expensive and makes explicit that most families with long periods of sheltered homelessness use transitional housing, either exclusively or in combination with emergency shelter. Groups of families that we identified as heavy users of transitional housing typically cost the homeless services system at least $15,000 dollars. In some communities, these costs were in the $30,000-40,000 range, which was similar to the costs for "long-stayer" families found by Dennis Culhane and his colleagues in other communities. Unlike Culhane's research, this study found some indication that families used transitional housing for extended periods had high needs, based on their heavy involvement with mainstream behavioral health systems.
- Shows that housing vouchers typically are less expensive than transitional housing per day or per month. This is most pronounced in Houston, where the monthly cost of a two-bedroom voucher during our study period was $743, while the average monthly cost of transitional housing was over $4,000. The voucher cost in the high-cost DC housing market was much higher, $1,225 per month for a two-bedroom Fair Market Rent, but the cost of transitional housing was still higher. In Upstate South Carolina, cost of transitional housing was about double the cost of a voucher. Whether the cost of transitional housing is ultimately lower than the cost of a permanent voucher—because transitional housing is temporary—is an open question.
- Identifies a group of highly troubled families that cycle in and out of the homeless services system and have very unstable household composition, often including men for part of the total period of homelessness. Their rates of involvement with the criminal justice system are high. Their repeat episodes of homelessness are comprised of relatively short stays in the residential homeless system separated by "gaps" of several months during which they evidently are unable to become stably housed in their own or someone else's housing unit. These families are not particularly costly to the homeless services system because of their relatively small number of days in the system. The public system costs of their housing instability may be high, and over time savings in mainstream costs might offset the cost of stabilizing these families in permanent housing. We do not have enough mainstream system data over a long enough period of time to determine this. Unlike heavy users of transitional housing, the outcomes of "long-gapper" families' use of the homeless services system as it currently is constituted are unambiguously negative. An alternative treatment model for these families that focuses on their family instability rather than their housing instability may be needed.
- Shows that African-American families, shown by other research to be homeless at higher rates than other poor families, have generally brief stays in the homeless service system and, because they use less expensive programs within each program type, they have relatively low costs to the homeless services system. In some communities African American families are less likely than other families to follow the "long gapper" pattern of homelessness. All of these factors suggest that they may become homeless mainly because of extreme poverty and limited social supports, and that more complex

interventions—beyond income and housing supports—may not be needed to prevent or end homelessness for many of these families. However, the use of less expensive programs could also be the result of fewer referrals or admissions to higher-cost programs, which may warrant follow-up to ensure that informal discrimination is not preventing access to important homeless system resources.

- Shows that, among the domains for which we were able to collect data, homeless families are well-connected to Medicaid and Food Stamps prior to homelessness and that the highest rates of mainstream utilization and costs for homeless families are the medical costs reimbursed by Medicaid. Our data do not permit us to determine whether homeless families use the health care system in inefficient ways or whether Medicaid costs might be reduced by preventing or ending homelessness. The limited information we have from Kalamazoo suggests this might be the case.
- Concludes that short-term costs to the criminal justice system, while troubling, do not appear high enough to suggest opportunities for offsets. We were not able to collect cost data for the use of the child welfare and foster care systems by homeless families in any of the study communities. This is an area in which additional research might find opportunities for cost offsets.
- Suggests that local policies designed to prevent families from becoming homeless and divert those on the brink of homelessness can succeed. Very few families using the Community Care Grants program in DC subsequently became homeless during a 30 month tracking period. Because the program screens for lease-holding history, employment history, and active substance abuse, it is likely that families diverted from homelessness would have used the emergency shelter system for short periods only. On the other hand, they might have been out-placed from emergency shelter into transitional housing. Similarly in Kalamazoo, financial assistance intended to prevent homelessness seems to have been largely successful, as few families in the study cohort received such assistance before becoming homeless. To confirm the success of this type of program would require tracking the results of prevention efforts directly—and ideally randomly assigning families to receive or not receive the limited funds available for such programs.

Because the daily cost of emergency shelter typically is just as high as the cost of transitional housing and sometimes is higher, moving families out of emergency shelter and into transitional housing quickly makes sense for families who are not placed immediately into permanent housing. In some communities, emergency shelters for families may operate more like transitional housing, but are being *used* like emergency shelters—that is, by many households for relatively short periods. Careful program evaluation may be required to determine whether the services rendered are appropriate to the needs for which they are allocated and whether there are opportunities for cost savings by cutting costs of individual programs.

As for transitional housing itself, analysis of cost effectiveness is needed to determine if long stays in transitional housing are justified either by improved outcomes for adults and children[25] or by reductions in costs to mainstream services system. The data we collected on the use of Medicaid by homeless families in Kalamazoo permits us to speculate that families who have used transitional

[25] HUD is now conducting an experimental design evaluation that will compare the outcomes of transitional housing with those of other approaches for serving homeless families.

housing subsequently use the health care system in a more cost-effective way, but we do not really know if health costs would have tapered off naturally or with an alternative less expensive housing intervention. More detailed analyses of use of health care by homeless families, and its costs, would be valuable.

Since the cost of permanent supportive housing to the homeless services system is low and families typically are well-connected to mainstream systems before they become homeless, quickly moving families who qualify out of emergency shelter and into this type of housing makes sense. More data collection and analysis is needed to determine the total costs to public systems of permanent supportive housing and whether providing services through mainstream systems is more cost-effective than services provided directly by residential programs for homeless people and paid for by their budgets. The services model used for permanent supportive housing, with housing and services managed and funded separately, may be more efficient than the services model used for transitional housing because it is better able to scale services to individual family needs.

Furthermore, it matters who pays for the services, even if they are ultimately paid for by public programs. Using funds appropriated to homeless programs for services can divert resources from providing for immediate shelter needs of homeless families and from programs that place them into long-term, stable housing.

Overall, exiting the homeless system did not yield a reduction in costs to mainstream services systems for first-time homeless families. From the limited data we have, costs to the criminal justice system went up following homelessness. Much more data are needed about other systems that may be affected by homelessness, in particular the child welfare system.

First-time homeless families who appear in the residential system for homeless people, leave, and then come back after long "gaps" and often with changes in family composition are expensive to the homeless services system when their costs are considered on a daily basis, as they appear to use relatively expensive programs. However, their relatively short lengths of stay mean that they do not create high total costs per family. Among homeless families, this is the group with the greatest potential for savings to mainstream systems. More research is needed on the complete costs over time of these "long gappers" to both homeless and mainstream systems. Also needed is the development of knowledge on how best to stabilize these families, based on interventions that are coordinated across mainstream sectors, including the child welfare and criminal justice systems.

6. Implications for Policy and Future Research

Around the country, communities are grappling with how to use their limited resources to efficiently and effectively respond to homelessness. In these uncertain economic times, many more individuals and families may experience first-time homelessness; thus, it is even more critical for communities to act prudently to use resources to meet the changing demand. This study presents findings that help to improve our understanding of homelessness and its associated costs; it presents ideas about opportunities for cost savings; and it develops an approach for measuring costs that, coupled with other evaluation methods, can help communities understand the cost-effectiveness of different homelessness interventions.

Throughout this report, we identified two types of findings with associated policy implications. One, different populations use homelessness programs differently and some populations are associated with greater costs. Communities may want to consider adjusting current interventions or developing new strategies to target people more efficiently. Second, we found that the structure of homeless programs and the roles they fill within the broader homeless assistance system present opportunities for cost savings.

We identified certain demographic characteristics and patterns of first-time homelessness that were associated with greater mainstream system involvement, but the analysis did not identify clear opportunities for overall mainstream system cost savings through the implementation of alternative responses to homelessness. However, the results also do not eliminate the possibility of mainstream system cost savings. Analysis of more comprehensive client-level data may yield more conclusive findings in this area.[1]

This chapter summarizes our recommendations and reiterates ideas for future research that will continue to help policymakers and practitioners improve systems that respond to homelessness. While all communities can benefit from these findings, the results are not intended to be representative of the entire nation or every community. Regression analysis showed that the community in which individuals and families received services frequently had a strong effect on both length of stay and cost. Thus, local factors and particular Continuum and program-level decisions can have a large intervening effect on patterns of homelessness and associated homeless system costs. Policymakers should not assume that the findings here, despite spanning multiple different types of communities, will necessarily hold true everywhere. They should instead discuss whether the patterns of homelessness within their own communities are appropriate, whether their homelessness systems are efficient in achieving outcomes for people who become homeless, and whether there are opportunities for cost savings through alternative program models.

[1] We found it very challenging to obtain comprehensive mainstream data from the many federal, state, and local public agencies, in addition to private providers, that collect them. Future research that relies on analysis of mainstream administrative data will need to devote significant effort to the task of identifying and securing these data.

6.1. Policy Implications Related to Different Patterns of Homeless System Use

The study clearly demonstrates that the experience of homelessness and the costs associated with it are diverse and wide-ranging across different groups of homeless people. Most first-time individuals and families experience homelessness only once or twice and, in response, use emergency shelter for a limited period of time at fairly low cost. But some experience much longer stays and some have very high associated costs. And others use the system sporadically, moving in and out of homeless programs multiple times during long periods. Our analysis suggests that communities should consider specific responses to homelessness that target the needs of those who use the system in different ways.

6.1.1. Households that Use Only Emergency Shelters for Brief Periods

The majority of individuals we studied, 57 to 66 percent of the first-time homeless single adults in each of the three communities, used only emergency shelter and only stayed briefly. On average, "short-stayer" individuals used emergency shelter programs for only one week (Des Moines) to three weeks (Jacksonville) at an average cost per household of $321 to $686. Many first-time families, ranging from 42 percent in DC to 66 percent in Houston, also had only a few brief stays in emergency shelter. The stays for families were on average longer than those of the individuals in our cohorts. One group of short-stayer families in South Carolina remained in shelter only 10 days, but other short-stayer families in all four communities stayed an average of one to three months. The average costs per short-stayer family ranged from less than $1,000 to almost $9,000, depending on the average number of days spent in programs and the relative cost of the programs used.

These short-stayers all had much lower costs than other groups of first-time homeless individuals and families. We surmise that the short-stayers in emergency shelter are those households that may be most likely able to avoid homelessness with appropriate prevention assistance. However, the findings may suggest different responses for individuals versus families from a cost-perspective, recognizing that costs alone should not guide homelessness policy.

The homeless systems that have been established in the communities in which we studied individuals offer emergency shelter with low daily costs. For the majority of individuals, the emergency shelters seem to provide an immediate, low-cost response to their homelessness. It would be very difficult to fund a prevention response at such low cost, particularly since it may be challenging to identify up front which of the individuals' homelessness could be prevented with minimal assistance. Perhaps the emergency shelter system is an "adequate" response to an immediate housing crisis for most individuals, and a place in which individuals who are not able to quickly resolve their housing crisis can be assisted or referred to more intensive interventions.

In contrast, emergency shelters for families are as expensive on average, if not more expensive, than transitional housing and permanent supportive housing offered in the four communities in which we had information on homeless families. The average cost per short-stayer family, even for the group in South Carolina that used shelter for only 10 days, exceeds a one-month rental subsidy based on local Fair Market Rents. The short-stayer families that stayed one to three months had associated costs per family of $2,508 to $8,890, significantly higher than several months of rental assistance. If families truly only need one to three months of assistance, communities may want to consider shelter

diversion or rapid-rehousing interventions that optimize the use of resources to get families back into housing. Alternatively, communities could look at the cost structure of current emergency shelter programs to determine if the environment and services offered are appropriate to the needs of those who are using them. If families stay in shelter for brief periods of time, they may not be taking full advantage of the non-crisis-related services provided to them; thus it may be possible to reduce costs by scaling back on the resources offered to families on-site in shelters. For those with greater needs who need longer stays or more intensive services, it may be more cost effective to quickly move them into transitional housing (facility-based or scattered site) or permanent supportive housing.

6.1.2. Households Who Remain in Homeless Programs for Extended Periods

The greatest opportunities for homeless system cost savings lie with the individuals and families who remain in homeless programs for extended periods. Without an assessment of the outcomes associated with the longer lengths of stay, we cannot determine whether the long stays are cost-effective. The extremely high costs associated with most of these groups suggest that communities should assess whether there are ways to reduce costs of existing programs without diminishing client outcomes, whether communities are appropriately targeting the high-cost interventions to those who benefit from them most, and whether alternative, lower-cost interventions could be developed that might be equally or more effective.

Transitional housing programs provide a starting place for this discussion. Not surprisingly since most transitional housing programs are designed for lengths of stay up to two years, those who used transitional housing alone or in combination with emergency shelter had lengths of stay in homeless programs three times that of households who only used emergency shelter. Even when controlling for lengths of stay, these households also had costs higher than those who only used emergency shelter, two times higher for individuals and one-third higher for families. The difference reflects the fact that emergency shelters for families are generally similar in cost and sometimes even more expensive than transitional housing programs, whereas transitional housing for individuals is generally more expensive than shelter.

For individuals, extended use of transitional housing costs an average of $9,000 to $14,000 per person, with the exception of those who used a low-cost form of shared transitional housing in Des Moines. For families, heavy users of transitional housing averaged between $15,500 and $38,800 per family, with the exception of families in Kalamazoo whose costs were $6,574 on average. The environment in which transitional housing is provided, a centralized facility versus scattered site apartments, does not appear to make a consistent difference in program costs, although the distribution of costs between housing operations and services does vary somewhat from one model to another. Therefore, a program's housing model is not primarily a cost question, but rather a programmatic or philosophical one depending on the subpopulation being served.

In all cases, the costs to house individuals and families in transitional housing for extended periods are significantly higher than rental subsidies based on Fair Market Rents for an equivalent period. Transitional housing programs generally provide intensive supportive services along with housing assistance, so a direct comparison of rental assistance to transitional housing is not appropriate. However, communities may want to consider whether alternative interventions or combinations of rent subsidies and standalone supportive services could achieve similar outcomes at lower costs. To the extent that transitional housing is being used by individuals and families as a form of subsidized

permanent housing, actual rent subsidies without extensive services may be much more cost-effective.

Permanent supportive housing is generally less expensive from the perspective of the homeless system than other types of residential homeless programs for families, often similar in cost to a deep rental subsidy. This is not to suggest that the services come at no cost, but rather that permanent supportive housing programs appear to have been successful at helping residents obtain services for which they were already eligible through mainstream systems. To the extent that individuals or families have disabilities that qualify them for permanent supportive housing, communities should expedite their placement into permanent supportive housing programs. This may involve improved assessment and triage processes and may also require development of additional permanent supportive housing resources to accommodate increased referrals.

While some mainstream costs are substantial for these groups of heavy users of transitional housing, ending their homelessness does not appear to offer clear opportunities to achieve cost offsets. Our analysis identified fairly high rates of families who had received some form of mental health or substance abuse treatment in the year prior to homelessness among those who used transitional housing. So, unlike conclusions from past research, family transitional housing in our study communities appears to serve those with behavioral health and medical needs. To the extent that individuals and families are eligible for assistance in mainstream systems but do not have disabilities that qualify them for permanent supportive housing, there may be opportunities to create systematic linkages between transitional housing programs and mainstream system to promote appropriate use of mainstream systems (e.g., using primary healthcare systems for routine medical care rather than emergency or acute healthcare systems) and more efficient mechanisms for delivering these services. For instance, communities should consider creating transitional housing that is modeled like permanent supportive housing. This model would provide housing and limited housing-focused services through the homeless (or other housing) system and non-housing services through mainstream systems.

6.1.3. Households Who Use Homeless Programs Multiple Times with Long Gaps Between Stays

Our analysis also identified a small group of first-time homeless individuals and families who return multiple times for homeless assistance but have long gaps between stays. Their patterns suggest that the assistance they receive from the homeless system the first and even second or third time is not sufficient to help them regain stable housing. These households sometimes only use emergency shelter and other times use a combination of program types. Across the individual sites, costs for individuals who repeatedly used homeless programs with long gaps between stays averaged approximately $1,000 for groups that only used emergency shelter to as high as $10,705 for a group of individuals in Houston who used a range of program types. Costs for families averaged from $3,295 in Kalamazoo for a group that used only emergency shelter for a total of 38 days across all stays to $17,314 for a group in DC that spent an average of 9 months in range of programs. The homeless system costs are lower on average for groups with long gaps than those incurred by groups with extended stays because the homeless system does not incur costs between program stays.

Beyond the high levels of housing instability, this group is also of interest because of the nature of its involvement with mainstream systems. In Jacksonville, 62 percent of individuals with repeated use of emergency shelters and long gaps were arrested or spent time in jail and 26 percent of the comparable group in Houston had arrests or jail stays during the period in which we studied

mainstream use. In Kalamazoo, 61 percent of families with long gaps had a family member who was arrested or spent time in jail during the study period, as did 23 percent in Houston. In South Carolina, 71 percent of families with long gaps had a family member arrested. For both first-time homeless individuals and families, households with long gaps have much higher involvement with the criminal justice system than other groups. Since these criminal justice system rates represent a time period spanning approximately 3 years, starting 12 months before each household's first stay in a homeless program and generally going through the end of 2006, not all of the involvement occurred during homelessness or the gaps between homeless program stays. However, communities may be able to use patterns of homelessness to identify individuals and families who would benefit from interventions designed to reduce repeat offenses and achieve long-term housing stability. Local criminal justice agencies may be interested in supporting a joint intervention to assist homeless individuals and families with a history of criminal involvement.

A significant percentage of families with long gaps also had changes in household composition from one program stay to the next. Half to two-thirds of families with this pattern in Kalamazoo, Upstate South Carolina, and Houston had a household composition change, and 92 percent of families with long gaps in DC had such a change. These high rates of household change are evidence of household instability and may also suggest high involvement in child welfare systems. In DC, the only site in which we obtained rates of child welfare involvement, 55 percent of the group with long gaps had child welfare involvement at some point during the study period. Unfortunately the nature and timing of child welfare involvement were not available for DC, and data on child welfare involvement were not available for any of the other family sites. However, costs of out-of-home placement by the child welfare system can be substantial. The significant housing and family instability experienced by this group suggests that neither homeless nor mainstream systems are addressing sufficiently the needs of these families.

Although homeless costs associated with households with long gaps are not nearly as large as those for individuals and families with extended stays in homeless programs, the homeless system resources used by this population are sizable enough to support alternative interventions. Moreover, if costs associated with child welfare were captured, the costs for families in this group might be substantially higher. Communities should consider systems to identify individuals and families who leave homeless programs after a relatively brief stay and then return for a second or third time within the next few months. They could be targeted with a specific intervention to address the challenges they face in retaining permanent housing. For families, it may be possible to identify those who are likely to cycle in an out of the homeless system by assessing family stability as part of initial intake. Communities should consider partnering with the child welfare system to develop interventions to promote long-term family and housing stability for these families.

6.2. Policy Implications Related to Individuals and Families with Different Demographic Characteristics

Homelessness impacts first-time individuals and families with different demographic characteristics in different ways, and we found that different demographic groups use homeless programs differently. Cutting across the patterns of homelessness described in the last section, we identified several demographic characteristics that were associated with higher costs: gender for single adults, race for single adults, age for all populations, and household change for families. Recommendations for each of these demographic groups are discussed in this section.

6.2.1. Homeless Costs for Single Women

Among individuals, single women had fewer stays but used homeless programs 74 percent longer than single men. And women dominate groups with certain patterns of homelessness, such as those who use more expensive types of programs.[2] Even when controlling for length of stay, program type and other demographic characteristics, multivariate regression analysis shows that single women have 97 percent higher costs than men. We speculate that there are several reasons for the higher costs. Women's needs may be greater, and they may use higher-cost programs that can respond to these needs. In some sites, single women are served in small programs together with families, usually with higher daily costs, whereas single men often are served in large programs with lower daily costs. Like single women, most families have fewer but longer stays than single men. Thus, the similar patterns of use for both single women and families also may be influenced by the expectations of program goals and staff.

Regardless of the reasons, communities may want to reevaluate their systems for serving single women. Programs designed to accommodate families require a different physical environment, generally with more privacy than that needed for single women. If a community has sufficient numbers of single women experiencing homelessness, programs or living spaces designed specifically to meet the physical and programmatic needs of single women may be able to be delivered at lower costs per day without affecting quality. To the extent that women are staying in transitional housing for extended periods due to severe mental illness or other long-term disabilities, it may be more appropriate and less costly to quickly place these women in permanent supportive housing programs. As with all long-stayers in transitional housing (Section 6.1.2), communities should also consider whether alternative interventions such as rapid rehousing with community-based assistance could achieve equivalent or better outcomes at lower costs.

6.2.2. Homeless Costs for Older Individuals and Families Headed by Older Adults

Relatively older adults, homeless as individuals or as part of families, also had longer lengths of stay and higher homeless costs than younger adults. Even controlling for length of stay, type of program used, and other demographic characteristics, costs for individuals older than 40 were 10 percent higher for adults than those between 31 and 40 years. Among homeless families, costs for families headed by people between 18 and 24 were one-third less than those headed by 31 to 40 year olds. For individuals, the reasons for relatively older people using higher cost programs are not clear and may be due to individual needs and program eligibility. For families, the differences in costs can almost entirely be explained by the types of program used and lengths of stay.

Single women are older on average than women in families with children. This is not surprising as women who are older may have grown children and therefore be less likely to be accompanied by them. Since both age and gender are associated with higher costs for first-time homeless individuals, communities may want to consider using age and gender in combination with other indicators to identify older women with greater needs immediately at intake. Quickly diverting this group to alternative interventions specifically designed to meet their physical and programmatic needs may be more cost-effective.

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[2] Data from victim service providers, such as domestic violence shelters, were not available for this study, so these findings are for other type of homeless residential services.

6.2.3. Homeless Costs of African-Americans

African-Americans are over-represented among first-time homeless individuals and families in comparison to the general population of individuals and families in poverty in each of the communities we studied, with the exception of Jacksonville. The multivariate analysis of lengths of homelessness and costs reveals contrasting results for African-American individuals and families. Among the individuals we studied, African-Americans are more likely to spend longer cumulative periods of time homeless, have a greater number of stays, and to incur higher homeless system costs than individuals of other races. However among the families we studied, African-Americans are likely to spend shorter periods of time in homeless programs and to be associated with lower costs. In some communities, African-Americans are associated with higher mainstream system costs and in some, lower. The conclusions suggest different strategies for African-American individuals than for families.

For individuals, African-Americans are likely to have longer lengths of stay due to their repeated episodes of homelessness. The greater costs are somewhat surprising, since African-Americans are found at lower rates in the path groups that primarily use transitional housing, the program type generally associated with higher costs. However, in Jacksonville these patterns of use—using emergency shelters rather than transitional housing–may in part drive the higher homeless system costs for African-American individuals. African-Americans comprise 73 percent of the emergency shelter long-stayer group, but only 47 percent of the Jacksonville study cohort. The Jacksonville emergency shelter that accommodates long stays is one of the most expensive homeless programs offered in the community. In Des Moines, the group of individuals that uses the lower cost, shared room model of transitional housing has a low rate of African-Americans compared with the Des Moines study cohort as a whole. To the extent that African-Americans individuals are using emergency shelter for extended periods, communities should explore strategies to alert programs to these patterns of extended stays, so more appropriate interventions can be deployed. If individuals are identified with issues that suggest need for more intensive interventions, they should be placed quickly in appropriate permanent supportive housing, transitional housing, or a newly created homeless program type that is focused on addressing their specific needs.

