U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy

An Investigation of Interstate Variation in Medicaid Long-Term Care Use and Expenditures Across 40 States in 2006

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ACRONYMS

The following acronyms are mentioned in this report and/or appendices. Also see Appendix A for term descriptions.

ACS	American Community Survey
ADL	Activity of Daily Living
BEA	Bureau of Economic Analysis
BIP	Balancing Incentive Payments
BLS	Bureau of Labor Statistics
BOE	Basis of Eligibility
CMS	Centers for Medicare and Medicaid Services
FFS	Fee-For-Service
FY	Fiscal Year
HCBS	Home and Community-Based Services
HHA	Home Health Agency
HMO	Health Maintenance Organization
ID/DD	Intellectual and/or Developmental Disabilities
ICF/IID	Intermediate Care Facility for People with Intellectual Disabilities
ILTC	Institutional Long-Term Care
LTC	Long-Term Care
MAX	Medicaid Analytic eXtract
MFP	Money Follows the Person
MSIS	Medicaid Statistical Information System
NBIP	National Balancing Indicator Project
NOAA	National Oceanic and Atmospheric Administration
PACE	Program of All-Inclusive Care for the Elderly
PS	Person Summary
RTCL	Research and Training Center on Community Living
SSI	Supplemental Security Income
UMN	University of Michigan

EXECUTIVE SUMMARY

State long-term care (LTC) financing and delivery systems and, in particular, Medicaid funded LTC have long been criticized for being "institutionally biased." Shifting the balance in publicly-funded LTC provision away from institutional care (nursing homes, long-term hospitals, intermediate care facilities for people with intellectual or developmental disabilities [ICF/IID]) toward greater reliance on home and community-based services (HCBS) has been a federal goal for the past three decades -- a goal often referred to as "re-balancing" state LTC systems.

This report explores interstate variations in LTC expenditure and service use patterns, not only in terms of institutional and non-institutional services, but also by Medicaid LTC users' age and type of disability (e.g., intellectual and developmental disabilities [ID/DD] or other adult onset disabilities). Some states have re-oriented more toward HCBS than others. It also well known that greater progress has been made in serving certain subgroups within the LTC population in the community (those with ID/DD) compared to others and that reliance on institutional care remains greatest among the elderly, although here again there are interstate variations. This report seeks to quantify the magnitude of such differences.

Interstate variations in reliance on HCBS compared to institutional care are partly a function of some states having committed more strongly to the goal than others, and having accordingly made greater efforts to "re-balance." However, states also experience differential advantages or handicaps that make re-balancing easier or more difficult for some compared to others. The factors that make re-balancing easier or more difficult vary in malleability; that is, the extent to which state policymakers can exercise control over them. For example, states with colder, snowier climates, states with large areas classified as "rural" or "frontier" because of population density, as well as states with disproportionately high low-income aging populations may find it more difficult to "re-balance" because of the logistical challenges of providing primarily home-delivered services under these circumstances. These particular factors are largely outside a state government's ability to change. In contrast, other factors hypothesized to influence re-balancing toward greater reliance on HCBS are at least somewhat under state control. For example, states can use licensing and Certificate of Need legislation to limit nursing home bed supply and enable expansion of alternative services such as assisted living, other forms of residential care, and home health/home care agencies. States can also choose to offer consumer-directed alternatives to "traditional" modes of service delivery such as agency-delivered personal care services.

In this study, we use data from the Medicaid Analytic eXtract, the American Community Survey (ACS), and a variety of data sources describing state characteristics and policies to quantify interstate variations in Medicaid LTC systems performance, and to explore and begin to test hypotheses about the factors that explain greater or lesser

use of HCBS across states and subpopulations. Our findings are based on data from 39 states and the District of Columbia, and represent Medicaid service use and expenditures in calendar year 2006.

Key Findings on Variation in Medicaid Long-Term Care System Performance in 2006

Across the 40 study states, about 41 percent of Medicaid LTC spending was for HCBS in 2006, while almost 64 percent of Medicaid LTC users used HCBS. Medicaid spent about 46 cents per user of HCBS for every dollar on persons in institutional care. The findings presented in this report suggest that there is considerable variation across measures, across states, and across subgroups in LTC system performance:

- One performance indicator alone does not adequately capture variation across state LTC systems. Some states provide more limited funding for HCBS to a large number of enrollees, whereas others are allocating more resources per-capita to fewer enrollees. As a result, states that score relatively high on one measure do not score uniformly high on all measures. There is a clear consensus among government officials, advocates, and LTC experts that spending more proportionately on HCBS than on institutional care, and serving increasingly more LTC users in the community than in institutions are desirable goals. With respect to other comparative measures of state systems performance -- beyond percent of total LTC spending on HCBS and percent of total LTC users receiving HCBS -- there is no similar consensus on desirability, let alone a benchmark minimum standard for good performance.

- We have developed several additional performance measures in this report. One is average per-user spending on HCBS. Another is the ratio of per-user spending on HCBS to per-user spending on institutional care. However, additional research is needed to decide whether or not -- or exactly how -- such measures can be used to describe better or worse systems performance. Alternatively, some performance measures we have developed may measure progress toward desirable goals that may be related to, but do not, strictly speaking, reflect “re-balancing” toward HCBS. A case in point is the measure we have developed, based on the ACS, that seeks to provide a rough estimate of how many “potentially Medicaid eligible” state residents living in the community with significant needs for LTC are actually receiving Medicaid-funded HCBS.

- Overall statistics on percent total LTC spending going toward HCBS or numbers of individuals served in the community compared to institutions mask considerable variation by subpopulations (e.g., more than 60 percent of their LTC spending went toward HCBS for those with ID/DD, compared with 46 percent for those with physical disabilities and 26 percent for people over 65). There may be greater obstacles to “re-balancing” for some subpopulations than for others. Nevertheless, in an ideal world, all states should be striving for the best that can

be achieved for all subgroups. Who would really wish to take the position that a state that achieves a higher overall "re-balancing" score by spending well above the national average on HCBS for one subgroup, while doing well below average for another is doing "better" than a state that spends only a little more than average on HCBS for both populations? We think there is more to be learned from comparing scores by subpopulation. By investigating how states that score better than others (for each subgroup) manage to do so, other states may develop methods to improve their performance.

- Although most state Medicaid LTC systems have achieved primary reliance on HCBS for LTC users with ID/DD (more than 60 percent of their LTC spending went toward HCBS), this measure does not reflect the difference in the likelihood that low-income persons by age or disabling condition will actually receive *any* Medicaid funded LTC services, institutional or HCBS. Compared to state residents who are potential Medicaid LTC users among the low-income elderly or younger adults in need of assistance with personal care tasks, a relatively small share of those with ID/DD who are potentially eligible for Medicaid LTC services actually received them. However, the results depend critically on how disability is measured.

Key Findings on Associations between State Constraints, Policies, and Long-Term Care System Performance

Our exploratory analysis of the associations between system performance, state policies, and other factors that might facilitate or hinder Medicaid HCBS expansions suggests that:

- Two factors over which states have little control -- poor weather conditions and size of the workforce needed to provide adequate HCBS -- are associated with systems less balanced toward HCBS.

- Three factors that states could alter -- availability of Medicaid consumer-directed services, state plan personal care coverage, and availability of state Supplemental Security Income supplements for people living in the community -- are positively associated with systems more balanced toward HCBS.

- State policies and constraints are likely to function differently for different subgroups of Medicaid enrollees. Consumer direction, for example, was significantly associated with HCBS spending for the aged and people with physical disabilities, but not for enrollees with ID/DD. Other factors appear to be related to progress in re-balancing LTC for people with ID/DD, most notably financial resources.

We cannot infer causal relationships from these findings, but rather note that they point the way to possibly fruitful work in the future.

Directions for Future Research

Our findings indicate that alternative system performance indicators provide a more nuanced understanding of LTC system transformation and potentially could lead to different conclusions about program effectiveness and re-balancing efforts across states and subgroups than those based on 1-2 aggregate measures, such as total Medicaid spending on non-institutional compared to institutional LTC or total numbers of Medicaid beneficiaries receiving HCBS compared to those residing in nursing homes, long-term hospitals, or ICFs/IID. It will be important for future studies to assess state LTC systems on multiple dimensions for distinct target populations. As Medicaid continues to serve more enrollees in the community, it also will be important to monitor the breadth and type of LTC services low-income people need and receive.

Several promising policy options -- including Medicaid and non-Medicaid policies -- are associated with LTC system performance, but longitudinal studies will be needed to assess impacts. Of particular interest are which approaches are most cost effective and their applicability to different Medicaid subgroups. As state budgets change over time, also of interest is the extent to which fiscal constraints will limit states' ability to support or maintain HCBS expansions into the future.

I. BACKGROUND AND OBJECTIVES

Efforts to transform Medicaid long-term care (LTC) from a predominantly institution-based system to one with more community-based services appear, from a national perspective, to have made substantial progress, particularly over the past decade. Since the Supreme Court's 1999 *Olmstead v. L.C.* decision affirmed the right of persons with disabilities to receive services in the most integrated setting appropriate for their needs (US Supreme Court 1999), Medicaid home and community-based services (HCBS) use and expenditures have more than doubled (Ng et al. 2009) and the use of nursing homes and intermediate care facilities for people with intellectual disabilities (ICFs/IID) has declined substantially (Alecxih 2006; Wiener et al. 2009; Lakin et al. 2009).[1]

This overall success, however, masks wide variation in the levels of success across states and different subgroups. Efforts to re-balance LTC systems from their traditional reliance on institutional care to HCBS have been achieved more widely for some populations (young enrollees with disabilities) than others (people over 65) (Wenzlow et al. 2008) and have varied widely across states (Howes 2010; Kassner et al. 2008; Ng et al. 2009). In this report, we explore what factors are linked to successful

[1] The Federal Government's commitment to encouraging and assisting state re-balancing efforts can be traced back at least as far as the enactment of the Medicaid 1915(c) HCBS legislative authority in 1981. Nevertheless, "re-balancing" toward HCBS took place only gradually over the following two decades. Considerably more progress was made "de-institutionalizing" and "diverting" from institutional placement children and adults with developmental disabilities as compared to the aged/disabled, especially the elderly in need of considerable hands on human assistance with personal care tasks and/or severe dementia. In 1992, HCBS accounted for only 15 percent of all Medicaid spending on LTC services (Kaiser Commission on Medicaid and the Uninsured 2004). In 1994, the Clinton Administration adopted policy changes that made it easier for states to obtain federal approval to expand the numbers of Medicaid beneficiaries served under 1915(c) HCBS waivers without having to show that they had or planned to reduce institutional bed supply by corresponding numbers (a requirement referred to as the "cold bed rule" that was particularly difficult to meet with respect to nursing home beds since these facilities, unlike ICFs/IID whose residents had intellectual or developmental disabilities (ID/DD), were not predominantly state facilities serving Medicaid beneficiaries exclusively). From 1995 through 2009, the percentage of total Medicaid spending on LTC going toward HCBS has increased by 1-3 percent annually (Thomson Reuters, 2011).

In 1999, the Supreme Court issued its landmark ruling in the *Olmstead v L.C.* case that the Americans with Disabilities Act required states generally (the plaintiff State of Georgia in particular) to make all reasonable efforts to meet the LTC needs of citizens receiving or at risk of requiring publicly-funded institutional care in the community instead (Ng, Wong, and Harrington 2011). President Bush launched a cross-departmental "New Freedom" Initiative to ensure federal programmatic and regulatory compliance with the ruling, and Congress funded a Real Choice/Systems Change grant program to help states develop the infrastructure to comply with the spirit as well as the letter of the *Olmstead* decision. Between FY 2001 and FY 2010, the Centers for Medicare and Medicaid Services (CMS) awarded almost $289 million in Real Choice/Systems Change grants to help states develop the infrastructure to expand Medicaid beneficiaries' access to HCBS alternatives to institutional LTC (ILTC) (http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Long-Term-Services-and-Support/Balancing/Real-Choice-Systems-Change-Grant-Program-RCSC/Real-Choice-Systems-Change-Grant-Program-RCSC.html).

state outcomes to help identify where new solutions for the remaining institutionalized populations may lie.[2]

A. Progress in Measuring and Understanding Long-Term Care System Performance

1. Measuring Progress

The desire to transform Medicaid LTC systems has led to the need for meaningful measures of the extent to which state LTC systems have met the aims set forth by *Olmstead*. In theory, such measures should capture the degree to which people needing LTC services are being served in the most integrated setting appropriate for their needs. In practice, such refined measures are expensive to develop, in part because of the limitations of available data. Furthermore, such measures initially were not needed because more basic measures could quantify progress and meet policy needs. As states continue balancing their systems, policymakers can now benefit from more refined measures to identify areas for program improvement.

The most commonly used indicators of LTC system performance -- the percentage of LTC spending allocated to HCBS and increases in the number of people receiving HCBS -- typically have relied on two readily available and annually updated sources of state-level data on Medicaid expenditures and HCBS use. These include aggregate spending data by service type reported by states in CMS Form 64 (Eiken et al. 2010), and counts of waiver enrollees reported in CMS Form 372 combined with state survey-based counts of personal care and home health users, as summarized each year by the Kaiser Commission on Medicaid and the Uninsured and University of California/San Francisco (Ng et al. 2009). Although these data convey important information on system performance, they cannot be used to conduct subgroup analyses (except for some waiver populations). This limits the ability to measure the extent to which HCBS have reached the people that need them. For this reason, researchers and policymakers have begun using CMS person-level administrative data in the Medicaid Analytic eXtract (MAX) system to explore who is being served by Medicaid LTC and to better understand system transformation.[3] These projects include efforts to measure HCBS and institutional use and spending for various subgroups eligible for the Money Follows the Person (MFP) demonstration (Brown et al. 2009; Irvin and Ballou 2009); the AARP state LTC system scorecard that includes some person-based measures of system performance (Reinhard 2010; Reinhard et al. 2011); and CMS's development of a more comprehensive set of indicators of Medicaid re-balancing, which aims to measure LTC system performance and quality (Urdapilleta 2010). Although some reports have been issued, these measures are under development or are being further refined.

[2] In this report, the use of the word "states" encompasses the 50 states and the District of Columbia.

[3] This study's predecessor summarized the strengths and limitations of MAX data for studying LTC (Wenzlow et al. 2008), finding that although the MAX 2002 data were still incomplete for some states, and service-specific information on HCBS was not yet reliable, MAX can be a useful tool in gaining a better understanding of which populations are receiving HCBS.

These previous and ongoing efforts to develop state LTC systems performance indicators have focused, on the one hand, on what can best be described as summary "outcome" measures of "re-balancing;" and, on the other hand, on codifying expert opinion concerning desirable systems attributes (i.e., "best practices") and scoring state systems accordingly without, however, conducting research to find out whether (which ones and how many) of these best practices predict or correlate with better scores on the summary outcome measures. The present study differs from these others, first, by developing more varied summary outcome measures, including ones for subpopulations, and, second, by looking for descriptive attributes (both the non-malleable or less malleable state systems characteristics that state government has little or no control over and the "policy" variables that they can influence) that correlate with desirable outcome measures.

2. What Do We Know About the Progress in Long-Term Care System Transformation?

As we noted earlier, LTC systems are becoming more balanced in favor of HCBS (Ng et al. 2009; Doty 2010). However, studies have shown substantial interstate and intrastate variations. Some states -- for example, Alaska, New Mexico, Oregon and Washington -- have been identified as successes, whereas others have received low rankings (Howes 2010; Kassner et al. 2008). Within states, performance indicators suggest that HCBS use is much more common among young disabled beneficiaries than older LTC recipients (Wenzlow et al. 2008), but our understanding of how components of the LTC systems function for people with physical disabilities compared to those for people with ID/DD is quite limited.

Factors that may be related to systems judged more successful (because they have been "re-balanced" in favor of HCBS) include single access points; availability of person-centered services; participant involvement; precipitating events or crises; and effective state leadership, planning, and processes (Eiken 2004). In their review of the literature, Mollica and Reinhard (2005) also identified as critical components the availability of broad HCBS, single global LTC budgeting, standardized assessment tools, transition programs, and quality improvement. In a study of MFP grantees, Irvin and Ballou (2009) found two additional features -- the depth of HCBS experience and coverage of optional state plan personal care -- among more balanced systems in terms of LTC spending. A recent survey of state programs confirmed many of these factors as facilitating re-balancing and also highlighted the broad fiscal challenges states face in maintaining and improving LTC systems in hard economic times (Rose et al. 2010).

Many important questions about LTC system performance remain unanswered. Among states identified as successes, are they providing HCBS to more people or are they providing more services? Who remains without access to appropriate HCBS? Can successful policies implemented in some states work for others? How do fiscal constraints and other state characteristics hinder or facilitate system transformation? For example, we would expect that rural states, in which the distance between service

providers and recipients is large, may find it more challenging to provide their clients with LTC in home and community-based settings; hence, the lessons learned in more urban states may not apply. Insights into these questions would be particularly helpful to states as they face budget crises and as some consider cuts rather than expansions of Medicaid.

B. Goals of This Study

In this study, we expand on earlier work in Wenzlow et al. (2008) by using MAX 2006 to gain insight into both interstate and intrastate variations in LTC system performance. The study has two broad aims: (1) to characterize differences in LTC systems within and across states; and (2) explore how state constraints and policies might lead to better or worse LTC system performance.

To characterize the performance of LTC systems in each state, we summarize HCBS and institutional care service use and expenditures to determine whether some states are achieving better balanced systems either by serving more people or spending more per person covered compared to other states. We also explore how balance varies across important Medicaid subgroups -- aged enrollees over 65, enrollees under 65 and eligible for Medicaid on the basis of disability, and two subgroups of enrollees with disabilities -- those with physical disabilities and those with ID/DD.[4] (See Appendix A for a glossary of terms, including the basis of eligibility [BOE] groups.) These subgroups of enrollees tend to have different demographic characteristics and service needs and often are served by different Medicaid programs.

The second portion of our analyses explores how state constraints and policies are associated with the LTC system performance indicators developed in the first portion of the study. Specifically, we examine how factors that may challenge system transformation -- for example, cost of living, fiscal constraints, and state demographics -- and Medicaid and non-Medicaid policies are linked with LTC balance and other indicators of system performance. Finally, we examine how the association between state constraints, policies, and system performance varies across three enrollee subgroups -- the aged, enrollees with physical disabilities, and enrollees with ID/DD.

There is a strong -- virtually universal -- consensus among LTC experts and as well as among federal and state Medicaid officials that state systems should encourage use of HCBS over institutional care. The goal is for HCBS to account for at least half of Medicaid LTC expenditures. As evidence of this consensus: in the 2010 Affordable Care Act, Congress legislated the "Balancing Incentive Payments" (BIP) program that allows states that spent less than 50 percent Medicaid LTC expenditures being spent on HCBS as of 2009 to apply to receive a higher federal match rate to make infrastructure improvements intended to increase their LTC spending on HCBS to at least 50 percent

[4] Some Medicaid enrollees (an unknown number) have disabilities but are not identified as eligible on the basis of disability. We expect this number to be small. However, to the degree that such individuals exist in our study states and differ from persons in our sample, the results presented here will be biased.

(http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-Topics/Long-Term-Services-and-Support/Balancing/Balancing-Incentive-Program.html). As of June 2013, CMS has approved 16 states to receive BIP. If the 50 percent spending standard is met, it logically implies (since institutional care costs more per-capita) that more than 50 percent of Medicaid LTC services users would be receiving HCBS rather than institutional care. The "50 percent" benchmark is, however, admittedly arbitrary. It suggests that the appropriate balance is "equality" whereas, in fact, many experts would like HCBS to become the dominant mode of service provision.

Many LTC experts consider the "oldest-old" (those 85 and older) and LTC service users who lack informal caregivers and must rely largely or exclusively on paid help to be those most likely among Medicaid LTC users with high service needs to require institutional care; that is, those for whom available Medicaid HCBS is least likely to be an adequate alternative to long-stay nursing home placement. With respect to individuals with ID/DD, most of whom are adults under 65, a massive shift occurred during the 1980s and 1990s from large state-run institutions, into private (non-state-operated) smaller institutions and group homes. Currently 14 states have no state-operated ID/DD residential care facilities. In the past decade, there has been a further shift toward family support (providing services or individual budgets) to individuals with ID/DD living with parents or other caregivers and toward out-of-home living arrangements (group homes and supported apartments) where fewer than six individuals with ID/DD share a residence. Braddock (2009) found that 75 percent of all Medicaid and other federal/state funding for ID/DD services went toward non-institutional care (that is, services in settings with fewer than seven residents with ID/DD) and 92 percent of all LTC users with ID/DD in out-of-home placements were in settings with six or fewer residents with ID/DD.

Nevertheless, some states that serve some Medicaid users with ID/DD in residential care settings with 7-16 residents (which, at least by some definitions, qualify as "non-institutional" because of their size, nevertheless certify and pay for care in these settings (including room and board) as small Medicaid ICFs/IID -- which has the effect of blurring the boundaries between Medicaid institutional and non-institutional spending and services use for the ID/DD subpopulation. In marked contrast, however, there are no comparable small residential settings serving the elderly and younger physically disabled adults that may be certified and paid under a special category of "small" Medicaid nursing facilities in some states but not in others. There are comparatively few Medicaid-eligible elders or younger adults with physical disabilities residing in assisted living, adult foster care, or other "out-of-home" residential care settings and any services covered in these settings for Medicaid beneficiaries is always classified as HCBS (room and board costs are ineligible for Medicaid coverage).