Among families, patterns of homelessness and involvement in healthcare systems suggest that African-American families are homeless due to extreme poverty, rather than issues related to mental illness or substance abuse. If so, communities should explore prioritizing African-American families for prevention and rapid rehousing interventions that address housing and income issues with less focus on services for non-economic issues. It may be particularly appropriate to provide a prevention or rapid rehousing intervention for families who have several characteristics associated with shorter episodes of homelessness and lower costs, for instance when African-American families headed by younger adults with younger children request shelter assistance. While communities may feel uncomfortable discussing methods of directing assistance based on race, this finding could be translated into strategies that identify ways other than race to uncover indicators for families who become homeless primarily due to poverty rather than psycho-social issues.

Alternatively, the low involvement in healthcare systems may also reflect an informal or clinical bias that results in lower access by African-American families to mainstream systems or fewer referrals or admissions to homeless programs that offer higher-intensity assistance. Therefore, communities

should also consider whether informal discrimination at the community level and as part of the case management process needs to be addressed.

6.2.4. Potential for Achieving Mainstream Cost Savings

The question of whether mainstream system costs can be offset by appropriate housing interventions is left open by this study. Our analysis suggests that there are few opportunities for mainstream cost savings when targeting groups based on their patterns of homelessness; however, consistent with past research, significant mainstream system costs may be achievable when targeting individuals or families with high levels of inappropriate involvement in mainstream systems prior to homelessness. For example, for individuals in Houston we identified patterns of mental health inpatient involvement immediately prior to homelessness, which imply that homeless programs may be currently used to house some individuals when they leave inpatient facilities. Mainstream systems and homeless systems (or ideally mainstream housing systems) may be able to design more appropriate, lower cost post-care housing responses that can offset future mainstream and homeless system costs for individuals being discharged from inpatient facilities.

Several demographic groups of first-time homeless individuals in Jacksonville and Houston, the only sites in which we had data to accommodate regression analysis, are associated with higher mainstream costs over the full period in which we studied these individuals when controlling for patterns of homelessness.[3] First-time homeless single women had higher mainstream costs when compared to men for mental health treatment costs (as well as physical healthcare costs and income supports in Jacksonville) and lower criminal justice costs. Relatively older adults in both communities also had lower criminal justice costs. However, age had different effects on costs for health care across communities. First-time homeless adults over 40 had higher mental health and physical health costs in Jacksonville and lower mental health care costs in Houston. Results for race provided a mixed picture. Communities may want to explore whether certain demographic groups should be targeted with alternative interventions to ensure appropriate use of mainstream systems.

The key point is that communities must recognize that mainstream cost savings are most likely not readily achievable when targeting homeless individuals or families defined by their use of the homeless system, even those who are homeless for extended periods. Instead, communities interested in mainstream cost savings should be intentional about identifying and targeting those with high mainstream system use as they enter the system.

6.3. Ideas for Future Research

This study does not show which homelessness interventions are cost-effective or indicate whether mainstream systems are appropriately used during periods of homelessness. But it does illuminate the diverse patterns and costs of homeless and mainstream system use that are essential to answer the critical policy question of whether instances of higher costs are appropriate as a response to homelessness for specific subgroups, or whether there are more efficient and effective ways of meeting people's needs.

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[3] The mainstream costs were incurred throughout the periods before, during and after homelessness in which we studied these individuals.

This research raises a number of additional questions that should be the focus of new research.

1. Are there specific features of homeless programs, such as program structure or size that are consistently associated with higher costs? Understanding specific cost drivers more clearly may help communities understand how to design lower-cost interventions.
2. Do some program models have outcomes that justify greater investment?
3. Are needs and patterns of homelessness for single women distinct enough to warrant systems designed specifically for them, such that future homeless system planning would focus on three broad populations: single men, single women, and families with children?
4. Are there individual and family characteristics beyond those identified in this study that can be used to predict who is likely to experience extended or high-cost homeless system use? This study identifies many patterns of homelessness associated with high costs, but changing those costs requires directing people to alternative interventions before the costs have been incurred and communities will need a basis for setting new referral policies.
5. Are the tentative conclusions drawn here about the relationship of homelessness for African-American families and extreme poverty warranted? Are there other factors that are important for identifying African-American and other families who are likely candidates for prevention or rehousing interventions?
6. How are costs of the child welfare system related to periods of homelessness? Do the conclusions regarding limited opportunities for mainstream cost offsets change when analyzing a broader range of mainstream domains within the same community?
7. Although mainstream costs appear to be related to homelessness, does desirable and undesirable mainstream involvement vary when homeless individuals or families are accessing transitional housing as opposed to a shelter, permanent housing or rapid rehousing program? For instance, this study did not attempt to understand whether individuals had greater inpatient use while in shelter and more routine mental health care when placed in transitional housing. Understanding the nature of mainstream costs, how they change in relation to different types of homeless programs, would help communities implement homeless programs that encourage cost-effective use of mainstream systems.
8. How do mainstream costs vary for the periods in-between homeless program stays as compared with during homeless program stays and the periods before and after homelessness? This study aggregated the homeless program stays and the gaps between them in a single "during homelessness" period. More granular analysis might help explain important trends in mainstream use preceding homelessness, during stays in different types of homeless program, during times of housing instability between homeless program stays, and following homelessness

While there are many research avenues still to explore, this study contributes substantially to the effort to quantify the costs associated with homelessness. Understanding these costs is a critical step in ensuring that the resources invested in serving those who are homeless are directed in a manner that best meets the diverse needs of homeless individuals and families.

Appendix A: Costs Associated with First-time Homelessness: Individuals in Jacksonville, FL

A.1. Overview

This study aims to understand the financial costs associated with 1,972 single adults in Jacksonville, Florida who became homeless for the first-time between July 1, 2004 and June 30, 2005. This study describes how people who become homeless use homeless and mainstream services and the total costs associated with those services. The mainstream services included in this report are arrests and jail stays, Medicaid-funded healthcare costs, mental health services, substance abuse treatment, food stamps, and TANF benefits. Mainstream services were tracked for the periods before, during, and following homelessness.[1]

Of the seven sites included in this study on the costs of first-time homelessness, we were able to develop the most comprehensive dataset for Jacksonville: data on utilization and costs for more mainstream systems, data for costs of residential homeless programs that include capital costs, and data on patterns of homelessness that include people who were contacted by homeless street outreach programs but never entered homeless residential programs.

Eighty percent of the first-time homeless individuals in the study cohort for Jacksonville were men. The average age was 41 years, and the study cohort was evenly split between whites and African-Americans (Exhibit 1). Half of the cohort had only one stay in a homeless program, and more than three-quarters used only emergency shelters. A small subset of the cohort had extended stays in homeless residential programs, and they were responsible for the majority of homeless costs. Three-fourths of the study cohort used mainstream systems before, during, or following the period of homelessness (Exhibit 1), and the costs of the study cohort to mainstream systems increased during homelessness.

Exhibit 1: The Jacksonville Cohort

Basic Cohort Information	
Total Persons	1,972
Average Age	41
Percent Male	80%
Percent White	48%
Homeless Program Utilization	
Length of Homeless Tracking Period	18 months
Average Number of Stays	3.3 stays
Average Total Length of Stay	57 days
Median Length of Stay	10 days
Mainstream System Utilization	
Incurred costs in at least one mainstream system	74%
Incurred costs in two or more mainstream systems	49%

A.1.1 Highlights of Cost Findings

On average, individuals in the study cohort spent 132 days homeless during the 18-month homeless tracking period.[2] During this period, the study cohort incurred a per person total cost of $2,652 for homeless and mainstream systems combined. Sixty-two percent of costs were incurred by the

[1] For the purposes of this study, mainstream systems are those that do not exclusively target people who are homeless.

[2] The period of homelessness extends from the first entry into a program for homeless people through the last exit from such a program. It may include "gap days" during which a person is not in a homeless program. Thus the 132 day average period of homelessness is longer than the 57 day average total length of stay shown on Exhibit 1.

homeless system ($1,634), and the remaining 38 percent was spread across mainstream domains. Criminal justice was by far the most expensive mainstream domain during homelessness (Exhibit 2).

Homeless System Costs

- **Distribution of Costs:** The distribution of homeless costs was highly skewed. Fifty percent of the study cohort had total homeless system costs of less than $225 and accounted for only 2 percent of total homeless costs. Ten percent of the study cohort had homeless costs of $5,300 or more. These individuals accounted for 62 percent of total homeless costs.

Exhibit 2: Costs While Homeless

Domain	Average Costs per Person
Homeless System Costs	$1,634
Mainstream System Costs (all domains)	$1,018
Income support (Food Stamps and TANF)	$138
Physical Health	$219
Criminal Justice	$397
Substance Abuse	$158
Mental Health	$106
Total Costs While Homeless	$2,652

Homeless System

Costs Included

- ***Operational costs of homeless residential programs, including facility rents***
- ***Services provided by homeless residential and homeless outreach programs***
- ***Capital Costs of facilities owned by the program or donated***

Costs Not Included

- ***Programs not covered by HMIS***: Probably not major costs; over 90 percent of beds are covered in the HMIS either directly or through data merges. However, the costs of one large health program that targeted the homeless are not included in this study.

- **Costs by Program Type:** Emergency shelters with 24-hour staffing and on-site supportive services had the highest daily cost of homeless residential programs. Overnight shelters and permanent supportive housing programs with low-intensity services had the lowest daily cost.[3]
- **Costs by Demographics:** The average homeless system cost for women ($2,754) was more than double the average cost for men ($1,337). Women tended to stay in more extensive programs than men and have longer program stays.
- **Costs by Homeless System Utilization:** Not surprisingly, there was a strong correlation between length of time spent in homeless programs and homeless costs. Users with long term stays (six months or more) in transitional housing had the highest average homeless costs.

Cost of Mainstream Systems

More than $12.4 million, $6,294 per person, in mainstream costs were incurred over the entire study period, which extended from one year before each person became homeless to December 2006. Like costs to the homeless services system, the distribution of mainstream costs across the study cohort was highly skewed, with more than a quarter of the study cohort using no mainstream systems and another quarter using more than $7,000 in mainstream services during the entire study period.

[3] The term Permanent Supportive Housing is used here because these programs were considered part of Jacksonville's homeless service system. However, some of these programs were funded with HUD Section 8 SRO Moderate Rehabilitation grants and do not offer intensive supportive services.

Mainstream Systems

Costs Included

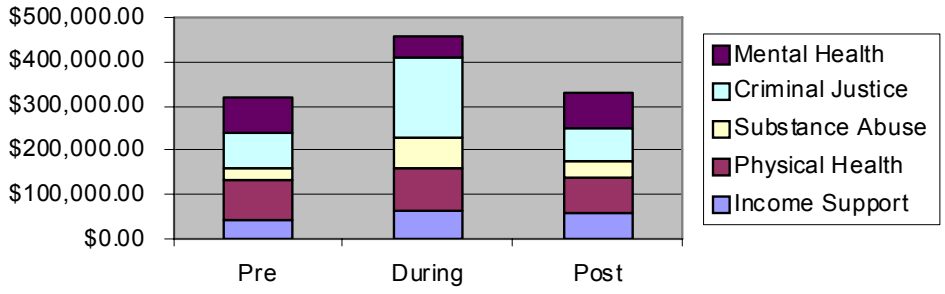
- ***Physical Health (Medicaid Managed Care and Fee For Service)***
- ***Income support (TANF and Food Stamps)***
- ***Criminal Justice (county and city)***
- ***Mental Health and Substance Abuse: Medicaid and IDS funded***

Costs Not Included

- ***Non-Medicaid Primary Health Care****: Likely to be high; as participation in Medicaid was low.*
- ***Veterans Administration Funded Services:*** *May be high, we do not know what percent of the study cohort were veterans.*
- ***Other benefits (SSI/SSDI)***

- The event of becoming homeless for the first time was associated with a sharp increase in costs to mainstream systems (Exhibit 3).[4] This increase was most pronounced in the criminal justice domain, where average monthly costs more than doubled during homelessness.
- Persons in the study cohort were frequently arrested for crimes such as trespassing that appeared to be directly related to their homelessness.
- Mental health was the only domain for which average monthly costs were lower during homelessness, and persons receiving mental health services had lower homeless costs than the rest of the study cohort.

Exhibit 3: Monthly Mainstream Costs in Relation to Homelessness



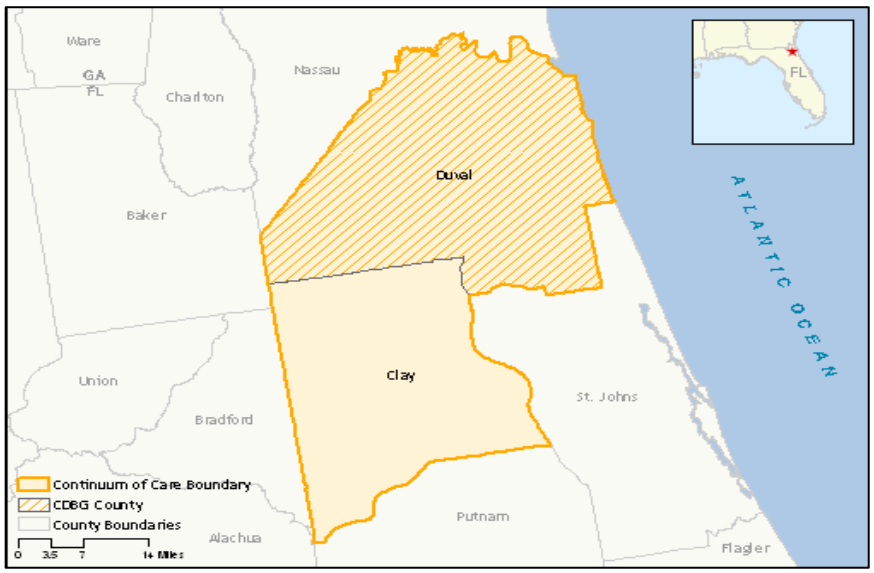
- In regression analysis, demographic characteristics and involvement in mainstream domains were stronger predictors of mainstream costs than the path a person takes through the homeless service system. In particular, whether or not a person received physical healthcare was a very strong predictor of mainstream costs. Age was also a strong predictor, with the youngest and the oldest age groups in the study cohort having the highest mainstream costs.
- Overall mainstream costs were far lower than estimates from previous studies, suggesting that the experience of becoming homeless does not necessarily lead to long-term, costly involvement in mainstream service systems.

[4] Average monthly costs are used here to adjust for the wide variance in the length of the homeless period for the study cohort.

A.2. The Homeless Services System for Single Adults in Jacksonville-Duval, Clay Counties

The Jacksonville-Duval/Clay Counties Continuum of Care (CoC) covers approximately 1,350 square miles along the northeastern Florida coastline. The CoC includes a significant portion of the metropolitan Jacksonville area, including its downtown hub, and has a population of 980,226. Exhibit 4 is a map showing the Jacksonville-Duval/Clay Counties CoC.

Exhibit 4: The Jacksonville-Duval/Clay Counties CoC



In January 2005, the CoC reported a point in time census of 2,930 homeless persons, 86 percent of whom (2,521) were single adults. Of those, 721 were without shelter. Nearly one in every 335 people in Jacksonville-Duval/Clay Counties was homeless on that single night in January.[5]

Fifteen primary agencies within the CoC provide shelter, transitional housing and permanent housing to homeless people. They are clustered primarily within downtown Jacksonville. Several additional agencies do not provide shelter but provide supportive services to homeless persons in Jacksonville. Nearly all of the homeless service agencies, including large faith-based organizations that do not receive any public funding, participate actively in the CoC planning process. The CoC, led by the non-profit Emergency Services and Homeless Coalition (ESHC), establishes priorities for program development and funding. In 2004, ESHC published a 10-Year Strategic Plan entitled *Ending Homelessness in Jacksonville: A Blueprint for the Future* (ESCH, 2004). The plan encourages the CoC to adopt a "Housing First" approach of moving clients as quickly as possible into permanent housing. However, as is true for many jurisdictions that have announced intentions to place clients rapidly into permanent housing, Jacksonville's service system still reflects, for the most part, a more traditional staged housing framework, wherein clients are assumed to move from emergency shelter to transitional housing and from there to independent or permanent supportive housing.

A.2.1 Homeless Program Types

Homeless programs in Jacksonville were assigned a program-type based on their role in the homeless service system, the level of supportive services they provided, and their expected cost structure.

[5] This estimate is based on the Continuum of Care's *2005 Homeless Population and Subpopulations* chart from its annual funding application to HUD (HUD, 2006) and 2005 ACS population estimates for Duval and Clay Counties (U.S. Census Bureau, n.d.).

Exhibit 5 shows the program types identified in this analysis, the number of programs in each category, the number of available beds for each program type, and information on the costs collected for these programs.

Exhibit 5: Jacksonville CoC Program Typology

Program Type	Description	Number of Programs	Number of Beds	Notes on Cost Estimates
Supportive Services Only	This category includes a service center that provides food, clothing and job training; a health clinic; and a case management program for persons with psychiatric disabilities.	3	N/A	These programs were not included in the case study due to lack of standardized data on utilization.
Street Outreach	Street-based outreach and service center, offering low demand, engagement-focused services. Clients are engaged on the streets and come into the center for more extensive assistance. Clients typically receive services for 6-12 months.	2	N/A	No data available on level of services received so a standard "engagement" cost was applied to each stay.
Congregate Overnight Shelter	Overnight shelters for homeless individuals. Programs were all faith-based and offered minimal services.	3	180	One overnight shelter was not included in this study due to lack of HMIS data. Costs were collected directly from one of the two other programs.
Congregate 24-hour Emergency Shelter	Emergency Shelter with 24-hour supervision, permitting longer lengths of stay and offering more extensive services.	1	300	Costs collected directly.
Facility-based Transitional Housing	Congregate facilities offering longer lengths of stay (up to 2 years) and intensive services, typically focused on substance abuse recovery.	8	450	Two programs were not included in study because they did not participate in HMIS. Cost data was collected directly from three of the six remaining programs.
Scattered Site Transitional Housing	Market-rate housing. Agency holds the lease, but clients may take over the lease if/when they become self-sufficient. Rent subsidies are typically provided for up to two years. Clients receive case management and other services.	2	60	Costs were collected directly from both programs.
Facility-based PH: Minimal Services	Section 8 Moderate Rehabilitation Single Room Occupancies (SROs). Clients served were not necessarily disabled. Minimal services offered in conjunction with program.	4	450	Costs were collected directly for three of the four programs.
Facility-based PSH: Moderate to Intensive Services	Permanent Supportive Housing, either SROs or group housing. Exclusively serve persons with disabilities and offer more intensive services.	5	175	Two programs were excluded due to lack of HMIS data. Costs were collected directly from two of three remaining programs.
Scattered Site PSH: Moderate to Intensive Services	Market-rate housing. Either the agency or the client holds the lease. Clients receive permanent, deep rental subsidy, case management, and other services.	4	165	One program was excluded due to lack of HMIS data. For Shelter + Care programs, case match included as service cost.

Jacksonville has two homeless outreach programs that provide a variety of services to persons living on the streets. In most cases these services are limited to brief interactions such as distributing blankets or bus tokens. However, some clients engaged for longer periods of time are placed into residential homeless programs.

Jacksonville has three overnight emergency shelters. These facilities offer minimal services and often limit the total number of nights clients can stay there. One overnight shelter allows three free nights per month and then charges $5 per night. Although overnight shelters are not very large, they serve more people than other programs because they have the highest turnover rates. The largest emergency shelter in the area was placed in a separate category because, unlike the overnight emergency shelters, it has 24-hour staffing, on-site supportive services, and no explicit limits on length of stay.

Most transitional housing units in Jacksonville are facility-based, meaning that clients are housed in a single building or a campus of buildings owned or leased by the program. There are a few scattered-site transitional programs that rent individual apartments in larger complexes where most of the buildings' tenants are not homeless. Most transitional housing programs offer supportive services, including case management, benefits assistance, and job training. These programs screen out persons who are actively using drugs or alcohol and cite employment, sobriety and obtaining permanent housing as their primary program goals.

The majority of permanent supportive housing units in Jacksonville are Section 8 Moderate Rehabilitation Single Room Occupancies (SROs). Unlike permanent supportive housing, these programs do not exclusively serve persons with disabilities. Aside from meals, these permanent housing SROs do not include on-site supportive services. Services are provided through referral. Jacksonville also has several permanent supportive housing programs that offer more intensive on-site supportive services. Most individuals using permanent housing programs are not included in this study because their initial homeless program entry date was prior to July 1, 2004.

Annual operating budgets were collected for a sample of homeless programs of each type. The annual operating costs include the costs of housing operations, program administration and supportive services such as food and case management. For programs that own their own facilities, an estimate of the capital costs of those facilities was factored into the daily cost. Annual costs were divided by the annual number of total shelter days provided to derive a daily cost.

The daily costs were merged with homeless service utilization data to derive the total costs for each program stay. The primary source of data used to measure homeless program utilization was HMIS data. However, three of Jacksonville's largest providers did not consistently enter data into the HMIS during the study period. These providers had their own separate databases to track the number of clients they served, their characteristics, and their lengths of stay. For the study, data extracts from the HMIS and each of the three provider databases were merged to create a single dataset that captured the majority of homeless programs in the Jacksonville CoC.

Some programs did not participate in HMIS or provide a separate dataset. Those programs are missing from the analysis, and, therefore, this study does not provide a complete account of how many single adults became homeless during the study period, their service patterns, or their total costs. For instance, no data was available for Circle of Love, a medium-size faith-based organization

that operates an overnight shelter and a transitional housing program, or for Volunteers of America's permanent supportive housing programs. Despite these limitations, data was available for over 95 percent of the total emergency, transitional and permanent supportive housing beds within the CoC.

Jacksonville has several homeless supportive services only programs whose costs are not included in this case study, including a health clinic; a service center that provides meals, clothing and employment services; and a case management program for homeless persons with psychiatric disabilities. These programs were excluded from the case study because of their lack of consistent and standardized HMIS data.

A.2.2 Homeless Costs by Program Type

It cost the homeless service system more than $3.2 million to provide shelter and services to the 1,972 persons in the homeless study cohort during the 18-month homeless tracking period. Exhibit 6 presents the homeless system costs for each homeless program-type used by the study cohort of first-time homeless individuals in Jacksonville. Service intensity is the biggest determinant of cost per day. Programs that offer an array of on-site services such as healthcare and employment assistance have higher daily costs. Facility-based residential programs, where clients are all served in a single building or campus, have daily costs similar to those of scattered-site programs that lease market-rate apartment units.

Exhibit 6: Homeless Costs by Program Type

Type	Total Cost	Total Days	Average Cost Per Day	Total Program Stays	Distinct Persons Served	Average # of Stays per Person	Average # of Days per Stay	Average Cost Per Person
Outreach and Engagement[a]	$15,868	177	$89.65	177	168	1.1	1	$94
Congregate Overnight Shelter	$134,183	9,862	$13.61	4,909	1,210	4.1	2	$111
Congregate 24-hour Emergency Shelter	$1,733,325	54,046	$32.07	884	700	1.3	61	$2,476
Facility-based Transitional Housing: Moderate to Low Intensity Services	$773,714	24,680	$31.35	434	348	1.2	57	$2,223
Scattered Site Transitional Housing: Moderate to Low Intensity services	$19,002	686	$27.70	6	6	1.0	114	$3,167
Facility-based PSH: Moderate to Intensive Services	$157,231	5,457	$28.81	33	31	1.1	165	$5,072
Scattered Site PSH: Moderate to Intensive Services	$82,250	2,650	$31.04	13	12	1.1	204	$6,854
Facility-based PSH: Minimal Services	$305,696	14,758	$20.71	59	58	1.0	250	$5,271

[a] Each outreach engagement was treated as a one-day stay

Homeless outreach programs were responsible for less than one percent of total homeless system costs. Only nine percent of the study cohort had contact with a homeless outreach worker. The HMIS data did not offer information on the types of services clients received, so an average cost per "engagement" was estimated and applied to each member of the study cohort reported to have received outreach services.

Although congregate overnight emergency shelters served 61 percent of the homeless study cohort, they accounted for only 9 percent of homeless days and only 4 percent of homeless system costs. On average, a night in an overnight congregate shelter cost $13.61, a significantly lower unit cost than any other residential homeless program. Overnight shelters also had the lowest total costs per person served because they had much shorter lengths of stay than other residential homeless programs.

Jacksonville's congregate 24-hour emergency shelter served 35 percent of the study cohort at sometime during the tracking period and accounted for 48 percent of total shelter days and 54 percent of homeless costs. This shelter had a daily cost of $32.07, the highest of any residential program, or $962 for a one-month stay. By comparison, the 2007 fair market rent for a 1-bedroom apartment in Jacksonville was $669. The twenty-four hour emergency shelter had a longer average length of stay than facility-based transitional housing programs. This could be because the 24-hour shelter has fewer program requirements such as maintaining sobriety or paying program rent. Because of the slightly higher daily cost and the slightly longer average stay, the total cost per individual of a stay in 24-hour emergency shelter was higher than the total cost of a stay in a transitional-housing facility.

Transitional housing programs accounted for 25 percent of total homeless system costs. Facility-based transitional housing programs had a slightly higher daily unit cost ($31.35) than scattered site transitional housing ($27.70). However, scattered-site transitional housing programs had a higher total per-person cost because their average stay was twice as long. The median stay in facility-based transitional housing lasted less than 30 days, possibly because persons in the study cohort had difficulty complying with their sobriety requirements or other program rules.

Although only 5 percent of the study cohort used permanent supportive housing, these programs accounted for 17 percent of total homeless costs.[6] The daily costs of permanent supportive housing programs varied greatly depending on the level of services provided. Facility based SRO programs with minimal services had a daily cost per person of $20.71, while scattered site permanent supportive housing programs with more intensive services had a daily cost per person of $31.04. Permanent supportive housing programs with more intensive services had significantly shorter average lengths of stay than permanent supportive housing programs with services provided through referrals. Overall, permanent supportive housing programs had the highest total costs per person because their average lengths of stay were greater than other residential programs.

[6] Several permanent supportive housing programs for people with mental illness did not have data in the HMIS, including these program might have increased the number of clients using permanent housing programs and their associated costs. However, most of those clients would not have been likely to fall into our cohort of first-time homeless between July 1, 2004 and June 30, 2005.

A.3. Homeless System Costs

A.3.1 Utilization of the Homeless System

The study cohort's homeless service utilization was tracked for 18 months from the initial program entry date for each member of the study cohort. Seventy-eight percent of the study cohort used only emergency shelter or street outreach programs, and fifty percent of the study cohort had only one program stay.

The median total length of stay in residential homeless programs was only ten days. A small subset of the study cohort stayed in homeless residential programs for six months or more. As a result, the average length of stay (57 days) was more than five times the median length of stay. Similarly, a small subset of persons had five or more program stays. Although fifty percent of the study cohort had only one program stay, the average number of program stays was 3.3 (Exhibit 7).

Exhibit 7. Homeless Program Utilization

Average number of Homeless Program Stays	3.3
Percent of study cohort with only one program stay	50%
Percent of study cohort that used only emergency shelter or outreach programs	78%
Percent of study cohort that used transitional and/or permanent supportive housing	22%
Average (mean) number of days spent in homeless programs	57
Median number of days spent in homeless programs	10

It was rare for people in the study cohort to use the homeless service system as a continuum, moving from emergency shelter to transitional or permanent housing. Only 22 percent of the study cohort used transitional or permanent supportive housing at all. The majority of persons who used transitional or permanent housing also had an emergency shelter stay (59%). However, of those who used both emergency shelter and transitional or permanent housing, 37 percent accessed transitional or permanent housing directly, had a program exit, and then had a subsequent stay at an emergency shelter. When people moved from emergency shelter into transitional or permanent supportive housing, there was often a lag between their exit from emergency shelter and their entry into transitional or permanent supportive housing, suggesting that their entry into transitional or permanent supportive housing was not the result of a referral.

A.3.2 Homeless System Costs per Person

Exhibit 8 shows the distribution of costs to the homeless services system for individuals in the study cohort. The average cost per person was $1,634, while the median was $225. The minimum cost for a person represents one night in an emergency shelter, and the maximum is for a person who stayed in a range of homeless programs for the entire 18-month period.

Exhibit 8. Summary of Per Person Homeless System Costs

Average Homeless System Cost Per Person	$1,634
Median Homeless Cost	$225
Minimum Homeless Cost	$13.61
25th Percentile of Homeless Costs	$40.82
75th Percentile of Homeless Costs	$1,578
Maximum Homeless Costs	$23,069

As shown in Exhibit 8, half the study cohort had a total homeless cost of less than $225. Almost all of these individuals either used just emergency shelter or had a street outreach contact followed by an emergency shelter stay and spent only a few days total in shelter. These individuals accounted for only 2 percent of total homeless costs. Ten percent of the study cohort had a total homeless cost of $5,300 or more. These individuals accounted for 62 percent of total homeless costs.

Exhibit 9: Distribution of Homeless Costs

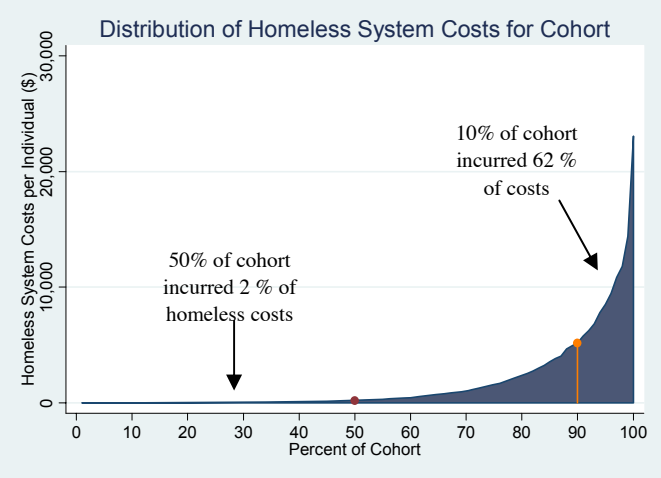


Exhibit 9 shows the cumulative distribution of homeless system costs for the individuals in the study cohort. The distribution of homeless system costs is heavily skewed by a small percentage of users responsible for the majority of total costs.

A.3.3 Homeless Costs by Demographic Characteristics

The average total homeless cost of women in the study cohort was more than double the average costs of men, as shown in Exhibit 10. Women were more likely to have long stays in emergency shelter. Fifty-five percent of persons who spent 6 months or more in emergency shelter were women, even though women made up only 20 percent of the homeless study cohort. This finding is consistent with other studies that have found that women typically have longer lengths of stay in residential homeless programs (HUD, 2008).

Exhibit 10: Homeless Costs by Gender, Race and Age

	Average Homeless Cost
Gender	
Men	$1,337
Women	$2,754
Race	
White	$1,348
African-American	$1,928
Age	
18 to 24	$1,197
25 to 30	$1,327
31 to 40	$1,466
41 to 50	$1,689
51 and older	$2,152

Not only did women have longer homeless program stays, they also typically used more expensive programs. Multivariate regression analysis, shown in Appendix B.3.1, measures the effect each independent variable has on homeless costs, holding other variables constant. The outcome variable is in log form, and these coefficients can be understood as percentage differences from the reference category for each categorical variable. Model 4 in Appendix B.3.1 shows the effect of gender on homeless costs, controlling for the length of stay spent in homeless programs, number of program stays, gaps between homeless stays, race, and age. The female variable has a co-efficient of 1.21, meaning that women had 121 percent higher homeless costs after controlling for other variables. The relationship between gender and homeless costs was statistically significant at the .01 level.

The average total homeless cost for African-Americans ($1,928) was nearly $600 higher than the average homeless cost for whites ($1,348) (Exhibit 10).[7] African-Americans had longer average lengths of stay than whites. However, even after controlling for length of stay and other variables, African-Americans still had 39.4 percent higher costs than whites (Appendix B.3.1). This finding was statistically significant at the .01 level.

Exhibit 10 also shows that costs per individual increase with age, with those over 50 having the highest cost per person. Older persons were more likely to progress from emergency shelter to transitional or permanent supportive housing or to be placed directly in permanent supportive housing, possibly because they were more likely to have a documented disability. However, multivariate regression analysis found that the effect of age on total homeless cost per person was not statistically significant after controlling for homeless program utilization, suggesting that the greater cost per person for older individuals is associated only with longer stays (Appendix B.3.1, Model 4).

A.3.4 Costs by Homeless Path Group

First-time homeless individuals followed eight distinct "paths" through the homeless services system in Jacksonville. These paths were assigned based on a multivariate cluster analysis that included as variables the number of nights spent in homeless programs, number of homeless stays, length of gaps (in days) between homeless stays, and the types and sequences of programs used while homeless. Exhibit 11 presents the Jacksonville path groups, the percentage of the study cohort in each path, the path groups' demographic characteristics, their lengths of stay, and the average cost to the homeless system for each person in the path group. Appendix B.1 provides more information on the demographic characteristics of each path group, and Appendix B.2 shows their utilization of homeless programs.

Two-thirds of the study cohort, 1,302 people, fell into either the "ES Short Stayer" or the "Street/ES Short Stayer" path group. These people had brief stays in emergency shelter or a brief engagement with a homeless outreach program followed by a stay in emergency shelter. The majority of people in these path groups spent three days or less in homeless programs and typically used only overnight emergency shelter rather than the more costly 24-hour emergency shelter. Therefore, the total homeless cost per person for these path groups were very low compared to the rest of the study cohort. The individuals in these path groups were overwhelmingly male and somewhat more likely to be white than individuals in other path groups.

Two percent of the study cohort had a single stay in emergency shelter that lasted more than six months. "Emergency Shelter Long Stayers" was the only path group with more women than men. This path group also had the highest percentage of African-Americans. "Emergency Shelter Long Stayers" had the second highest total homeless system cost per person of any path group, $9,756. The forty-four persons in this path group had a higher total homeless cost ($429,274) than the 746 "Emergency Shelter Short Stayers" ($419,768).

[7] Information on ethnicity was not available from the Homeless Management Information System (HMIS).

Exhibit 11: Jacksonville Homeless Path Groups								
Path Name	Description	% of Study Cohort	Average Age	Percent Male	Percent White	Average Length of Stay	Average Homeless Cost	Total Homeless Cost
Single ES Short Stayers	A single stay in emergency shelter lasting less than 6 months	38%	40	80%	51%	18	$563	$419,768
Street/ES Short Stayers	This pattern includes outreach engagements followed by short emergency shelter stays, as well as multiple, brief shelter stays	28%	41	85%	52%	29	$853	$474,039
Single ES Long Stayers	A single stay in emergency shelter lasting 6 months or more	2%	41	46%	25%	304	$9,756	$429,274
Multiple ES Long Gappers	Multiple emergency shelter stays with significant gaps in time between stays	10%	42	95%	37%	40	$910	$179,249
Sequential Short Stayers	Brief use of transitional housing, sometimes following emergency shelter. A few members of this path ended the sequence with a short stay in PSH following emergency shelter or transitional housing. Total length of stay less than 6 months.	10%	41	65%	50%	54	$1,585	$310,652
Sequential Long Stayers	Long stays in transitional housing, sometimes following a stay in emergency shelter. A few members of this path ended the sequence with a short stay in PSH. Total length of stay greater than 6 months.	2%	47	67%	50%	364	$10,416	$374,961
Circlers	Use of emergency shelter following transitional or permanent supportive housing.	7%	43	79%	38%	135	$3,987	$566,200
Permanent Supportive Housing Long Stayers	Long stays in permanent supportive housing, sometimes preceded by a stay in emergency shelter	3%	46	67%	42%	338	$8,493	$467,126

Ten percent of the study cohort had a high number of stays in emergency shelter spread out over a long period of time. Ninety-five percent of "Emergency Shelter Long Gappers" were male and two thirds were African-Americans. "Long Gappers" had an average of 11 distinct program stays during the study period, and most of these stays lasted only a few days (Appendix B.2). On average, 398 days elapsed between the first shelter entry for "Emergency Shelter Long Gappers" and their last shelter exit during the study period. However, "ES Long Gappers" spent an average of only forty days in emergency shelter. Some "ES Long Gappers" may be chronically homeless persons alternating among spending the night in emergency shelters, living on the streets or in other tenuously housed situations, and staying in other institutions. The average homeless cost for this path group was $910, lower than the overall study cohort average.

Ten percent of persons in the study cohort were "Sequential Short Stayers". This path group ended the homeless "path" in transitional or permanent housing and had a total length of stay of less than six months. Two percent of persons in the study cohort were "Sequential Long Stayers". This path group ended the homeless "path" in transitional or permanent housing and had a total length of stay of six months or more. Although people in these two path groups are characterized as "sequential" users of the homeless service system, the majority (56 percent) used only transitional housing.

"Sequential Long Stayers" had a total homeless cost per person of $10,416, the highest of any path group. Together the 36 "Sequential Long Stayers" incurred $374,961 in total homeless costs, $64,000 more than the total homeless costs of the 196 "Sequential Short Stayers" ($310,652). "Sequential Long Stayers" and "Sequential Short Stayers" both were somewhat more likely to be women than the study cohort as a whole. Long Stayers were older on average than other path groups, with an average age of 47, compared to 41 for the overall study cohort (Appendix B.1).

Seven percent of the study cohort, 142 people, were "Circlers", meaning that they exited transitional or permanent supportive housing only to have a subsequent homeless program stay in emergency shelter or transitional housing. Compared to other path groups using transitional or permanent housing, "Circlers" were more likely to be male and more likely to be African-American. Because of their relatively short lengths of stay, their average costs were lower than costs for the "long-stayer" path groups.

Three percent of the study cohort, 55 persons, had long stays in permanent housing. "Permanent Supportive Housing Long Stayers" had a higher average age than the study cohort as a whole. Although this group had an average length of stay of 338 days and the highest median length of stay of any path group (384 days, compared with 371 for sequential long-stayers), they typically stayed in SRO units with minimal services and low daily costs (Appendix B.2). Thus, their total cost per person was considerably less than the costs per person of the long-term stayer groups that spent most of their time in transitional housing or emergency shelter.

A.4. Mainstream System Costs

Of the six sites in the Cost of Homelessness study, Jacksonville provides the most complete picture of mainstream service costs associated with first-time homelessness.

Administrative data on mainstream service systems were collected through the University of South Florida (USF), which acted as an intermediary. USF manages behavioral health data for the State and was able to link our homeless study data with mainstream datasets to produce the analysis needed for this case study. The study includes data for: Medicaid-funded physical healthcare; state and Medicaid funded mental health and substance abuse services; Temporary Assistance to Needy Families (TANF); food stamps; and jail and arrest data from the Duval County Sheriff. The data on physical healthcare cover both capitation plans (Medicaid managed care) and fee for service encounters. The capitation plan costs reported in the study represent the costs incurred by the medical providers for the visits and services provided, rather than the amount of the premiums paid by the State for the managed care.

Exhibit 12. Percent of Study Cohort Utilizing Mainstream Systems During the Study Period

One or more mainstream domains	74%
Two or more mainstream domains	49%
Income support	52%
Criminal Justice	38%
Mental Health	25%
Substance Abuse	22%
Physical Health (Medicaid funded)	20%

Not included in the study are physical healthcare costs not covered by Medicaid, such as emergency room visits for the uninsured, and medical and other services provided through the Veterans Administration. We also did not collect data on SSI/SSDI income support or on service encounters and costs that members of the study cohort might have had with the child welfare system.[8]

Mainstream service costs were analyzed for the periods before, during and after homelessness. The pre-homelessness period was defined as the 12 months prior to the first homeless program entry for an individual in the study cohort. During homelessness was defined as the period between a cohort member's initial entry into a homeless program and his or her final exit from a homeless program.[9] The after homelessness period was defined as the period between a person's final program exit date and the end of the study period December 31, 2006. The entire study period lasted between 2.5 and

[8] Members of the study cohort were served only as single individuals during the study period. However, some of them may have been parents of minor children with encounters with the child welfare system, just as some received TANF income.

[9] If clients were still in a homeless program 18 months after their initial program entry, they were given an exit date of 18 months (548 days) after their initial entry. For persons who had more than one homeless program stay, the during-homelessness period includes time when those persons were not actually residing in homeless programs and many not have actually been homeless. For example, a person in the study cohort might go to an overnight shelter for one night on July 3, 2004, exit the shelter to live in his own apartment, and then have a subsequent one night stay in an overnight shelter on December 21, 2005. Although this person's total length of stay in homeless programs was two nights, his total period "during homelessness" was 536 days.

3.5 years, depending on a client's initial homeless program entry date.[10] Exhibit 12 shows the percentage of the study cohort using each mainstream system at some point during the entire study period.

Exhibit 13 summarizes the mainstream system costs of the Jacksonville study cohort of first-time homeless individuals. The average total mainstream system cost per person in the study cohort was $6,294. Some mainstream costs are positive, as persons in the study cohort received necessary benefits or services. Other mainstream costs were less positive, for example, incarceration or involuntary psychiatric hospitalizations.

Like homeless costs, the distribution of mainstream costs was heavily skewed, with a majority of the study cohort with relatively low costs and a small subset with very high costs. The skew is reflected in the large gap between the mean mainstream cost ($7,136) and the median mainstream cost ($1,602). More than a quarter (26 percent) of the study cohort made no use of mainstream services during the study period, so the 25th percentile cost per person is zero.

Exhibit 13. Summary of Total Mainstream System Costs

Total Mainstream Costs	$12,410,933
Percent of study cohort that incurred mainstream costs	74%
Average mainstream costs per person	$6,294
Average mainstream costs per person incurred during homelessness	$1,018
25th percentile of mainstream cost	$0
Median mainstream cost	$1,602
75th percentile of mainstream cost	$7,136
Maximum mainstream cost	$180,814

Exhibit 14 shows the total monthly mainstream costs for the entire study cohort for each major domain in the periods before, during and after homelessness. Monthly averages are used to control for the difference in length between the before, during and after homelessness time-periods. Total monthly mainstream costs for almost all domains were highest during homelessness. The biggest reason for the increase was a 125 percent spike in criminal justice costs during homelessness. The Duval County Department of Corrections spent an average of $178,072 per month on the homeless study cohort during this period.

Exhibit 14: Total Monthly Mainstream Costs for the Study Cohort Before, During, and After Homelessness

	Criminal Justice	Physical Health	Mental Health	Income Support	Substance Abuse	All Domains
Average Monthly Costs by Time Period						
Prior	$79,274	$89,923	$78,091	$42,595	$26,622	$317,198
During	$178,072	$98,206	$47,328	$61,526	$70,992	$456,124
Post	$73,950	$81,049	$76,908	$58,568	$37,862	$327,746
Percent of Costs Incurred by Time Period						
Prior	25%	28%	25%	13%	8%	-
During	39%	22%	10%	13%	16%	-
Post	23%	25%	23%	18%	12%	-
Overall	26%	25%	22%	16%	11%	-

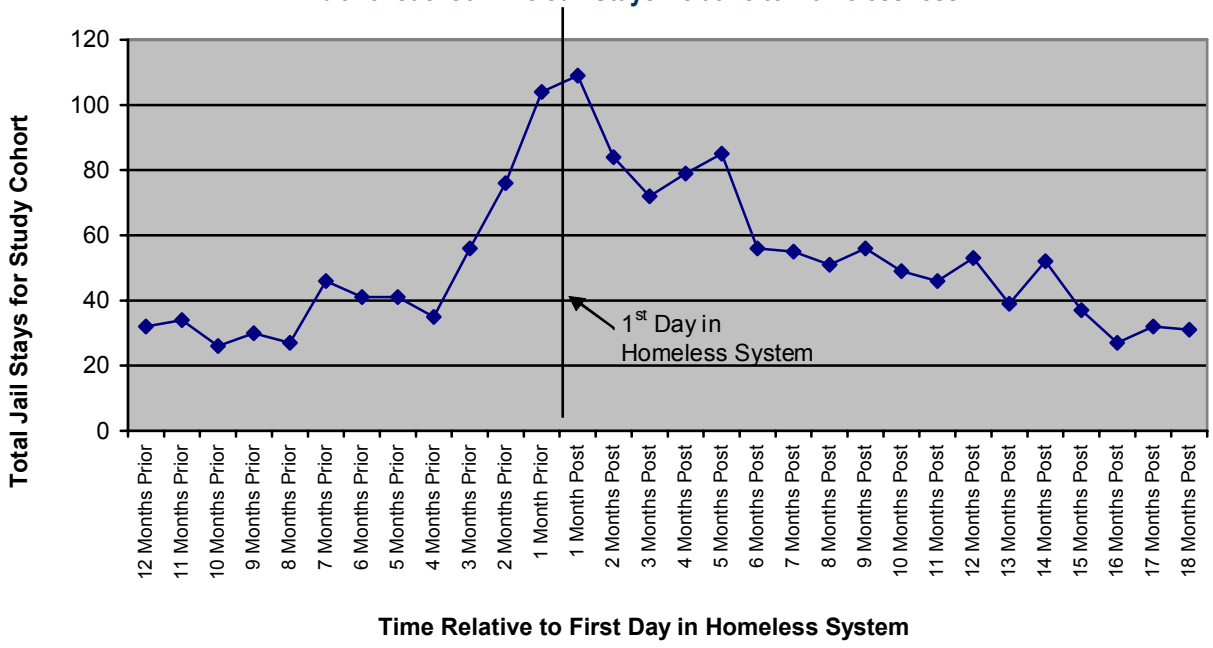
[10] The total length of the mainstream tracking period varied based on when persons in the study cohort first entered the homeless service system. Persons with a program entry date of July 1, 2004 had a total study period of 3.5 years (July 1, 2003 – December 31, 2006). Persons with a program entry date of June 30, 2005 had a total study period of 2.5 years (June 30, 2004-December 31, 2006). The average mainstream study period was 1,090 days.

Criminal justice was the most expensive mainstream domain for the study cohort, accounting for 26 percent of overall mainstream costs and 39 percent of mainstream costs incurred while the study cohort was homeless (Exhibit 14). Criminal justice costs include the costs of making an arrest ($244.50/arrest) and putting someone in jail (a $165 processing fee plus $60 for each night spent in jail). Criminal justice costs do not include court costs or prison costs. Thirty-eight percent of the study cohort had at least one encounter with the criminal justice system (Exhibit 12).

Exhibit 14 shows a 125 percent increase in monthly criminal justice costs for the study cohort during homelessness, suggesting that persons are more likely to incur criminal justice costs while they are homeless. Trespassing was the most commonly cited cause for arrest, followed by possession of a controlled substance, petty theft, public intoxication, and driving with a suspended license – all non-violent offenses.

The monthly costs by time period show a sharp spike in criminal justice costs during homelessness. However, a more granular analysis of the criminal justice data shows that jail stays increase dramatically directly before and after first contact with a homeless program (Exhibit 15). The dramatic increase in jail stays (and jail costs) is obscured in Exhibit 14 because monthly costs are averaged out over the entire 12-month "pre-homelessness" period. Exhibit 15 suggests a connection between the event of becoming homeless and the likelihood a person goes to jail. In some cases a jail stay may have disrupted a person's housing arrangement and precipitated his homelessness; in other cases, being homeless might have made people more likely to be arrested for vagrancy crimes such as trespassing or loitering.[11]

Exhibit 15: Jacksonville Jail Stays Relative to Homelessness



[11] Other research analyzing rates of homelessness among ex-offenders found that individuals released from state prisons or jails have a greater risk of homelessness than individuals with similar characteristics who have not been recently incarcerated. The same research also found that certain demographic characteristics and longer periods of incarceration were associated with greater risks of homelessness after release. (Graham, D., Locke, G., Bass Rubenstein, D. & Carlson, K., unpublished)

Unfortunately, the administrative data used in this study is insufficient to investigate these relationships more thoroughly. This level of analysis requires client-level utilization data, which we did not receive for the other mainstream systems in Jacksonville.