Our analyses of state constraints, policies, and LTC system characteristics should be viewed as exploratory. We were unable to assess causal impacts.

C. Summary of Data and Methods

We used MAX 2006 Person Summary (PS) files to develop our measures of LTC system performance. MAX PS files contain demographic and enrollment information for each Medicaid enrollee, as well as information on total Medicaid expenditures for services used during the calendar year, by service type. They also contain information on use of and spending on 1915(c) waiver services -- an important vehicle that states use to provide expanded HCBS to select populations.

We defined HCBS to include services covered under Section 1915(c) waivers and personal care, residential care, home health care, adult day care, and private duty nursing services that are mandatory or provided at state option outside of waiver programs. Institutional care includes nursing home care, ICFS/IID care, inpatient psychiatric services for people under age 21, and psychiatric hospital services for those 65 and older. The MAX PS files cannot be used to differentiate between people using institutional care for long periods and those using Medicaid institutional care for acute events. This study's operational definition of ILTC thus broadly includes all care received in institutions, whether or not a person is using them for LTC.[5] Moreover, as earlier noted, this analysis was unable to differentiate between Medicaid beneficiaries living in and associated Medicaid spending on certain residential care facilities certified as "small" ICFs/IID (those with no more than 16 residents) and similar settings and their residents in other states licensed as "group homes" (and therefore qualifying for Medicaid HCBS reimbursement only for services and not room and board costs also covered in ICFs/IID).

Our analyses were limited to Medicaid enrollees eligible on the basis of disability or age and who were eligible for full Medicaid benefits in 2006. We excluded Program of All-Inclusive Care for the Elderly (PACE) or other managed LTC enrollees because information on their use of services (HCBS or institutional care) often is missing or unreliable in MAX. We also excluded from the analysis 11 states with MAX fee-for-service (FFS) data that are potentially unrepresentative or unreliable, including Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas. Finally, we could not differentiate enrollees with physical disabilities from those with ID/DD in the District of Columbia, Washington, and Wisconsin, and excluded these states from our subgroup analyses. A more detailed discussion of the MAX data, analyzed measures, and methods used is in Appendix B. Appendix C lists state-specific data anomalies.

The analysis of state constraints and policies related to LTC provision relied on a wide range of publicly available data sources. When available, we used data from 2005, 2006, or previous years to capture policies in place and state characteristics at the time that services were being used in 2006. We also used the 2007 American Community Survey's (ACS's) income and disability data to construct estimates of the number of

[5] The PS files do not contain information on the timing or length of institutional stays. MAX claims, which were not available for this study, are needed for such analyses.

people over 65 or with disabilities potentially eligible for Medicaid in each state.[6] Medicaid programs vary substantially in terms of the populations they cover. We used ACS-based measures of the size of potential Medicaid-eligible populations (assuming national eligibility criteria) to determine the extent to which cross-state differences in LTC utilization and spending result from state coverage policies.

D. Roadmap to This Report

In the following chapters, we characterize Medicaid LTC system performance (Chapter II) and present the results of our exploratory analysis linking state characteristics and policies with system performance indicators (Chapter III). In both chapters, we present analysis summaries for the overall LTC population, as well as for aged enrollees (over 65), those under 65 with physical disabilities, and people with ID/DD. In Chapter IV, we summarize these results and discuss directions for future research.

[6] We used 2007 rather than 2006 ACS because aged enrollees may be underestimated in earlier rounds of the survey's data.

II. VARIATION IN LONG-TERM CARE SYSTEM PERFORMANCE

Policymakers are interested in learning about states that are making progress in re-balancing their systems, and whether these states are able to transform LTC for important subgroups of the disabled population. In this chapter, we present a summary of the variation in LTC balance and other system indicators across states in 2006, overall, based on their Medicaid eligibility (over 65 or under 65 with disabilities), and for those under 65 with disabilities, by whether or not they used long-term services and supports designed for people with ID/DD.

A. Measures Characterizing Long-Term Care System Performance

No one measure adequately captures LTC system performance in terms of the breadth of the population covered, choice of services, and breadth and intensity of services provided. For this reason, we used a combination of measures to capture variation in system performance across states, including:

- Percentage of Medicaid LTC expenditures allocated to HCBS;
- Percentage of LTC users receiving HCBS;
- Ratio of per-recipient spending on HCBS to spending on institutional care; and
- Percentage of people potentially eligible for Medicaid LTC who used Medicaid HCBS.

The first two measures are commonly agreed-upon indicators of the degree to which states have balanced their LTC systems toward HCBS use and spending relative to institutional care. However, available data sources (e.g., state federal financial participation claims on the CMS “64” forms) have provided data only on spending. These data are available for all states through 2009. Our use of 2006 MAX data makes it possible to obtain (albeit for 37 rather than all 51 states, including the District of Columbia) not only spending data but unduplicated counts of service users and to develop additional measures that require data on expenditures for services, numbers of service users, and age and other characteristics of users of various types of LTC services.

The third measure derived from the MAX files captures the extent to which state spending on HCBS per user is similar to state spending on institutional care. Higher ratios of per-user spending on HCBS relative to per-user spending on institutional care are not necessarily indicative of “better” performance; rather, this measure provides additional insight into how a state is allocating financial resources between HCBS and institutional care. Medicaid law pertaining to HCBS waivers requires such services to be

"cost effective" relative to institutional care and defines "cost effectiveness" as spending per HCBS waiver participant that *on average* does not exceed per-user spending on institutional care that waiver participants would otherwise require. Medicaid regulations further specify that states *must* spend up to the average amount spent per-capita on institutional care if the state's individualized needs assessment process determines that an HCBS waiver eligible individual requires that level of covered services. Medicaid law and regulations pertaining to other HCBS benefits neither require states to cap individual expenditures relative to institutional costs nor require states to cover the costs of all services assessed as necessary for a given individual (in other words, states may set lower coverage limits so long as these limits apply equally to all beneficiaries).

Some advocates of "re-balancing" argue that public program participants residing in the community who qualify for institutional coverage should be entitled to receive HCBS costing at least as much as what Medicaid would spend on their institutional care -- if a professional assessment indicates that they need care costing that much. Others point out, however, that Medicaid institutional care reimbursements cover room and board costs that account for at least one third of the total and that Medicaid law prohibits HCBS benefits to cover any room and board costs. By this standard, average per-capita HCBS spending per-capita ought not to exceed two thirds of average institutional care spending. At the same time, the Medicaid spending per-user statistics do not reflect the full cost of LTC services -- especially institutional care -- because beneficiaries with Social Security pension/disability benefits or other personal income insofar as Medicaid beneficiaries are required to contribute all but a small personal needs allowance to pay for care and Medicaid. Post-eligibility financial contributions toward the cost of nursing home care are substantially greater than for HCBS or for care in ICFs/IID. Thus, rather than making judgments of state performance based on this indicator, we simply examined whether higher ratios of HCBS to institutional spending per LTC user correlate with the agreed-upon indicators of "re-balancing" toward greater reliance on HCBS.

Many individuals who need human assistance with personal care (basic activities of daily living [ADLs] such as bathing, dressing, transferring from bed to chair, moving from room to room, toileting, and eating), and who have a level of need for such assistance similar to that of nursing home residents, nevertheless continue to reside in the community and to rely exclusively on unpaid help from family, friends, and neighbors. In many cases, such persons are not financially eligible for Medicaid and cannot afford to pay out-of-pocket for personal care services. In principle, low-income persons with personal care needs would be expected to seek Medicaid-covered HCBS rather than rely exclusively on informal help which could impose considerable burden on family members. However, a number of factors may prevent low-income individuals with personal care needs from accessing Medicaid-covered HCBS. These factors include being income-qualified but having assets in excess of the Medicaid allowable level, limits that the state has set on the numbers of qualifying Medicaid beneficiaries who can be served under HCBS waivers, and inadequate supply of HCBS providers to meet demand. To measure the extent to which state residents who potentially qualify for HCBS based on their level of income and need for assistance with personal care who

are actually receiving Medicaid HCBS, we report the ratio of HCBS users to the numbers of low-income state residents in need of human assistance with personal care tasks as reported in the ACS. This fourth measure provides policy context for other performance indicators and is assessed in our subgroup analyses.

We examined two additional measures and included them in the Appendix D summary tables:

- Share of total Medicaid expenditures for LTC users spent on enrollees using HCBS.[7]

- Percentage of nursing home and ICFS/IID residents who used HCBS prior to their spell of institutional care (Ballou et al. 2011).

The purpose of the first measure -- the share of total Medicaid expenditures on LTC users spent on HCBS users -- is to adjust the LTC spending share measure for any differences between services captured in our definition of HCBS and institutional care. For example, prescription drugs may be included in nursing home payments, whereas our definition of HCBS excludes such services. Although this measure differs from the LTC spending share measure, the general analysis results were relatively consistent across states and subgroups and so are not presented here. Finally, we include in Appendix D tables (those for the aged and people with ID/DD only), measures developed by Ballou et al. (2013) to capture how often institutional residents had used HCBS prior to entering a nursing home or ICFS/IID. These measures indicate HCBS penetration as part of the continuum of care leading to traditional institutionalization.

B. Interstate Differences

Across the 40 study states, there were about 40 million enrollees eligible for full Medicaid services in 2006. About seven percent were aged or eligible for Medicaid on the basis of disability and used any FFS LTC services -- almost 5 percent used HCBS, and 3 percent used institutional care (Table II.1). (See Appendix Table D.1 for state-level detail.)

[7] For people dually eligible for Medicare and Medicaid, Medicare covers inpatient and other acute services. Because institutionalized enrollees are more likely to be dually eligible for Medicare and Medicaid (Wenzlow et al. 2008), spending on people using HCBS as a percentage of total Medicaid spending for LTC users should be interpreted with caution.

TABLE II.1. Number of Enrollees Who Were Aged or Eligible on the Basis of Disability Using Medicaid FFS LTC Services Compared with the Total Number of Full-Benefit Enrollees in 2006				
Measure	**All Full-Benefit Medicaid Enrollees**	**Aged or Disabled with Any FFS LTC**	**Aged or Disabled with Any FFS HCBS**	**Aged or Disabled with any FFS ILTC**
Number, in thousands	40,394	2,904	1,852	1,232
Percentage of all full-benefit Medicaid enrollees	100.0	7.2	4.6	3.0
SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas). **NOTES**: HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.				

Although they represent a small share of enrollees, Medicaid spent $77 billion (about 39 percent of total Medicaid expenditures) on LTC services for these enrollees in 2006 (Table II.2). (See Appendix Table D.2 to view the information from Table II.2, ordered alphabetically by state.) About 41 percent of these expenditures were allocated to HCBS, ranging from 73 percent in Alaska to 11 percent in Mississippi, with a median of 38 percent across states.

As reported in our previous study, the percentage of LTC recipients using HCBS exceeded the percentage of expenditures used for HCBS.[8] Overall, only 41 percent of LTC expenditures in the 40 states were for HCBS whereas 64 percent of LTC users utilized HCBS.[9] However, we found wide variation across the states -- 87 percent of the LTC recipients in Alaska used HCBS, compared with just 33 percent of those in Indiana.

Per-user expenditures for HCBS ($17,000) were on average less than half of per-user expenditures for institutional care (46 cents on HCBS for every dollar on institutional care). This ratio also varied substantially by state, with Tennessee spending more per user on HCBS than per user on institutional care ($1.11 for every dollar spent per user of institutional care, or $37,500 per user). At the other extreme, Mississippi spent only 19 cents on HCBS for every dollar spent per user of institutional care. Both these states have fewer numbers of Medicaid HCBS users relative to ILTC users than most other states. Note that some states with particularly high housing costs, such as Alaska and New York, show relatively low ratios of HCBS to institutional care spending even though HCBS spending per-capita is higher than in other states. This likely is due to particularly high room and board costs for institutional care in these states.

[8] Note that in any given year, an individual can receive both HCBS and institutional care.

[9] In the 34 states included in both the present study and Wenzlow et al. (2008), HCBS as a percentage of LTC expenditures increased from about 34-40 percent and use of service increased from 59 percent to 64 percent between 2002 and 2006. The share of expenditures increased in all states except Idaho, but the rate of use decreased in a handful of states.

TABLE II.2. Expenditures and Utilization-Based Measures of LTC System Performance Among Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits in 2006, Ranked by HCBS Share											
State Rank			**States Ranked by Percentage of LTC $ for HCBS**			**States Ranked by the Percentage of LTC Users Receiving HCBS**			**States Ranked by the Ratio of Per-User $ on HCBS Relative to Per-User $ on ILTC**		
$	**#**	**Ratio**	**State**	**Total LTC $**	**% of Medicaid LTC $ Allocated to HCBS**	**State**	**Total LTC Users**	**% of LTC Users Receiving HCBS**	**State**	**Per-User $ on HCBS**	**HCBS $ Per User/ ILTC $ Per User**
1	1	16	Alaska	284,916,040	72.7	Alaska	7,591	87.0	Tennessee	37,521	1.112
2	5	4	New Mexico	687,375,842	70.3	California	578,611	82.5	Wisconsin	26,260	0.927
3	3	12	Washington	1,510,683,980	65.2	Washington	75,694	78.5	Wyoming	26,045	0.838
4	9	6	Vermont	257,050,002	57.8	Kentucky	50,373	77.5	New Mexico	25,725	0.827
5	16	3	Wyoming	176,243,168	57.0	New Mexico	24,595	76.4	Indiana	25,979	0.815
6	2	37	California	9,878,514,101	54.7	Idaho	17,227	72.9	Vermont	22,928	0.765
7	14	10	Kansas	840,599,103	52.5	North Carolina	145,432	72.2	South Dakota	18,956	0.707
8	8	20	Colorado	1,019,876,958	50.7	Colorado	42,632	69.8	Utah	23,234	0.689
9	10	21	New York	17,776,758,555	45.3	Vermont	9,493	68.2	Nebraska	19,410	0.649
10	31	2	Wisconsin	1,764,144,875	44.5	New York	385,991	68.2	Kansas	16,645	0.644
11	7	36	North Carolina	2,701,905,573	43.3	Iowa	51,128	68.1	Louisiana	18,253	0.644
12	15	26	Nevada	306,338,277	43.3	Missouri	90,743	66.4	Washington	16,570	0.644
13	22	14	Maryland	1,768,700,598	42.8	Virginia	52,361	65.6	Delaware	32,215	0.608
14	6	34	Idaho	371,132,820	42.6	Kansas	40,507	65.4	Maryland	25,675	0.604
15	13	15	Virginia	1,421,468,659	42.6	Nevada	12,164	64.2	Virginia	17,618	0.589
			All 40 states	**76,879,134,892**	**40.8**	**All 40 states**	**2,904,883**	**63.8**	Alaska	31,371	0.561
16	12	29	Missouri	1,466,773,653	40.7	Wyoming	6,059	63.6	Oklahoma	13,902	0.551
17	19	17	Oklahoma	1,012,058,004	40.5	Alabama	59,526	61.6	Georgia	14,636	0.537
18	30	8	Utah	334,796,035	38.9	South Carolina	43,085	60.2	Hawaii	23,187	0.531
19	23	19	Hawaii	329,343,209	38.5	Oklahoma	50,793	58.0	Colorado	17,375	0.514
20	21	23	West Virginia	734,425,562	38.0	New Jersey	99,441	57.7	New York	30,580	0.498
21	28	9	Nebraska	562,110,501	37.4	West Virginia	25,825	57.1	Ohio	18,044	0.497
22	11	32	Iowa	1,157,728,242	37.2	Maryland	52,081	56.7	West Virginia	18,914	0.494
23	39	1	Tennessee	1,854,934,959	37.0	Hawaii	9,711	56.3	Connecticut	23,454	0.483
24	33	7	South Dakota	251,692,447	35.9	Ohio	163,699	55.3	North Dakota	18,943	0.478
25	18	31	South Carolina	909,136,545	34.6	Connecticut	56,805	53.1	Nevada	16,978	0.473
26	32	13	Delaware	301,695,573	34.0	Illinois	153,120	52.2	Illinois	12,256	0.472
27	24	22	Ohio	4,884,852,294	33.5	Arkansas	40,947	51.4	Florida	14,924	0.462
28	25	24	Connecticut	2,238,931,231	31.6	Nebraska	21,186	51.1	**All 40 states**	**16,914**	**0.458**
29	20	33	New Jersey	3,447,275,904	31.2	Florida	153,416	50.9	Missouri	9,908	0.442
30	29	28	Florida	3,747,337,138	31.1	Utah	11,264	49.8	District of Columbia	20,620	0.398
31	26	27	Illinois	3,176,627,446	30.8	Wisconsin	61,721	48.4	South Carolina	12,107	0.374
32	36	18	Georgia	1,493,201,190	28.4	Delaware	6,662	47.9	Iowa	12,375	0.364
33	38	11	Louisiana	1,525,871,254	27.5	South Dakota	10,327	46.2	New Jersey	18,755	0.359
34	40	5	Indiana	1,828,498,633	27.3	District of Columbia	7,841	45.3	Idaho	12,601	0.348

TABLE II.2 (*continued*)											
State Rank			**States Ranked by Percentage of LTC $ for HCBS**			**States Ranked by the Percentage of LTC Users Receiving HCBS**			**States Ranked by the Ratio of Per-User $ on HCBS Relative to Per-User $ on ILTC**		
$	**#**	**Ratio**	**State**	**Total LTC $**	**% of Medicaid LTC $ Allocated to HCBS**	**State**	**Total LTC Users**	**% of LTC Users Receiving HCBS**	**State**	**Per-User $ on HCBS**	**HCBS $ Per User/ ILTC $ Per User**
35	17	38	Alabama	1,130,404,702	27.2	North Dakota	9,380	44.3	Arkansas	10,165	0.342
36	4	39	Kentucky	1,209,161,974	25.8	Georgia	66,667	43.4	North Carolina	11,151	0.337
37	35	25	North Dakota	305,327,011	25.8	Mississippi	39,336	41.0	California	11,325	0.312
38	27	35	Arkansas	858,715,978	24.9	Louisiana	60,275	38.1	Alabama	8,385	0.260
39	34	30	District of Columbia	315,228,327	23.2	Tennessee	51,989	35.2	Kentucky	7,991	0.253
40	37	40	Mississippi	1,037,298,529	11.1	Indiana	59,185	32.5	Mississippi	7,115	0.191

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas).

NOTES: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

These data also demonstrate how a single indicator of system performance could be misleading. State rankings differed substantially across the three measures. For example, both California and New Mexico ranked among the top six states in HCBS as a percentage of LTC spending and users. Yet, California spent only $11,300 per user of HCBS, or about 31 cents for every dollar spent for persons in institutional care, compared with $25,700 per HCBS user in New Mexico -- or 83 cents per dollar of institutional care. Compared with California, which provides at least some (but not necessarily costly) HCBS to a very large number of enrollees, New Mexico serves fewer enrollees, but apparently at a level closer to that of its institutionalized population as a whole. Since California and New Mexico have achieved similar outcomes with respect to overall Medicaid LTC spending on HCBS and percentages of LTC users receiving HCBS, it might be asked: is California's pattern of much lower per-capita spending on HCBS (coupled with somewhat higher per-capita spending on ILTC) a more cost effective way to achieve these overall "re-balancing" results? This is not a question we address in this report, but it is one worth asking and attempting to address in future research. States vary in the financial resources they have available to pay for LTC and, whereas the higher federal match rates available to poorer states help, they do not eliminate, these inequalities. Thus, from a state policymaking perspective, it would be extremely helpful to have a better handle on how much spending per user is "enough."

C. Subgroup Differences

Progress toward re-balancing varies substantially among the different types of users of LTC services. HCBS and ILTC service use and expenditures were far more balanced among young enrollees with disabilities than among enrollees age 65 or older. The percentages of total LTC spending accounted for by HCBS ranged from 66 for people under age 21, 37 for people between ages 65 and 74, and 18 for those age 85 and older (Table II.3). HCBS accounted for an average of 26 percent of LTC spending among all enrollees age 65 and older, compared with 56 percent for those under 65.

Compared to estimates for 2002 reported in Wenzlow et al. (2008), the current results suggest that the spending share for HCBS increased by about five percentage points or more in each age group (under 65, 65-74, 75-84, and 85 or older) since 2002 in the 34 states included in both studies.[10] This suggests that gains have been made in the provision of HCBS to people of all ages over the four-year period.

People with ID/DD are primarily under age 65 and thus make up a large portion of enrollees under 65 with disabilities. In 2006, they accounted for 14 percent of LTC users but 31 percent of Medicaid LTC spending and almost half (46 percent) of HCBS spending. More than 85 percent of these enrollees used HCBS (compared to 64 percent overall and 77 of those with physical disabilities) and HCBS accounted for almost 61 percent of the Medicaid LTC spending used for them (compared to 41 percent overall

[10] Breakdowns for those under 65 by age were not included in Wenzlow et al. (2008).

and 46 percent for those with physical disabilities). Per-user spending on HCBS for people with ID/DD was almost $41,000 in 2006, higher than for any other subgroup shown in Table II.3. However, Medicaid spent only 35 cents per user on HCBS for every dollar spent for persons using costly ICFS/IID care. Other enrollee characteristics associated with use of HCBS included Hispanic ethnicity, male gender, and enrollment in only Medicaid (not Medicare) -- all factors associated with age.

TABLE II.3. Expenditure and Utilization-Based Measures of the Balance of LTC Among Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits in 2006, by Population Subgroup

Subgroup	Total LTC $	Percentage of Medicaid LTC $ Allocated to HCBS	Total LTC Users	Percentage of LTC Users Receiving HCBS	Per-User $ on HCBS	Ratio of Per-User $ on HCBS Relative to ILTC
Total	76,879,134,892	40.8	2,904,883	63.8	16,914	0.46
Enrolled all year	69,320,813,194	43.2	2,332,924	69.2	18,549	0.40
Under age 21	4,337,490,156	66.1	173,192	87.6	18,902	0.34
21-44 years	15,614,619,795	62.6	417,912	85.0	27,515	0.37
45-64 years	18,385,690,043	47.6	680,016	74.4	17,309	0.39
65-74 years	9,092,379,504	36.6	440,951	66.9	11,282	0.34
75-84 years	14,724,011,450	27.0	641,408	53.5	11,610	0.37
85 years and older	14,705,784,900	17.8	547,883	36.2	13,160	0.42
Unknown Age	19,159,044	83.2	3,521	98.4	4,598	0.11
Aged (65 & older)	38,970,178,862	25.8	1,648,932	51.4	11,875	0.38
Enrollees with disabilities (under 65)	37,908,956,030	56.1	1,255,951	80.0	21,167	0.40
Enrollees Under 65, excluding people with ID/DD[a]	13,754,095,189	46.2	802,200	77.2	10,262	0.31
Enrollees Under 65 with ID/DD[a]	22,407,952,989	60.8	391,061	85.2	40,895	0.35
Non-Hispanic White	51,188,363,483	37.6	1,794,052	56.9	18,832	0.53
Black	14,848,124,996	39.8	595,584	67.4	14,710	0.38
Hispanic	5,312,278,986	55.6	252,993	82.3	14,197	0.35
Other or missing race	5,530,367,427	58.5	262,254	84.4	14,620	0.33
Female	45,076,528,382	38.0	1,835,846	62.5	14,941	0.43
Male	31,800,667,824	44.7	1,068,944	66.0	20,120	0.48
Not dually enrolled in Medicare & Medicaid	18,728,364,922	54.4	732,506	80.8	17,205	0.36
Sometimes a dual-eligible	2,385,590,593	37.0	146,291	60.1	10,027	0.47
Always a dual-eligible	55,765,179,377	36.3	2,026,086	57.9	17,284	0.48

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas).

NOTES: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Excludes data from District of Columbia, Washington, and Wisconsin (people with ID/DD could not be distinguished from other enrollees in these states).

1. Long-Term Care System Performance Indicators by Basis of Eligibility

As in the overall population, system performance varied across states within subgroup. Tables II.4-II.6 summarize, for each of the three indicators, the scores and ranks for the overall population, those 65 and older, and those under 65 eligible on the basis of disability. (See Appendix Table D.2, Table D.3 and Table D.4 to view information in Table II.4, Table II.5 and Table II.6, ordered alphabetically by state.) Each portion of the table is ordered by the overall balance of LTC for that measure across all subgroups.

In some cases, states with the highest HCBS spending or use overall, were those with the highest HCBS or use among subpopulations. Alaska and New Mexico were ranked among the top five for HCBS spending as a percentage of overall HCBS spending overall and in each subgroup (aged, all LTC users under age 65, all ID/DD users under age 65, and non-ID/DD LTC users under age 65). The other top three overall scorers on this measure failed to score in the top five for one or more subpopulations. Vermont and Wyoming, top scorers overall and for LTC users under age 65, ranked 15th and 27th respectively with respect to the percentage of HCBS spending relative to ILTC spending among LTC users age 65 and older. Wisconsin's rank in the top quartile (#10) the expenditure share measure (Table II.4) appears to be driven primarily by its high ranking among young enrollees (#9) since it ranks much lower (#21) on this measure among the elderly. (Data for Wisconsin could not be disaggregated for the under 65 subgroups with ID/DD and physically disabilities.) In contrast, the high ranks of California (#6) and New York (#9) on the overall HCBS relative to ILTC spending and service user ratios appear driven by HCBS use among the aged. The District of Columbia ranked 2nd to last overall despite ranking 9th for aged enrollees. When measured in terms of the HCBS and institutional care expenditure ratio (Table II.6), Kansas ranked in the top ten overall despite ranking 25th for people over 65 with disabilities. Yet Kansas ranked comparatively highly on the percentage of HCBS/LTC spending on people with disabilities under age 65 (#7) and the percentage of LTC users under age 65 receiving HCBS. Kansas' high rank on the HCBS/ ILTC spending ratio per user overall appears to reflect its comparatively high rank on this measure for the elderly population (#10); yet, here again, whereas Kansas scored high in terms of percentage of total LTC spending on HCBS for the elderly, it scored much lower (#20) on the percentage of elderly LTC users receiving HCBS.

TABLE II.4. Percentage of LTC Expenditures Allocated to HCBS in 2006, Overall and by BOE							
State	Overall			Aged (65+)		Enrollees with Disabilities (<65, including ID/DD)	
	Total LTC $	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
Alaska	284,916,040	72.7	1	59.0	1	84.0	4
New Mexico	687,375,842	70.3	2	48.0	2	86.5	2
Washington	1,510,683,980	65.2	3	46.4	4	85.2	3
Vermont	257,050,002	57.8	4	20.3	15	91.5	1
Wyoming	176,243,168	57.0	5	14.8	27	83.5	5
California	9,878,514,101	54.7	6	46.7	3	63.0	15
Kansas	840,599,103	52.5	7	22.7	10	77.3	7
Colorado	1,019,876,958	50.7	8	22.3	11	78.5	6
New York	17,776,758,555	45.3	9	36.3	5	53.9	27
Wisconsin	1,764,144,875	44.5	10	17.0	21	72.0	9
North Carolina	2,701,905,573	43.3	11	32.0	6	55.6	25
Nevada	306,338,277	43.3	12	27.0	8	59.6	18
Maryland	1,768,700,598	42.8	13	16.0	23	69.2	10
Idaho	371,132,820	42.6	14	27.1	7	55.7	23
Virginia	1,421,468,659	42.6	15	19.4	16	67.3	11
All 40 states	**76,879,134,892**	**40.8**		**25.8**		**56.1**	
Missouri	1,466,773,653	40.7	16	19.3	17	63.9	13
Oklahoma	1,012,058,004	40.5	17	20.9	14	58.1	21
Utah	334,796,035	38.9	18	8.6	36	53.2	29
Hawaii	329,343,209	38.5	19	14.1	28	73.8	8
West Virginia	734,425,562	38.0	20	13.6	29	65.8	12
Nebraska	562,110,501	37.4	21	16.6	22	57.5	22
Iowa	1,157,728,242	37.2	22	21.0	13	49.7	30
Tennessee	1,854,934,959	37.0	23	12.5	30	59.7	17
South Dakota	251,692,447	35.9	24	8.7	35	63.7	14
South Carolina	909,136,545	34.6	25	14.9	26	54.8	26
Delaware	301,695,573	34.0	26	10.2	31	59.2	19
Ohio	4,884,852,294	33.5	27	19.0	18	49.5	31
Connecticut	2,238,931,231	31.6	28	15.6	24	53.7	28
New Jersey	3,447,275,904	31.2	29	21.4	12	43.1	35
Florida	3,747,337,138	31.1	30	9.7	33	58.6	20
Illinois	3,176,627,446	30.8	31	18.9	19	39.1	36
Georgia	1,493,201,190	28.4	32	10.0	32	55.7	24
Louisiana	1,525,871,254	27.5	33	15.6	25	35.8	37
Indiana	1,828,498,633	27.3	34	5.9	40	47.4	33
Alabama	1,130,404,702	27.2	35	8.9	34	60.3	16
Kentucky	1,209,161,974	25.8	36	8.0	37	47.4	34
North Dakota	305,327,011	25.8	37	7.6	38	47.6	32
Arkansas	858,715,978	24.9	38	17.1	20	35.2	38
District of Columbia	315,228,327	23.2	39	25.9	9	19.6	39
Mississippi	1,037,298,529	11.1	40	7.1	39	16.9	40

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas).

NOTE: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

TABLE II.5. Percentage of LTC Users Receiving HCBS in 2006, Overall and by BOE							
State	Overall			Aged (65+)		Enrollees with Disabilities (<65, including ID/DD)	
	Total LTC Users	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
Alaska	7,591	87.0	1	82.2	1	91.1	3
California	578,611	82.5	2	77.5	2	89.2	8
Washington	75,694	78.5	3	69.9	4	89.0	9
Kentucky	50,373	77.5	4	73.5	3	82.5	16
New Mexico	24,595	76.4	5	63.5	5	91.1	2
Idaho	17,227	72.9	6	61.4	6	82.9	14
North Carolina	145,432	72.2	7	61.1	7	86.0	11
Colorado	42,632	69.8	8	51.6	12	89.4	5
Vermont	9,493	68.2	9	46.3	16	91.5	1
New York	385,991	68.2	10	55.5	8	84.3	12
Iowa	51,128	68.1	11	54.7	11	83.8	13
Missouri	90,743	66.4	12	55.3	10	81.6	18
Virginia	52,361	65.6	13	50.6	13	89.3	7
Kansas	40,507	65.4	14	42.4	20	89.3	6
Nevada	12,164	64.2	15	55.3	9	76.1	25
All 40 states	**2,904,883**	**63.8**		**51.4**		**80.0**	
Wyoming	6,059	63.6	16	33.5	29	89.5	4
Alabama	59,526	61.6	17	40.1	23	86.9	10
South Carolina	43,085	60.2	18	42.1	21	82.4	17
Oklahoma	50,793	58.0	19	47.6	15	73.0	31
New Jersey	99,441	57.7	20	48.1	14	75.0	27
West Virginia	25,825	57.1	21	36.4	26	80.1	21
Maryland	52,081	56.7	22	29.7	31	81.3	19
Hawaii	9,711	56.3	23	38.2	25	82.6	15
Ohio	163,699	55.3	24	45.4	18	68.9	33
Connecticut	56,805	53.1	25	39.9	24	75.2	26
Illinois	153,120	52.2	26	40.8	22	64.9	35
Arkansas	40,947	51.4	27	45.7	17	61.8	37
Nebraska	21,186	51.1	28	35.6	27	73.3	29
Florida	153,416	50.9	29	33.6	28	76.3	24
Utah	11,264	49.8	30	22.2	37	68.6	34
Wisconsin	61,721	48.4	31	26.5	32	80.2	20
Delaware	6,662	47.9	32	26.3	33	77.1	23
South Dakota	10,327	46.2	33	24.9	35	77.8	22
District of Columbia	7,841	45.3	34	42.5	19	49.4	40
North Dakota	9,380	44.3	35	26.0	34	73.4	28
Georgia	66,667	43.4	36	24.9	36	73.2	30
Mississippi	39,336	41.0	37	33.3	30	54.2	39
Louisiana	60,275	38.1	38	20.2	38	55.1	38
Tennessee	51,989	35.2	39	10.7	40	69.9	32
Indiana	59,185	32.5	40	10.9	39	62.0	36

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas).

NOTE: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

TABLE II.6. Ratio of Per-User Expenditures on HCBS Relative to Per-User Expenditures on Institutional Care in 2006, Overall and by BOE							
State	Overall			Aged (65+)		Enrollees with Disabilities (<65, including ID/DD)	
	Per-User HCBS $	Ratio	Rank	Ratio	Rank	Ratio	Rank
Tennessee	37,521	1.112	1	1.220	1	0.684	8
Wisconsin	26,260	0.927	2	0.602	3	0.783	3
Wyoming	26,045	0.838	3	0.373	13	0.729	7
New Mexico	25,725	0.827	4	0.593	4	0.732	6
Indiana	25,979	0.815	5	0.530	6	0.614	9
Vermont	22,928	0.765	6	0.349	15	1.343	1
South Dakota	18,956	0.707	7	0.305	28	0.577	14
Utah	23,234	0.689	8	0.347	16	0.573	15
Nebraska	19,410	0.649	9	0.405	12	0.583	11
Kansas	16,645	0.644	10	0.434	10	0.493	25
Louisiana	18,253	0.644	11	0.737	2	0.501	23
Washington	16,570	0.644	12	0.459	9	0.967	2
Delaware	32,215	0.608	13	0.340	19	0.501	22
Maryland	25,675	0.604	14	0.466	8	0.577	13
Virginia	17,618	0.589	15	0.327	22	0.608	10
Alaska	31,371	0.561	16	0.432	11	0.737	5
Oklahoma	13,902	0.551	17	0.324	23	0.582	12
Georgia	14,636	0.537	18	0.347	18	0.497	24
Hawaii	23,187	0.531	19	0.282	32	0.751	4
Colorado	17,375	0.514	20	0.305	27	0.554	16
New York	30,580	0.498	21	0.564	5	0.321	32
Ohio	18,044	0.497	22	0.347	17	0.538	18
West Virginia	18,914	0.494	23	0.288	30	0.551	17
Connecticut	23,454	0.483	24	0.319	24	0.511	20
North Dakota	18,943	0.478	25	0.253	35	0.383	29
Nevada	16,978	0.473	26	0.329	21	0.527	19
Illinois	12,256	0.472	27	0.364	14	0.454	27
Florida	14,924	0.462	28	0.226	37	0.467	26
All 40 states	**16,914**	**0.458**		**0.378**		**0.397**	
Missouri	9,908	0.442	29	0.248	36	0.501	21
District of Columbia	20,620	0.398	30	0.514	7	0.275	36
South Carolina	12,107	0.374	31	0.257	34	0.287	33
Iowa	12,375	0.364	32	0.294	29	0.236	39
New Jersey	18,755	0.359	33	0.313	25	0.281	34
Idaho	12,601	0.348	34	0.283	31	0.351	31
Arkansas	10,165	0.342	35	0.270	33	0.360	30
North Carolina	11,151	0.337	36	0.340	20	0.244	38
California	11,325	0.312	37	0.306	26	0.259	37
Alabama	8,385	0.260	38	0.160	39	0.280	35
Kentucky	7,991	0.253	39	0.087	40	0.387	28
Mississippi	7,115	0.191	40	0.163	38	0.184	40

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas).
NOTE: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

2. Long-Term Care System Performance Indicators by System Type (Aged, ID/DD, and non-ID/DD)

Medicaid beneficiaries using LTC are served by distinct "systems" (program administration and service delivery infrastructures depending on whether their disabilities are ID/DD or not. The administrative and service delivery infrastructures for the elderly and younger disabled individuals (particularly adults under age 65) are the

same or closely linked in many states. Both the elderly and younger adults with disabilities other than ID/DD receive ILTC in nursing homes. Whereas skilled home health care delivered by home health agencies (HHAs) may be provided to all subgroups, state plan personal care services are provided almost entirely to the elderly and younger adults without ID/DD, although a small percentage of adults and children with ID/DD may receive this benefit if they also have severe physical disabilities. In some states, the elderly and younger adults with disabilities but without ID/DD are served in the same HCBS waiver programs; however, in a number of states there are separate HCBS waiver programs for people with non-ID/DD according to their age (i.e., either under or over age 60 or age 65).[11] Insofar as states have created distinct and separate service systems for subgroups of LTC users, it is not surprising that there is variation across "re-balancing" or other system performance measures by subgroup. Table II.7, Table II.8 and Table II.9 display, for each of the three balance measures, the scores and ranks for each subgroup. These tables replicate those shown earlier by BOE except that, for people under 65, performance indicators are displayed separately for people using ID/DD system services and those not using such services.[12] As above, the states in each table are ordered by the overall balance of LTC for that measure across all subgroups. (See Appendix Table D.5 and Table D.6 for a summary of performance indicators by state for people with physical disabilities and those with ID/DD.)

In almost all states, the lowest HCBS spending and user share is evident among the aged and the highest among Medicaid enrollees using ID/DD services. Among people with ID/DD, either the spending or utilization share allocated to HCBS exceeded that for people with physical disabilities in all but five states (Idaho, Iowa, Mississippi, Missouri, and North Carolina).

Although these results suggest that the Medicaid service system is far more balanced for people with ID/DD than for those who are aged or have physical disabilities, we note several caveats. Some enrollees with ID/DD may be using nursing home or other institutional care services, especially in states where ICFs/IID have closed. We were unable to identify such enrollees using MAX data. Analyses of Nursing Home Minimum Data Set assessment data indicate that only 2.4 percent of NF residents have ID/DD as well as other medical conditions and physical disabilities that justify their nursing home placement (Martin et al. 2011). However, other research evidence indicates that Medicaid beneficiaries who are not living in ICFs/IID but are also not living at home with family members or in supported housing (e.g., shared apartments) are living in "group homes" of limited bed size (16 beds or fewer) where the room and board costs are covered by Social Security and/or Supplemental Security Income (SSI) and related state supplemental cash assistance payments and the service

[11] Unique Medicaid programs and services also are available for people with mental illness. However, many people with mental illness use health care services for short durations rather than for LTC, and we were unable to identify long-term mental health care in MAX uniquely. In this study, we thus group people with mental illness by age with enrollees who are aged or have physical disabilities.

[12] We identified but did not separately report on the approximately 20,000 individuals over 65 using either ID/DD waiver or ICFS/IID services in the 37 states.

costs are covered under HCBS waiver programs. (O'Keeffe et al. 2010). One definitional issue is that some states certify similar facilities as "small" ICFs/IID so that Medicaid reimbursement will also be available for room and board. To the degree that similar small residential settings for people with ID/DD are Medicaid-covered institutions (ICFs/IID) in some states but classified as non-institutional residential setting ineligible for Medicaid reimbursement for the entirety of their costs in other states, the performance indicators presented here will be biased.

Our measures capture Medicaid system performance among Medicaid enrollees only. To test whether states differ in the extent to which they cover other low-income people with disabilities we employed a combination of MAX and ACS data. The ACS measures age and income in a conceptually clear manner, and low-income was defined to include SSI recipients and other individuals with income up to 300 percent of the SSI limit. However, the ACS disability questions are relatively primitive measures of LTC disability, especially when compared with the detailed assessments that are typically performed to satisfy the medical criteria for Medicaid LTC services. Nevertheless, they provide a consistent measure across states, and are a useful gauge of the extent to which Medicaid programs serve broadly-defined groups of low-income people with disabilities.

We compared Medicaid coverage of the elderly and the non-elderly using two ACS disability questions: (1) Does the person have a physical, mental, or emotional condition lasting six months or more resulting either in difficulties conducting ADLs (dressing, bathing, or getting around inside the home)? and (2) Does the person have a physical, mental, or emotional condition lasting six months or more resulting in difficulties in learning, remembering, or concentrating? To compare the elderly to the non-elderly we considered a person disabled if the response was yes to either question. Our calculations based on combined ACS and MAX data suggest that only 15 percent of people under 65 potentially eligible for Medicaid LTC actually used Medicaid HCBS, compared to 22 percent of potential aged eligibles.[13] (See Appendix Table D.5 and Table D.3 for state-level detail.) On this indicator as well as the others previously discussed, we see considerable interstate variation in where states rank with respect to the percentage of potential LTC users receiving HCBS by subgroup. California ranks highest overall and for the elderly and is second for LTC users under age 65. The other states in the top five overall include New York, Iowa, Alaska, and Vermont. The other states in the top five for the elderly include Alaska, Washington, New York, and Iowa. New York ranks first for the under 65 population, followed by California, Kansas, Iowa, and Vermont.

For the 37 states where we could separate those with ID/DD from other HCBS users under age 65, we tailored the definition of disability more closely to the characteristics of the population. We considered a person to be disabled with ID/DD if

[13] The ACS disability questions are relatively primitive measures of LTC disability, especially when compared with the detailed assessments that are typically performed to satisfy the medical criteria for Medicaid LTC services. Nevertheless, they provide a consistent measure across states, and are a useful gauge of the extent to which Medicaid programs serve broadly-defined groups of low-income people with disabilities.

they had difficulties in learning, remembering, or concentrating. We considered a person to have a disability other than ID/DD if they had difficulties conducting ADLs, since most people which did not have ID/DD probably had a physical limitation that restricted performance of ADLs.

On this indicator as well as the others previously discussed, we see considerable interstate variation in where states rank with respect to the percentage of potential LTC users receiving HCBS by subgroup. For people with ID/DD, the top five states had very similar scores. They include Wyoming, South Dakota, Iowa, North Dakota, and New York. For people with physical disabilities, the top five states also had very similar scores. They include Kansas, Alaska, New York, California, and Vermont. (See Appendix Table D.5 and Table D.6).

It is not surprising that the states that serve the highest percent of aged potential eligibles also tend to do well in serving those under 65 with physical disabilities, since state service delivery and program administration infrastructure for LTC tend to be quite different for Medicaid beneficiaries with ID/DD and the aged/disabled (those with disabled conditions other than ID/DD). In effect, state LTC systems for these groups are almost entirely separate. In contrast, the infrastructure serving the elderly and people with non-ID/DD are often combined.