Exhibit 16 shows the results of multivariate analysis we conducted to understand which characteristics of the study cohort and its patterns of homelessness are related to criminal justice costs.[12] In these models, the regression coefficients represent the differences in dollar costs between individuals with and without a particular characteristic. The first model in Exhibit 16 includes the number of homeless stays, length of stay in homeless programs, the number of gap days spent between homeless program stays, age, gender, and race. The coefficients in these models should be interpreted as the effect (in dollars) having a particular characteristic has on a person's criminal justice costs, controlling for all other characteristics included in the model. According to this model, there is not a strong association between the number of homeless program stays and criminal justice costs or between length of stay in homeless programs and criminal justice costs. However, there is a strongly significant relationship between sporadic use of the homeless service system and criminal justice costs. People who had long gaps between homeless program stays had higher criminal justice costs. The gap days variable has a coefficient of 149.9, meaning that for every 30 days spent between homeless program stays, criminal justice costs increased by almost $150. The first model in Exhibit 16 also shows a strong relationship between gender and criminal justice costs, with women having almost $1,000 lower criminal justice

Exhibit 16. Multivariate Regression Models for Criminal Justice Costs

	Model without mainstream involvement	Model with mainstream involvement
Patterns of Homelessness		
Total Number of Stays	-34.855	-16.612
	(21.201)	(18.684)
Total length of stay (in days), divided by 30	11.861	-40.961*
	(27.582)	(24.685)
Total gaps between stays (in days), divided by 30	149.972***	46.678**
	(25.196)	(22.557)
Demographics+		
Females	-992.334***	-699.162***
	(249.377)	(239.654)
African-Americans	380.364*	391.015**
	(195.320)	(173.505)
Other Races	814.333	1,037.067**
	(535.575)	(470.540)
Ages 18-24	91.847	20.461
	(380.230)	(335.731)
Ages 25-30	-59.916	30.047
	(341.461)	(300.492)
Ages 41-50	-639.606***	-442.451**
	(240.925)	(212.209)
Ages 51 and above	-1,094.955***	-451.928*
	(291.206)	(257.551)
Mainstream Involvement		
Income Support (TANF and food stamps)	N/A	162.643
		(180.981)
Physical Healthcare	N/A	-522.385**
		(247.343)
Mental Health	N/A	133.297
		(211.859)
Substance Abuse	N/A	1,003.905***
		(211.772)
Criminal Justice	N/A	3,973.550***
		(178.374)
Constant	1,820.685***	61.876
	(220.352)	(214.513)
Observations	1972	1972
R-Squared	.04	.26

+ Reference categories are males, whites, and ages 31-40.
Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%

[12] Appendix B.4 provides a complete set of regression models, which include controls for missing variables. Appendices B.5 and B.6 provide alternate regression models that control for homeless path group and homeless cost respectively, rather than homeless service utilization.

costs than men. Age was also strongly associated with criminal justice costs, as persons over 40 had lower criminal justice costs than persons between 31 and 40.

The second regression model shown in Exhibit 16 controls for both patterns of use of the homeless services system and for use of the mainstream domains, including criminal justice, with which the study cohort had encounters.[13] Thus, individuals with criminal justice encounters had criminal justice costs almost $4,000 greater (the coefficient is 3973.55) than those without such encounters (whose criminal justice costs would be zero). Because this model controls for whether or not a person becomes involved in the criminal justice system, the coefficients indicate the extent of a person's involvement and not the likelihood of his involvement.

Thus, individuals who received substance abuse services as well as criminal justice services incurred an additional $1,004 in criminal justice costs, while those who used Medicaid reimbursed health care had criminal justice costs $522 lower. Even after controlling for the differential use of mainstream services, across the entire study cohort women had criminal justice costs about $700 lower than men. The model shows that African American individuals have higher criminal justice costs than whites, as do those identifying themselves as belonging to "other" races. Not surprisingly, relatively older members of the study cohort have lower criminal justice costs than younger people.

After controlling for involvement in mainstream domains, there is still a significant relation between gap days and criminal justice costs. However the relationship is much weaker, as the coefficient decreases from 149.9 to 46.7. After controlling for involvement in mainstream domains, there is a negative correlation between length of stay in homeless programs and criminal justice costs. However, the effect is slight and only significant at the 10 percent level. Apparently, peoples' characteristics that are not directly related to homelessness—whether they are arrested, whether they have needs that bring them into contact with substance abuse services, whether they lack routine medical care—are much more powerful determinants of their criminal justice costs than their patterns of use of homeless programs. Gender and race also are more powerful predictors of criminal justice encounters than are patterns of use of the homeless services system.

Income support was used by just over half of the study cohort. Fifty-two percent of the study cohort received food stamps during the study period, while only three percent of persons in the cohort received TANF. The low utilization of TANF benefits was expected because most persons in the study cohort were single men, and many of the women may not have qualified for TANF because they did not have children living with them. Income support costs increased 44 percent while persons in the study cohort were homeless and decreased only slightly after clients exited homeless programs (Exhibit 14). It is unclear how persons living in residential homeless programs, who in many cases were provided free meals, used their food stamp benefits.

Multivariate analysis results indicate that income support costs were positively associated with longer homeless lengths of stay. The first regression model shown in Exhibit 17 shows that each additional 30 days in homeless residential programs is associated with an additional $80 in income support across the study cohort. An alternate model that controls for homeless path groups (Appendix B.5.1, Model 2) shows that those with long stays in emergency shelter had a $2,327 higher income support cost per person. The models control for the gender of the individual and also show that women have

[13] Both models are shown in their entirety in Appendices B.4.1 and B.4.2 respectively.

much higher income support amounts than men. The second model in Exhibit 17 shows that people who also receive physical health care have higher income support amounts than those who do not. Overall, the pattern seems to identify a group better connected to programs that alleviate poverty than other first-time homeless individuals.

Substance Abuse services were used by 22 percent of the study cohort (Exhibit 12). The monthly cost of substance abuse treatment for the study cohort spiked 167 percent during homelessness, from $26,622 to $70,992 and decreased to $37,862 after persons in the study cohort exited homeless programs (Exhibit 14). Substance abuse treatment was the least expensive mainstream service domain during the study period, having the lowest costs in the periods before and after homelessness. However, it was the third most expensive domain while people in the study cohort were homeless.

Exhibit 17. Multivariate Regression Models for Income Support Costs

	Model without mainstream involvement	Model with mainstream involvement
Patterns of Homelessness		
Total number of stays	-5.599	-2.596
	(10.013)	(8.964)
Total length of stay (in days), divided by 30	80.128***	40.700***
	(13.027)	(11.843)
Total gaps between stays (in days), divided by 30	0.982	-12.295
	(11.900)	(10.822)
Demographics+		
Females	1,770.719***	833.108***
	(117.779)	(114.976)
African-Americans	280.946***	135.253
	(92.248)	(83.241)
Other Races	-174.340	-115.260
	(252.948)	(225.746)
Ages 18-24	416.656**	185.669
	(179.580)	(161.070)
Ages 25-30	248.953	92.079
	(161.269)	(144.164)
Ages 41-50	-152.958	-242.203**
	(113.787)	(101.810)
Ages 51 and above	-104.207	-210.229*
	(137.534)	(123.563)
Mainstream Involvement		
Income Support (TANF and food stamps)	N/A	1,445.796***
		(86.828)
Physical Healthcare	N/A	1,423.293***
		(118.666)
Mental Health	N/A	-255.665**
		(101.641)
Substance Abuse	N/A	-123.407
		(101.600)
Criminal Justice	N/A	7.975
		(85.577)
Constant	394.947***	-112.587
	(104.071)	(102.915)
Observations	1972	1972
R-Squared	0.16	0.34

+ Reference categories are males, whites, and ages 31-40.
Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%

Path groups that involved the use of transitional housing programs ("Sequential" Stayers and "Circlers") had higher substance abuse costs than path groups associated with only the use of emergency shelter.[14] The relationship between use of transitional housing programs and substance abuse costs holds both when the use of mainstream systems is controlled for in the model and when it is not (Exhibit 18). Most transitional housing programs cited achieving sobriety as a principal program goal, and these programs may have referred their clients to mainstream drug treatment programs. An alternative specification of the model shows that each 30-day increase in the length of stay in a homeless program is associated with a $61 increase in substance abuse costs (Appendix B.4.1). The first regression model in Exhibit 18, which does not control for the use of mainstream services, shows that heavy users of permanent supportive housing also have high substance abuse costs, but the coefficient is no longer significant in the second model, which does control for mainstream involvement. A possible explanation is that, while users of permanent supportive housing are more likely to incur substance abuse costs than other path groups, their substance abuse costs are not higher than other people who receive substance abuse treatment. Receiving mental health treatment was associated with a $451 increase in substance abuse costs, for persons who received substance abuse treatment (Exhibit 18). Gender appears to have no effect on substance abuse costs.

Exhibit 18. Multivariate Regression Models for Substance Abuse Costs

	Model without mainstream involvement - controlling for homeless path group	Model with mainstream involvement – controlling for homeless
Homeless Path Group+		
Single ES Long Stayers	-12.359	-267.271
	(448.596)	(400.888)
Multiple ES Long Gappers	349.426	29.563
	(231.315)	(209.701)
Street/ES Short Stayers	312.461*	126.469
	(160.581)	(143.937)
PSH Long Stayers	1,174.122***	583.988
	(402.976)	(362.491)
Sequential Short Stayers	883.603***	414.067**
	(231.450)	(207.256)
Sequential Long Stayers	1,345.077***	862.500*
	(494.468)	(440.936)
Circlers	491.023*	130.110
	(263.855)	(238.325)
Mainstream Involvement		
Income Support (TANF and food stamps)	N/A	146.196
		(125.848)
Physical Healthcare	N/A	239.911
		(172.276)
Mental Health	N/A	451.142***
		(147.491)
Substance Abuse	N/A	2,951.154***
		(147.036)
Criminal Justice	N/A	-9.928
		(123.700)
Constant	587.542***	-179.410
	(164.758)	(158.159)
Observations	1972	1972
R-Squared	0.02	0.23

+ Reference categories are Single Emergency Shelter Short Stayers, males, whites, and ages 31-40.
Both models also controlled for age, gender, and race. The full models are shown in Appendix B.4.1 and B.4.2.
Standard errors in parentheses. *significant at 10%, **significant at 5%; ***significant at 1%

Mental health services were the third most expensive mainstream service domain across the entire study period but the least expensive domain during the homelessness

[14] Appendix B.7 shows mainstream involvement and per person costs by time period and homeless path group.

period, as shown on Exhibit 14. The exhibit shows that during homelessness, total mental health costs went down for the study cohort, even as substance abuse costs rose. This may reflect a substitution effect between similar services during the period of homelessness. However, regression models that look for determinants of mental health costs across the entire study period show no statistically significant differences in cost between persons who have and have not received substance abuse treatment (Exhibit 19). This means that, persons in the study cohort that received substance abuse treatment and also received mental health services had higher substance abuse costs than those who only received substance abuse treatment. However, persons who received mental health services and also received substance abuse treatment did not have higher mental health costs than persons that only received mental health services.

Both before and after controlling for involvement in mainstream systems, African-Americans have significantly lower mental health costs than white individuals (Exhibit 19). "Sequential Short Stayers", those with short stays in transitional or permanent supportive housing, have higher mental health costs in both regression models (Appendix B.5.1, Appendix B.5.2). Aside from this, the path group regression analysis showed no significant relationship between homeless service use and mental health costs. Among those persons who had mental health treatment, people who received Medicaid funded physical health care incurred an additional $3,204 in mental health costs (Exhibit 19).

Physical health care was the least likely mainstream domain to be utilized by the Jacksonville cohort.

Exhibit 19. Multivariate Regression Models for Mental Health Services Costs[15]

	Model without mainstream involvement	Model with mainstream involvement
Demographics		
Female	1,663.730***	34.806
	(441.617)	(454.595)
African-American	-907.569***	-745.157**
	(345.888)	(329.119)
Other Race	575.892	358.007
	(948.438)	(892.559)
Ages 18-24	1,237.724*	286.685
	(673.342)	(636.842)
Ages 25-30	636.365	334.982
	(604.686)	(569.998)
Ages 41-50	237.133	244.497
	(426.649)	(402.536)
Ages 51 and older	1,065.059**	1,003.213**
	(515.691)	(488.545)
Mainstream Involvement		
Income Support (TANF and food stamps)	N/A	-623.605*
		(343.301)
Physical Healthcare	N/A	3,203.957***
		(469.182)
Mental Health	N/A	4,531.870***
		(401.871)
Substance Abuse	N/A	131.791
		(401.706)
Criminal Justice	N/A	-7.631
		(338.355)
Constant	1,183.239***	92.949
	(390.217)	(406.907)
Observations	1972	1972
R-Squared	0.02	0.13

+ Reference categories are Single Emergency Shelter Short Stayers, males, whites, and ages 31-40.
Both models also controlled for number of homeless program stays, homeless length of stay, and gaps between homeless stays. The full models are shown in Appendix B.4.1 and B.4.2
Standard errors in parentheses.
*significant at 10%; **significant at 5%; ***significant at 1%

While used by only 20 percent of the study cohort, it had the second highest total cost (Exhibit 14). Physical health care costs did not change significantly in the periods before, during and after persons in the study cohort were homeless (Exhibit 14).[16] Long-stayers in permanent supportive housing had by far the highest physical health care costs of any path group. Their average physical health care cost was $9,300, 239 percent higher than the per person physical health care costs of the next highest path group (Appendix B.7). Most permanent supportive housing programs serve exclusively people with disabilities, and these individuals may have physical as well as mental health conditions. No other path group had a significant association with physical health care costs after controlling for

[16] Appendix B.7 shows the per person costs and involvement rates in physical health care by time period and homeless path group.

demographic characteristics. However, there was a significant association between physical health care costs and the length of time spent in homeless programs. The first model in Exhibit 20 shows that, for every thirty days spent in homeless programs, physical health care costs increase $199. In the second model, which controls for mainstream involvement, each 30-day increase in homeless length of stay is associated with a $157 increase in physical health care costs (Exhibit 20). This indicates that not only are persons with long stays in homeless programs more likely to receive Medicaid funded physical health care, they also are likely to receive it more frequently and/or receive more expensive services. The models that include involvement in other mainstream systems show that people who receive mental health services also have substantially higher physical health care costs than other members of the study cohort (Exhibit 20). The models that do not control for receipt of mainstream services show that women have much higher physical health care costs than men. However, once receipt of physical health care and other mainstream services is controlled for, women have lower costs than men (Exhibit 20). Apparently, individual homeless men are less likely than individual homeless women to receive Medicaid-reimbursed physical health care services, but when they do, their treatment is more expensive.

Exhibit 20. Multivariate Regression Models for Physical Health Care Costs

	Model without mainstream involvement	Model with mainstream involvement
Patterns of Homelessness		
Total number of stays	-74.742**	-34.522
	(36.628)	(33.302)
Total length of stay (in days), divided by 30	198.681***	157.377***
	(47.651)	(44.000)
Total gaps between stays (in days), divided by 30	13.062	4.806
	(43.528)	(40.207)
Demographics+		
Females	2,170.849***	-951.443**
	(430.825)	(427.168)
African-Americans	560.360*	284.895
	(337.435)	(309.262)
Other Races	209.352	163.165
	(925.260)	(838.707)
Ages 18-24	646.639	-508.376
	(656.886)	(598.418)
Ages 25-30	128.096	-476.145
	(589.908)	(535.607)
Ages 41-50	47.339	63.805
	(416.223)	(378.249)
Ages 51 and above	912.642*	421.008
	(503.089)	(459.069)
Mainstream Involvement		
Income Support (TANF and food stamps)	N/A	-312.324
		(322.588)
Physical Healthcare	N/A	7,847.323***
		(440.874)
Mental Health	N/A	1,159.145***
		(377.624)
Substance Abuse	N/A	878.769**
		(377.469)
Criminal Justice	N/A	-571.797*
		(317.940)
Constant	477.218	-219.240
	(380.681)	(382.356)
Observations	1972	1972
R-Squared	0.04	0.21

+ Reference categories are males, whites, and ages 31-40.
Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%

A.5. Total Homeless and Mainstream Costs

The average total homeless and mainstream cost for each individual in the study cohort was $7,927. The median total system cost for persons in the study cohort was $3,057 (Exhibit 21). The average cost was inflated by a small subset of persons with overall homeless and mainstream system costs of more than $20,000.

Exhibit 21. Summary of Total Costs	
Total Costs (mainstream and homeless)	$15,632,202
Average (mean) total cost per Person	$7,927
Median total cost	$3,057
Average Costs incurred while homeless	$2,651

Exhibit 22 shows the distribution of overall costs during the homeless period across the homeless services system and mainstream domains. Sixty-two percent of overall costs incurred during homelessness were borne by homeless programs and 38 percent was borne by mainstream systems. The average monthly costs for all mainstream domains except for mental health were highest during homelessness. Criminal justice was the most expensive mainstream domain during homelessness, accounting for 15 percent of total costs in this period.

Exhibit 22: Distribution of Costs During Homelessness

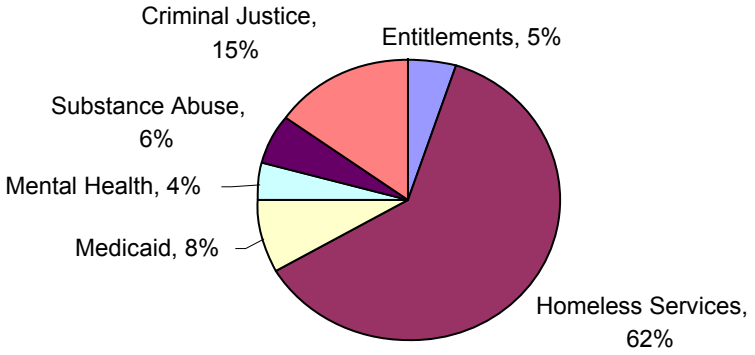


Exhibit 23 shows the average total costs of the study cohort by path group and time period. More detail about the differences in mainstream utilization and costs by path group is provided in Appendix B.7. The three path groups associated with long homeless residential stays ("Single ES Long Stayers", "Transitional Housing Long Stayers", and "Permanent Housing Long Stayers") had the highest overall costs. PSH Long Stayers had a total average cost of $23,930, the highest of any path group, primarily because their physical healthcare costs were much higher than any other path group.

Exhibit 23: Average Homeless and Mainstream Costs by Time Period and Path Group

	ES Short Stayers	Street/ES Short Stayers	ES Long Stayers	ES Long Gappers	Sequential Short Stayers	Sequential Long Stayers	Circlers	PSH Long Stayers
Mainstream Costs Before Homelessness	$1,822	$1,571	$3,314	$1,260	$3,313	$2,439	$1,624	$4,808
Homeless Costs	$563	$853	$9,756	$910	$1,585	$10,416	$3,987	$8,493
Mainstream Costs During Homelessness	$259	$711	$2,953	$1,841	$1,054	$2,385	$2,057	$6,198
Mainstream Costs After Homelessness	$3,288	$3,456	$3,384	$2,563	$4,533	$846	$2,499	$4,432
Total	$5,932	$6,771	$19,407	$6,574	$10,485	$16,086	$10,167	$23,931

The high healthcare costs for users of permanent supportive housing were expected because many of Jacksonville's permanent supportive housing programs exclusively served people with disabilities, and these individuals are older than the study cohort as a whole and may have chronic physical conditions as well as mental health problems. More than half of PSH Long Stayers also had some involvement with the criminal justice system during the study period. Compared to other path groups, mainstream costs for PSH Long Stayers remained fairly consistent before and after becoming homeless.

"Sequential Long Stayers", persons who had long stays in transitional housing, had the highest homeless costs of any path group, but only average mainstream costs. Their average total costs ($16,086), were well below the overall costs of long-term stayers in emergency shelter or permanent supportive housing. The mainstream costs of "Sequential Long Stayers" dropped dramatically after homelessness, a possible indication that their lives were more stable as a result of their homeless stay or stays. Another interpretation is that this group of users was higher functioning than other path groups and thus had less frequent and less expensive involvement with mainstream systems after exiting homeless programs.

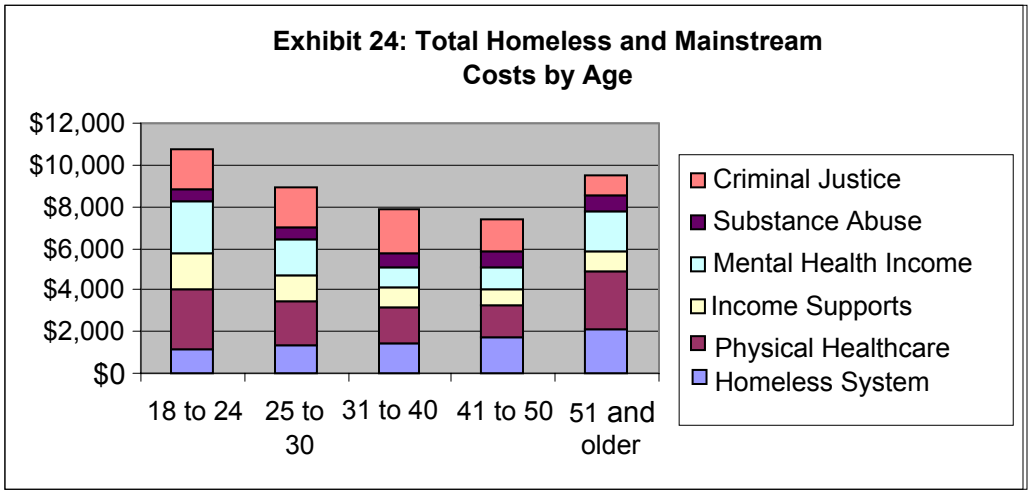
People with a single long stay in emergency shelter had an average total cost of $19,407. This small path group, only two percent of the study cohort, had the second highest homeless ($9,756) and mainstream ($9,651) costs per person of any path group. This group appeared to be more connected to mainstream supports then other path groups. They were the most likely to receive both income supports (86 percent) and physical healthcare (39 percent).

"Sequential Short Stayers" and "Circlers" had nearly identical total costs per person, $10,485 and $10,167 respectively. Sequential Short Stayers had much higher mental health costs before becoming homeless than any other path group (Appendix B.7). Unlike Sequential Long Stayers, the average mainstream costs of Sequential Short Stayers remained high after exiting homeless programs. "Circlers" had high average criminal justice costs during homelessness; suggesting that in some cases a jail stay helped trigger homeless recidivism and entry into emergency shelter. However, both of these path groups had lower overall costs than long term users of transitional or permanent housing because they spent less time in residential homeless programs.

Surprisingly, "Multiple Emergency Shelter Long Gappers" the group that most closely resembles the chronically homeless in their patterns of homelessness, had the lowest average mainstream costs before becoming homeless of any path group (Exhibit 23). Although Long Gappers had high criminal justice costs during homelessness, their overall mainstream costs were significantly lower than users of transitional or permanent housing or long-term stayers in emergency shelter because they were less connected to mainstream services like food stamps and healthcare. Long Gappers also had low homeless costs because, despite their many homeless program stays, their cumulative number of nights in shelter was low and they used inexpensive overnight shelters. "Single ES Short Stayers", the most common path group representing 38 percent of the study cohort, had the lowest total cost per person. "Street ES Short Stayers" also had overall costs significantly lower than the cohort average.

There was a U-shaped relationship between age and total cost, as demonstrated in Exhibit 24. The 18-24 year old age group had the highest total costs per person. Although their homeless costs were low, their income support costs were significantly higher than other age groups, and they also had high Medicaid and mental health costs. Persons over 50 also had significantly higher total costs than

other age groups. Older persons had significantly higher homeless and Medicaid costs compared with persons between the ages of 25 and 49.



Multivariate regression analysis shows that homeless service patterns, gender, race, and mainstream system involvement all had significant effects on overall costs. Holding constant demographic and mainstream system variables, long term stayers in transitional housing ("Sequential Long Stayers") had the highest overall costs, 438 percent higher than short-term stayers in emergency shelter (Exhibit 25). After controlling for homeless path groups, mainstream involvement, and other demographic characteristics, women had 93 percent higher overall costs than men (Exhibit 25).

Similarly, African-Americans had 41-percent higher overall costs than whites (Exhibit 25). The entire difference in overall costs for African Americans was because of higher homeless costs. There was no significant difference in mainstream costs between African-Americans and those who are white (Appendix B.3.1, Models 5 and 6; Appendix B.3.2, Models 5 and 6.)

Involvement in mainstream systems was highly correlated with total costs for the homeless and mainstream systems combined. In most cases, persons involved in mainstream systems had higher overall costs. For instance, controlling

Exhibit 25. Multivariate Regression Models for Overall Homeless and Mainstream Costs

	Model with mainstream involvement -controlling for homeless path group
Homeless Path Group+	
Single ES Long Stayers	3.890*** (0.240)
Multiple ES Long Gappers	1.519*** (0.126)
Street/ES Short Stayers	0.721*** (0.086)
PSH Long Stayers	3.892*** (0.217)
Sequential Short Stayers	1.800*** (0.124)
Sequential Long Stayers	4.378*** (0.264)
Circlers	2.902*** (0.143)
Demographics+	
Females	0.931*** (0.100)
African-Americans	0.408*** (0.072)
Other Races	0.348*** (0.196)
Mainstream Involvement	
Income Support (TANF and food stamps)	0.542*** (0.075)
Physical Healthcare	0.405*** (0.103)
Mental Health	-0.203** (0.088)
Substance Abuse	0.429*** (0.088)
Criminal Justice	0.192*** (0.074)
Constant	3.620*** (0.095)
Observations	1972
R-Squared	0.49

+ Reference categories are Single Emergency Shelter Short Stayers, males, and whites.
Both models also controlled for age. The full models are shown in Appendix B.3.2, which also includes models for homeless costs and overall mainstream costs.
Standard errors in parentheses. [a] significant at 10%; [b] significant at 5%; [c] significant at 1%

for other factors, persons receiving income supports had 54 percent higher costs than persons that did not receive income supports (Exhibit 25). The only exception to this was mental health. Controlling for homeless path group, demographics, and receipt of other mainstream services, people who used the mental health system had 20 percent lower overall costs than people who did not receive mental health services (Exhibit 25). The most likely explanation for this is that persons who received mental health services spent less time in homeless programs and had lower homeless costs.

A.6. Implications

This case study is consistent with past research showing great diversity in the ways people use the homeless service system. It also finds a similar diversity in the effects of becoming homeless on use of mainstream services. Particularly for homeless costs, but also for mainstream costs, a small subset of the study cohort was responsible for the majority of costs. Homeless interventions that target intensive users of homeless and mainstream services have the greatest potential for cost savings. More research is needed to understand what separates the majority of first-time homeless persons having brief and relatively inexpensive involvement with homeless and mainstream systems from the small subset with long periods of homelessness and costly involvement in homeless and mainstream systems. However, this case study did have several findings with direct implications for homeless policymakers.

A.6.1. Findings Associated with Homeless Paths

The small subset of the study cohort with long stays in emergency shelter, transitional, or permanent supportive housing had by far the highest costs over the entire period. People with longer homeless stays and higher homeless costs across program types also incurred higher costs for physical healthcare, income supports, and substance abuse treatment. Additionally, in many cases placement into service- rich, long-term homeless residential programs tends to increase costs to mainstream service systems rather than offset them. The current expenditures may also be justified by client needs and outcomes. However, homeless prevention and housing-based assistance targeting the most intense users of the homeless system may be able to equally meet needs and yield cost savings for both homeless and mainstream systems.

Short-term users of transitional housing had much higher mental health costs before becoming homeless than long-term users of emergency shelter or transitional housing. This could be an indication that people with the greatest barriers to independent living may have more difficulty successfully using homeless programs. It also suggests that people with long stays, and therefore those who incur the highest homeless costs, may not be the people with the greatest barriers to housing.

People with the most glaring need for assistance, those with long episodes of homelessness characterized by sporadic short stays in overnight shelters, actually had very low overall costs because they were not well connected to homeless or mainstream services. However, many people in this path group appeared to be stuck in a cycle of homelessness and incarceration. Criminal justice was the most expensive mainstream system for this group across the entire study period, and criminal justice costs spiked considerably around the time of initial entry into a homeless program, suggesting that people exiting jails are at increased risk of homelessness and persons with multiple homeless program stays are at increased risk of incarceration. In many cases, persons in the study cohort were arrested for public nuisance crimes like loitering or trespassing on public property, that were directly

related to their homelessness. This reflects a need for better discharge planning and greater coordination between law enforcement, homeless service providers, and mental health and substance abuse service providers to prevent repeated homelessness and criminal justice involvement.

A.6.2. Findings Associated with Gender, Age and Race

There were substantial differences in the experiences of men and women. Women had longer stays in homeless programs, used programs with higher daily costs, and thus had significantly higher homeless costs. In part this could be because women chose to stay in residential programs until they had secured stable housing while men often alternated between shelter and other tenuous living arrangements. However, the pattern also reflects the design of the homeless system itself. Overnight emergency shelters tend to only serve single men while transitional housing programs are more likely to serve single women and families. Therefore, it is possible that single women are more likely to use transitional housing even to address short-term housing needs. Both transitional housing for individuals and programs serving families are generally more expensive than emergency shelter for individuals. Emergency shelter programs that are geared to the specific short-term needs of single women might yield cost savings, reducing the percentage of women who need the more intensive assistance provided in transitional housing.

The youngest and oldest members of the Jacksonville study cohort had the highest overall costs. People between 18 and 25 incurred significantly higher costs in mainstream systems, particularly income supports and mental health services, than the rest of the study cohort. People over 50 had higher homeless and physical healthcare costs.

First-time homeless African-American individuals also had higher overall costs and homeless costs, though not necessarily higher mainstream costs. This is related to their disproportionate use of a single long-term emergency shelter, one of the most expensive homeless programs in the community. To the extent that African-Americans individuals are using emergency shelter for extended periods as a form of permanent housing, communities should explore alternative, lower-cost housing strategies. Alternatively, for those who remain in shelter due to intensive needs that prevent them from resolving their homelessness, they should be referred to lower-cost transitional or permanent supportive housing programs that can more appropriately address their needs. In either case, systems should be implemented to alert programs to these patterns of extended stays, so more appropriate interventions can be deployed.

Targeting prevention or rapid rehousing interventions to individuals who have several of the demographic characteristics associated with higher costs, or even raising awareness among program staff on the different ways in which various demographic groups tend to use the homeless system, may help ensure that individuals are directed to providers that best match their particular needs and also provide additional opportunities for cost savings.

A.6.3. Concluding Findings on the Cost of Homeless Programs

Except for overnight shelters with minimal services, the monthly costs of a stay in a homeless residential program were substantially higher than the fair market rent for a one-bedroom apartment in Jacksonville. It is worth exploring whether the cost of issuing a permanent housing voucher, even with accompanying additional services administered by the homeless system or through mainstream

systems (as is the case with permanent supportive housing programs), might be comparable to long-term placement in transitional housing.

This study provides an outline of the different ways that people who become homeless use homeless and mainstream services and the associated costs. However, this study did not collect data on clients' outcomes after exiting homeless residential programs or their long-term use of mainstream services after homelessness. This type of data would be necessary to compare the cost-effectiveness of various homeless interventions. Absent detailed health records for the study cohort, it is not possible to determine whether the low rates of involvement in healthcare and substance abuse treatment indicate a lack of need or a failure to connect persons in the study cohort to needed services. Finally, this case study is one piece of a larger study of the costs of homelessness, encompassing six communities. One of the key findings of the overall study is that the costs of homelessness vary greatly based on location and the characteristics of the study population. Policymakers should be wary of using cost estimates from this or other communities as a proxy for their own population and are encouraged to use their own administrative data to determine the costs of homelessness in their own communities.

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Appendix B: Jacksonville Tables

B.1. Demographic Characteristics of Homeless Path Groups

Characteristic	Single ES Short Stayers	Street/ES Short Stayers	Single ES Long Stayers	Multiple ES Long Gappers	Sequential Short Stayers	Sequential Long Stayers	Relapsers	PSH Long Stayers	All Paths
Total Individuals	746	556	44	197	196	36	142	55	1972
% of Study Population	38%	28%	2%	10%	10%	2%	7%	3%	100%
Gender									
Males	80%	85%	46%	95%	65%	67%	79%	67%	80%
Females	20%	15%	55%	5%	33%	28%	20%	29%	19%
Gender not reported	0%	0%	0%	0%	1%	5%	1%	4%	0%
Ages (at Client Start Date)									
18 to 24	10%	8%	2%	6%	11%	3%	4%	.	8%
25 to 30	13%	10%	14%	10%	8%	3%	5%	9%	11%
31 to 40	28%	28%	32%	24%	27%	14%	25%	15%	27%
41 to 50	31%	36%	32%	43%	34%	42%	47%	42%	36%
51 to 61	14%	13%	18%	16%	17%	22%	16%	31%	15%
62 and older	0%	0%	0%	0%	0%	0%	0%	0%	0%
Age not reported	4%	4%	2%	2%	4%	17%	3%	4%	4%
Average Age at Client Start Date	40	41	41	42	41	47	43	46	41
Race									
White	51%	52%	25%	37%	50%	50%	38%	42%	48%
Black or African-American	45%	42%	73%	58%	46%	39%	54%	53%	47%
Asian	1%	1%	2%	1%	0%	0%	1%	0%	1%
American Indian or Alaska Native	1%	1%	0%	1%	1%	0%	1%	2%	1%
Other	2%	2%	0%	2%	1%	0%	1%	2%	2%
Race not reported	1%	3%	0%	1%	3%	11%	5%	2%	2%

B.2. Homeless Service Utilization by Homeless Path Group

	Single ES Short Stayers	Street/ES Short Stayers	Single ES Long Stayers	Multiple ES Long Gappers	Sequential Short Stayers	Sequential Long Stayers	Relapsers	PSH Long Stayers	All Paths
Number of Clients	746	556	44	197	196	36	142	55	1,972
Percent of Clients	38%	28%	2%	10%	10%	2%	7%	3%	100%
Total Number of Stays									
Average	1	3.1	1	10.9	2.4	5.6	7.6	2.7	3.3
25th Percentile	1	2	1	4	1	2	3	1	1
50th Percentile (Median)	1	2	1	8	2	2	5	2	2
75th Percentile	1	4	1	14	3	3	9	3	3
Percent of Individuals with Only One Stay	100.0%	12.4%	100.0%	0.0%	50.0%	22.2%	0.0%	36.4%	49.9%
Total Length of Stays (in Days)									
Average	18	29	304	40	54	364	135	338	57
25th Percentile	1	3	215	12	11	266	38	172	2
50th Percentile (Median)	2	6	269	24	33	371	83	384	10
75th Percentile	17	20	372	47	84	469	199	505	56
Total Gap Between Stays (in Days)									
Average	0	58	0	358	71	49	182	68	75
50th Percentile (Median)	0	17	0	363	0	0	159	2	0
Total Homeless Period (in Days)									
Average	18	87	304	398	125	413	317	406	132

B.3. Multivariate Analysis of Total Costs, Homeless Costs, and Total Mainstream Costs

B.3.1 Models Excluding Usage of Each Domain as Covariates

Outcome variables: The outcome variable for model 1 and model 2 is total costs (homeless and mainstream) in log scale. The outcome variable for model 3 and model 4 is homeless costs in log scale. The outcome variable for model 5 and model 6 is total mainstream costs in log scale.

Description: All models control for gender, race and age. Models 1, 3, 5 are with control based on path groups; models 2, 4, and 6, are with control based on underlying utilization data. These models do not include utilization of each particular mainstream domain as covariates.

	Model (1) Total Costs – Homeless Path Group Model	Model (2) Total Costs - Homeless Service Utilization Model	Model (3) Homeless Costs – Homeless Path Group Model	Model (4) Homeless Costs - Homeless Service Utilization Model	Model (5) Mainstream Costs – Homeless Path Group Model	Model (6) Mainstream Costs – Homelesss Service Utilization Model
Single ES Long Stayers+	4.109***		4.119***		0.376	
	(0.247)		(0.257)		(0.242)	
Multiple ES Long Gappers	1.678***		1.707***		0.190	
	(0.127)		(0.133)		(0.135)	
Street/ES Short Stayers	0.789***		0.874***		0.108	
	(0.088)		(0.096)		(0.100)	
PSH Long Stayers	4.229***		4.077***		0.595***	
	(0.222)		(0.231)		(0.222)	
Sequential Short Stayers	1.899***		1.848***		0.274**	
	(0.127)		(0.133)		(0.139)	
Sequential Short Stayers	4.555***		4.473***		0.406	
	(0.272)		(0.284)		(0.284)	
Circlers	3.076***		3.054***		0.210	
	(0.145)		(0.151)		(0.153)	
Total Number of Stays		0.023***		0.023***		-0.033***
		(0.007)		(0.007)		(0.008)
Total length of stay (in days), divided by 30		0.410***		0.409***		0.034***
		(0.009)		(0.009)		(0.010)
Total gaps between stays (in days), divided by 30		0.086***		0.086***		0.034***
		(0.008)		(0.008)		(0.010)

	Model (1) Total Costs – Homeless Path Group Model	Model (2) Total Costs - Homeless Service Utilization Model	Model (3) Homeless Costs – Homeless Path Group Model	Model (4) Homeless Costs - Homeless Service Utilization Model	Model (5) Mainstream Costs – Homeless Path Group Model	Model (6) Mainstream Costs – Homelesss Service Utilization Model
Female+	1.235***	1.073***	1.460***	1.208***	0.672***	0.625***
	(0.094)	(0.078)	(0.102)	(0.086)	(0.097)	(0.097)
Black+	0.437***	0.360***	0.457***	0.394***	-0.048	-0.032
	(0.074)	(0.061)	(0.078)	(0.065)	(0.081)	(0.080)
Other race	0.302	0.307*	0.352	0.351*	-0.007	-0.041
	(0.202)	(0.167)	(0.217)	(0.182)	(0.225)	(0.224)
Age: 18-24+	0.118	0.165	0.093	0.155	0.598***	0.590***
	(0.143)	(0.118)	(0.153)	(0.128)	(0.154)	(0.153)
Age: 25-30	0.102	0.114	0.062	0.108	0.228	0.215
	(0.129)	(0.106)	(0.136)	(0.113)	(0.141)	(0.140)
Age: 41-50	0.053	0.113	0.034	0.089	-0.083	-0.058
	(0.091)	(0.075)	(0.097)	(0.081)	(0.100)	(0.099)
Age: 51 or above	0.206*	0.096	0.198*	0.090	0.140	0.160
	(0.110)	(0.091)	(0.116)	(0.097)	(0.123)	(0.122)
Gender missing	0.706	0.343	0.935	0.427	0.399	0.411
	(0.526)	(0.434)	(0.574)	(0.479)	(0.562)	(0.557)
Race missing	0.581**	0.775***	0.634**	0.834***	-0.005	0.020
	(0.263)	(0.217)	(0.279)	(0.233)	(0.289)	(0.287)
Age missing	-0.656**	-0.448**	-0.715**	-0.532**	0.032	0.066
	(0.270)	(0.222)	(0.294)	(0.245)	(0.316)	(0.312)
Constant	3.944***	4.030***	3.810***	3.893***	7.731***	7.810***
	(0.091)	(0.069)	(0.095)	(0.074)	(0.103)	(0.093)
Observations	1972	1972	1901	1901	1465	1465
R-squared	0.46	0.63	0.45	0.61	0.07	0.08

Notes: + Reference categories are: Single Emergency Shelter Short Stayers, Men, Whites, Age 31 to 40.
Standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%

B.3.2 Models Including Usage of Each Domain as Covariates

Outcome variables: The outcome variable for model 1 and model 2 is total costs (homeless and mainstream) in log scale. The outcome variable for model 3 and model 4 is homeless costs in log scale. The outcome variable for model 5 and model 6 is total mainstream costs in log scale.

Description: All models control for gender, race and age. Models 1, 3, 5 are with control based on path groups; models 2, 4, and 6, are with control based on underlying utilization data. These models include utilization of each particular mainstream domain as covariates.

	Model (1) Total Costs – Homeless Path Group Model	Model (2) Total Costs - Homeless Service Utilization Model	Model (3) Homeless Costs – Homeless Path Group Model	Model (4) Homeless Costs - Homeless Service Utilization Model	Model (5) Mainstream Costs – Homeless Path Group Model	Model (6) Mainstream Costs – Homelesss Service Utilization Model
Single ES Long Stayers	3.890***		3.905***		0.450**	
	(0.240)		(0.251)		(0.184)	
Multiple ES Long Gappers	1.519***		1.532***		0.067	
	(0.126)		(0.131)		(0.104)	
Street/ES Short Stayers	0.721***		0.801***		0.038	
	(0.086)		(0.094)		(0.076)	
PSH Long Stayers	3.892***		3.727***		0.247	
	(0.217)		(0.227)		(0.170)	
Sequential Short Stayers	1.800***		1.753***		0.177*	
	(0.124)		(0.130)		(0.106)	
Sequential Short Stayers	4.378***		4.296***		0.353	
	(0.264)		(0.276)		(0.216)	
Circlers	2.902***		2.878***		0.142	
	(0.143)		(0.149)		(0.117)	
Total Number of Stays		0.026***		0.025***		-0.018***
		(0.006)		(0.007)		(0.006)
Total length of stay (in days), divided by 30		0.393***		0.391***		0.020**
		(0.009)		(0.009)		(0.008)
Total gaps between stays (in days), divided by 30		0.075***		0.074***		0.014*
		(0.008)		(0.008)		(0.008)
Female+	0.931***	0.869***	1.117***	0.981***	0.044	0.034
	(0.100)	(0.083)	(0.110)	(0.092)	(0.081)	(0.081)
Black+	0.408***	0.346***	0.424***	0.377***	-0.011	0.004
	(0.072)	(0.060)	(0.077)	(0.064)	(0.062)	(0.062)
Other race	0.348*	0.342**	0.390*	0.382 **	0.060	0.034
	(0.196)	(0.162)	(0.211)	(0.177)	(0.171)	(0.170)
Age: 18-24+	0.058	0.125	0.034	0.114	0.238**	0.225*
	(0.140)	(0.116)	(0.149)	(0.125)	(0.118)	(0.117)
Age: 25-30	0.072	0.093	0.037	0.088	0.105	0.093
	(0.125)	(0.104)	(0.132)	(0.111)	(0.107)	(0.107)
Age: 41-50	0.037	0.093	0.027	0.076	-0.045	-0.036

	Model (1) Total Costs – Homeless Path Group Model	Model (2) Total Costs - Homeless Service Utilization Model	Model (3) Homeless Costs – Homeless Path Group Model	Model (4) Homeless Costs - Homeless Service Utilization Model	Model (5) Mainstream Costs – Homeless Path Group Model	Model (6) Mainstream Costs – Homelesss Service Utilization Model
	(0.088)	(0.073)	(0.094)	(0.079)	(0.076)	(0.075)
Age: 51 or above	0.218**	0.109	0.211*	0.102	0.158*	0.166*
	(0.107)	(0.089)	(0.114)	(0.095)	(0.094)	(0.094)
Any Food Stamp or TANF Costs	0.542***	0.430***	0.541***	0.423***	0.577***	0.587***
	(0.075)	(0.062)	(0.080)	(0.068)	(0.068)	(0.068)
Any Physical Healthcare Costs	0.405***	0.239***	0.458***	0.285***	1.433***	1.413***
	(0.103)	(0.085)	(0.111)	(0.093)	(0.078)	(0.078)
Any Mental Health Costs	-0.203**	-0.126*	-0.213**	-0.145*	0.832***	0.831***
	(0.088)	(0.073)	(0.094)	(0.079)	(0.068)	(0.067)
Any Substance Abuse Costs	0.429***	0.357***	0.419***	0.372***	0.644***	0.637***
	(0.088)	(0.073)	(0.093)	(0.078)	(0.066)	(0.066)
Any Criminal Justice Costs	0.192***	0.127**	0.248***	0.160**	1.104***	1.094***
	(0.074)	(0.062)	(0.079)	(0.067)	(0.063)	(0.063)
Gender Missing	0.665	0.328	0.921*	0.433	0.110	0.108
	(0.510)	(0.423)	(0.557)	(0.468)	(0.427)	(0.425)
Race Missing	0.579**	0.772***	0.622**	0.830***	0.006	0.035
	(0.256)	(0.212)	(0.271)	(0.227)	(0.220)	(0.219)
Age Missing	-0.582**	-0.404*	-0.624**	-0.479**	0.235	0.246
	(0.263)	(0.218)	(0.287)	(0.240)	(0.242)	(0.240)
Constant	3.620***	3.766***	3.468***	3.619***	6.117***	6.172***
	(0.095)	(0.074)	(0.100)	(0.080)	(0.101)	(0.096)
Observations	1972	1972	1901	1901	1465	1465
R-squared	0.49	0.65	0.49	0.64	0.47	0.47
Notes: + Reference categories are: Single Emergency Shelter Short Stayers, Men, Whites, Age 31 to 40. Standard errors in parentheses. *significant at 10%; ***significant at 5%; ***significant at 1%.						

B.4. Multivariate Analysis of Costs by Domain, with Homeless Utilization as Covariates

B.4.1 Models Excluding Usage of Each Domain as Covariates

Outcome variables: The outcome variable for these models is total costs associated with each domain in their original metric (dollar amounts).

Description: All models control for homeless utilization data, gender, race, and age homeless utilization. These models do not include utilization of each particular mainstream domain as covariates.