D. Summary of Long-Term Care System Performance Findings

In this chapter, we have examined the differences across states and subgroups using four measures: traditionally computed expenditure-based measures of the balance of institutional care and HCBS (percentage of expenditures for HCBS), a utilization-based measure (percentage of LTC users who used HCBS), a relative per-user expenditure ratio (per-user HCBS expenditures to per-user institutional care expenditures), and a measure capturing the percentage of people potentially eligible for LTC who used services. Because expenditures reflect both the amount of use and the cost of services, and because HCBS are typically less costly than institutionalization, aggregate expenditure comparisons mask key differences in utilization. We found that in 2006, about 41 percent of LTC expenditures paid for persons served were for HCBS; in contrast, almost 64 percent of LTC users used HCBS. Medicaid spent about $17,000 per user for HCBS, or about 46 cents for every dollar for persons in institutional care.

Examination of differences across states illustrate that alternative measures of LTC balance provide different perspectives on LTC utilization and expenditures. For example, of two states with the same percentage of expenditures allocated to HCBS, one may provide limited HCBS to a broad range of users whereas another may provide more expansive services to a small number of HCBS recipients. Eight states ranked in the top ten on at least one measure but among the bottom ten on another. In summary, no one perspective provides a complete picture of the role of HCBS in state Medicaid programs.

TABLE II.7. Percentage of LTC Expenditures Allocated to HCBS in 2006, Overall and by Age and System Type								
State	Overall		Aged (65+)		Enrollees with Disabilities (<65, including ID/DD)		Enrollees <65 with ID/DD	
	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
Alaska	72.7	1	59.0	1	71.8	3	99.3	2
New Mexico	70.3	2	48.0	2	75.2	2	92.5	4
Washington	65.2	3	46.4	4	N/A	N/A	N/A	N/A
Vermont	57.8	4	20.3	15	68.6	5	99.4	1
Wyoming	57.0	5	14.8	27	52.1	12	90.5	6
California	54.7	6	46.7	3	56.3	10	69.4	17
Kansas	52.5	7	22.7	10	75.6	1	78.3	11
Colorado	50.7	8	22.3	11	60.4	8	92.9	3
New York	45.3	9	36.3	5	45.8	14	57.6	24
Wisconsin	44.5	10	17.0	21	N/A	N/A	N/A	N/A
North Carolina	43.3	11	32.0	6	68.5	6	46.0	33
Nevada	43.3	12	27.0	8	44.2	16	73.3	14
Maryland	42.8	13	16.0	23	41.0	18	89.2	7
Idaho	42.6	14	27.1	7	62.5	7	50.4	29
Virginia	42.6	15	19.4	16	45.3	15	81.4	9
All 40 (or 37) states	**40.8**		**25.8**		**46.2**		**60.8**	
Missouri	40.7	16	19.3	17	68.9	4	49.1	30
Oklahoma	40.5	17	20.9	14	38.2	21	67.9	19
Utah	38.9	18	8.6	36	15.4	37	67.7	20
Hawaii	38.5	19	14.1	28	40.1	20	90.6	5
West Virginia	38.0	20	13.6	29	41.2	17	77.6	12
Nebraska	37.4	21	16.6	22	37.0	22	69.2	18
Iowa	37.2	22	21.0	13	53.1	11	48.7	31
Tennessee	37.0	23	12.5	30	60.1	9	59.4	22
South Dakota	35.9	24	8.7	35	16.0	36	79.0	10
South Carolina	34.6	25	14.9	26	49.4	13	57.3	25
Delaware	34.0	26	10.2	31	35.5	25	75.6	13
Ohio	33.5	27	19.0	18	40.6	19	55.4	26
Connecticut	31.6	28	15.6	24	26.5	31	67.1	21
New Jersey	31.2	29	21.4	12	36.0	24	46.9	32
Florida	31.1	30	9.7	33	28.8	30	73.2	15
Illinois	30.8	31	18.9	19	33.0	28	43.7	35
Georgia	28.4	32	10.0	32	36.9	23	71.6	16
Louisiana	27.5	33	15.6	25	29.9	29	38.2	36
Indiana	27.3	34	5.9	40	34.6	26	52.6	28
Alabama	27.2	35	8.9	34	25.8	32	88.7	8
Kentucky	25.8	36	8.0	37	33.1	27	59.2	23
North Dakota	25.8	37	7.6	38	24.4	33	53.2	27
Arkansas	24.9	38	17.1	20	19.9	35	44.8	34
District of Columbia	23.2	39	25.9	9	N/A	N/A	N/A	N/A
Mississippi	11.1	40	7.1	39	21.5	34	14.1	37

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas, and for the ID/DD analysis, District of Columbia, Washington, and Wisconsin).

NOTES: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. Enrollees with ID/DD include those using ICFs/IID services and those enrolled in waivers for people with ID/DD.

N/A = Not available (in this state, people with ID/DD could not be distinguished from other enrollees).

Subgroup analyses by state suggest that differences between aged enrollees and those eligible on the basis of their disability or as people with ID/DD, were widespread across the states.

TABLE II.8. Percentage of LTC Users Receiving HCBS in 2006, Overall and by Age and System Type								
State	Overall		Aged (65+)		Enrollees with Disabilities (<65, including ID/DD)		Enrollees <65 with ID/DD	
	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank	% HCBS	Rank
Alaska	87.0	1	82.2	1	88.4	4	99.8	2
California	82.5	2	77.5	2	89.0	3	89.7	16
Washington	78.5	3	69.9	4	N/A	N/A	N/A	N/A
Kentucky	77.5	4	73.5	3	80.0	15	96.6	5
New Mexico	76.4	5	63.5	5	89.7	2	94.0	11
Idaho	72.9	6	61.4	6	83.4	12	81.3	26
North Carolina	72.2	7	61.1	7	89.8	1	70.7	32
Colorado	69.8	8	51.6	12	84.3	11	98.6	3
Vermont	68.2	9	46.3	16	85.4	7	99.9	1
New York	68.2	10	55.5	8	80.2	14	92.0	12
Iowa	68.1	11	54.7	11	85.2	8	82.3	24
Missouri	66.4	12	55.3	10	82.6	13	70.6	34
Virginia	65.6	13	50.6	13	85.6	6	95.6	9
Kansas	65.4	14	42.4	20	87.8	5	91.9	13
Nevada	64.2	15	55.3	9	69.7	22	91.2	14
All 40 (or 37) states	**63.8**		**51.4**		**77.1**		**85.1**	
Wyoming	63.6	16	33.5	29	78.3	16	96.4	6
Alabama	61.6	17	40.1	23	84.9	9	96.1	7
South Carolina	60.2	18	42.1	21	84.8	10	77.4	29
Oklahoma	58.0	19	47.6	15	71.3	21	76.4	30
New Jersey	57.7	20	48.1	14	73.2	19	78.6	27
West Virginia	57.1	21	36.4	26	75.7	17	88.8	18
Maryland	56.7	22	29.7	31	71.5	20	97.1	4
Hawaii	56.3	23	38.2	25	67.5	24	96.0	8
Ohio	55.3	24	45.4	18	66.6	25	73.4	31
Connecticut	53.1	25	39.9	24	69.0	23	86.6	20
Illinois	52.2	26	40.8	22	56.0	34	86.6	19
Arkansas	51.4	27	45.7	17	59.0	32	67.3	35
Nebraska	51.1	28	35.6	27	64.5	28	85.2	22
Florida	50.9	29	33.6	28	60.7	30	91.2	15
Utah	49.8	30	22.2	37	44.5	36	82.7	23
Wisconsin	48.4	31	26.5	32	N/A	N/A	N/A	N/A
Delaware	47.9	32	26.3	33	73.4	18	85.5	21
South Dakota	46.2	33	24.9	35	44.2	37	94.7	10
District of Columbia	45.3	34	42.5	19	N/A	N/A	N/A	N/A
North Dakota	44.3	35	26.0	34	66.1	26	78.2	28
Georgia	43.4	36	24.9	36	63.6	29	89.4	17
Mississippi	41.0	37	33.3	30	59.4	31	42.0	37
Louisiana	38.1	38	20.2	38	57.0	33	51.4	36
Tennessee	35.2	39	10.7	40	65.2	27	81.4	25
Indiana	32.5	40	10.9	39	53.5	35	70.7	33

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas, and for the ID/DD analysis, District of Columbia, Washington, and Wisconsin).

NOTES: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. Enrollees with ID/DD include those using ICFs/IID services and those enrolled in waivers for people with ID/DD.

N/A = Not available (in this state, people with ID/DD could not be distinguished from other enrollees).

Subgroup analyses also suggest that HCBS use appears to be most common within the Medicaid ID/DD service system, compared with those designed for the aged or people with physical disabilities. However, our estimates indicate that a much smaller percentage of people with ID/DD potentially eligible for Medicaid actually are enrolled

and using HCBS. This emphasizes the importance of measuring system performance on multiple dimensions and within different service systems.

TABLE II.9. Ratio of Per-User Expenditures on HCBS Relative to Per-User Expenditures on Institutional Care in 2006, Overall and by Age and System Type

State	Overall		Aged (65+)		Enrollees with Disabilities (<65, including ID/DD)		Enrollees <65 with ID/DD	
	Ratio	Rank	Ratio	Rank	Ratio	Rank	Ratio	Rank
Tennessee	1.112	1	1.220	1	0.862	1	0.353	25
Wisconsin	0.927	2	0.602	3	N/A	N/A	N/A	N/A
Wyoming	0.838	3	0.373	13	0.376	14	0.424	17
New Mexico	0.827	4	0.593	4	0.420	9	0.856	3
Indiana	0.815	5	0.530	6	0.521	4	0.496	7
Vermont	0.765	6	0.349	15	0.489	5	1.127	2
South Dakota	0.707	7	0.305	28	0.257	26	0.333	27
Utah	0.689	8	0.347	16	0.253	27	0.477	10
Nebraska	0.649	9	0.405	12	0.387	12	0.446	15
Kansas	0.644	10	0.434	10	0.534	3	0.356	23
Louisiana	0.644	11	0.737	2	0.365	15	0.609	5
Washington	0.644	12	0.459	9	N/A	N/A	N/A	N/A
Delaware	0.608	13	0.340	19	0.234	29	0.582	6
Maryland	0.604	14	0.466	8	0.307	20	0.300	31
Virginia	0.589	15	0.327	22	0.347	18	0.457	13
Alaska	0.561	16	0.432	11	0.470	6	2.096	1
Oklahoma	0.551	17	0.324	23	0.286	22	0.717	4
Georgia	0.537	18	0.347	18	0.359	16	0.326	28
Hawaii	0.531	19	0.282	32	0.414	11	0.473	11
Colorado	0.514	20	0.305	27	0.356	17	0.320	29
New York	0.498	21	0.564	5	0.290	21	0.226	37
Ohio	0.497	22	0.347	17	0.437	8	0.488	9
West Virginia	0.494	23	0.288	30	0.261	25	0.491	8
Connecticut	0.483	24	0.319	24	0.222	31	0.390	19
North Dakota	0.478	25	0.253	35	0.199	34	0.355	24
Nevada	0.473	26	0.329	21	0.383	13	0.353	26
Illinois	0.472	27	0.364	14	0.419	10	0.374	20
Florida	0.462	28	0.226	37	0.274	23	0.294	32
All 40 (or 37) states	**0.458**		**0.378**		**0.312**		**0.347**	
Missouri	0.442	29	0.248	36	0.592	2	0.470	12
District of Columbia	0.398	30	0.514	7	N/A	N/A	N/A	N/A
South Carolina	0.374	31	0.257	34	0.192	35	0.441	16
Iowa	0.364	32	0.294	29	0.262	24	0.235	35
New Jersey	0.359	33	0.313	25	0.235	28	0.255	34
Idaho	0.348	34	0.283	31	0.461	7	0.293	33
Arkansas	0.342	35	0.270	33	0.185	36	0.421	18
North Carolina	0.337	36	0.340	20	0.322	19	0.369	21
California	0.312	37	0.306	26	0.206	32	0.303	30
Alabama	0.260	38	0.160	39	0.075	37	0.449	14
Kentucky	0.253	39	0.087	40	0.231	30	0.367	22
Mississippi	0.191	40	0.163	38	0.204	33	0.234	36

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas, and for the ID/DD analysis, District of Columbia, Washington, and Wisconsin).

NOTES: Excludes enrollees in managed LTC and those eligible for restricted Medicaid benefits only. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21. Enrollees with ID/DD include those using ICFs/IID services and those enrolled in waivers for people with ID/DD.

N/A = Not available (in this state, people with ID/DD could not be distinguished from other enrollees).

III. CORRELATES OF LONG-TERM CARE SYSTEM PERFORMANCE

Having found substantial differences in the measures of LTC system balance, the important question is: why do such differences exist? If the differences are due to factors outside of a state's control, they suggest that either new approaches must be developed to address these challenges or that the extent of re-balancing will, under the best of circumstances, be limited in some states or populations. If they are related to factors within the state's control, they could indicate where low-scoring states may focus future efforts. In this chapter, we explore the relationship between potential influencing factors and LTC system performance.

We stress that this cross-sectional analysis is exploratory. The results do not indicate whether there are any causal relationships between state factors and the balance of LTC. However, we expect our results to point to directions for future work.

A. State Constraints and Policy Variables

We differentiate two types of state characteristics likely to affect the role of HCBS in LTC systems: (1) factors over which states have little or no control over such as climate or little or no control in the near term, such as the cost of living; and (2) factors that states could alter, such as their LTC policies, such as whether or not to offer HCBS as an "entitlement" (e.g., state plan personal care services or HCBS waiver services without capped enrollment that requires waiting lists) or policies those that affect the supply of LTC (such as Certificate of Need requirements that restrict nursing home bed supply).

1. Exogenous Factors

Policymakers have always known that states face unique circumstances that make it important to allow for state differences in implementing health care programs. Re-balancing also faces regional challenges, which may result in slow development of HCBS in some communities. Previous studies have cited tight fiscal constraints (Howes 2010; Smith et al. 2009) and access to adequate housing (Denny-Brown and Lipson 2009; Siebenaler 2005) as challenges states face in their efforts to shift their LTC systems from heavy reliance on institutional care to community settings.

Some states face unusual obstacles to re-balancing toward HCBS because of factors beyond policymakers' control. Other states may benefit from atypically favorable conditions. For example, North Dakota is a rural state with a cold, snowy climate, which has also experienced substantial outmigration, especially among the young, over the past several decades. Arguably, the logistics and economics of delivering HCBS to the

elderly and disabled living on rural farms without access to much informal support from younger, healthier relatives and neighbors, inevitably limits the extent to which the state's LTC system can be re-balanced toward greater reliance on HCBS. On the other hand, demography (a comparatively younger population), geography, climate, and settlement patterns in Alaska have long favored HCBS. Because many villages (many of which are Native American communities) are largely inaccessible by modern transportation except by air, elderly and disabled individuals may remain in the community longer because their relatives, friends, and neighbors would have great difficulty visiting them if they were placed in specialized residential care facilities that exist only in far away urban centers. A different kind of advantage is enjoyed by states that have large immigrant populations available for low paid, less skilled work; typically, immigrants are drawn to settle in particular geographic areas for reasons unrelated to home care work opportunities. However, once there, immigrant workers become available to work in home care.

To understand how some of these factors may be related to the relative success of re-balancing the LTC system, we investigated the following factors:

- **The High Cost of Living in the Community**. High costs may make it very difficult for the elderly poor to maintain their residence, whereas admission to a nursing home can relieve those financial burdens.

- **Community Financial Resources**. A high level of local financial resources may make it feasible for the community to support programs that subsidize utility bills and other living costs, making it less expensive for an individual to remain in the community.

- **Environmental Factors**. Extreme weather conditions may make it unsafe to live alone or difficult to travel, encouraging more nursing home placements.

- **Limited State Resources**. States with very limited financial resources may find it difficult to identify resources for use in designing community-based programs or be unwilling to risk developing a new program that may add to Medicaid program costs.

- **High Demand for Services**. Communities with a high proportion of elderly residents may be more likely to be at the forefront of HCBS because meeting those elderly needs is seen to be a high priority. On the other hand, states with unusually high percentages of low-income elderly, especially in the age 85 and older cohort, may be hard pressed to meet the associated demand for Medicaid-covered LTC services.

- **Ability to Provide Care**. States with relatively few home care workers or labor shortages may be reluctant to introduce programs that might strain already overtaxed labor markets when nursing homes can serve more residents with fewer workers. There is evidence that Medicaid program coverage rules, in some

states, during certain periods of time, authorized more HCBS based on individualized professional needs assessments than home care agency providers were able to deliver because they could not recruit and retain sufficient numbers of frontline workers (Benjamin and Fennell 2007).

Some may question whether or the extent to which some of the factors listed above are truly outside of state control. For example, there is considerable debate over whether and how state policymakers could reduce or eliminate home care worker shortages. Some experts say they could do so by providing home care workers who provide Medicaid HCBS with better pay and benefits or by giving the job enhanced status via training and credentialing requirements. Some also argue that unionization of home care workers (extensive in some states but sparse or non-existent in most) will result in improved pay, benefits, and more training for home care workers. State policies may affect the ability of home care workers to unionize. It has also been suggested that state policymakers can alleviate home care worker shortages by adopting policies that allow Medicaid beneficiaries to hire individual aides, including family members, friends, and neighbors (often referred to as offering options for "consumer-directed" services). The argument is that consumer-directed services options expand the labor pool because that pool is no longer restricted to individuals who are interested in becoming employees of home care agencies.

Measuring these factors and finding data that can support an analysis of their relationships to re-balancing efforts is challenging. Table III.1 lists the factors we were able to measure for this study. The table also lists the measures we used as indicators of constraints, their sources, and their hypothesized relationships with the degree of HCBS provision in a state.

TABLE III.1. Factors that May affect LTC System Performance

Factor	Measure (source)	Hypothesized Relationship with Higher Levels of HCBS
Cost of living	Single-family house price index, 2006 (Federal Housing Finance Agency 2008)	–
Community financial ability	Per-capita personal income (BEA and Census Bureau 2010)	+
Environmental factors	Average winter precipitation (NOAA 2002)	–
Fiscal constraints	Total taxable resources per-capita (BEA 2008)	+
Demand for services	Percentage of potential Medicaid-eligibles age 75 or older (Mathematica analysis of ACS 2007 data)	+
Workforce shortages	Home health aides & personal & home care aides (BLS 2010) per 1,000 elderly or persons with a disability (ACS 2007), 2009	+

NOTE: Constraints considered but not available for this study included: population density, political forces, and workforce shortages measured as the percentage of people with high school education or less who were unemployed in the state using ACS 2007.
+ = hypothesized positive relationship between measure and HCBS.
– = hypothesized negative relationship between measure and HCBS.

2. State Policy Variables

Numerous Medicaid policies could potentially increase the use of HCBS. States have the options to provide personal care and expanded home health services under their Medicaid state plans and to waive certain Medicaid regulations to cover HCBS for select subpopulations under 1915(c) waivers. Other state policies, such as nursing home regulations and SSI supplements that support independent living, may influence the use of HCBS (Irvin and Ballou 2010, Ng et al. 2009). Under the Deficit Reduction Act of 2005, states have even more options to provide HCBS via state plans through 1915(i) and 1915(j) waivers, although few changes had been implemented by 2006.

To understand how some of these policies may be related to the relative success of re-balancing the LTC system, we investigated the following factors:

- **Consumer Direction Options**. Consumer direction of personal care services has been shown to improve client satisfaction with services. States that adopt this option may have more residents interested in using HCBS.

- **Financial and Functional Eligibility Options**. States may develop lenient financial or functional eligibility rules to encourage the use of HCBS. Although lenient rules may increase overall spending on and use of HCBS, they also may result in lower spending per HCBS user if the resulting population using Medicaid LTC has fewer service needs.

- **State Plan Coverage**. States may offer personal care services under their state plans, eliminating the need for the individual to be covered by a waiver program to receive HCBS, where enrollment can be limited.

- **Residential Care Coverage**. States that support residential placements other than traditional institutions, such as assisted living facilities, may have more enrollees who can avail themselves of HCBS.

- **Number of Waiver Program Enrollees**. States that set a relatively high level for HCBS waiver enrollment will have fewer people on waiting lists and provide more HCBS.

- **SSI Supplements to Support Independent Living**. States that supplement federal SSI payments for people living in the community at a higher level than those in Medicaid facilities may encourage the disabled poor to remain in the community.

- **Institutional Supply Policies**. States that limit the number of institutions or are actively closing institutions (such as recent trends to reduce the number of ICFs/IID) will increase their need to use HCBS.

- **Nursing Home Policies**. States that enable nursing homes to hold rooms and receive payment for those enrollees who take short leaves either to hospitals or home may encourage nursing home rather than HCBS use. By allowing people short home stays, residents and families may feel less need to enroll in an HCBS program.

- **Payment Policies**. Policies that encourage the supply of HCBS in a state -- such as higher rates for such services -- may increase the number of HCBS providers who also could provide care to Medicaid recipients. However, policies that pay nursing homes more may encourage the growth of that industry, thus increasing the use of nursing home services.