	Criminal Justice	Income Supports	Physical Healthcare	Mental Health	Substance abuse
Total Number of Stays	-34.855	-5.599	-74.742**	-15.781	-15.465
	(21.201)	(10.013)	(36.628)	(37.545)	(14.559)
Total length of stay (in days), divided by 30	11.861	80.128***	198.681***	-47.273	60.639***
	(27.582)	(13.027)	(47.651)	(48.844)	(18.941)
Total gaps between stays (in days), divided by 30	149.972***	0.982	13.062	-18.746	40.846**
	(25.196)	(11.900)	(43.528)	(44.618)	(17.302)
Female+	-992.334***	1,770.719***	2,170.849***	1,663.730***	257.364
	(249.377)	(117.779)	(430.825)	(441.617)	(171.251)
Black+	380.364*	280.946***	560.360*	-907.569***	-378.032***
	(195.320)	(92.248)	(337.435)	(345.888)	(134.129)
Other race	814.333	-174.340	209.352	575.892	-745.892**
	(535.575)	(252.948)	(925.260)	(948.438)	(367.788)
Age: 18-24+	91.847	416.656**	646.639	1,237.724*	-192.726
	(380.230)	(179.580)	(656.886)	(673.342)	(261.110)
Age: 25-30	-59.916	248.953	128.096	636.365	-196.469
	(341.461)	(161.269)	(589.908)	(604.686)	(234.486)
Age: 41-50	-639.606***	-152.958	47.339	237.133	15.568
	(240.925)	(113.787)	(416.223)	(426.649)	(165.447)
Age: 51 or above	-1,094.955***	-104.207	912.642*	1,065.059**	-43.218
	(291.206)	(137.534)	(503.089)	(515.691)	(199.976)
Gender missing	-690.350	90.055	1,894.993	-953.652	702.451
	(1,392.916)	(657.863)	(2,406.404)	(2,466.687)	(956.538)
Race missing	-575.680	287.534	-673.060	1,133.490	-422.936
	(696.237)	(328.827)	(1,202.820)	(1,232.952)	(478.117)
Age missing	-1,842.868***	-7.848	1,816.595	9.502	636.696
	(713.407)	(336.937)	(1,232.484)	(1,263.359)	(489.908)
Constant	1,820.685***	394.947***	477.218	1,183.239***	727.681***
	(220.352)	(104.071)	(380.681)	(390.217)	(151.319)
Observations	1972	1972	1972	1972	1972
R-squared	0.04	0.16	0.04	0.02	0.02

Notes: + Reference categories are: Men, Whites, Age 31 to 40.
Standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

B.4.2 Models Including Usage of Each Domain as Covariates

Outcome variables: The outcome variables for these models are total homeless costs, total mainstream costs, and costs associated with each domain, all in log scale.

Description: All models control for homeless utilization data, gender, race, and age homeless utilization. These models include utilization of each particular mainstream domain as covariates.

Total Costs (log scale)	Homeless Costs	Mainstream Costs	Medicaid Costs	Mental Health Costs	Substance Abuse Costs	Entitlement Costs	Criminal Justice Costs
Number of Homeless Program Stays	0.025***	-0.018***	-0.057	-0.025	-0.007	-0.012*	-0.005
	(0.007)	(0.006)	(0.039)	(0.025)	(0.027)	(0.007)	(0.011)
Homeless Length of Stay (cost per additional 30 days)	0.391***	0.020**	0.034	-0.020	0.045**	0.027***	-0.041***
	(0.009)	(0.008)	(0.022)	(0.022)	(0.022)	(0.008)	(0.014)
Homeless Gap Days (cost per 30 additional days between stays)	0.074***	0.014*	0.021	-0.004	0.024	-0.008	0.025**
	(0.008)	(0.008)	(0.025)	(0.022)	(0.022)	(0.008)	(0.011)
Females	0.981***	0.034	0.128	-0.021	-0.237	0.470***	-0.557***
	(0.092)	(0.081)	(0.188)	(0.196)	(0.226)	(0.083)	(0.141)
African-Americans	0.377***	0.004	-0.023	-0.316*	-0.280	0.123*	0.158
	(0.064)	(0.062)	(0.177)	(0.166)	(0.175)	(0.068)	(0.100)
Other Races	0.382**	0.034	-0.387	0.234	-1.263***	-0.121	0.462
	(0.177)	(0.170)	(0.516)	(0.389)	(0.457)	(0.196)	(0.298)
Ages 18 – 24	0.114	0.225*	0.569**	0.188	-0.090	0.164	0.070
	(0.125)	(0.117)	(0.281)	(0.269)	(0.331)	(0.129)	(0.185)
Ages 25 – 30	0.088	0.093	0.226	0.443	-0.536*	0.160	-0.059
	(0.111)	(0.107)	(0.28)	(0.279)	(0.309)	(0.120)	(0.169)
Ages 41 – 50	0.076	-0.036	0.349	0.183	-0.104	-0.047	-0.163
	(0.079)	(0.075)	(0.246)	(0.202)	(0.207)	(0.084)	(0.119)
Age 51 and Above	0.102	0.166*	0.260	0.207	-0.050	0.221**	-0.244
	(0.095)	(0.094)	(0.266)	(0.256)	(0.265)	(0.103)	(0.160)
Received Food Stamps or TANF	0.423***	0.587***	-0.015	0.012	0.468**		0.240**
	(0.068)	(0.068)	(0.211)	(0.174)	(0.185)		(0.103)
Received Medicaid Services	0.285***	1.413***		0.749***	-0.501**	0.614***	-0.269*
	(0.093)	(0.078)		(0.174)	(0.214)	(0.082)	(0.14)
Received Mental Healthcare	-0.145*	0.831***	0.299*		0.441**	0.029	0.150
	(0.079)	(0.067)	(0.176)		(0.176)	(0.075)	(0.116)
Received Substance Abuse	0.372***	0.637***	0.254	0.137		0.018	0.361***
	(0.078)	(0.066)	(0.184)	(0.158)		(0.074)	(0.108)
Involved with Criminal Justice	0.160**	1.094***	0.031	0.045	0.304*	0.071	
	(0.067)	(0.063)	(0.177)	(0.162)	(0.17)	(0.067)	
Missing Gender	0.433	0.108	0.960	-0.411	0.147	-0.015	-0.812
	(0.468)	(0.425)	(1.125)	(0.954)	(1.289)	(0.454)	(0.957)
Missing Race	0.830***	0.035	-1.107	0.321	0.630	0.190	-0.435
	(0.227)	(0.219)	(1.015)	(0.513)	(0.749)	(0.226)	(0.363)
Missing Age	-0.479**	0.246	0.573	-0.658	0.954	0.206	-2.011
	(0.240)	(0.24)	(0.591)	(0.524)	(0.679)	(0.256)	(1.371)
Constant	3.619***	6.172***	7.432***	6.917***	6.389***	6.435***	7.374***
	(0.080)	(0.096)	(0.328)	(0.229)	(0.248)	(0.094)	(0.127)
Observations	1901	1465	390	492	437	1024	755
R-squared	0.64	0.47	0.04	0.07	0.11	0.2	0.09

Reference categories are: Males, Whites, Ages 31 – 40

Standard errors in parentheses. * Significant at 10%; ** Significant at 5%; *** Significant at 1%

B.5. Multivariate Analysis of Costs by Domain, with Path Groups as Covariates

B.5.1 Models Excluding Usage of Each Domain as Covariates

Outcome variables: The outcome variable for these models is total costs associated with each domain in their original metric (dollar amounts).

Description: All models control for homeless path groups, gender, race, and age homeless utilization. These models do not include utilization of each particular mainstream domain as covariates.

	Model (1) Criminal Justice	Model (2) Income Supports	Model (3) Physical Healthcare	Model (4) Mental Health	Model (5) Substance Abuse
Single ES Long Stayers+	47.142	2,326.988***	1,629.965	-1,238.011	-12.359
	(656.299)	(306.924)	(1,118.827)	(1,158.049)	(448.596)
Multiple ES Long Gappers	1,677.589***	-93.135	-540.835	-163.468	349.426
	(338.415)	(158.263)	(576.914)	(597.138)	(231.315)
Street/ES Short Stayers	541.743**	-4.741	-134.925	-2.881	312.461*
	(234.931)	(109.867)	(400.498)	(414.539)	(160.581)
PSH Long Stayers	839.736	439.888	7,562.911***	-177.606	1,174.122***
	(589.556)	(275.711)	(1,005.047)	(1,040.280)	(402.976)
Sequential Short Stayers	43.786	-247.596	910.630	1,306.901**	883.603***
	(338.613)	(158.355)	(577.251)	(597.487)	(231.450)
Sequential Long Stayers	42.512	43.305	-634.893	-716.680	1,345.077***
	(723.410)	(338.309)	(1,233.235)	(1,276.468)	(494.468)
Circling/ Relapsers	1,099.228***	325.064*	-342.969	-501.256	491.023*
	(386.022)	(180.526)	(658.072)	(681.141)	(263.855)
Female+	-920.635***	1,793.028***	2,252.018***	1,590.685***	264.270
	(249.170)	(116.526)	(424.773)	(439.664)	(170.314)
African American+	356.920*	254.646***	524.382	-901.187***	-346.331***
	(196.010)	(91.666)	(334.149)	(345.863)	(133.978)
Other Race	839.945	-215.937	176.758	659.964	-681.944*
	(537.436)	(251.336)	(916.195)	(948.314)	(367.350)
Age: 18-24+	90.056	455.442**	715.421	1,209.422*	-211.340
	(381.693)	(178.502)	(650.692)	(673.503)	(260.896)
Age: 25-30	-82.979	231.148	63.796	684.489	-179.945
	(342.779)	(160.303)	(584.352)	(604.838)	(234.297)
Age: 41-50	-692.992***	-135.882	-19.914	236.254	-14.492
	(242.255)	(113.293)	(412.985)	(427.463)	(165.587)
Age: 51 or above	-1,132.213***	-52.109	748.102	1,013.491**	-74.962
	(292.185)	(136.643)	(498.102)	(515.564)	(199.715)
Gender missing	-895.875	495.061	1,427.608	-1,309.097	426.853
	(1,398.425)	(653.985)	(2,383.968)	(2,467.542)	(955.857)
Race missing	-508.396	290.689	-426.163	1,139.488	-484.723
	(700.858)	(327.762)	(1,194.788)	(1,236.674)	(479.053)
Age missing	-1,967.192***	28.630	1,998.803	176.788	550.893
	(718.321)	(335.929)	(1,224.558)	(1,267.487)	(490.989)
Constant	1,682.568***	467.889***	476.466	978.383**	587.542***
	(241.042)	(112.726)	(410.918)	(425.323)	(164.758)
Observations	1972	1972	1972	1972	1972
R-squared	0.04	0.18	0.06	0.02	0.02

Notes: + Reference categories are: Single ES Short Stayers, Men, Whites, Age 31 to 40.
Standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

B.5.2 Model Including Usage of Each Domain as Covariates

Outcome variables: The outcome variable for these models is total costs associated with each domain in log scale.

Description: All models control for homeless path groups, gender, race, and age homeless utilization. These models include utilization of each particular mainstream domain as covariates.

Total Costs (log scale)	Homeless Costs	Mainstream Costs	Medicaid Costs	Mental Health Costs	Substance Abuse Costs	Entitlement Costs	Criminal Justice Costs
Single ES Long Stayers	3.905*** (0.251)	0.450** (0.184)	1.011** (0.416)	-1.088** (0.535)	-0.356 (0.562)	0.784*** (0.179)	-0.084 (0.356)
Multiple ES Long Gappers	1.532*** (0.131)	0.067 (0.104)	-0.302 (0.37)	-0.13 (0.309)	0.245 (0.288)	-0.254** (0.12)	0.256* (0.151)
Street/ES Short Stayers	0.801*** (0.094)	0.038 (0.076)	0.119 (0.216)	-0.320* (0.194)	0.096 (0.216)	-0.015 (0.086)	0.143 (0.128)
PSH Long Stayers	3.727*** (0.227)	0.247 (0.17)	0.789* (0.421)	-0.247 (0.475)	1.155** (0.45)	0.228 (0.167)	-0.403 (0.271)
Sequential Short Stayers	1.753*** (0.13)	0.177* (0.106)	0.841*** (0.275)	-0.233 (0.263)	0.772*** (0.268)	-0.087 (0.115)	-0.192 (0.184)
Sequential Long Stayers	4.296*** (0.276)	0.353 (0.216)	-0.73 (0.604)	-0.537 (0.562)	1.437*** (0.536)	-0.009 (0.225)	-0.407 (0.38)
Circling/Relapsers	2.878*** (0.149)	0.142 (0.117)	0.421 (0.379)	-0.926*** (0.303)	0.198 (0.326)	0.089 (0.121)	0.181 (0.195)
Females	1.117*** (0.11)	0.044 (0.081)	0.134 (0.184)	0.08 (0.197)	-0.256 (0.223)	0.478*** (0.082)	-0.564*** (0.141)
African-Americans	0.424*** (0.077)	-0.011 (0.062)	-0.031 (0.176)	-0.352** (0.166)	-0.203 (0.176)	0.096 (0.069)	0.144 (0.101)
Other Races	0.390* (0.211)	0.06 (0.171)	-0.334 (0.511)	0.296 (0.388)	-1.276*** (0.452)	-0.12 (0.196)	0.506* (0.299)
Ages 18 – 24	0.034 (0.149)	0.238** (0.118)	0.563** (0.275)	0.197 (0.267)	-0.151 (0.328)	0.201 (0.129)	0.08 (0.186)
Ages 25 – 30	0.037 (0.132)	0.105 (0.107)	0.226 (0.276)	0.42 (0.277)	-0.498 (0.305)	0.161 (0.119)	-0.066 (0.17)
Ages 41 – 50	0.027 (0.094)	-0.045 (0.076)	0.339 (0.244)	0.219 (0.201)	-0.095 (0.207)	-0.037 (0.084)	-0.174 (0.121)
Age 51 and Above	0.211* (0.114)	0.158* (0.094)	0.307 (0.265)	0.197 (0.256)	0.015 (0.261)	0.249** (0.103)	-0.281* (0.16)
Received Food Stamps or TANF	0.541*** (0.08)	0.577*** (0.068)	0.096 (0.209)	0.065 (0.173)	0.438** (0.184)		0.222** (0.105)
Received Medicaid Services	0.458*** (0.111)	1.433*** (0.078)		0.714*** (0.173)	-0.484** (0.212)	0.626*** (0.083)	-0.264* (0.141)
Received Mental Healthcare	-0.213** (0.094)	0.832*** (0.068)	0.267 (0.175)		0.416** (0.175)	0.033 (0.075)	0.137 (0.117)
Received Substance Abuse	0.419*** (0.093)	0.644*** (0.066)	0.255 (0.182)	0.116 (0.158)		0.034 (0.074)	0.363*** (0.109)
Involved with Criminal Justice	0.248*** (0.079)	1.104*** (0.063)	0.055 (0.176)	0.04 (0.163)	0.317* (0.169)	0.072 (0.067)	

Total Costs (log scale)	Homeless Costs	Mainstream Costs	Medicaid Costs	Mental Health Costs	Substance Abuse Costs	Entitlement Costs	Criminal Justice Costs
Missing Gender	0.921*	0.11	0.754	-0.501	-0.227	0.171	-1.016
	(0.557)	(0.427)	(1.117)	(0.955)	(1.274)	(0.455)	(0.973)
Missing Race	0.622**	0.006	-0.846	0.44	0.758	0.144	-0.452
	(0.271)	(0.22)	(0.998)	(0.511)	(0.742)	(0.226)	(0.366)
Missing Age	-0.624**	0.235	0.791	-0.598	1.07	0.254	-2.226
	(0.287)	(0.242)	(0.583)	(0.523)	(0.672)	(0.257)	(1.384)
Constant	3.468***	6.117***	7.144***	7.012***	6.272***	6.420***	7.329***
	(0.1)	(0.101)	(0.327)	(-0.237)	(0.27)	(-0.101)	(-0.139)
Observations	1901	1465	390	492	437	1024	755
R-squared	0.49	0.47	0.09	0.09	0.14	0.21	0.09

Reference categories are: Males, Whites, Ages 31 – 40

Standard errors in parentheses. * Significant at 10%; ** Significant at 5%; *** Significant at 1%

B.6. Multivariate Analysis of Costs by Domain, with Total Homeless Costs as a Covariate

Outcome variables: The outcome variable for these models is total costs associated with each domain in log scale.

Description: All models control for homeless costs, gender, race, and age homeless utilization. These models include utilization of each particular mainstream domain as covariates.

Total Costs By Domain (log scale)	Medicaid Costs	Mental Health Costs	Substance Abuse Costs	Entitlement Costs	Criminal Justice Costs
Total Homeless System Costs	0.102**	-0.077*	0.058	0.029*	-0.005
	(0.046)	(0.041)	(0.042)	(0.017)	(0.026)
Females	0.107	0.101	-0.309	0.510***	-0.649***
	(0.199)	(0.209)	(0.233)	(0.087)	(0.15)
African-Americans	-0.103	-0.341**	-0.275	0.141**	0.137
	(0.183)	(0.168)	(0.176)	(0.07)	(0.1030
Other Races	-0.155	0.42	-1.268***	-0.104	0.426
	(0.541)	(0.424)	(0.473)	(0.199)	(0.314)
Ages 18 – 24	0.494*	0.278	-0.118	0.151	0.117
	(0.295)	(0.273)	(0.34)	(0.132)	(0.19)
Ages 25 – 30	0.134	0.383	-0.577*	0.163	-0.065
	(0.288)	(0.277)	(0.31)	(0.121)	(0.172)
Ages 41 – 50	0.271	0.15	-0.086	-0.059	-0.171
	(0.256)	(0.205)	(0.209)	(0.086)	(0.123)
Age 51 and Above	0.135	0.126	-0.066	0.258**	-0.327**
	(0.273)	(0.258)	(0.268)	(0.104)	(0.162)
Received Food Stamps or TANF	-0.032	0.019	0.514***		0.242**
	(0.222)	(0.181)	(0.189)		(0.109)
Received Medicaid Services		0.850***	-0.510**	0.645***	-0.329**
		(0.176)	(0.216)	(0.084)	(0.146)
Received Mental Healthcare	0.403**		0.449**	0.032	0.168
	(0.181)		(0.18)	(0.077)	(0.12)
Received Substance Abuse	0.238	0.134		0.004	0.339***
	(0.19)	(0.16)		(0.076)	(0.111)
Involved with Criminal Justice	0.036	0.145	0.332*	0.052	
	(0.182)	(0.163)	(0.171)	(0.069)	
Missing Gender	0.92	0.098	0.364	0.769	-1.493
	(1.184)	(1.054)	(1.277)	(0.485)	(0.946)
Missing Race	-1.467	0.755	0.583	0.231	-0.486
	(1.043)	(0.525)	(0.748)	(0.227)	(0.379)
Missing Age	0.813	-0.609	0.943	0.13	-2.059
	(0.686)	(0.569)	(0.681)	(-0.271)	(1.381)
Constant	6.878***	7.144***	6.169***	6.233***	7.422***
	(0.424)	(0.275)	(0.324)	(0.127)	(0.169)
Observations	369	465	429	980	719
R-squared	0.05	0.09	0.1	0.2	0.08

Reference categories are: Males, Whites, Ages 31 – 40

Standard errors in parentheses. * Significant at 10%; ** Significant at 5%; *** Significant at 1%

B.7. Mainstream Involvement and Per Person Mainstream Costs by Homeless Path Group and Time Period

Path Groups	ES Short Stayers	Street/ES Short Stayers	ES Long Stayers	ES Long Gappers	Sequential Short Stayers	Sequential Long Stayers	Circlers	PSH Long Stayers
Number of Individuals	746	556	44	197	196	36	142	55
% of Cohort	38%	28%	2%	10%	10%	2%	7%	3%
Criminal Justice								
Percent Involved	31%	38%	34%	62%	35%	36%	44%	55%
Average Costs Pre	$461	$573	$376	$527	$356	$488	$454	$539
Average Costs During	$12	$307	$57	$1,636	$215	$178	$1,400	$561
Average Costs Post	$777	$902	$612	$885	$529	$14	$366	$628
Average Costs Total	$1,251	$1,783	$1,045	$3,048	$1,100	$680	$2,219	$1,728
Income Supports (TANF and food stamps)								
Percent Involved	42%	51%	86%	53%	57%	67%	71%	84%
Average Costs Pre	$298	$194	$706	$182	$227	$432	$328	$332
Average Costs During	$57	$84	$1,777	$45	$57	$366	$243	$667
Average Costs Post	$598	$561	$1,458	$367	$670	$321	$697	$528
Average Costs Total	$953	$839	$3,941	$593	$955	$1,119	$1,267	$1,527
Physical Healthcare								
Percent Involved	22%	17%	39%	12%	25%	22%	15%	31%
Average Costs Pre	$499	$319	$1,865	$213	$957	$167	$375	$3,197
Average Costs During	$86	$56	$808	$19	$302	$528	$201	$3,452
Average Costs Post	$804	$733	$1,218	$303	$1,367	$451	$489	$2,651
Average Costs Total	$1,389	$1,108	$3,892	$535	$2,626	$1,146	$1,064	$9,300
Mental Healthcare								
Percent Involved	21%	28%	25%	21%	30%	28%	30%	27%
Average Costs Pre	$474	$427	$131	$267	$1,230	$470	$147	$429
Average Costs During	$59	$117	$147	$50	$116	$336	$121	$568
Average Costs Post	$839	$746	$92	$498	$1,545	$53	$483	$284
Average Costs Total	$1,372	$1,290	$371	$816	$2,891	$859	$750	$1,281
Substance Abuse								
Percent Involved	17%	22%	23%	26%	32%	31%	26%	33%
Average Costs Pre	$90	$57	$235	$71	$542	$881	$321	$310
Average Costs During	$45	$147	$164	$91	$365	$977	$93	$950
Average Costs Post	$269	$514	$4	$511	$422	$7	$465	$341
Average Costs Total	$404	$718	$403	$673	$1,329	$1,865	$879	$1,601
All Mainstream Domains								
Average Costs Pre	$1,822	$1,571	$3,314	$1,260	$3,313	$2,439	$1,624	$4,808
Average Costs During	$259	$711	$2,953	$1,841	$1,054	$2,385	$2,057	$6,198
Average Costs Post	$3,288	$3,456	$3,384	$2,563	$4,533	$846	$2,499	$4,432
Average Costs Total	$5,369	$5,737	$9,651	$5,664	$8,901	$5,670	$6,180	$15,438

Note: Jacksonville's ES Short Stayers and Street/ES Short Stayers are combined in the ES Short Stayers common path group. Sequential Short Stayers and Sequential Long Stayers are combined in the Sequential Program Users common path group.

Appendix C: Individual Data

C.1. Cohort Summaries

C.1.1 Jacksonville, Florida Study Cohort

Path Groups	ES Short Stayers	Street/ES Short Stayers	ES Long Stayers	ES Long Gappers	Sequential Short Stayers	Sequential Long Stayers	Circlers	PSH Long Stayers	Total Cohort
Number of Individuals	746	556	44	197	196	36	142	55	1,972
% of Cohort	38%	28%	2%	10%	10%	2%	7%	3%	100%
Demographics[a]									
Male	80%	85%	45%	95%	66%	71%	79%	70%	81%
African-American	45%	43%	73%	59%	47%	44%	57%	54%	48%
51 and older	17%	16%	20%	17%	21%	31%	17%	33%	18%
Average Age at First Entry	40 yrs	41 yrs	41 yrs	42 yrs	41 yrs	47 yrs	43 yrs	46 yrs	41 yrs
Homeless Experience									
Average Number of Stays	1 stay	3 stays	1 stay	11 stays	2 stays	6 stays	8 stays	3 stays	3 stays
Average Total Length of Stay	18 days	29 days	304 days	40 days	54 days	364 days	135 days	338 days	57 days
Average Total Gap	0 days	58 days	0 days	358 days	71 days	49 days	182 days	68 days	75 days
Median Total Length of Stay	2 days	6 days	269 days	24 days	33 days	371 days	83 days	384 days	10 days
Mainstream System Involvement (% of study cohort with involvement at any point during the study)									
Medicaid Managed Care and Primary Health Claims	22%	17%	39%	12%	24%	22%	15%	31%	20%
Mental Health - Medicaid and State	21%	28%	25%	21%	30%	28%	30%	27%	25%
Substance Abuse Treatment - Medicaid and State	17%	22%	23%	26%	32%	31%	26%	33%	22%
Criminal Justice - Arrests and Jail	31%	38%	34%	62%	35%	36%	44%	55%	38%
TANF	5%	2%	18%	1%	3%	0%	1%	2%	3%
Food Stamps	42%	51%	86%	53%	57%	67%	71%	84%	52%
Costs <u>During</u> Homelessness (Average Cost Per Person in Path Group)									
Homeless System	**$563**	**$853**	**$9,756**	**$910**	**$1,585**	**$10,416**	**$3,987**	**$8,493**	**$1,634**
Medicaid Managed Care and Primary Health Care Claims	$86	$56	$808	$19	$302	$528	$201	$3,452	$219
Medicaid and State-funded Mental Health Treatment	$58	$117	$147	$50	$116	$336	$121	$568	$106
Medicaid and State-funded Substance Abuse Treatment	$45	$147	$164	$91	$365	$977	$93	$950	$158
Jail and Arrests	$12	$307	$57	$1,636	$214	$178	$1,400	$561	$397
TANF	$4	-	$227	$1	$2	-	$1	$3	$7
Food Stamps	$54	$84	$1,551	$44	$55	$366	$241	$664	$131
Mainstream Costs	**$259**	**$711**	**$2,954**	**$1,841**	**$1,054**	**$2,385**	**$2,057**	**$6,198**	**$1,002**
Total Costs	**$822**	**$1,564**	**$12,710**	**$2,751**	**$2,639**	**$12,801**	**$6,044**	**$14,691**	**$2,636**

Note: Jacksonville's ES Short Stayers and Street/ES Short Stayers are combined in the ES Short Stayers common path group. Sequential Short Stayers and Sequential Long Stayers are combined in the Sequential Program Users common path group.

[a]Null demographic values are excluded from percentage calculations and thus may differ from findings presented elsewhere.

C.1.2 Houston, Texas Individuals Study Cohort

	Street Only	ES Short Stayers	Extended ES Stayers	ES Long Gappers	Frequent ES Long Gappers	Sequential Program Users	Circlers	TH Only or PSH Only	Total Cohort
Number of Individuals	871	2,306	115	263	101	89	85	576	4,406
% of Cohort	20%	52%	3%	6%	2%	2%	2%	13%	100%
% of Cohort excluding Street Only Path Group	-	65%	3%	7%	3%	3%	2%	16%	100%
Demographics[a]									
Male	78%	88%	43%	88%	100%	51%	31%	23%	74%
African-American	63%	52%	72%	66%	63%	65%	68%	52%	57%
51 and older	17%	17%	9%	19%	30%	19%	8%	12%	16%
Average Age at First Entry	42 yrs	40 yrs	37 yrs	42 yrs	46 yrs	43 yrs	40 yrs	40 yrs	41 yrs
Homeless Experience									
Average Number of Stays	1 stay	2 stays	1 stay	7 stays	40 stays	3 stays	3 stays	1 stay	3 stays
Average Total Length of Stay	1 day	8 days	158 days	23 days	124 days	182 days	174 days	150 days	39 days
Average Total Gap	0 days	16 days	6 days	376 days	245 days	149 days	150 days	10 days	44 days
Median Total Length of Stay	1 day	2 days	112 days	14 days	95 days	254 days	269 days	205 days	22 days
Mainstream System Involvement (% of study cohort with involvement at any point during the study)									
Mental Health Care	2%	17%	30%	36%	28%	35%	48%	28%	18%
State MH Inpatient	0%	<1%	0%	3%	0%	0%	2%	<1%	<1%
Criminal Justice	1%	14%	14%	26%	23%	19%	27%	19%	13%
Costs <u>During</u> Homelessness (Average Cost Per Person in Path Group)									
Residential Homeless	**$199**	**$353**	**$10,540**	**$880**	**$2,494**	**$14,418**	**$10,705**	**$8,799**	**$2,257**
Mental Health Care	$2	$149	$1,050	$1,669	$1,491	$2,052	$1,847	$489	$380
State MH Inpatient				$170					$10
Criminal Justice	-	$45	$222	$1,049	$782	$900	$749	$109	$157
Mainstream Costs	**$2**	**$194**	**$1,272**	**$2,888**	**$2,274**	**$2,952**	**$2,596**	**$598**	**$547**
Total Costs	**$201**	**$547**	**$11,812**	**$3,768**	**$4,768**	**$17,370**	**$13,301**	**$9,397**	**$2,804**

Note: ES Long Gappers and Frequent ES Long Gappers are combined in the ES Long Gapper common path group.

[a]Null demographic values are excluded from percentage calculations and thus may differ from findings presented elsewhere.

C.1.3 Des Moines, Iowa Study Cohort

	ES Short Stayers	ES Long Gappers	Sequential Program Users	Circlers	TH Only (Shared Room Model)	TH Only (Ind Room Model)	Total Cohort
Number of Individuals	641	154	42	48	147	92	1,124
% of Cohort	57%	14%	4%	4%	13%	8%	100%
Demographics[a]							
Male	73%	72%	88%	90%	58%	85%	73%
African-American	21%	29%	27%	26%	12%	18%	21%
51 and older	16%	14%	31%	19%	3%	13%	15%
Average Age at First Entry	39 yrs	40 yrs	44 yrs	40 yrs	34 yrs	37 yrs	39 yrs
Homeless Experience							
Average Number of Stays	2 stays	8 stays	4 stays	7 stays	1 stay	1 stay	3 stays
Average Total Length of Stay	17 days	63 days	259 days	203 days	133 days	237 days	73 days
Average Total Gap	10 days	308 days	110 days	171 days	9 days	26 days	63 days
Median Total Length of Stay	4 days	44 days	181 days	157 days	92 days	198 days	24 days
Average Per Person Residential Homeless System Costs	$321	$1,224	$8,539	$6,374	$3,103	$11,731	$2,308

[a] *Null demographic values are excluded from percentage calculations and thus may differ from findings presented elsewhere.*

C.2. Cross-Site Individuals Multivariate Analyses

C.2.1 Analysis of Homeless Costs and Homeless Service Utilization, with Homeless Program Type as Covariates

Outcome variables: The outcome variables for these models are total homeless costs in log scale and total length of stay (in days) in log scale

Description: Both models control for the program types used, site, gender, race and age. The homeless costs model also controls for homeless utilization data.

	Model 1: Total Homeless Costs (log scale)	Model 2: Length of Stay (log scale)
Homeless Programs Used+		
Persons who only Used TH Housing	1.299***	2.029***
	(0.049)	(0.063)
Only Used ES and TH Programs	1.114***	2.294***
	(0.067)	(0.088)
Used Other Program Types or Combinations	0.793***	1.261***
	(0.051)	(0.067)
Site+		
Des Moines, IA	0.068	0.227***
	(0.045)	(0.061)
Houston, TX	0.012	-0.465***
	(0.033)	(0.046)
Homeless System Utilization+		
Number of stays	0.037***	
	(0.003)	
Total length of stay (in days), divided by 30	0.351***	
	(0.005)	
Total gaps between stays (in days), divided by 30	0.073***	
	(0.004)	
Demographics+		
Female	0.974***	0.735***
	(0.035)	(0.047)
Black	0.192***	0.300***
	(0.030)	(0.040)
Other Race	0.051	0.100
	(0.059)	(0.080)
Age 18 – 24	0.074	-0.232***
	(0.055)	(0.075)
Age 25 – 30	0.105**	-0.043
	(0.051)	(0.070)
Age 41 – 50	0.098***	0.190***
	(0.037)	(0.051)
Age 18 – 24	0.098**	0.261***
	(0.046)	(0.062)
Gender missing	-0.452***	0.439***
	(0.091)	(0.123)
Race missing	0.241***	0.930***
	(0.087)	(0.119)

	Model 1: Total Homeless Costs (log scale)	Model 2: Length of Stay (log scale)
Age missing	0.134**	-2.345***
	(0.063)	(0.084)
Constant	3.953***	1.685***
	(0.041)	(0.054)
Observations	7502	7502
R-squared	0.68	0.36

Notes: + Reference categories are: Used ES Only, Jacksonville, Age 31 – 40, Male, White.

*Standard errors in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%*

C.2.2 Analysis of Homeless Costs and Homeless Service Utilization, without Homeless Program Type as Covariates

Outcome variables: The outcome variables for these models are (1) total homeless cost in log scale, (2) total number of stays in log scale, (3) total length of stay in log scale, and (4) total number of gap days in log scale.

Description: All four models control for site, gender, race and age. The model for homeless costs controls for homeless system utilization data.

Outcome variable	Model 1: Total Homeless Costs (log scale)	Model 2: Number of Stays (log scale)	Model 3: Length of Stay (log scale)	Model 4: Total gap days (log scale)
Site+				
Des Moines, IA	0.180***	0.023	0.293***	-0.179*
	(0.049)	(0.030)	(0.067)	(0.103)
Houston, TX	0.095***	-0.084***	-0.534***	-0.119
	(0.037)	(0.023)	(0.050)	(0.078)
Homeless System Utilization				
Number of stays	0.030***			
	(0.003)			
Total length of stay (in days), divided by 30	0.385***			
	(0.004)			
Total gaps between stays (in days), divided by 30	0.076***			
	(0.004)			
Demographics+				
Female	1.268***	-0.376***	1.307***	0.335***
	(0.037)	(0.022)	(0.049)	(0.099)
Black	0.188***	0.137***	0.276***	0.403***
	(0.033)	(0.020)	(0.045)	(0.075)
Other Race	-0.032	0.098**	-0.060	-0.015
	(0.065)	(0.040)	(0.089)	(0.143)
Age 18 – 24	0.061	-0.092**	-0.310***	-0.030
	(0.061)	(0.038)	(0.083)	(0.141)
Age 25 – 30	0.087	-0.098***	-0.116	-0.237*
	(0.057)	(0.035)	(0.078)	(0.128)
Age 41 – 50	0.116***	0.098***	0.228***	0.222**
	(0.041)	(0.025)	(0.056)	(0.088)
Age 18 – 24	0.094*	0.153***	0.260***	0.074
	(0.051)	(0.031)	(0.069)	(0.106)
Gender missing	-0.655***	-0.241***	0.136	-0.596**
	(0.098)	(0.061)	(0.134)	(0.272)
Race missing	0.129	0.246***	0.707***	0.256
	(0.095)	(0.059)	(0.130)	(0.229)
Age missing	0.582***	-0.501***	-1.645***	0.180
	(0.055)	(0.034)	(0.074)	(0.304)
Constant	4.059***	0.657***	2.096***	3.630***
	(0.044)	(0.027)	(0.059)	(0.092)
Observations	7502	7502	7502	2870
R-squared	0.62	0.11	0.22	0.03

Notes: + Reference categories are: Used ES Only, Jacksonville, Age 31 – 40, Male, White
Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

C.3. Multivariate Analysis of Costs by Domain in Houston Individuals

Outcome variables: The outcome variable for these models is total costs associated with each domain in their original metric (dollar amounts).

Description: Models 1, 2, and 3 model Mental Health System Costs. Models 4, 5, and 6 model criminal justice costs. All models control for gender, race, and age. Models 1 and 4 control based on path groups. Models 2 and 5 control for underlying homeless utilization data. Models 3 and 6 control for homeless system costs.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Outcome	Mental Health System Costs (Homeless Path Group Model)	Mental Health System Costs (Homeless Utilization Model)	Mental Health System Costs (Homeless Cost Model)	Criminal Justice Costs (Homeless Path Group Model)	Criminal Justice Costs (Homeless Utilization Model)	Criminal Justice Costs (Homeless Cost Model)
Path Group+						
Street-Only Short Stayers	-648.743			-497.902		
	(472.107)			(389.487)		
Emergency Shelter Long Gappers	2,351.606***			1,179.294***		
	(401.362)			(331.123)		
Emergency Shelter Multiple-Stay Long Gappers	2,317.959***			761.055		
	(627.240)			(517.472)		
Emergency Shelter Extended Stayers	767.744			709.349		
	(598.898)			(494.089)		
Progressive Long Stayers	2,084.817***			604.719		
	(672.278)			(554.628)		
Circling Long Stayers	2,966.777***			1,943.164***		
	(695.542)			(573.821)		
TH-Only and PSH-Only	-94.020			790.651***		
	(331.763)			(273.704)		
Homeless System Utilization						
Number of stays		2.035			-23.043*	
		(15.330)			(12.658)	
Total length of stay (in days), divided by 30		135.568***			-33.204	
		(31.638)			(26.123)	
Total gaps between stays (in days), divided by 30		207.498***			136.029***	
Homeless System Costs						
Total Homeless Costs			244.533***			-25.776
			(54.671)			(44.988)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Outcome	Mental Health System Costs (Homeless Path Group Model)	Mental Health System Costs (Homeless Utilization Model)	Mental Health System Costs (Homeless Cost Model)	Criminal Justice Costs (Homeless Path Group Model)	Criminal Justice Costs (Homeless Utilization Model)	Criminal Justice Costs (Homeless Cost Model)
Demographics+						
Female	568.855**	408.504*	6.249	-635.795***	-174.216	-227.191
	(257.202)	(233.006)	(254.764)	(212.191)	(192.393)	(209.644)
Black	-249.602	-281.174	-170.798	81.006	62.298	125.816
	(217.731)	(216.820)	(218.043)	(179.627)	(179.028)	(179.427)
Other Race	-668.275**	-671.700**	-589.103*	-752.921***	-813.770***	-777.166***
	(309.769)	(308.407)	(310.447)	(255.559)	(254.652)	(255.465)
Age 18 – 24	-653.342	-625.156	-664.094	-338.548	-388.749	-384.910
	(416.243)	(414.834)	(417.714)	(343.400)	(342.528)	(343.734)
Age 25 – 30	-94.633	-28.563	-149.842	-290.677	-321.642	-365.413
	(370.515)	(369.645)	(371.953)	(305.674)	(305.216)	(306.077)
Age 41 – 50	-729.987***	-797.297***	-739.953***	-1,242.844***	-1,250.060***	-1,210.904***
	(269.043)	(268.755)	(270.714)	(221.960)	(221.911)	(222.769)
Age 51 or greater	-1,454.007***	-1,498.154***	-1,453.801***	-1,634.459***	-1,635.552***	-1,624.431***
	(334.955)	(334.779)	(336.496)	(276.337)	(276.428)	(276.901)
Gender missing	174.329	-27.085	-211.924	-227.348	184.237	137.760
	(1,121.838)	(1,117.312)	(1,127.713)	(925.514)	(922.565)	(927.988)
Race missing	-1,015.764*	-692.421	-330.123	-749.294*	-376.993	-341.467
	(551.384)	(448.306)	(452.561)	(454.890)	(370.166)	(372.410)
Age missing	-1,393.196***	-1,772.292***	-2,305.343***	-1,745.497***	-2,333.122***	-2,470.592***
	(498.065)	(299.000)	(294.904)	(410.902)	(246.884)	(242.675)
Constant	2,161.168***	1,990.985***	1,278.324***	2,420.949***	2,520.263***	2,741.075***
	(265.168)	(262.855)	(362.525)	(218.763)	(217.039)	(298.320)
Observations	4404	4404	4404	4404	4404	4404
R-squared	0.04	0.04	0.03	0.04	0.04	0.03

Notes: + Reference categories are ES Short Stayers, Age 31 – 40, Male, White

Standard errors in parentheses

** significant at 10%; ** significant at 5%; *** significant at 1%*

Appendix D: Family Data

D.1. Family Cohort Summaries

D.1.1 Houston, Texas Families Study Cohort

Path Groups[a]	ES Short Stayers	ES Repeat Users	ES Long Gappers	Multi-Program Users	Housing Program Users	Total Cohort
Number of Families	262	54	22	44	95	477
% of Cohort	55%	11%	5%	9%	20%	100%
Number of Adults	290	65	29	47	103	534
Number of Children	553	125	50	80	187	995
Avg. Household Size	3.2	3.5	3.6	2.9	3.1	3.2
Household Characteristics						
One Adult	89%	83%	68%	93%	91%	88%
Membership changed during homeless period	7%	52%	68%	70%	26%	25%
Children six and under	53%	35%	45%	56%	49%	50%
Demographics[b]						
Male Adults	14%	25%	28%	9%	3%	13%
African-American	65%	67%	78%	62%	61%	65%
Adults 41 and older	15%	16%	28%	21%	15%	16%
Average Age at First Entry	30.4	33.4	34.9	32.5	31.8	31.5
Homeless Experience						
Average Number of Stays	1 stay	2.1 stays	3.4 stays	2.5 stays	1.2 stays	1.4 stays
Average Total Length of Stay	37.1 days	100.6 days	63.0 days	236.3 days	283.6 days	113.0 days
Median Total Length of Stay	24 days	49 days	45 days	191 days	45 days	49 days
Average Total Gap	0.0 days	41.3 days	346.0 days	81.1 days	12.2 days	30.5 days
Mainstream System Involvement (% of study cohort with involvement at any point during the study)						
Criminal Justice	5%	7%	23%	14%	13%	8%
Mental Health	11%	19%	23%	23%	21%	16%
State Hospitals	-	-	-	-	1%	0.2%
Costs During Homelessness (Average Cost Per Person in Path Group						
Homeless System	**$2,321**	**$5,748**	**$3,885**	**$26,913**	**$35,344**	**$11,626.77**
Criminal Justice	-	-	$163	-	-	$7.52
Mental Health	$48.92	$210.29	$72.68	$331.27	$364.72	$157.22
State Hospitals	-	-	-	-	-	-
Mainstream Costs	**$49**	**$210**	**$236**	**$331**	**$365**	**$164.74**
Total Costs	**$2,370**	**$5,959**	**$4,121**	**$27,244**	**$35,709**	**$11,792**

[a]The ES Short Stayers and ES Repeat Users are combined to form the Brief Users of Emergency Shelter path in the Family Chapter, Multi-Program Users and Housing Program Users are considered Heavy Users of Transitional Housing, and the Emergency Shelter Long Gappers path is considered Repeat Users with Long Gaps.

[b]Null demographic values are excluded from percentage calculations and thus may differ from findings presented elsewhere

D.1.2 Kalamazoo, Michigan Study Cohort

Path Groups[a]	ES Single Use Short Stayers	ES Repeat Users	ES Long Gappers	Multi-Program Long Gappers	Long Stayers	Total Cohort
Number of Families	161	47	33	19	82	342
% of Cohort	47%	14%	10%	6%	24%	100%
Number of Adults	172	51	38	21	98	380
Number of Children	307	94	92	42	171	706
Avg. Household Size	3.0	3.1	3.9	3.3	3.3	3.2
Household Characteristics						
One Adult	93%	92%	85%	90%	81%	89%
Membership changed during homeless period	1%	17%	61%	53%	5%	13%
Children six and under	48%	54%	56%	51%	44%	49%
Demographics[b]						
Male Adults	12%	8%	16%	10%	24%	15%
African-American	59%	53%	71%	67%	60%	60%
Adults 41 and older	11%	10%	11%	19%	15%	12%
Average Age at First Entry	29.6	28.8	29.1	32.7	31.1	30.0
Homeless Experience						
Average Number of Stays	1 stay	2.1 stays	3.1 stays	3.3 stays	1.2 stays	1.5 stays
Average Total Length of Stay	14.6 days	48.1 days	37.8 days	144.1 days	289 days	94 days
Median Total Length of Stay	8 days	31 days	31 days	135 days	308 days	30 days
Average Total Gap	0 days	50.0 days	377.5 days	275.4 days	8.7 days	60.5 days
Mainstream System Involvement (% of study cohort with involvement at any point during the study)						
Criminal Justice	39%	45%	61%	63%	34%	42%
Medicaid	92%	98%	100%	100%	94%	94%
Financial Assistance***	>=32%	>=36%	>=58%	>=79%	>=40%	>=39%
Costs <u>During</u> Homelessness (Average Cost Per Person in Path Group)						
Homeless System	**$1,172**	**$2,977**	**$3,295**	**$5,925**	**$6,574**	**$3,184**
Criminal Justice	$1.09	$45.34	$125.61	$383.00	$112.31	$67.08
Medicaid	$340.35	$1,951.99	$13,184.15	$10,283.72	$10,555.85	$4,802.88
Financial Assistance	$3.04	$51.15	$204.29	$268.76	$295.47	$113.95
Mainstream Costs	**$344**	**$2,048**	**$13,514**	**$10,935**	**$10,964**	**$4,984**
Total Costs	**$1,516**	**$5,026**	**$16,809**	**$16,860**	**$17,537**	**$8,168**

[a] ES Single Use Short Stayers and ES Repeat Users are combined to form the Brief Users of Emergency Shelter path in the Family Chapter, the Long Stayers path is considered Heavy Users of Transitional Housing, and ES Long Gappers and Multi-Program Long Gappers are considered Repeat Users with Long Gaps.

[b] Null demographic values are excluded from percentage calculations and thus may differ from findings presented elsewhere

[c] De-duplicated data across programs within this domain was not provided. Values in this row represent the maximum value received by the path group in any one type of sub-domain. The total de-duplicated value across types is most likely higher assuming that at least some families receiving each type of assistance were different.

D.1.3 Upstate South Carolina Study Cohort

Path Groups[a]	One Week Single Stayers	One Month Returners	Three-Month Single Stayers	Six Month Returners	Long Stay Progressers	TH Only Long Stayers	Total Cohort
Number of Families	35	11	24	14	25	36	145
% of Cohort	24%	8%	17%	10%	17%	25%	100%
Number of Adults	38	12	26	17	28	41	162
Number of Children	57	16	48	26	48	77	272
Avg. Household Size	2.7	2.6	3.1	3.1	3.0	3.3	3.0
Household Characteristics							
One Adult	91%	91%	92%	79%	88%	86%	88%
Membership changed during homeless period	0%	36%	4%	64%	36%	6%	17%
Children six and under	50%	69%	27%	46%	30%	43%	41%
Demographics[b]							
Male Adults	3%	17%	8%	18%	11%	15%	10%
African-American	56%	25%	46%	41%	63%	54%	49%
Adults 41 and older	5%	8%	23%	0%	18%	12%	12%
Average Age at First Entry	30.1	29.1	34.6	28.3	32.4	31.3	31.2
Homeless Experience							
Average Number of Stays	1 stay	2.1 stays	1 stay	2.3 stays	2.2 stays	1 stays	1.4 stays
Average Total Length of Stay	9.3 days	31.6 days	87.6 days	176.2 days	328.5 days	375.3 days	186.0 days
Median Total Length of Stay	6 days	33 days	87 days	117 days	298 days	409 days	103 days
Average Total Gap	0 days	92.7 days	0 days	133.8 days	24.9 days	3.4 days	24.9 days
Mainstream System Involvement (% of study cohort with involvement at any point during the study)							
Criminal Justice	31%	45%	38%	71%	32%	19%	34%
Food Stamps	80%	100%	92%	100%	100%	94%	92%
Medicaid[c]	>=69%	100%	>=96%	>=93%	100%	>=94%	>90%***
Costs <u>During</u> Homelessness (Average Cost Per Person in Path Group)							
Homeless System	**$784**	**$2,508**	**$8,890**	**$12,475**	**$16,036**	**$15,478**	**$9,663.12**
Criminal Justice	-	$18.18	$41.67	$57.14	$64.00	$33.33	$33.10
Food Stamps	$64.00	$866.00	$630.58	$2,140.57	$2,725.92	$3,030.44	$1,614.57
Medicaid	$48.17	$2,730.73	$1,712.75	$4,071.43	$4,436.76	$5,608.89	$3,052.89
Mainstream Costs	**$112**	**$3,615**	**$2,385**	**$6,269**	**$7,227**	**$8,673**	**$4,700.56**
Total Costs	**$896**	**$6,123**	**$11,275**	**$18,744**	**$23,262**	**$24,151**	**$14,363.68**

[a] One-Week Single Stayers, One-Month Returners and Three-Month Returners are combined to form the Brief Users of Emergency Shelter path in the Family Chapter, Long Stay Progressers and TH Only Long Stayers are considered Heavy Users of Transitional Housing, and the Six-Month Returners are considered Repeat Users with Long Gaps.

[b] Null demographic values are excluded from percentage calculations and thus may differ from findings presented elsewhere

[c] De-duplicated data across programs within this domain were not provided. Values in this row represent the maximum value received by the path group in any one type of sub-domain.