Table III.2 lists the state policies that may affect HCBS use, how we measured them, and how they may be related to Medicaid HCBS use.

TABLE III.2. State Policies and Other Supply-Side Factors Potentially Associated with Spending and Use of Medicaid LTC and Associated Data Sources

Policy or Supply-Side Factor	Measure (source)	Hypothesized Relationship with HCBS
Consumer direction	Consumer direction required or allowed for home health, personal care, or via waiver (Kitchener et al. 2007)	+
Financial & functional eligibility rules	Stricter functional limits for HCBS waivers than nursing home care, 2006 (Ng et al. 2009)	– (+ with spending ratio)
Personal care, residential, & home health care coverage	State covers state plan personal care or expanded home health 2006 (documentation from multiples sources) or covers residential care, group homes for people with ID/DD, or assisted living/personal care facilities for elderly, 2003 (Mollica et al. 2007)	+
Waiver waiting lists	Waiting list count per 1,000 people enrolled in waivers or using personal care services, separately for ID/DD population and all others (Kitchener et al. 2007)	–
SSI supplements	State supplements federal SSI payments for people living in the community at a higher level than those in Medicaid facilities, January 2006 (SSA 2006)	+
Bed-hold policies	Maximum days, 2000 (Intrator et al. 2009)	–
Nursing home bed supply	Nursing home beds per 1,000 elderly, 2003 (Mollica et al. 2007)	–
ICFs/IID availability	Percentage of ICFs/IID with 16 or more beds, 2006 (Bruininks et al. 2007)	+
Payment rates that encourage nursing home care supply	Medicaid payment per day for nursing facility care, 2007 (Houser et al. 2009)	–
Payment rates that encourage HCBS supply	Medicare reimbursement for home health aide, 2006, & average private pay daily rate for adult day care, 2008 (Houser et al. 2009)	+

NOTE: Policies considered but not available for this study included: LTC-related lawsuits, presumptive eligibility, standard use of assessment tools, diversion programs that serve a specified percentage of the state's LTC users, global LTC budgeting (single appropriation), implementation of best practices, and state-funded family caregiver support programs.
+ = hypothesized positive relationship between measure and HCBS.
– = hypothesized negative relationship between measure and HCBS.

B. Factors and Policies Associated with Long-Term Care System Performance

To shed light on the relationship between the state factors and the LTC balance, we summarized outcomes for the top and bottom ten states based on their LTC system performance scores and measured the association between the factors and each LTC balance measures. We tested the associations for statistical significance to help differentiate state policies and factors very likely to be related to the balance measures. We again stress that these associations do not imply causation. For brevity, we present the detailed information using the first measure -- the association between the state factors and the percentage of LTC expenditures for HCBS in that state -- and summarize the results for the other measures.

1. Associations between State Factors and Long-Term Care System Performance Indicators

Few state factors are significantly associated with the percentage of LTC expenditures for HCBS (Table III.3). We found two statistically significant associations. One was the average winter precipitation in the state between 1971 and 2000, which was negatively correlated with spending on HCBS -- that is, the more that it rained or snowed in winter months, the lower the re-balancing measures. The second was for our measure of workforce availability: personal and home care aides per 1,000 elderly or persons with a disability. This association suggests that in states where there is greater availability of personal and home health aides, there is a greater level of HCBS expenditures, as would be expected. Note that this workforce measure was available only for 2009, three years after our balance indicator was measured, and so is likely to be capturing demand for this type of personnel.

The associations between constraints and balance were similar in direction and significance for the other balance measures, except that when balance was measured as the percentage of LTC users or potential users receiving HCBS, only the workforce measure (not the winter precipitation measure) was significantly different from zero. Taken together, these results suggest that the exogenous factors we examined are not substantially linked to levels of LTC system balance across states for the LTC Medicaid population as a whole.

TABLE III.3. Summary of State Constraints by State Rank in the Percentage of LTC Expenditures for HCBS in 2006						
Factor	Mean for All States	State Rank in the Percentage of LTC Expenditures for HCBS in 2006			Expected	Observed
		Mean for Top 10 (High HCBS) Ranked States	Mean for Mid-Ranked States	Mean for Bottom 10 (Low HCBS) Ranked States		
Single-family housing price index, 2006	367	405	372	319	-	+
Per-capita personal income, 2006	35,369	36,929	35,424	33,701	+	+
Average winter precipitation, 1971-2000	2.8	2.0	2.8	3.7	-	-*
Taxable resources per-capita, 2006	50,626	54,088	50,477	47,462	+	+
Percentage of potential eligibles age 75 or older, 2006	26%	26%	28%	24%	+	none
Home health aides per 1,000 elderly or persons with a disability, 2009	84	103	83	68	+	+
Personal and home care aides per 1,000 elderly or persons with a disability, 2009	67	129	50	40	+	+*

SOURCE: Mathematica analysis of state constraints (see Table III.1) and 2006 MAX data for 39 states and the District of Columbia with representative LTC data.

* Significant association at the 0.05 level, one-tailed test. For continuous factors, we tested whether the correlation between balance and the constraint was significantly different from zero. For discrete factors, we used a t-test to identify significant differences between states with and without the constraint. We did not test for significant differences between top 10 and bottom 10 states.

2. Associations between State Policy and Supply-Side Variables and Long-Term Care System Performance Indicators

For policy measures, we found that about half of the measures were related to our LTC system performance indicators (Table III.4). However, we found that none of the measured policy and supply-side factors showed the same relationship across all four indicators. Three policy measures and one supply-side factor, however, showed a consistent pattern using both the spending share measure and percentage of LTC recipients using HCBS. These three policy measures were: (1) the availability of consumer direction options; (2) coverage of state plan personal care; and (3) the availability of higher state SSI supplements for people living in the community than for those using Medicaid facility care. These measures were associated with HCBS use at the state level. In addition, the number of nursing home beds per elderly in the state in 2003 was associated with lower levels of balance.

TABLE III.4. Summary of State Policy and Supply-Side Variables by the Percentage of LTC Expenditures for HCBS in 2006						
Policy or Supply-Side Factor	Mean for All States	State Rank in the Percentage of LTC Expenditures for HCBS in 2006			Expected	Observed
		Mean for Top 10 (High HCBS) Ranked States	Mean for Mid-Ranked States	Mean for Bottom 10 (Low HCBS) Ranked States		
Any consumer direction, 2006	78%	100%	80%	50%	+	+*
Stricter functional limits for HCBS waivers than nursing facilities, 2006	15%	20%	10%	20%	-	none
Personal care services in state plan, 2006	58%	80%	60%	30%	+	+*
Any coverage limits for home health care, 2006	35%	20%	35%	50%	-	-
Any coverage for residential care, 2003	85%	100%	85%	70%	+	+*
Waiver waiting list per 1,000 HCBS enrollees	142	102	103	293	-	-
Higher SSI supplement for community living, 2006	77%	90%	85%	50%	+	+*
Maximum days bed hold, 2000	8.8	8.4	8.8	9.2	-	-
Nursing home beds per 1,000 elderly, 2003	52	43	53	59	-	-*
Percentage of ICFs/IID with 16 or more beds, 2006	35%	28%	42%	28%	-	-
Medicaid payment per day for nursing facility care, 2007	161	181	159	146	-	+*
Medicare reimbursement per home health aide visit, 2006	140	145	141	136	+	+*
Average private pay daily rate for adult day care, 2008	56	63	55	52	+	+

SOURCE: Mathematica analysis of state policy or supply-side factors (see Table III.2) and 2006 MAX data for 39 states and the District of Columbia with representative LTC data.

* Significant association at the 0.05 level, one-tailed test. For continuous factors, we tested whether the correlation between the performance indicator and the factor was significantly different from zero. For discrete factors, we used a t-test to identify significant differences between states with and without the policy. We did not test for significant differences in rank or between top 10 and bottom 10 states.

3. Subgroup Differences

Policymakers also are interested in the progress of particular subgroups. Because the elderly recipients generally make up a large portion of those in the LTC system, they will dominate the overall results. One question, however, is whether state factors are linked to LTC system performance for those who are under age 65 and have physical disabilities, or for those with ID/DD.

TABLE III.5. Summary of Select State Measures by the Percentage of LTC Expenditures for HCBS in 2006, Overall and by Age and System Type					
Constraint, Policy, or Supply-Side Factor	**Expected**	**Overall**	**Aged (65+)**	**Enrollees with Disabilities <65, Excluding ID/DD**	**Enrollees with ID/DD**
Single-family housing price index, 2006	-		+*		
Per-capita personal income, 2006	+				+*
Average winter precipitation, 1971-2000	-	-*			
Taxable resources per-capita, 2006	+				+*
Home health aides per 1,000 elderly or persons with a disability, 2009	+		+*	+*	
Personal and home care aides per 1,000 elderly or persons with a disability, 2009	+	+*	+*	+*	+*
Any consumer direction, 2006	+	+*	+*	+*	
Personal care services in state plan, 2006	+	+*	+*		
Any coverage for residential care, 2003	+	+*	+*		
Higher SSI supplement for community living, 2006	+	+*	+*		+*
Nursing home beds per 1,000 elderly, 2003	-	-*	-*		-*
Percent of ICFs/IID with 16 or more beds, 2006	-		-*		
Medicaid payment per day for nursing facility care, 2007	-	+*	+*		+*
Medicare reimbursement per home health visit, 2006	+	+*	+*		
Average private pay daily rate for adult day care, 2008	+		+*		

SOURCE: Mathematica analysis of state constraints, policy, and supply-side factors (see Table III.1 and Table III.2) and 2006 MAX data for 39 states and the District of Columbia with representative LTC data.

* Significant association at the 0.05 level, one-tailed test. For continuous factors, we tested whether the correlation between the performance indicator and the factor was significantly different from zero. For discrete factors, we used a t-test to identify significant differences between states with and without the factor. We did not test for significant differences in rank or between top 10 and bottom 10 states.

The results of our analyses suggest that state factors may function differently for recipients with ID/DD than for other Medicaid LTC recipients, as can be seen in Table III.5.

- Although local financial resources were not associated with HCBS re-balancing in the overall population, per-capita personal income and taxable resources per-capita were positively associated with HCBS expenditures as a percentage of all LTC expenditures for people with ID/DD.

- Consumer direction was significantly related to the balance of expenditures for all subgroups except people with ID/DD.

- Having personal care state plan services as well as residential services covered under Medicaid was associated with LTC spending balance overall and for the aged, but not for people with disabilities or ID/DD.

C. Summary of Findings on the Relationship Among the State Factors, Policy Variables, and Long-Term Care System Performance

Although exploratory, the associations between LTC balance measures and state factors and policy variables presented in this chapter indicate several areas that may warrant further research. First, of seven measures selected to capture state characteristics, only two were significantly correlated with measures reflecting HCBS penetration in state LTC systems overall: (1) average winter precipitation, which was negatively associated with LTC expenditure balance; and (2) personal and home care aides per 1,000 persons who are elderly or have disabilities, which was positively associated with both HCBS use and spending.

We hypothesize that winter precipitation may hinder enrollee or provider transport, making it more challenging for states in which winter snow or poor weather conditions occur to provide care in some community settings. We also hypothesize that worker shortages may reduce HCBS expansions because nursing home care requires fewer staff. This suggests that weather conditions and workforce availability would be important contextual variables to consider when developing more refined measures of LTC system transformation progress.

When examining policy variables, we note that the different measures of LTC system performance sometimes produced different results, highlighting the need to develop measures that carefully reflect states' progress, as CMS is doing. The three policy variables most consistently related to systems more balanced toward HCBS were consumer direction, coverage of personal care, and SSI supplements for people living in the community. However, having personal care was associated with HCBS penetration only for aged enrollees, not for enrollees under 65 with a physical disability and people with ID/DD. Other factors, such as financial resources appear to be related to LTC balance for those with ID/DD.

IV. SUMMARY OF RESULTS AND DIRECTIONS FOR FUTURE RESEARCH

This study examined Medicaid FFS HCBS use and spending across 39 states and the District of Columbia using 2006 MAX data. The study expanded on LTC balance analyses presented in Wenzlow et al. (2008), which was based on 2002 data, to summarize additional long-term balance measures, assess balance for additional populations (people with ID/DD), and explore associations between state factors and policies and LTC balance.

A. Summary of Results

Important Dimensions of Long-Term Care System Performance. HCBS spending as a percentage of LTC spending is the most commonly used measure of LTC system transformation. In this study, we examined differences across states and subgroups between this traditionally computed expenditure-based measure and several additional systems performance measures that may be relevant to a discussion of the relative balance between HCBS and ILTC: a utilization-based measure (percentage of LTC users who used HCBS), a relative per-user expenditure ratio (per-user HCBS spending to per-user institutional care spending), and a measure capturing whether Medicaid HCBS are reaching individuals that may need them (percentage of potential Medicaid LTC eligibles who used HCBS). Examination of differences across states on these measures illustrates that alternative indicators of LTC system performance provide different insights and an interpretive context for cross-state comparisons of the percent of total Medicaid LTC spending on HCBS.

There is high overlap between the highest scoring states on two “balance” measures: the percent LTC spending on HCBS overall and percent LTC users receiving HCBS overall (eight states are in the top ten on both these measures). However, there is considerably less overlap between the top scoring states on these two indictors and those in the top ten with respect to ratio of HCBS to ILTC spending per user overall. Only four of the ten states with the highest ratios of per-user HCBS to ILTC spending are in the top ten with respect to the percent of LTC spending on HCBS and only two are among the ten states with the highest percent of potential LTC users receiving HCBS.

Of the states that scored highest (top five) with respect to potential LTC users receiving HCBS, two scored in the top five on the percent of Medicaid LTC spending going toward HCBS and an additional two scored in the top ten. Similarly, of the states that scored among the top five in providing HCBS to potential LTC users, all but one were among the top ten highest scorers with respect to percent of LTC users receiving HCBS and the one state not among the top ten ranked number 11.

The patterns evident in states rankings on a range of performance indicators tell a story about how state LTC policies differ with respect to priorities and trade-offs. Some states choose to provide HCBS to large numbers of eligible and potentially eligible LTC users but they spend comparatively low amounts per HCBS user. Indeed, they may have comparatively fewer nursing home residents but spend a great deal more per user on ILTC than per user of HCBS. This pattern has certain logic if state policymakers have reason to believe that the comparatively small number of ILTC users are, on average, much more severely disabled than HCBS users. In contrast, some states have comparatively large numbers of institutional residents (perhaps because they over-invested in nursing home bed capacity compared to other states several decades ago) and provide comparatively fewer LTC users with HCBS but HCBS benefits are comparatively generous (closer to the average amount spent per user on ILTC). Again, there is a certain logic to this approach if HCBS is being targeted toward beneficiaries who are considered to be at high risk of nursing home admission and in need of generous benefits in order for HCBS to serve as an effective substitute for nursing home care.

Subgroup Differences in Balance. Our review of LTC balance measures by subgroup indicated that differences between aged and disabled enrollees, as well as people with ID/DD, were widespread across the states. Although our previous study based on 2002 MAX files (Wenzlow, Schmitz, and Shepperson,2008) concluded that states with LTC systems most balanced toward HCBS among all LTC users were those with services most balanced among the aged, we found more exceptions to this pattern in 2006.

The subgroup analyses indicate that it has proved much more difficult for states to overcome the “institutional bias” with respect to LTC spending and services for the elderly than for LTC users under age 65, especially those with ID/DD. Only a handful of states among the 40 included in this study stand out as having been much more successful than others in re-balancing their LTC systems for the elderly. These states are Alaska, New Mexico, California, and Washington. These four states all spend 46 percent or more of their Medicaid LTC dollars for the elderly on HCBS. In addition, they all provide HCBS to 63 percent or more of elderly LTC users. With the exception of Alaska (an exceptionally high cost state), all of these states spend less per elderly ILTC user than the national average. New Mexico and Washington spend slightly more per elderly HCBS user than the national average California is unique in also spending less per elderly HCBS user than the national average. California also has a ratio of spending per elderly HCBS user to spending per elderly ILTC user lower than the national average, whereas the ratio of per-user spending on HCBS for the elderly relative to per-user spending on ILTC is higher than the national average in the other three states. Washington -- but especially California and Alaska -- all serve far higher percentages of potential elderly HCBS users than the national average, whereas this is not the case for New Mexico. Of these four states, California appears to have arrived at the most cost effective formula for re-balancing Medicaid LTC spending and use

patterns among the elderly toward HCBS while also providing HCBS to more potential users.

The states that stand out as having maximized spending for and use of HCBS among the under 65 Medicaid LTC population are, in addition to Alaska and New Mexico (the states that rank highly on re-balancing measures for all populations), Vermont, Colorado, Hawaii, and Wyoming. These states all spend more than 90 percent of their Medicaid LTC dollars for the ID/DD subgroup on HCBS and all of them. Alaska, Colorado, and Vermont have fewer than 2 percent of LTC users with ID/DD in institutional care. Alaska and Vermont now spend more per user on HCBS than on ILTC (although this indicator may no longer mean much since these two states have virtually eliminated ILTC for people with ID/DD). All of these states -- with the exception of Colorado -- spend well above the national average on HCBS per user with ID/DD. Colorado spends slightly above the national average on HCBS per user with ID/DD. Wyoming provides HCBS to 20.8 percent of potential users with ID/DD (compared to a national average of 8.7 percent); Hawaii, Colorado, Vermont, and New Mexico all exceed the national average with respect to providing HCBS to potential users with ID/DD. However, Alaska falls below the national average in providing HCBS to potential users with ID/DD. It should perhaps also be noted that quite a few states (California, Connecticut, North Dakota, Nebraska, Iowa, Maryland, New York, and South Dakota) provide HCBS to percentages of potentially eligible users with ID/DD well above the national average, but do not perform as well as Alaska, Hawaii, Colorado, Vermont and New Mexico with respect to the percent of spending on HCBS or percent of users receiving HCBS measures for people with ID/DD. Looking at the pattern of rankings across indicators, Colorado, among the 40 states in our study, appears to be doing the best job of “re-balancing” its LTC system for people with ID/DD toward reliance on HCBS rather than ILTC.

For LTC users under age 65 with physical disabilities, Alaska and New Mexico, again rank in the top five with respect to LTC spending on HCBS and LTC users receiving HCBS. However, the other states that appear to do the best job of promoting access to HCBS over ILTC for the non-elderly with physical disabilities are Kansas, Missouri, and Vermont for the percent of LTC spending on HCBS measure. North Carolina, California, and Kansas perform best on the percent of LTC users receiving HCBS measure. In addition to Alaska (but not New Mexico), the states that rank highest in providing HCBS to potential LTC users under age 65 with physical disabilities are Kansas, New York, California, and Vermont. Three states that rank among the top five with respect to the ratio of per-user spending on HCBS to per-user spending also rank in the top five on one or more of the other performance indicators (Missouri, Kansas, and Vermont) whereas two do not (Tennessee and Indiana). However, California, Kansas, and Vermont rank, respectively, below, similar to, or only slightly above the national average in per-user spending on HCBS for the under 65 population with physical disabilities. In Kansas, Vermont, and Missouri, the ratios of HCBS to ILTC spending per user for this population is comparatively high because these states spend considerably under the national average on ILTC spending per user for the ILTC population. Taking all systems performance measures into consideration, Kansas

seems to be doing the best overall job of re-orienting its Medicaid LTC system away from ILTC toward HCBS for low-income persons under age 65 with physical disabilities.

The only "state policy" variable measured in this study that predicted high ranking with respect to the percent of LTC spending dedicated to HCBS for the under 65 population with physical disabilities was availability of consumer direction. Kansas has a long-standing tradition of using Independent Living Centers to facilitate consumer-directed personal care services (funded by HCBS waivers). All of the other states that ranked in the top five on performance indicators for this subpopulation (except the ratio of HCBS spending per user to ILTC spending per user) are states where consumer direction is widely available and, in California, Vermont, Alaska, and Missouri, the use of consumer-directed services, especially among the subgroup of Medicaid LTC beneficiaries under 65 with physical disabilities, was much more prevalent in 2006 than in the nation as a whole (Sciegaj and Selkow 2011). We identified the most significant differences in measures of LTC balance by population age group and service delivery system. A comparison of our results with those reported in Wenzlow et al. (2008) for 34 states included in both studies indicated that HCBS spending as a share of all LTC spending increased by at least five percentage points in all age groups between 2002 and 2006 for those enrolled in Medicaid. That is, system transformations over those years appear to have increased use of HCBS across all ages. Our analysis also shows that, although Medicaid systems appear to be least balanced toward HCBS for the aged and most balanced for enrollees with ID/DD, a relatively small share of those with ID/DD potentially eligible for Medicaid LTC services actually receive them. Monitoring the larger population with ID/DD and their needs will be critical for better understanding Medicaid system performance.

Correlates of Long-Term Care System Performance. We conducted an exploratory analysis of the bivariate association between constraints and LTC policies and three indicators of system performance. Our results suggest that two types of state factors are associated with systems less balanced toward HCBS: (1) poor weather conditions that may make it more challenging to serve enrollees with LTC needs in their homes; and (2) the size of the workforce needed to provide adequate HCBS. We also found that availability of consumer-directed services and personal care coverage were positively associated with HCBS use and expenditures, but not for those enrollees with ID/DD. Other factors, not subject to much state control appear to be related to the progress in re-balancing LTC for this population, most notably the availability of resources (per-capita income and availability of taxable resources). Finally, state SSI supplements for people living in the community were associated with more balanced systems among the aged and people with ID/DD. We cannot infer causal relationships from these findings, but rather note that they point the way toward possibly fruitful work in the future.

Our analyses of factors that predicted higher ratios of LTC spending on HCBS for the ID/DD population was particularly weak and failed to yield much useful information with respect to state policy variables, except for a negative relationship between nursing home bed supply and higher percentages of LTC spending for the ID/DD population on

HCBS. Future research will need to explore indicators that are more specific to the ID/DD service delivery system, which, as earlier noted, tends to be quite separate from the services system for the elderly and younger adults (under age 65) with physical disabilities. One promising avenue is to look at the percentages of publicly-funded ID/DD beneficiaries receiving services in any institutions with 16 or more beds, in state-run ICFs/IID, and in residential settings with six or fewer residents. It is noteworthy, that of 37 states in our study for which it was possible to measure the percentage of total Medicaid LTC spending for the ID/DD population spent on HCBS, five had closed all of their public ICFs/IID prior to 2006. Four of these states were among the top five highest ranking states with respect to the percent of LTC spending on HCBS for the ID/DD population. Colorado (ranking #3) was the only state that had not closed all of its public ICFs/IID and Colorado had only 2.3 percent of persons with ID/DD receiving public benefits residing in public ICFs/IID (compared to a national average of 8 percent. Moreover, Colorado had no beneficiaries with ID/DD residing in private ICFs/IID, whereas nationally 14.4 percent of all beneficiaries with ID/DD resided in either public or private ICFs/IID in 2006 (RTCL/UMN 2012). In all these states 90 percent or more of public beneficiaries with ID/DD in out-of-home placements resided in settings with fewer than six or more residents with ID/DD. In contrast, the states that ranked lowest in terms of percent Medicaid LTC spending on HCBS for the ID/DD population (Mississippi, Louisiana, Illinois, Arkansas, and North Carolina) all had percentages of beneficiaries with ID/DD residing in state-run institutions in excess of the national average. For example, Mississippi had 40.3 percent of state residents with ID/DD receiving public benefits in state-run ICFs/IID (all with 16 or more beds) in 2006 (RTCL/UMN 2012).

B. Directions for Future Research

The exploratory findings presented here suggest several directions for future research.

Level of Need and the Distribution of Care Received. The utilization and spending per-user patterns reported here suggest substantial differences across states in the populations served and/or service levels provided. Looking at the distribution of spending for both HCBS and institutional care services would provide insight into whether low-spending (or high-spending) states are providing the same level of care to all of their enrollees or serving a wide range of needs. To further our understanding of whether LTC systems are meeting the requirements set forth by Olmstead even further, LTC balance analyses should move toward examining the needs of enrollees, appropriate settings that can support those needs, and whether services received are indeed provided in the most integrated appropriate settings.

Addressing the Continuum of Care in Measures of Long-Term Care Balance. As in past studies, we differentiated HCBS from institutional care to study LTC balance. However, HCBS includes a range of residential settings, such as assisted living, and institutional care can include smaller ICFs/IID more similar to group homes than

traditional state institutions. Future research will need to address the true continuum of LTC settings to better understand Medicaid LTC system transformation.

Environmental Barriers to HCBS Use and System Transformation. Although our analyses were exploratory, we identified significant associations between LTC balance and winter precipitation and availability of care providers. This suggests that environmental barriers may need to be taken into account when measuring progress toward system transformation.

Constraints as Mediators of Long-Term Care Policy. Our preliminary analysis identified significant bivariate relationships between state-level contextual factors, such as constraints and policies, and LTC system performance. These cross-sectional comparisons could be supplemented usefully with a more extensive study of the multivariate relationships across measures. Of particular interest is how the association between policies and balance may differ across groups of states experiencing similar fiscal, environmental, and demographic characteristics. A longitudinal study assessing the effects of select policies would be an important extension of this work.

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APPENDIX A. GLOSSARY OF TERMS

This glossary summarizes the operational definitions of terms used in this report. For more general definitions of Medicaid terms, see Schneider et al. (2002).

Age: Age is defined as of December 31, 2006.

Adult (BOE Group): A BOE group that includes pregnant women and caretaker relatives in families with dependent children. (Adults who are eligible for Medicaid due to disability are coded as disabled.)

Aged (BOE Group): A BOE group that includes enrollees age 65 or older who qualify for Medicaid due to their age. Because some states code all people over 65 as aged, enrollees older than 65 but categorized in another BOE group in MAX were recoded as aged for this study.

Basis of Eligibility (BOE): Eligibility grouping that traditionally has been used by CMS to classify enrollees as children, adults, aged, or disabled.

Child (BOE Group): A BOE group that includes persons under age 18 or under age 21 in states electing to cover older children. (Children who are eligible for Medicaid due to disability are coded as disabled.)

Disabled (BOE Group): A BOE group that includes persons of any age (including children) who are unable to engage in substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than 12 months. Because disabled people over 65 are often but not always categorized as aged, all disabled people over 65 were recoded as aged in this study.

Fee-For-Service (FFS): A payment mechanism in which payment is made for each utilized service. FFS services exclude services provided under capitated arrangements.

Home and Community-Based Services (HCBS): Services covered under Section 1915(c) waivers and personal care, residential care, home health care, adult day care, and private duty nursing services that are mandatory or provided at state option.

Home Health: Services provided at a patient's place of residence (typically a patient's home), in compliance with a physician's written plan of care that is reviewed every 62 days. These include nursing services, as defined in the State Nurse Practice Act, home health aide services, physical therapy, occupational therapy or speech pathology, and audiology services that are provided by a HHA or a facility licensed by the state to provide these medical rehabilitation services.

Institutional Long-Term Care (ILTC): Nursing facility services, services provided in ICFs/IID, mental hospital services for people over age 65, and inpatient psychiatric facility services for individuals under age 21.

Intermediate Care Facility for People with Intellectual Disabilities (ICFs/IID): ICFs/IID are Medicaid-financed facilities for the care of individuals with ID/DD. These institutions are an optional Medicaid benefit that states may choose to offer; they are required to have four or more beds and offer treatment or rehabilitative services to people with ID/DD.

Managed Care: Payment mechanism used to manage health care, including services provided by health maintenance organizations (HMOs), PACE, prepaid health plans, and primary care case management plans. Services provided under managed care plans are not included in the measures summarized in this report.

Personal Care: Personal services, such as bathing and toileting, sometimes expanded to include light housekeeping furnished to an individual who is not an inpatient or a resident of a group home, assisted living facility, or long-term facility, such as a hospital, nursing facility, ICF/IID, or institution for mental disease. Personal care services are those that individuals typically would accomplish themselves if they did not have a disability.

Private Duty Nursing: Services, except those for mental health or substance abuse treatment, provided by registered nurses or licensed practical nurses under direction of a physician to recipients in their own homes, hospitals, or nursing facilities, as specified by the state.

Residential Care: Although room and board services provided in residential care facilities are not covered by Medicaid, other components of residential care -- for example, personal care, 24-hour services, and chore services -- can be covered. Residential care includes group, family, or individual home residential care; cluster residential care; and therapeutic residential care services, assisted living, supported living, and night supervision.

Program of All-Inclusive Care for the Elderly (PACE): A managed care plan that coordinates both acute and LTC for eligible enrollees (those 55 and older, living in a PACE area, and otherwise eligible for nursing home care). A capitated payment mechanism is used for PACE plan enrollees. As a result, service-specific information is not available for services provided under PACE or other managed plans.

Restricted-Benefit Enrollees: Enrollees who receive limited Medicaid coverage, including unqualified aliens eligible only for emergency benefits, Qualified Medicare Beneficiaries, and people eligible for only family planning services. Some enrollees may be eligible for a restricted set of services but are coded as full-benefit enrollees -- for example, those eligible for prescription drug coverage and Medicare cost sharing only.

Waiver: Services provided under Section 1915(c) of the Social Security Act that enable states to provide Medicaid-financed community-based LTC for people who otherwise would require Medicaid-covered hospital care, nursing facility care, or care in an ICF/IID. These programs can be designed to target individuals in specific age groups and with specific conditions, and the services can be restricted to certain areas of the state. (Other types of Medicaid waivers -- for example, 1115 waivers that cover population subgroups not generally covered under Medicaid, or those that fundamentally change service delivery -- are not discussed in this report.)

APPENDIX B. DATA AND METHODS

The indicators of LTC system performance presented in this report are based on data from the 2006 MAX PS files. In addition, we used the ACS and a variety of publicly available data sources to develop indicators of state constraints and policies associated with Medicaid LTC. In this appendix, we describe the MAX and ACS data, their strengths and limitations, and the methods we used to develop variables and conduct our analysis.

A. Medicaid Analytic eXtract Data and Analysis Methods

The MAX and its source data -- the Medicaid Statistical Information System (MSIS) -- are the primary sources of information about each of the more than 50 million people enrolled in Medicaid each year. CMS produces both MSIS and MAX and makes them available publicly (with a data use agreement) for research purposes. Because Medicaid is the largest insurer of LTC in the United States, these data provide the most detailed information currently available about people using LTC services nationally.

Most MAX data are derived directly from MSIS. MSIS contains FY Medicaid enrollment and claims-paid information for each state and the District of Columbia. The MAX data system is a cleaned and enhanced version of MSIS that enables analyses of enrollment, utilization, and expenditures at the person level. Unlike MSIS, which reflects claims as of the date they were paid, MAX reflects the services used by Medicaid enrollees during a calendar year.

We used the MAX PS files for 2006 for the analyses presented in this report. The MAX PS files are person-level files that contain information on enrollee demographic and eligibility characteristics and summary information on claims paid for services used by each enrollee during the year.

1. Demographic and Long-Term Care Variables

For the most part, we followed the methods developed in Wenzlow et al. (2008) based on MAX 2002 to construct demographic profiles, HCBS and institutional care use, and expenditures using MAX 2006 for this study. However, we made some alterations to our methods to capitalize on improvements in MAX since 2002. In particular, waiver enrollment data by waiver type were added to MAX in 2005. We used these new variables to identify people with ID/DD living in the community. We used ICFs/IID use to identify comparable populations in institutions. To the degree that people with ID/DD use only state plan HCBS or reside in nursing homes, our study results for people with ID/DD will be biased.

Also new in 2005 were community-based LTC data in the MAX PS files that unduplicated waiver expenditures from type of service expenditures for 1915(c) services.[14] Therefore, while the statistics reported in Wenzlow et al. (2008) were known to underestimate HCBS expenditures, the results presented in this report do not have the same limitation. As described in Chapter I, we measure HCBS by use of Section 1915(c) waiver services or one of five state plan services -- personal care, residential care, home health, adult day care, and private duty nursing.

HCBS are challenging to identify because they may include a variety of services -- for example, transportation or targeted case management -- that also may be used for reasons unrelated to LTC. For this reason, we exclude such services from our definition of HCBS unless they were provided under waivers. Although a Technical Expert Panel member suggested that hospice also be included in our measure of HCBS, our analysis of MAX data suggested that, in many states, a large portion of hospice care is provided to people leaving nursing homes for short periods prior to death. Also, in many cases, this care is provided in hospices or nursing homes rather than the home. Because our aim is to understand the degree to which states support HCBS as an alternative to institutional care, we excluded state plan hospice from our operational definition of HCBS.

We identified Medicaid ILTC services solely by using service type information in MAX. The four ILTC types of service include nursing facility services, services provided in ICFs/IID, mental hospital services for people age 65 and older, and inpatient psychiatric facility services for people under age 21.

2. Data Strengths and Limitations

In-depth analyses of LTC use and spending rely on detailed person-level data, such as those available in MAX. However, the data do have some limitations that should be kept in mind when interpreting MAX-based findings.

a. Timeliness of Data

Due to extensive reporting, data cleaning, and file construction requirements, MAX data are not as current as may be needed to address certain policy questions. Many states are altering their Medicaid LTC programs as a result of new legislation and the economic environment. The results presented in the report reflect Medicaid programs in 2006.

[14] Section 1915(c) services are identified by program type codes 6 and 7 in MAX. Section 1915(c) (program type 7) of the Social Security Act applies to Medicaid enrollees who otherwise would require Medicaid-covered hospital, nursing facility, or ICF/IID care. Section 1915(d) (program type 6) applies specifically to individuals over age 65 requiring such a level of care. Most states do not differentiate between the two program types in MSIS and report all waiver services under one or the other program code. As suggested in MAX documentation, we sum expenditures reported under the two program codes for our analysis.

b. Information Not Captured in MAX

Some Medicaid LTC expenditures are not included in MAX:

- ***Managed care***. LTC utilization and expenditures reported here reflect FFS use and expenditures only.[15] In the past, LTC rarely was covered under managed care arrangements, with Arizona's program a notable exception. However, managed care now also covers all elderly in Minnesota and is growing in other states.

- ***Bulk payments***. Because MAX contains only person-level data, services paid (or debited) for multiple individuals in lump sum -- for example, HCBS waivers, some capitated payments, and disproportionate-share hospital payments -- are not included in the files.

- ***Services not covered by Medicaid***. Medicaid premium payments paid on behalf of dual Medicare and Medicaid enrollees are not included in MAX. Co-insurance payments for duals are included in MAX only if Medicaid made payments for such services.

Because these data are not included in MAX, statistics for states with a significant portion of their LTC expenditures paid in bulk or with extensive LTC managed care programs cannot be compared directly with statistics computed for other states using MAX.

c. Double-Counting of Enrollees

Individuals who use Medicaid services in more than one state are observed as two people living in separate states in MAX. This double-counting implies that national measures of Medicaid LTC use are somewhat overestimated. However, while movement across states among the general elderly population is common, we expect movement across states among the aged or disabled poor using LTC services to be very limited and have a small impact on our estimates overall.

d. Data Anomalies and Exclusions

As with most administrative files of similar size and scope, MAX data contain a variety of data anomalies. A list of data anomalies associated with MAX LTC measures used in this analysis for 2006 is provided in Appendix C.

The analyses presented in this report capitalize on the strengths of MAX while taking into account the aforementioned limitations of the data. Our analyses represent

[15] Expenditures for any institutional or community-based LTC services provided under managed care are subsumed into managed care premiums. Services covered under managed care (including any for LTC) generally cannot be identified in MAX as they are reported in "encounter records," which are known to be incomplete in MSIS and MAX.

Medicaid enrollees from 40 states that we believe have reliable data. We excluded states with extensive missing data or data that vary significantly from summary measures reported for other data sources. Specifically, we excluded Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas. We list data anomalies for these and all other states in Appendix C. We based exclusion decisions on comparisons with statistics prepared by Burwell et al. (2008) that reflect CMS Form 64 data, comparisons with waiver statistics reported by Ng et al. (2009), and knowledge about the structure of state Medicaid programs in terms of their institutional and community LTC service provisions. In addition, we excluded the District of Columbia, Washington, and Wisconsin from our analyses of system performance for people with physical disabilities and those with ID/DD. In these states, we could not adequately differentiate people with ID/DD from those with physical disabilities.[16]

We note that not all excluded states are known to have problematic LTC data in MAX. We excluded states from the analysis when statistics obtained using MAX varied substantially from other published reports and the accuracy of MAX data could not be confirmed. MAX data for such states indeed may be accurate but are not included in our results.

3. Analysis Methods

In our analysis of LTC balance, we limited the population of LTC users to those eligible for Medicaid as a result of age or disability and those eligible for comprehensive benefits at some point during the entire year.[17] Aged enrollees include all enrollees age 65 and older in 2006. Disabled enrollees include people of all ages who were under 65 in 2006 and became eligible for Medicaid as a result of their disability. These two groups include almost all enrollees using Medicaid LTC services. However, a small number of states have a substantial number of 1915(c) waiver enrollees reported as eligible on the basis of being children or non-disabled adults: Montana (8 percent) and New Hampshire (1 percent), which were excluded from our analysis, and North Dakota (4 percent) and the District of Columbia (2 percent), which were included. Total HCBS use and expenditures may be somewhat underestimated in these two states. See Appendix A for further details about the BOE groups.

While we present national averages based on 40 states (or 37 states in our analyses of people with physical disabilities or ID/DD), the excluded states may bias our results. Some excluded states -- Oregon, for example -- are known to have strong community-based LTC programs. However, others -- Pennsylvania, for example -- typically have spent less on community-based services than institutional care in the past. As a result, it is plausible that our national totals based on the 40 states represented in this study closely match true averages for all Medicaid enrollees,

[16] In this report, the use of the word "states" encompasses the 50 states and the District of Columbia.

[17] We excluded people reported to be eligible only for family planning services, unqualified aliens eligible only for emergency services, and restricted-benefit duals receiving coverage only for Medicare premiums and cost sharing.

although it is also possible that significant biases are present. The national estimates should be interpreted with a bit of caution.

B. American Community Survey Data and Methods

Medicaid programs vary substantially in terms of the populations they cover. To account for these differences, data from the 2007 ACS were used to estimate the number of persons in each state potentially eligible for Medicaid LTC.[18]

1. Overview of the ACS data

The ACS is an annual national survey of American households conducted by the U.S. Census Bureau. The survey collects detailed person-level data, including demographic characteristics and health, disability, and employment status. In each residence, one household member completes the survey and provides information about up to 12 persons who have lived at the residence for more than two months. A representative sample of data from the 2007 survey -- called the ACS Public Use Microdata Sample -- is available for public use on the ACS website and was used in this study to measure the number of potential Medicaid-eligibles.

2. Operational Definition of Potential Medicaid-Eligibles

Medicaid LTC eligibility depends primarily on a person's income, assets, and disability levels. Most people who are 65 or older or have a disability and meet financial eligibility criteria are eligible for Medicaid. In addition, those who meet functional eligibility criteria but have higher income and asset levels may be eligible for Medicaid LTC services in a given state. Several survey items in the 2007 ACS collect information on these factors for each state. Although eligibility requirements differ across states, we specified national criteria to identify potential eligibles, reflecting the largest population that could be covered by Medicaid for LTC services, had a state chosen to do so. This includes all people meeting the HCBS or institutional care maximum financial eligibility requirements (300 percent of SSI, or about $21,708 per year for individuals and $32,544 for couples, and under asset limits in 2006) who also meet functional eligibility requirements. Functional requirements for Medicaid LTC typically are measured by the difficulties in performing ADLs, such as dressing or bathing but, in the case of ID/DD waivers, can include a broader set of functional limitations, such as difficulties in learning, self care, or economic self-sufficiency.

We defined financial eligibility and functional eligibility operationally as follows:

- ***Financial eligibility*** was measured by reported income under 300 percent of SSI during the last year or receipt of SSI.

[18] We used 2007 rather than 2006 ACS data for the study because estimates of aged enrollees were unreliable in earlier years of the survey.

- ***Functional eligibility*** was measured by the presence of a "physical, mental, or emotional condition lasting six months or more" and resulting in either: (1) difficulties in conducting ADLs, including dressing, bathing, or getting around inside the home; or (2) difficulties in learning, remembering, or concentrating.[19]

Although people also must meet Medicaid asset requirements, there are complex rules governing Medicaid asset limits, and data on assets (other than housing) are not available in the public use version of the ACS. Therefore, asset limits were not assessed in our operational definition of potential eligibles. Finally, we used age to group the eligible population by age group, and age and the type of functional eligibility (ADL or difficulty in learning, remembering, or concentrating) to differentiate the physically disabled from ID/DD populations to construct the measures of LTC system performance in Chapter II. We also used these groupings to construct the state-level contextual measures described in Chapter III that were computed per person who was aged or had a disability in the state.

[19] The ACS also has information about conditions that substantially limit a person's ability to walk, climb stairs, reach, lift, or carry and whether a physical mental, or emotional condition lasting six months or more makes it difficult for a person to go outside alone to shop or visit a doctor's office. However, most states measure functional eligibility based on difficulties with ADLs. Therefore we used only the ADL measure in our definition of functional eligibility.

APPENDIX C. STATE LONG-TERM CARE DATA ANOMALIES

MAX data contain a variety of anomalies, many of which are specific to individual states. The anomalies most likely to impact this report's analyses of 2006 MAX are listed in Table C.1, by state. A full list of anomalies is available from the CMS website at https://www.cms.gov/MedicaidDataSourcesGenInfo/07_MAXGeneralInformation.asp.

As a result of these anomalies, we excluded 11 states from all analyses: Maine, because complete 2006 data were not available; Arizona, because it provides most long-term services via managed care arrangements, whereas this study analyzes services provided on an FFS basis; Minnesota, because the state was transitioning many of its LTC recipients to managed care during the study period; New Hampshire, because its expenditure data for HCBS relative to ILTC were believed to be unreliable when compared with data from CMS Form 64; and Massachusetts, Michigan, Montana, Oregon, Pennsylvania, Rhode Island, and Texas because their HCBS data potentially were unreliable. In addition, we excluded the District of Columbia, Washington, and Wisconsin from analyses of populations with physical disabilities or ID/DD because waiver data used to identify these populations were incomplete in these states.