D.1.4 Washington, DC Study Cohort

Path Groups[a]	Congregate ES, Short Stayers	Congregate and Apartment ES	Progressing Long Stayers	Transitional Housing Only	Direct to Permanent Housing	Long Gappers	Total Cohort
Number of Families	135	36	52	45	91	51	410
% of Cohort	33%	9%	13%	11%	22%	12%	100%
Number of Adults	157	47	70	47	108	171	500
Number of Children	303	112	135	90	199	107	946
Avg. Household Size	3.4	4.4	3.9	3.0	3.4	3.5	3.5
Household Characteristics							
One Adult	84%	72%	69%	96%	81%	69%	80%
Membership changed during homeless period	11%	64%	75%	22%	5%	92%	34%
Children six and under	43%	53%	43%	64%	44%	53%	48%
Demographics[b]							
Male Adults	15%	25%	16%	4%	21%	25%	18%
African-American	97%	100%	100%	94%	96%	98%	97%
Adults 41 and older	21%	15%	29%	21%	16%	21%	20%
Average Age at First Entry	32.0	30.6	30.8	30.5	30.6	32.4	31.6
Homeless Experience							
Average Number of Stays	1.2 stays	2.6 stays	2.8 stays	1.2 stays	1 stays	7.2 stays	2.2 stays
Average Total Length of Stay	67.2 days	513.2 days	550.5 days	447.1 days	384.4 days	272.6 days	308.6 days
Median Total Length of Stay	39 days	474 days	543 days	472 days	381 days	207 days	258 days
Average Total Gap	5.8 days	20.4 days	42.6 days	0.1 days	0.0 days	514.7 days	73.2 days
Mainstream System Involvement (% of study cohort with involvement between 7/1/2003 and 7/31/2008)							
Medicaid	92%	100%	100%	98%	93%	98%	95%
Substance Abuse	7%	8%	6%	13%	1%	29%	9%
Child Welfare	46%	56%	37%	49%	29%	55%	43%
Mental Health	30%	47%	46%	58%	14%	55%	36%

[a]Congregate ES Short Stayers are considered Brief Users of Emergency Shelter in the Family Chapter, Progressing Long Stayers and Transitional Housing Only are combined to form Heavy Users of Transitional Housing and the Long Gappers are considered Repeat Users with Long Gaps.

[b]Null demographic values are excluded from percentage calculations and thus may differ from findings presented elsewhere

D.2. Cross-Site Family Multivariate Analysis

D.2.1 Analysis of Total Homeless Costs: Approach 1

Description: This series of regressions starts with the basic building blocks of costs per family, first adding length of stay (Model 1) to dummy variables controlling for site differences. Model 2 adds program type to site dummy variables and length of stay. Models 3 and 4 add other variables that reflect program use patterns, number of stays, number of "gap days," and whether the family changed composition during the period of homelessness. The final models (5 and 6) add basic family demographic characteristics: age of adults, age of children, household size, and race.

Outcome Variable: Total Homeless Costs in Log Scale

Total Homeless Cost (log scale)	Model 1 (Length of Stay only)	Model 2 (Model 1 variables plus Program Type)	Model 3 (Model 2 variables plus Number of stays and number of "gap days")	Model 4 (Model 3 variables plus Change in composition during homeless period)	Model 5 (All variables except household change)	Model 6 (All variables)
Washington, DC[a]	0.734***	0.828***	0.769***	0.727***	0.864***	0.836***
	(0.097)	(0.098)	(0.098)	(0.098)	(0.103)	(0.103)
Upstate South Carolina	0.733***	0.700***	0.748***	0.732***	0.719***	0.693***
	(0.121)	(0.120)	(0.119)	(0.118)	(0.119)	(0.119)
Houston, TX	0.843***	0.862***	0.903***	0.854***	0.916***	0.862***
	(0.086)	(0.085)	(0.084)	(0.085)	(0.085)	(0.086)
Length of stay (in days) divided by 30	0.239***	0.218***	0.223***	0.219***	0.222***	0.219***
	(0.006)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Transitional Housing-only program type		0.422***	0.442***	0.459***	0.464***	0.475***
		(0.112)	(0.111)	(0.111)	(0.112)	(0.111)
Emergency Shelter and Transitional Housing-only program type		0.633***	0.443***	0.394***	0.489***	0.437***
		(0.131)	(0.133)	(0.133)	(0.133)	(0.133)
Other program type		-0.066	-0.222	-0.330**	-0.303*	-0.427***
		(0.153)	(0.154)	(0.157)	(0.155)	(0.158)
Total number of stays			0.051**	0.037	0.044*	0.031
			(0.024)	(0.024)	(0.024)	(0.024)
Total gaps between stays (in days), divided by 30			0.036***	0.025***	0.038***	0.028***
			(0.008)	(0.009)	(0.008)	(0.009)
Any change in household composition during the study period				0.326***		0.350***
				(0.096)		(0.099)
Total number of adults in household					0.025	-0.024
					(0.160)	(0.160)
Total number of children in household					0.067**	0.055**
					(0.028)	(0.028)
Male adult-only household type					-0.218	-0.230
					(0.237)	(0.236)

Total Homeless Cost (log scale)	Model 1 (Length of Stay only)	Model 2 (Model 1 variables plus Program Type)	Model 3 (Model 2 variables plus Number of stays and number of "gap days")	Model 4 (Model 3 variables plus Change in composition during homeless period)	Model 5 (All variables except household change)	Model 6 (All variables)
Female adult-only household type					-0.243	-0.245
					(0.184)	(0.183)
African American household head					-0.273***	-0.290***
					(0.084)	(0.084)
Household head of other race					-0.038	-0.042
					(0.167)	(0.166)
Household head ages 18-24					-0.037	-0.038
					(0.099)	(0.099)
Household head ages 25-30					0.023	0.020
					(0.092)	(0.091)
Household head ages 41-50					0.084	0.086
					(0.108)	(0.107)
Household head ages 51 or above					0.159	0.156
					(0.246)	(0.245)
Household with youngest child born after study entry					-0.338	-0.465**
					(0.207)	(0.209)
Household youngest child ages 6-12					0.198**	0.205**
					(0.088)	(0.088)
Household youngest child ages 13-17					0.184	0.195
					(0.142)	(0.141)
Household head race missing					-0.232	-0.191
					(0.214)	(0.213)
Household head age missing					-0.763	-0.802
					(0.553)	(0.551)
Youngest child age missing					-0.064	-0.061
					(0.261)	(0.260)
Constant	6.221***	6.163***	6.012***	6.031***	6.179***	6.283***
	(0.068)	(0.068)	(0.074)	(0.074)	(0.356)	(0.355)
Observations	1287	1287	1287	1287	1285	1285
R-squared	0.60	0.61	0.63	0.63	0.64	0.64

Reference categories are: Kalamazoo, MI, Emergency Shelter-only program type, mixed-adult household type, white household head, household head ages 31 - 40, household youngest child ages 0-5.

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

[a] Excluded CCG/SAFAH-only families in DC

D.2.2 Analysis of Total Homeless Costs: Approach 2

Description: This approach starts with site dummies and basic family demographics (Model 1) and then adds program type (Model 3), length of stay (Model 4), and then numbers of stays and gap days (Model 5). Models 2 and 6 also add the variable that reflects whether the household changed composition. Model 1 does not control either for length of stay or for program type.

Outcome Variable: Total Homeless Costs in Log Scale

Total homeless cost (log scale)	Model 1 (Basic family demographics)	Model 2 (Model 1 variables plus Household Change)	Model 3 (Model 2 variables plus Program Type)	Model 4 (Model 3 variables plus Length of Stay)	Model 5 (Model 4 plus Number of stays and gap days)	Model 6 (All variables)
Washington, DC[a]	1.630***	1.453***	1.483***	0.898***	0.864***	0.836***
	(0.149)	(0.148)	(0.126)	(0.104)	(0.103)	(0.103)
Upstate South Carolina	1.442***	1.377***	1.121***	0.682***	0.719***	0.693***
	(0.177)	(0.174)	(0.148)	(0.121)	(0.119)	(0.119)
Houston, TX	1.016***	0.890***	1.007***	0.881***	0.916***	0.862***
	(0.128)	(0.127)	(0.106)	(0.086)	(0.085)	(0.086)
Total number of adults in household	0.181	-0.023	0.048	0.067	0.025	-0.024
	(0.241)	(0.238)	(0.200)	(0.161)	(0.160)	(0.160)
Total number of children in household	0.085**	0.052	0.095***	0.065**	0.067**	0.055**
	(0.042)	(0.042)	(0.035)	(0.028)	(0.028)	(0.028)
Male adult-only household type	-0.176	-0.253	-0.226	-0.203	-0.218	-0.230
	(0.358)	(0.350)	(0.296)	(0.239)	(0.237)	(0.236)
Female adult-only household type	-0.219	-0.239	-0.368	-0.254	-0.243	-0.245
	(0.278)	(0.272)	(0.230)	(0.186)	(0.184)	(0.183)
African American household head	-0.249*	-0.277**	-0.194*	-0.270***	-0.273***	-0.290***
	(0.127)	(0.125)	(0.105)	(0.085)	(0.084)	(0.084)
Household head of other race	-0.369	-0.320	-0.046	-0.032	-0.038	-0.042
	(0.252)	(0.247)	(0.209)	(0.169)	(0.167)	(0.166)
Household head ages 18-24	-0.387***	-0.349**	-0.251**	-0.065	-0.037	-0.038
	(0.150)	(0.147)	(0.124)	(0.100)	(0.099)	(0.099)
Household head ages 25-30	-0.070	-0.060	-0.088	-0.005	0.023	0.020
	(0.139)	(0.136)	(0.115)	(0.093)	(0.092)	(0.091)
Household head ages 41-50	0.293*	0.267*	0.185	0.092	0.084	0.086
	(0.163)	(0.160)	(0.135)	(0.109)	(0.108)	(0.107)
Household head ages 51 or above	0.575	0.518	0.631**	0.227	0.159	0.156
	(0.372)	(0.365)	(0.308)	(0.249)	(0.246)	(0.245)
Household with youngest child born after study entry	0.988***	0.380	0.481*	-0.054	-0.338	-0.465**
	(0.299)	(0.304)	(0.251)	(0.204)	(0.207)	(0.209)

Total homeless cost (log scale)	Model 1 (Basic family demographics)	Model 2 (Model 1 variables plus Household Change)	Model 3 (Model 2 variables plus Program Type)	Model 4 (Model 3 variables plus Length of Stay)	Model 5 (Model 4 plus Number of stays and gap days)	Model 6 (All variables)
Household youngest child ages 6-12	0.092	0.124	0.165	0.177**	0.198**	0.205**
	(0.134)	(0.131)	(0.111)	(0.089)	(0.088)	(0.088)
Household youngest child ages 13-17	0.120	0.155	0.049	0.170	0.184	0.195
	(0.215)	(0.211)	(0.178)	(0.144)	(0.142)	(0.141)
Household head race missing	-0.778**	-0.602*	-0.398	-0.273	-0.232	-0.191
	(0.324)	(0.318)	(0.268)	(0.216)	(0.214)	(0.213)
Household head age missing	-0.940	-0.994	-0.641	-0.822	-0.763	-0.802
	(0.839)	(0.822)	(0.693)	(0.560)	(0.553)	(0.551)
Youngest child age missing	0.180	0.168	-0.297	-0.034	-0.064	-0.061
	(0.395)	(0.387)	(0.327)	(0.264)	(0.261)	(0.260)
Any change in household composition during the study period		0.926***				0.350***
		(0.125)				(0.099)
Transitional Housing-only program type			2.274***	0.459***	0.464***	0.475***
			(0.109)	(0.113)	(0.112)	(0.111)
Emergency Shelter and Transitional Housing-only program type			2.119***	0.659***	0.489***	0.437***
			(0.146)	(0.131)	(0.133)	(0.133)
Other program type			1.668***	-0.143	-0.303*	-0.427***
			(0.170)	(0.154)	(0.155)	(0.158)
Length of stay (in days) divided by 30				0.215***	0.222***	0.219***
				(0.008)	(0.008)	(0.008)
Total number of stays					0.044*	0.031
					(0.024)	(0.024)
Total gaps between stays (in days), divided by 30					0.038***	0.028***
					(0.008)	(0.009)
Constant	7.025***	7.227***	6.555***	6.307***	6.179***	6.283***
	(0.537)	(0.527)	(0.444)	(0.359)	(0.356)	(0.355)
Observations	1285	1285	1285	1285	1285	1285
R-squared	0.16	0.20	0.43	0.63	0.64	0.64

Reference categories are: clients in Kalamazoo, Emergency Shelter-only program type, mixed-adult household type, white household head, household head ages 31-40, household youngest child ages 0-5

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

[1]Excluded CCG/SAFAH-only families in DC

D.2.3 Analysis of the Selection of Program Type, With Household Change as a Covariate

Description: The coefficients for this Multinomial Logit model are expressed as odds ratios, with values greater than one showing that, compared to the reference category, a particular type of household is more likely to use a program type. This model is used to identify the factors associated with the type of program use by first-time homeless families.

Program type Category (ES only; TH only; ES and TH only; Other)	Multinomial Logit Model Base category = Emergency Shelter Only		
Outcome	Transitional Housing Only	Emergency Shelter and Transitional Housing Only	Other
Washington, D.C>[a]	0.866	0.966	5.776***
	(0.205)	(0.311)	(2.591)
Upstate South Carolina	1.630*	2.865**	0.151
	(0.406)	(0.940)	(0.163)
Houston, TX	1.002	0.656	0.799
	(0.190)	(0.200)	(0.342)
Total number of adults in household	1.112	0.827	1.255
	(0.471)	(0.399)	(0.516)
Total number of children in household	0.972	0.830*	0.998
	(0.065)	(0.076)	(0.091)
Any change in household composition during the study period	0.894	6.057***	15.410***
	(0.200)	(1.446)	(4.673)
Male adult-only household type	0.975	0.829	1.849
	(0.597)	(0.593)	(1.346)
Female adult-only household type	1.493	0.897	1.438
	(0.720)	(0.484)	(0.757)
African American household head	0.939	1.083	0.212***
	(0.174)	(0.296)	(0.081)
Household head of other race	0.714	0.177	0.000
	(0.269)	(0.185)	(0.000)
Household head ages 18-24	0.749	1.062	0.277**
	(0.169)	(0.343)	(0.129)
Household head ages 25-30	0.965	1.387	0.988
	(0.200)	(0.415)	(0.337)
Household head ages 41-50	1.037	1.831	1.206
	(0.263)	(0.602)	(0.428)
Household head ages 51 or above	0.767	1.234	0.390
	(0.457)	(0.863)	(0.346)
Household with youngest child born after study entry	1.525	2.729*	0.327
	(0.870)	(1.216)	(0.205)
Household youngest child ages 6-12	0.761	1.121	1.258
	(0.158)	(0.313)	(0.408)
Household youngest child ages 13-17	1.160	1.186	1.626
	(0.365)	(0.517)	(0.794)
Household head race missing	0.427	0.456	0.421
	(0.245)	(0.485)	(0.469)
Household head age missing	0.576	0.000	0.000
	(0.767)	(0.000)	(0.000)
Youngest child age missing	3.273*	0.802	2.961
	(1.667)	(0.894)	(2.792)
Constant	0.223	0.115*	0.035***
	(0.205)	(0.124)	(0.036)
Observations	1285		
Log likelihood	-1109.4261		

Reference categories are: clients in Kalamazoo, mixed-adult household type, white household head, household head ages 31-40, household youngest child ages 0-5

Coefficients in relative risk ratio format

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

[a]Excluded CCG/SAFAH-only families in DC

D.2.4 Analysis of the Selection of Program Type, Without Household Change as a Covariate

Description: coefficients for this Multinomial Logit model are expressed as odds ratios, with values greater than one showing that, compared to the reference category, a particular type of household is more likely to use a program type. This model is used to identify the factors associated with the type of program used by first-time homeless families. This analysis is identical to the one shown previously, except that the household change variable is excluded from the model.

Program type Category (ES only; TH only; ES and TH only; Other)	Multinomial Logit Model Base category = Emergency Shelter Only		
	Transitional Housing Only	Emergency Shelter and Transitional Housing Only	Other
Washington, DC[a]	0.852	1.346	9.246***
	(0.201)	(0.414)	(3.822)
Upstate, South Carolina	1.622	3.433***	0.224
	(0.404)	(1.080)	(0.237)
Houston, TX	0.990	0.984	1.433
	(0.186)	(0.283)	(0.562)
Total number of adults in household	1.102	1.220	2.156
	(0.445)	(0.603)	(0.849)
Total number of children in household	0.972	0.890	1.127
	(0.064)	(0.080)	(0.096)
Male adult-only household type	0.965	0.899	1.732
	(0.579)	(0.643)	(1.190)
Female adult-only household type	1.512	0.925	1.369
	(0.705)	(0.509)	(0.688)
African American household head	0.934	1.155	0.286***
	(0.173)	(0.302)	(0.101)
Household head of other race	0.713	0.164	0.000
	(0.268)	(0.171)	(0.000)
Household head ages 18-24	0.747	1.009	0.265**
	(0.168)	(0.316)	(0.118)
Household head ages 25-30	0.961	1.370	0.925
	(0.199)	(0.395)	(0.290)
Household head ages 41-50	1.034	1.829	1.319
	(0.261)	(0.585)	(0.424)
Household head ages 51 or above	0.780	1.391	0.553
	(0.465)	(0.948)	(0.451)
Household with youngest child born after study entry	1.376	7.974***	1.124
	(0.745)	(3.403)	(0.703)
Household youngest child ages 6-12	0.763	1.013	1.016
	(0.158)	(0.274)	(0.303)
Household youngest child ages 13-17	1.164	1.035	1.454
	(0.365)	(0.440)	(0.640)
Household head race missing	0.432	0.290	0.198
	(0.247)	(0.306)	(0.215)
Household head age missing	0.575	0.000	0.000
	(0.757)	(0.000)	(0.000)
Youngest child age missing	3.324*	0.912	3.284
	(1.685)	(0.987)	(2.813)
Constant	0.222	0.086*	0.029***
	(0.197)	(0.094)	(0.028)
Observations	1285		
Log likelihood	-1109.4261		

Reference categories are: clients in Kalamazoo, mixed-adult household type, white household head, household head ages 31-40, household youngest child ages 0-5

Coefficients in relative risk ratio format

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

[a]Excluded CCG/SAFAH-only families in DC

D.2.5 Analysis of the Length of Stay

Description: This series of regressions predicts length of stay, based on study site and household characteristics, and the types of programs used. Model 1 includes all variables. Model 2 excludes the program type variables. Model 3 excludes the household change variable.

Outcome variable: Length of Stay in Log Scale

Total length of stay (log scale)	Model 1 All Variables	Model 2 All Variables except Program Type	Model 3 All Variables except Household Change
Washington, DC[a]	0.913***	1.003***	0.964***
	(0.115)	(0.144)	(0.116)
Upstae South Carolina	0.714***	0.991***	0.737***
	(0.135)	(0.170)	(0.136)
Houston, TX	0.449***	0.400***	0.507***
	(0.098)	(0.123)	(0.097)
Total number of adults in household	-0.045	0.014	0.032
	(0.183)	(0.232)	(0.184)
Total number of children in household	0.077**	0.056	0.091***
	(0.032)	(0.040)	(0.032)
Any change in household composition during the study period	0.443***	0.879***	
	(0.104)	(0.121)	
Transitional Housing-only program type	2.436***		2.431***
	(0.100)		(0.100)
Emergency Shelter and Transitional Housing-only program type	1.988***		2.123***
	(0.137)		(0.134)
Other program type	1.921***		2.145***
	(0.164)		(0.156)
Male adult-only household type	-0.127	-0.093	-0.105
	(0.271)	(0.342)	(0.272)
Female adult-only household type	-0.361*	-0.195	-0.362*
	(0.210)	(0.265)	(0.211)
African American household head	-0.132	-0.214*	-0.110
	(0.097)	(0.122)	(0.097)
Household head of other race	-0.182	-0.500**	-0.175
	(0.191)	(0.240)	(0.192)
Household head ages 18-24	-0.269**	-0.406***	-0.278**
	(0.113)	(0.143)	(0.114)
Household head ages 25-30	-0.057	-0.041	-0.063
	(0.105)	(0.133)	(0.106)
Household head ages 41-50	0.145	0.238	0.146
	(0.123)	(0.156)	(0.124)
Household head ages 51 or above	0.538*	0.437	0.567**
	(0.281)	(0.356)	(0.283)
Household with youngest child born after study entry	0.224	0.390	0.487**
	(0.238)	(0.297)	(0.231)
Household youngest child ages 6-12	0.103	0.038	0.087
	(0.101)	(0.128)	(0.102)
Household youngest child ages 13-17	0.176	0.273	0.156
	(0.162)	(0.205)	(0.164)
Household head race missing	-0.312	-0.630**	-0.378
	(0.245)	(0.310)	(0.247)
Household head age missing	-0.522	-0.860	-0.492
	(0.634)	(0.801)	(0.638)

Total length of stay (log scale)	Model 1 All Variables	Model 2 All Variables except Program Type	Model 3 All Variables except Household Change
Youngest child age missing	-0.183	0.337	-0.179
	(0.299)	(0.377)	(0.301)
Constant	2.812***	3.372***	2.726***
	(0.407)	(0.513)	(0.409)
Observations	1285	1285	1285
R-squared	0.48	0.16	0.47

Reference categories are: clients in Kalamazoo, Emergency Shelter-only program type, mixed-adult household type, white household head, household head ages 31-40, household youngest child ages 0-5

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

[a]Excluded CCG/SAFAH-only families in DC

D.2.6 Summary Statistics of Variables Used in the Family Cross-site Regression Models

Variable	Obs	Mean	Std. Dev.	Min	Max
Cost	1287	10,310.99	15,820.13	31.65	97,242.60
Costs in Log scale	1287	7.95	1.92	3.45	11.48
DC	1287	0.25	0.43	0	1
South Carolina	1287	0.11	0.32	0	1
Houston	1287	0.37	0.48	0	1
Total length of stay	1287	144.37	175.48	1	550
Total length of stay (in days), divided by 30	1287	4.81	5.85	0.03	18.33
Number of stays	1287	1.62	1.61	1	25
Total gap days	1287	53.11	139.45	0	867
Total gaps between stays (in days) divided by 30	1287	1.77	4.65	0	28.90
Transitional Housing-only program type	1287	0.18	0.39	0	1
Emergency Shelter and Transitional Housing-only program type	1287	0.09	0.29	0	1
Other program type	1287	0.07	0.26	0	1
Any change in household composition during study period	1287	0.25	0.43	0	1
Total number of adults in household	1286	1.14	0.38	1	4
Total number of children in household	1285	2.12	1.28	1	9
Male adult-only household type	1287	0.05	0.21	0	1
Female adult-only household type	1287	0.83	0.38	0	1
African American household head	1287	0.70	0.46	0	1
Household head of other race	1287	0.05	0.21	0	1
Household head ages 18-24	1287	0.27	0.44	0	1
Household head ages 25-40	1287	0.24	0.43	0	1
Household head ages 41-50	1287	0.14	0.35	0	1
Household head ages 51 or above	1287	0.02	0.14	0	1
Household with youngest child born after study entry	1287	0.03	0.17	0	1
Household youngest child ages 6-12	1287	0.25	0.43	0	1
Household youngest child ages 13-17	1287	0.08	0.27	0	1
Household head race missing	1287	0.03	0.16	0	1
Household head age missing	1287	0.01	0.07	0	1
Youngest child age missing	1287	0.02	0.14	0	1

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