TABLE C.1. MAX 2006 State LTC Data Anomalies

State	Excluded From Study	Anomalies
All States		Expenditures reported as service tracking claims are not included in MAX as they cannot be attributed to specific persons.
Alabama		No notes.
Alaska		Alaska had a state-operated Pioneers Home System, not included in Medicaid that provided services to many people who otherwise might be in a nursing facility. The average Medicaid Payment Amount for nursing facility claims is about two times higher than average but is consistent across years.
Arizona	X	Most people are enrolled in managed care and more than half of the other Medicaid enrollees are in the Indian Health Service, so FFS distributions are unusual. As a result, Arizona is excluded from the analyses presented in this report.
Arkansas		Dual enrollment may be unreliable in Arkansas from January-September 2006 because some full-benefit aged and disabled dual-eligibles were incorrectly identified as partial dual-eligibles who received only Medicare cost-sharing benefits. All partial dual-eligibles were excluded from this report. Possibly as a result, HCBS expenditures were 21% lower in MAX ($220 million) than in Form 64 ($278 million).
California		California had PACE plans, and the state's Senior Care Action Network 1115 waiver included a Medicare Special Needs plan in 2006. Expenditures for LTC services provided through these plans cannot be not identified in MAX.
Colorado		Colorado had PACE in 2006, and LTC expenditures for services provided through these plans cannot be identified in MAX.

TABLE C.1 (*continued*)		
State	**Excluded From Study**	**Anomalies**
Connecticut		MAX HCBS user counts do not correspond well with those reported in Ng et al. (2009). Ng et al. show a decline in 1915(c) enrollees in 2006, whereas MAX data do not. However, waiver expenditures in MAX correspond to those in Form 64 data.
Delaware		No relevant notes.
District of Columbia	Excluded from analyses of physically disabled and ID/DD only	Enrollment and claims reporting for 1915(c) waivers in MAX did not always correspond. Also, waiver expenditures were 30% higher in MAX ($45.5 million) than in Form 64 ($35.1 million), and MAX included 53% more 1915(c) enrollees (2,600) than Ng et al. (1,700). However, waiver enrollment was growing dramatically during this period, and these differences likely are explained by differences between MAX (calendar year) and Form 64 and 372 (FY) reporting periods.
Florida		Enrollment and claims reporting for 1915(c) waivers in MAX did not always correspond. Also, Florida did not report any inpatient psychiatric services for individuals under age 21, although this service is covered in the state. Finally, the state had a PACE managed care program in 2006.
Georgia		No relevant notes.
Hawaii		No relevant notes.
Idaho		No relevant notes.
Illinois		Illinois had a PACE managed care program in 2006. Expenditures for services provided through these plans cannot be identified in MAX.
Indiana		No relevant notes.
Iowa		No relevant notes.
Kansas		Kansas had PACE managed care in 2006. Expenditures for LTC services provided through these plans cannot be identified in MAX.
Kentucky		There was an error in Kentucky's claims reporting for 1915(c) services, such that some non-waiver claims for individuals enrolled in 1915(c) waivers were reported as waiver services. Some of these claims were corrected but waiver expenditures for FFS enrollees were 14% higher in MAX ($276 million) than in Form 64 ($243 million). HCBS expenditures may be somewhat overestimated.
Louisiana		MAX reported 20% more Section 1915(c) service recipients (11,000) than reported in Ng et al. (9,200). Issues related to Hurricane Katrina may have impacted service use as well as the reliability of claims and eligibility data in 2006.
Maine	X	Maine did not submit complete and reliable inpatient, LTC, or other claims in 2006. As a result, the state is excluded from the analyses presented in this report.
Maryland		Maryland had PACE managed care in 2006.
Massachusetts	X	HCBS expenditures were 32% lower in MAX ($833 million) than in Form 64 ($1.2 billion). Also, the state had PACE managed care and Senior Care Option plans, the latter being similar to PACE plans, in 2006. Expenditures for services provided through these plans cannot be identified in MAX. As a result, the state is excluded from the analyses presented in this report.
Michigan	X	HCBS expenditures were 68% lower in MAX than in Form 64, and MAX reported 67% fewer HCBS users (26,000) than in Ng et al. (80,200). As a result, the state is excluded from the analyses presented in this report.

TABLE C.1 (*continued*)		
State	**Excluded From Study**	**Anomalies**
Minnesota	X	In 2006, aged enrollees either voluntarily enrolled in the state's Minnesota Senior Health Options managed care program (which includes HCBS and 180 days of nursing facility care) or were enrolled in Senior Care Plus (which also includes HCBS and 180 days of nursing facility care). Disabled enrollees could enroll in the Minnesota Disabled Health Options program. Expenditures for LTC services, including up to 180 days of nursing facility coverage, covered through these plans cannot be identified in MAX. As a result, the state is excluded from the analyses presented in this report.
Mississippi		No relevant notes.
Missouri		Missouri had PACE managed care in 2006. Expenditures for LTC services for these plans cannot be identified in MAX.
Montana	X	HCBS expenditures were 53% lower in MAX ($58 million) than in Form 64 ($124 million), and expenditures for 1915(c) waiver claims were almost 70% lower in MAX ($27 million) than in Form 64 ($88 million). As a result, the state is excluded from the analyses presented in this report.
Nebraska		MAX reported fewer home health participants (5,000) than Ng et al. (7,700) for 2006. However, MAX home health expenditures corresponded well with those reported in Form 64.
Nevada		No relevant notes.
New Hampshire	X	Many claims could not be adjusted properly because of how adjustment claims were submitted to MSIS. There are likely to be duplicates because only the original and replacement claims were reported, and the voids were not included. As a result, the state is excluded from the analyses presented in this report.
New Jersey		Waiver expenditures were 25% lower in MAX ($630 million) than in Form 64 ($839 million). However, expenditures increased dramatically in Form 64 between 2005 and 2006.
New Mexico		New Mexico had a PACE plan but did not report this plan in MAX.
New York		New York had managed LTC and PACE in 2006, and also operates a Senior Care plan, which is reported as a comprehensive HMO in MAX. LTC expenditures provided through these plans cannot be identified in MAX.
North Carolina		No relevant notes.
North Dakota		About 40% of dual-eligibles had ILTC claims in 2006, higher than any other state. Waiver expenditures were 24% higher in MAX ($81 million) than in Form 64 ($65 million).
Ohio		Dual-eligible coding may be unreliable in 2006. Ohio had PACE managed care but did not report this plan in MAX.
Oklahoma		Oklahoma had PACE managed care but did not report this plan in MAX.
Oregon	X	Oregon had PACE managed care in 2006. Expenditures for LTC services provided through these plans cannot be identified in MAX. More important, waiver expenditures were more than 50% lower in MAX ($346 million) than in Form 64 ($638 million). As a result, the state is excluded from the analyses presented in this report.
Pennsylvania	X	Pennsylvania had managed LTC and PACE in 2006. Expenditures for LTC services provided through these plans cannot be identified in MAX. More important, waiver expenditures were 68% lower in MAX ($502 million) than in Form 64 ($1.6 billion). Also, the state undercounted enrollment in several eligibility groups from January-June 2006. As a result, the state is excluded from the analyses presented in this report.

TABLE C.1 (*continued*)		
State	**Excluded From Study**	**Anomalies**
Rhode Island	X	Rhode Island had PACE but did not report this plan in MAX. More important, HCBS expenditures were 67% lower in MAX ($81 million) than in Form 64 ($243 million). Also, reported use of waiver, personal care, and home health services did not correspond to counts reported in Ng et al. for 2006. As a result, the state is excluded from the analyses presented in this report.
South Carolina		South Carolina had a PACE program in 2006. Expenditures for LTC services provided through these plans cannot be identified in MAX. Waiver expenditures were 58% lower in MAX ($123 million) than in Form 64 ($293 million), but HCBS compare well overall.
South Dakota		HCBS expenditures were 26% higher in MAX ($117 million) than in Form 64 ($94 million).
Tennessee		HCBS expenditures were 25% higher in MAX ($702 million) than in Form 64 ($405 million), but reported expenditures in Form 64 increased to more than $600 million in FY 2007.
Texas	X	Texas had a PACE program in 2006 but did not report this plan in MAX. HCBS expenditures were 32% lower in MAX ($1.4 billion) than in Form 64 ($2.0 billion) because most state plan personal care was not identified as such on claims. As a result, the state is excluded from the analyses presented in this report.
Utah		Utah had managed LTC, and expenditures for services provided through these plans cannot be identified in MAX.
Vermont		Starting in 2006, 1915(c) waiver services were covered under Vermont's 1115 Global Commitment to Health waiver. The Global waiver puts most enrollees into a public managed care organization, but most services are reported as FFS in MAX.
Virginia		MAX reported one-third more 1915(c) service recipients (33,000) than Ng et al. (25,000). However, the problem appears to be caused by reporting of children and adults, who are excluded from this study.
Washington	Excluded from analyses of physically disabled and ID/DD only	Washington had a PACE program in 2006. Expenditures for LTC services provided through these plans cannot be identified in MAX. Washington did not report waiver enrollment, so people with physical disabilities and those with ID/DD could not be differentiated in the state.
West Virginia		No relevant notes.
Wisconsin	Excluded from analyses of physically disabled and ID/DD only	Wisconsin had managed LTC and PACE in 2006. Also, Wisconsin's iCare plan for disabled individuals included coverage for short-term nursing home stays (mostly for rehabilitation). Individuals enrolled in these plans are not included in this study. MAX reported fewer waiver service recipients than reported in Ng et al., and waiver expenditures were 12% lower in MAX ($560 million) than those reported in Form 64 ($638 million). Wisconsin did not report waiver enrollment, so people with physical disabilities and those with ID/DD could not be differentiated in the state.
Wyoming		No relevant notes.

APPENDIX D. SUPPLEMENTARY DATA TABLES

TABLE D.1. Number of Enrollees Who Were Aged or Had Disabilities and Used Medicaid FFS LTC Services Compared with the Total Number of Full-Benefit Enrollees in 2006							
State	All Full-Benefit Medicaid Enrollees	Non-LTC Enrollees[a]	Total LTC Enrollees[b]	Total HCBS Enrollees[b]	Aged or Disabled Enrollees Using LTC Services		
					Any FFS LTC	HCBS	ILTC
All 40 states	**40,394,079**	**37,435,165**	**2,958,914**	**1,927,667**	**2,904,883**	**1,852,525**	**1,231,914**
Alabama	689,473	629,693	59,780	36,962	59,526	36,684	25,556
Alaska	130,355	122,690	7,665	6,692	7,591	6,604	1,390
Arkansas	638,964	596,067	42,897	23,182	40,947	21,059	21,719
California	7,068,123	6,486,076	582,047	480,990	578,611	477,381	123,151
Colorado	541,752	498,348	43,404	30,745	42,632	29,777	14,857
Connecticut	513,481	456,396	57,085	30,695	56,805	30,178	31,561
Delaware	162,643	155,891	6,752	3,291	6,662	3,188	3,758
District of Columbia	163,015	155,031	7,984	3,707	7,841	3,550	4,676
Florida	2,724,350	2,561,456	162,894	88,817	153,416	78,044	79,921
Georgia	1,632,879	1,565,354	67,525	30,142	66,667	28,945	39,258
Hawaii	229,335	219,277	10,058	5,852	9,711	5,467	4,638
Idaho	206,105	188,561	17,544	13,059	17,227	12,554	5,874
Illinois	2,287,016	2,115,107	171,909	106,463	153,120	79,894	84,694
Indiana	962,569	903,159	59,410	19,472	59,185	19,215	41,684
Iowa	433,477	381,850	51,627	35,546	51,128	34,839	21,379
Kansas	343,606	302,038	41,568	27,711	40,507	26,508	15,464
Kentucky	806,882	755,944	50,938	39,692	50,373	39,046	28,422
Louisiana	1,091,896	1,029,936	61,960	24,711	60,275	22,982	39,062
Maryland	756,640	704,002	52,638	30,162	52,081	29,509	23,766
Mississippi	629,430	589,898	39,532	16,377	39,336	16,147	24,701
Missouri	1,083,126	990,564	92,562	62,587	90,743	60,263	38,822
Nebraska	257,558	236,216	21,342	11,162	21,186	10,836	11,769
Nevada	230,084	217,836	12,248	7,919	12,164	7,811	4,836
New Jersey	1,029,982	930,092	99,890	57,910	99,441	57,366	45,339
New Mexico	455,289	430,562	24,727	18,953	24,595	18,782	6,561
New York	4,921,559	4,531,537	390,022	267,714	385,991	263,323	158,227
North Carolina	1,529,497	1,383,698	145,799	105,398	145,432	104,945	46,332
North Dakota	71,001	61,594	9,407	4,186	9,380	4,156	5,723
Ohio	2,081,906	1,915,229	166,677	101,594	163,699	90,590	89,608
Oklahoma	711,203	659,625	51,578	30,435	50,793	29,450	23,878
South Carolina	839,652	796,237	43,415	26,351	43,085	25,946	18,386
South Dakota	119,472	109,090	10,382	4,845	10,327	4,767	6,019
Tennessee	1,419,091	1,366,613	52,478	19,023	51,989	18,314	34,610
Utah	292,771	281,421	11,350	5,709	11,264	5,612	6,058
Vermont	147,968	138,471	9,497	6,485	9,493	6,478	3,619

TABLE D.1 (*continued*)							
State	All Full-Benefit Medicaid Enrollees	Non-LTC Enrollees[a]	Total LTC Enrollees[b]	Total HCBS Enrollees[b]	Aged or Disabled Enrollees Using LTC Services		
					Any FFS LTC	HCBS	ILTC
Virginia	843,228	790,354	52,874	34,915	52,361	34,360	27,275
Washington	1,046,139	970,445	75,694	59,455	75,694	59,455	20,425
West Virginia	366,042	340,145	25,897	14,899	25,825	14,741	11,901
Wisconsin	863,939	802,218	61,721	29,903	61,721	29,903	34,557
Wyoming	72,581	66,444	6,137	3,956	6,059	3,856	2,438

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas).

NOTES: Enrollees in managed LTC and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Non-LTC Enrollees include all full-benefit enrollees eligible as children and non-disabled adults. Only aged and disabled enrollees are included in counts of LTC enrollees and users.

b. Individuals who are enrolled in 1915(c) waivers but do not receive HCBS are included in counts of LTC and HCBS enrollees but excluded from counts of LTC and HCBS users.

TABLE D.2. Medicaid LTC System Performance Indicators for Enrollees Who Were Aged or Had Disabilities and Were Eligible for Full Medicaid Benefits in 2006									
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[a]**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 40 States	**76,879,134,892**	**2,904,883**	**40.8**	**52.9**	**63.8**	**17.8**	**16,914**	**36,971**	**0.458**
Alabama	1,130,404,702	59,526	27.2	39.9	61.6	11.9	8,385	32,196	0.260
Alaska	284,916,040	7,591	72.7	79.3	87.0	24.5	31,371	55,930	0.561
Arkansas	858,715,978	40,947	24.9	39.6	51.4	11.0	10,165	29,682	0.342
California	9,878,514,101	578,611	54.7	65.9	82.5	32.9	11,325	36,316	0.312
Colorado	1,019,876,958	42,632	50.7	58.7	69.8	18.9	17,375	33,822	0.514
Connecticut	2,238,931,231	56,805	31.6	41.3	53.1	22.8	23,454	48,513	0.483
Delaware	301,695,573	6,662	34.0	40.3	47.9	9.2	32,215	52,952	0.608
District of Columbia	315,228,327	7,841	23.2	34.8	45.3	11.8	20,620	51,760	0.398
Florida	3,747,337,138	153,416	31.1	38.7	50.9	9.8	14,924	32,314	0.462
Georgia	1,493,201,190	66,667	28.4	40.2	43.4	6.9	14,636	27,245	0.537
Hawaii	329,343,209	9,711	38.5	45.3	56.3	13.4	23,187	43,678	0.531
Idaho	371,132,820	17,227	42.6	60.4	72.9	21.2	12,601	36,252	0.348
Illinois	3,176,627,446	153,120	30.8	45.3	52.2	16.4	12,256	25,946	0.472
Indiana	1,828,498,633	59,185	27.3	34.4	32.5	6.3	25,979	31,890	0.815
Iowa	1,157,728,242	51,128	37.2	53.6	68.1	25.9	12,375	33,987	0.364
Kansas	840,599,103	40,507	52.5	61.9	65.4	22.7	16,645	25,826	0.644
Kentucky	1,209,161,974	50,373	25.8	81.8	77.5	13.3	7,991	31,565	0.253
Louisiana	1,525,871,254	60,275	27.5	36.2	38.1	9.0	18,253	28,324	0.644
Maryland	1,768,700,598	52,081	42.8	49.7	56.7	14.8	25,675	42,542	0.604
Mississippi	1,037,298,529	39,336	11.1	21.5	41.0	7.5	7,115	37,343	0.191
Missouri	1,466,773,653	90,743	40.7	57.6	66.4	18.7	9,908	22,403	0.442
Nebraska	562,110,501	21,186	37.4	45.9	51.1	16.4	19,410	29,890	0.649
Nevada	306,338,277	12,164	43.3	52.0	64.2	10.5	16,978	35,923	0.473
New Jersey	3,447,275,904	99,441	31.2	38.9	57.7	19.4	18,755	52,304	0.359
New Mexico	687,375,842	24,595	70.3	74.1	76.4	18.5	25,725	31,124	0.827
New York	17,776,758,555	385,991	45.3	58.6	68.2	29.2	30,580	61,458	0.498
North Carolina	2,701,905,573	145,432	43.3	57.6	72.2	23.0	11,151	33,058	0.337
North Dakota	305,327,011	9,380	25.8	32.0	44.3	14.8	18,943	39,595	0.478
Ohio	4,884,852,294	163,699	33.5	45.8	55.3	15.3	18,044	36,271	0.497
Oklahoma	1,012,058,004	50,793	40.5	51.2	58.0	14.8	13,902	25,239	0.551
South Carolina	909,136,545	43,085	34.6	45.8	60.2	11.2	12,107	32,363	0.374
South Dakota	251,692,447	10,327	35.9	41.9	46.2	12.6	18,956	26,803	0.707
Tennessee	1,854,934,959	51,989	37.0	44.4	35.2	4.9	37,521	33,741	1.112
Utah	334,796,035	11,264	38.9	45.4	49.8	7.1	23,234	33,742	0.689
Vermont	257,050,002	9,493	57.8	70.2	68.2	23.4	22,928	29,987	0.765

TABLE D.2 (*continued*)									
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[a]**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Virginia	1,421,468,659	52,361	42.6	66.6	65.6	11.8	17,618	29,922	0.589
Washington	1,510,683,980	75,694	65.2	70.1	78.5	20.9	16,570	25,730	0.644
West Virginia	734,425,562	25,825	38.0	47.2	57.1	10.4	18,914	38,284	0.494
Wisconsin	1,764,144,875	61,721	44.5	50.2	48.4	13.2	26,260	28,326	0.927
Wyoming	176,243,168	6,059	57.0	63.1	63.6	16.8	26,045	31,097	0.838

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas). Potential LTC Users are based on data from the ACS 2007 Public Use Microdata Sample.

NOTES: Enrollees in managed LTC and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Potential LTC users include SSI recipients and individuals with income up to 300% of the SSI limit who have a physical, mental, or emotional condition lasting 6 months or more resulting either in difficulties conducting ADLs (dressing, bathing, or getting around inside the home) or difficulties in learning, remembering or concentrating.

TABLE D.3. Medicaid LTC System Performance Indicators for Aged Enrollees Eligible for Full Medicaid Benefits in 2006										
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS Users**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[a]**	**Percentage of New Nursing Home Spells in 2007 Preceded by HCBS Use in 2006**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 40 States	**38,970,178,862**	**1,648,932**	**25.8**	**34.7**	**51.4**	**21.7**	**22.6[b]**	**11,875**	**31,422**	**0.378**
Alabama	727,083,255	32,141	8.9	16.7	40.1	11.6	20.8	5,003	31,302	0.160
Alaska	128,395,747	3,507	59.0	65.9	82.2	43.0	33.3	26,260	60,771	0.432
Arkansas	487,483,212	26,288	17.1	27.5	45.7	16.8	24.9	6,937	25,706	0.270
California	5,037,150,509	332,832	46.7	54.1	77.5	47.1	33.6	9,123	29,849	0.306
Colorado	504,301,801	22,023	22.3	28.9	51.6	22.6	29.0	9,914	32,464	0.305
Connecticut	1,297,631,176	35,589	15.6	21.8	39.9	26.2	29.4	14,255	44,657	0.319
Delaware	155,128,400	3,837	10.2	13.0	26.3	7.7	16.7	15,734	46,304	0.340
District of Columbia	180,684,788	4,650	25.9	30.7	42.5	17.2	16.9	23,720	46,167	0.514
Florida	2,109,846,021	91,269	9.7	13.1	33.6	8.8	10.8	6,688	29,628	0.226
Georgia	893,273,614	41,087	10.0	13.2	24.9	6.6	10.8	8,744	25,232	0.347
Hawaii	194,837,917	5,758	14.1	18.7	38.2	11.9	13.2	12,525	44,431	0.282
Idaho	170,029,106	8,017	27.1	38.4	61.4	24.1	35.8	9,375	33,104	0.283
Illinois	1,301,097,539	80,876	18.9	26.4	40.8	16.8	14.8	7,454	20,469	0.364
Indiana	886,974,760	34,198	5.9	7.6	10.9	3.3	N/A	14,215	26,796	0.530
Iowa	502,596,147	27,483	21.0	37.7	54.7	29.7	30.2	7,021	23,870	0.294
Kansas	381,859,547	20,601	22.7	28.6	42.4	20.1	22.0	9,931	22,897	0.434
Kentucky	662,878,165	27,858	8.0	76.9	73.5	21.0	24.6	2,599	29,838	0.087
Louisiana	627,400,315	29,365	15.6	16.6	20.2	6.4	5.2	16,431	22,283	0.737
Maryland	876,247,758	24,857	16.0	19.7	29.7	10.5	9.1	18,972	40,716	0.466
Mississippi	616,636,525	24,700	7.1	12.1	33.3	10.2	15.7	5,329	32,674	0.163
Missouri	763,286,271	52,382	19.3	38.4	55.3	24.8	30.5	5,097	20,559	0.248
Nebraska	275,941,618	12,463	16.6	23.0	35.6	15.7	24.4	10,346	25,533	0.405
Nevada	153,086,456	6,952	27.0	32.0	55.3	14.5	16.9	10,745	32,695	0.329
New Jersey	1,883,875,180	64,057	21.4	26.8	48.1	23.9	19.6	13,072	41,737	0.313
New Mexico	289,303,163	13,160	48.0	52.5	63.5	22.5	25.0	16,609	28,018	0.593
New York	8,670,454,546	215,851	36.3	46.4	55.5	32.1	31.0	26,246	46,502	0.564
North Carolina	1,409,902,537	80,627	32.0	38.4	61.1	28.8	30.1	9,170	26,996	0.340
North Dakota	166,576,261	5,751	7.6	12.0	26.0	11.1	19.2	8,461	33,452	0.253
Ohio	2,571,660,709	94,670	19.0	29.4	45.4	21.0	21.1	11,370	32,798	0.347
Oklahoma	480,456,706	30,023	20.9	28.4	47.6	21.9	27.5	7,039	21,694	0.324
South Carolina	462,115,519	23,702	14.9	19.2	42.1	11.7	17.3	6,912	26,918	0.257
South Dakota	127,027,358	6,175	8.7	12.8	24.9	11.4	15.7	7,145	23,414	0.305
Tennessee	890,405,688	30,416	12.5	13.5	10.7	2.5	3.8	34,375	28,169	1.220
Utah	106,803,128	4,558	8.6	11.5	22.2	4.7	N/A	9,076	26,134	0.347
Vermont	121,855,143	4,889	20.3	36.8	46.3	24.4	30.6	10,942	31,360	0.349

TABLE D.3 (*continued*)

State	Total LTC $	Total LTC Users	Percentage of Medicaid LTC $ Allocated to HCBS	Percentage of Total Medicaid $ for LTC Users Allocated to HCBS Users	Percentage of LTC Users Receiving HCBS	Percentage of Potential LTC Users Receiving HCBS[a]	Percentage of New Nursing Home Spells in 2007 Preceded by HCBS Use in 2006	Per-User Spending on HCBS	Per-User Spending on ILTC	Ratio of Per-User $ on HCBS Relative to ILTC
Virginia	734,087,006	31,989	19.4	42.2	50.6	14.4	20.3	8,824	26,999	0.327
Washington	779,745,608	41,395	46.4	53.4	69.9	35.1	33.0	12,512	27,264	0.459
West Virginia	391,330,106	13,616	13.6	16.6	36.4	10.5	16.2	10,718	37,167	0.288
Wisconsin	882,718,934	36,521	17.0	19.9	26.5	11.8	14.4	15,512	25,775	0.602
Wyoming	68,010,623	2,799	14.8	22.4	33.5	10.5	23.9	10,719	28,725	0.373

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas). Potential LTC Users are based on data from the ACS 2007 Public Use Microdata Sample. Percentage of new nursing home spells preceded by HCBS are from Ballou et al. (2011).

NOTES: Enrollees in managed LTC and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Potential LTC users include SSI recipients and individuals with income up to 300% of the SSI limit who are 65 or older and have a physical, mental, or emotional condition lasting 6 months or more resulting either in difficulties conducting ADLs (dressing, bathing, or getting around inside the home) or difficulties in learning, remembering or concentrating.

b. National figure includes 38 states (excludes data for Indiana and Utah).

N/A = not available (first new spells data were unavailable or unreliable for Indiana and Utah).

TABLE D.4. Medicaid LTC System Performance Indicators for Enrollees Under 65 with Disabilities Eligible for Full Medicaid Benefits in 2006									
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[a]**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 40 States	**37,908,956,030**	**1,255,951**	**56.1**	**67.3**	**80.0**	**15.4**	**21,167**	**53,321**	**0.397**
Alabama	403,321,447	27,385	60.3	71.2	86.9	12.1	10,218	36,506	0.280
Alaska	156,520,293	4,084	84.0	87.7	91.1	18.4	35,331	47,906	0.737
Arkansas	371,232,766	14,659	35.2	51.9	61.8	7.6	14,440	40,112	0.360
California	4,841,363,592	245,779	63.0	75.1	89.2	24.3	13,915	53,784	0.259
Colorado	515,575,157	20,609	78.5	82.2	89.4	17.2	21,977	39,693	0.554
Connecticut	941,300,055	21,216	53.7	62.8	75.2	20.4	31,646	61,942	0.511
Delaware	146,567,173	2,825	59.2	65.0	77.1	10.1	39,858	79,569	0.501
District of Columbia	134,543,539	3,191	19.6	38.2	49.4	8.4	16,731	60,885	0.275
Florida	1,637,491,117	62,147	58.6	63.9	76.3	10.6	20,250	43,369	0.467
Georgia	599,927,576	25,580	55.7	66.7	73.2	7.1	17,855	35,910	0.497
Hawaii	134,505,292	3,953	73.8	74.8	82.6	14.7	30,367	40,433	0.751
Idaho	201,103,714	9,210	55.7	72.1	82.9	19.7	14,681	41,778	0.351
Illinois	1,875,529,907	72,244	39.1	55.2	64.9	16.1	15,633	34,465	0.454
Indiana	941,523,873	24,987	47.4	55.0	62.0	8.0	28,794	46,919	0.614
Iowa	655,132,095	23,645	49.7	63.2	83.8	23.5	16,432	69,493	0.236
Kansas	458,739,556	19,906	77.3	82.4	89.3	24.2	19,945	40,490	0.493
Kentucky	546,283,809	22,515	47.4	85.8	82.5	9.5	13,940	35,980	0.387
Louisiana	898,470,939	30,910	35.8	46.7	55.1	10.6	18,889	37,717	0.501
Maryland	892,452,840	27,224	69.2	71.6	81.3	17.1	27,912	48,351	0.577
Mississippi	420,662,004	14,636	16.9	32.4	54.2	5.9	8,967	48,763	0.184
Missouri	703,487,382	38,361	63.9	73.2	81.6	15.3	14,355	28,625	0.501
Nebraska	286,168,883	8,723	57.5	63.6	73.3	16.9	25,697	44,115	0.583
Nevada	153,251,821	5,212	59.6	65.1	76.1	8.4	23,028	43,703	0.527
New Jersey	1,563,400,724	35,384	43.1	51.2	75.0	15.9	25,349	90,366	0.281
New Mexico	398,072,679	11,435	86.5	88.0	91.1	16.2	33,038	45,129	0.732
New York	9,106,304,009	170,140	53.9	68.1	84.3	27.1	34,200	106,538	0.321
North Carolina	1,292,003,036	64,805	55.6	71.0	86.0	19.5	12,901	52,941	0.244
North Dakota	138,750,750	3,629	47.6	53.1	73.4	18.2	24,820	64,814	0.383
Ohio	2,313,191,585	69,029	49.5	59.0	68.9	12.3	24,075	44,722	0.538
Oklahoma	531,601,298	20,770	58.1	66.6	73.0	11.3	20,374	34,984	0.582
South Carolina	447,021,026	19,383	54.8	66.4	82.4	10.9	15,352	53,402	0.287
South Dakota	124,665,089	4,152	63.7	66.3	77.8	13.2	24,581	42,607	0.577
Tennessee	964,529,271	21,573	59.7	66.7	69.9	6.1	38,198	55,881	0.684
Utah	227,992,907	6,706	53.2	58.3	68.6	8.0	26,341	45,982	0.573
Vermont	135,194,859	4,604	91.5	94.0	91.5	22.9	29,376	21,875	1.343

TABLE D.4 (*continued*)									
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[a]**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Virginia	687,381,653	20,372	67.3	88.1	89.3	10.1	25,440	41,837	0.608
Washington	730,938,372	34,299	85.2	83.7	89.0	15.1	20,418	21,125	0.967
West Virginia	343,095,456	12,209	65.8	72.4	80.1	10.3	23,073	41,908	0.551
Wisconsin	881,425,941	25,200	72.0	75.4	80.2	14.0	31,413	40,135	0.783
Wyoming	108,232,545	3,260	83.5	85.7	89.5	20.8	30,965	42,493	0.729

SOURCE: Mathematica analysis of 2006 MAX data for 39 states and the District of Columbia with representative FFS LTC data (excludes data from Arizona, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, and Texas). Potential LTC Users are based on data from the ACS 2007 Public Use Microdata Sample.

NOTES: Enrollees in managed LTC and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Potential LTC users include SSI recipients and individuals with income up to 300% of the SSI limit who are under 65 and have a physical, mental, or emotional condition lasting 6 months or more resulting either in difficulties conducting ADLs (dressing, bathing, or getting around inside the home) or difficulties in learning, remembering or concentrating.

TABLE D.5. Medicaid LTC System Performance Indicators for Enrollees Under 65 with Physical Disabilities Eligible for Full Medicaid Benefits in 2006 (excludes enrollees with ID/DD)[a]									
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[b]**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 40 States	**13,754,095,189**	**802,200**	**46.2**	**65.7**	**77.2**	**27.1**	**10,262**	**32,933**	**0.312**
Alabama	181,990,489	22,444	25.8	57.2	84.9	25.7	2,461	32,829	0.075
Alaska	86,936,952	3,109	71.8	81.3	88.4	47.0	22,704	48,320	0.470
Arkansas	142,401,849	9,748	19.9	51.9	59.0	11.7	4,923	26,682	0.185
California	2,358,684,297	172,874	56.3	75.6	89.0	44.5	8,628	41,965	0.206
Colorado	228,371,585	13,314	60.4	71.9	84.3	29.2	12,293	34,563	0.356
Connecticut	311,098,146	13,669	26.5	55.0	69.0	37.6	8,757	39,482	0.222
Delaware	59,857,799	1,965	35.5	52.3	73.4	19.6	14,724	62,987	0.234
District of Columbia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Florida	537,910,311	30,356	28.8	49.9	60.7	10.9	8,397	30,640	0.274
Georgia	274,753,803	16,122	36.9	61.7	63.6	10.1	9,870	27,497	0.359
Hawaii	44,878,815	1,856	40.1	56.4	67.5	13.8	14,376	34,710	0.414
Idaho	88,022,709	6,722	62.5	78.1	83.4	39.4	9,811	21,294	0.461
Illinois	808,239,915	51,214	33.0	46.5	56.0	24.6	9,301	22,215	0.419
Indiana	269,654,796	12,563	34.6	51.6	53.5	9.2	13,876	26,641	0.521
Iowa	156,500,371	12,414	53.1	73.9	85.2	35.3	7,857	29,971	0.262
Kansas	175,683,214	12,728	75.6	82.7	87.8	47.1	11,890	22,264	0.534
Kentucky	247,491,130	19,140	33.1	81.4	80.0	23.1	5,345	23,120	0.231
Louisiana	257,024,505	20,498	29.9	53.4	57.0	18.7	6,569	17,998	0.365
Maryland	370,336,438	16,833	41.0	57.0	71.5	27.6	12,621	41,079	0.307
Mississippi	158,717,706	10,232	21.5	46.8	59.4	10.6	5,601	27,430	0.204
Missouri	526,061,747	35,195	68.9	76.8	82.6	39.3	12,461	21,031	0.592
Nebraska	104,497,665	5,012	37.0	54.4	64.5	22.0	11,957	30,871	0.387
Nevada	72,441,250	3,676	44.2	57.8	69.7	15.2	12,497	32,643	0.383
New Jersey	547,362,116	22,977	36.0	52.8	73.2	25.0	11,725	49,842	0.235
New Mexico	138,343,807	7,576	75.2	81.7	89.7	26.6	15,317	36,477	0.420
New York	2,877,342,505	110,197	45.8	67.2	80.2	46.2	14,923	51,541	0.290
North Carolina	551,750,654	51,916	68.5	82.4	89.8	42.1	8,114	25,235	0.322
North Dakota	26,902,338	1,440	24.4	44.2	66.1	21.1	6,904	34,634	0.199
Ohio	918,529,768	45,043	40.6	59.5	66.6	22.4	12,428	28,437	0.437
Oklahoma	175,827,848	14,043	38.2	60.5	71.3	20.1	6,713	23,480	0.286
South Carolina	138,515,344	13,122	49.4	70.8	84.8	17.5	6,148	32,079	0.192
South Dakota	30,293,347	1,393	16.0	33.3	44.2	6.6	7,876	30,616	0.257
Tennessee	389,929,774	15,371	60.1	70.8	65.2	12.3	23,382	27,115	0.862
Utah	63,432,654	2,467	15.4	41.1	44.5	6.7	8,891	35,199	0.253
Vermont	34,439,393	2,666	68.6	86.8	85.4	44.5	10,377	21,216	0.489

TABLE D.5 (*continued*)									
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[b]**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
Virginia	268,316,349	12,927	45.3	84.4	85.6	16.1	10,991	31,691	0.347
Washington	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
West Virginia	111,857,577	8,147	41.2	63.8	75.7	16.5	7,471	28,679	0.261
Wisconsin	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wyoming	19,696,223	1,231	52.1	71.0	78.3	20.7	10,650	28,316	0.376

SOURCE: Mathematica analysis of 2006 MAX data for 37 states with representative FFS LTC data (excludes data from Arizona, District of Columbia, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, Texas, Washington, and Wisconsin). Potential LTC Users are based on data from the ACS 2007 Public Use Microdata Sample.

NOTES: Enrollees in managed LTC and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Enrollees with ID/DD include those enrolled in ID/DD waivers or using ICF/IID services.

b. Potential LTC users include SSI recipients and individuals with income up to 300% of the SSI limit who are under 65 and have a physical, mental, or emotional condition lasting 6 months or more resulting in difficulties conducting ADLs (dressing, bathing, or getting around inside the home).

N/A = not available (ID/DD data were unavailable or unreliable for District of Columbia, Washington, and Wisconsin).

TABLE D.6. Medicaid LTC System Performance Indicators for Enrollees Under 65 with ID/DD and Eligible for Full Medicaid Benefits in 2006[a]										
State	**Total LTC $**	**Total LTC Users**	**Percentage of Medicaid LTC $ Allocated to HCBS**	**Percentage of Total Medicaid $ for LTC Users Allocated to HCBS Users**	**Percentage of LTC Users Receiving HCBS**	**Percentage of Potential LTC Users Receiving HCBS[b]**	**Percentage of New Nursing Home Spells in 2007 Preceded by HCBS Use in 2006**	**Per-User Spending on HCBS**	**Per-User Spending on ILTC**	**Ratio of Per-User $ on HCBS Relative to ILTC**
All 40 States	**22,407,952,989**	**391,061**	**60.8**	**68.4**	**85.2**	**8.7**	**42.4c**	**40,895**	**118,035**	**0.346**
Alabama	221,330,958	4,941	88.7	90.7	96.1	3.9	50.0	41,336	92,155	0.449
Alaska	69,583,341	975	99.3	99.7	99.8	6.7	75.0	70,992	33,871	2.096
Arkansas	228,830,917	4,911	44.8	51.9	67.3	4.7	16.9	30,991	73,541	0.421
California	2,482,679,295	72,905	69.4	74.4	89.7	11.7	39.3	26,361	87,096	0.303
Colorado	287,203,572	7,295	92.9	94.5	98.6	10.5	75.0	37,081	115,938	0.320
Connecticut	630,201,909	7,547	67.1	69.6	86.6	12.3	57.5	64,686	165,688	0.390
Delaware	86,709,374	860	75.6	77.1	85.5	5.1	33.3	89,202	153,229	0.582
District of Columbia	N/A	N/A	N/A	N/A	N/A	N/A	17.6	N/A	N/A	N/A
Florida	1,099,580,806	31,791	73.2	76.2	91.2	10.4	42.5	27,783	94,414	0.294
Georgia	325,173,773	9,458	71.6	75.1	89.4	5.2	17.6	27,545	84,557	0.326
Hawaii	89,626,477	2,097	90.6	91.5	96.0	15.3	60.0	40,315	85,177	0.473
Idaho	113,081,005	2,488	50.4	64.1	81.3	8.3	48.4	28,184	96,332	0.293
Illinois	1,067,289,992	21,030	43.7	68.8	86.6	10.4	50.4	25,603	68,509	0.374
Indiana	671,869,077	12,424	52.6	57.4	70.7	7.3	N/A	40,216	81,061	0.496
Iowa	498,631,724	11,231	48.7	57.3	82.3	17.1	72.5	26,238	111,758	0.235
Kansas	283,056,342	7,178	78.3	82.1	91.9	13.3	66.7	33,581	94,355	0.356
Kentucky	298,792,679	3,375	59.2	93.7	96.6	2.5	77.6	54,309	147,816	0.367
Louisiana	641,446,434	10,412	38.2	41.2	51.4	5.4	18.8	45,806	75,158	0.609
Maryland	522,116,402	10,391	89.2	90.4	97.1	11.8	27.3	46,151	153,701	0.300
Mississippi	261,944,298	4,404	14.1	17.0	42.0	2.4	23.8	20,039	85,713	0.234
Missouri	177,425,635	3,166	49.1	56.7	70.6	1.7	43.9	39,000	82,961	0.470
Nebraska	181,671,218	3,711	69.2	72.6	85.2	13.7	28.0	39,751	89,076	0.446
Nevada	80,810,571	1,536	73.3	78.1	91.2	4.6	8.3	42,293	119,770	0.353
New Jersey	1,016,038,608	12,407	46.9	49.8	78.6	9.7	35.3	48,845	191,215	0.255
New Mexico	259,728,872	3,859	92.5	93.0	94.0	9.4	30.4	66,253	77,366	0.856
New York	6,228,961,504	59,943	57.6	68.8	92.0	16.3	61.0	65,099	287,894	0.226
North Carolina	740,252,382	12,889	46.0	52.9	70.7	5.2	52.7	37,375	101,209	0.369
North Dakota	111,848,412	2,189	53.2	56.3	78.2	16.9	72.4	34,788	97,989	0.355
Ohio	1,394,661,817	23,986	55.4	58.4	73.4	7.0	41.6	43,907	89,976	0.488
Oklahoma	355,773,450	6,727	67.9	72.3	76.4	6.1	21.5	46,985	65,494	0.717
South Carolina	308,505,682	6,261	57.3	62.5	77.4	5.8	70.5	36,478	82,644	0.441
South Dakota	94,371,742	2,759	79.0	83.7	94.7	17.2	34.4	28,520	85,560	0.333
Tennessee	574,599,497	6,202	59.4	61.8	81.4	3.1	13.6	67,596	191,335	0.353
Utah	164,560,253	4,239	67.7	70.0	82.7	8.5	N/A	31,803	66,615	0.477

TABLE D.6 (*continued*)

State	Total LTC $	Total LTC Users	Percentage of Medicaid LTC $ Allocated to HCBS	Percentage of Total Medicaid $ for LTC Users Allocated to HCBS Users	Percentage of LTC Users Receiving HCBS	Percentage of Potential LTC Users Receiving HCBS[b]	Percentage of New Nursing Home Spells in 2007 Preceded by HCBS Use in 2006	Per-User Spending on HCBS	Per-User Spending on ILTC	Ratio of Per-User $ on HCBS Relative to ILTC
Vermont	100,755,466	1,938	99.4	99.7	99.9	14.6	100.0	51,711	45,869	1.127
Virginia	419,065,304	7,445	81.4	91.7	95.6	6.4	45.8	47,911	104,948	0.457
Washington	N/A	N/A	N/A	N/A	N/A	N/A	100.0	N/A	N/A	N/A
West Virginia	231,237,879	4,062	77.6	80.3	88.8	6.3	26.0	49,745	101,386	0.491
Wisconsin	N/A	N/A	N/A	N/A	N/A	N/A	63.0	N/A	N/A	N/A
Wyoming	88,536,322	2,029	90.5	92.0	96.4	20.8	80.0	40,981	96,755	0.424

SOURCE: Mathematica analysis of 2006 MAX data for 37 states with representative FFS LTC data (excludes data from Arizona, District of Columbia, Maine, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, Oregon, Pennsylvania, Rhode Island, Texas, Washington, and Wisconsin). Potential LTC Users are based on data from the ACS 2007 Public Use Microdata Sample. Percentage of new ICF/IID spells preceded by HCBS are from Ballou et al. (2011).

NOTES: Enrollees in managed LTC and those eligible for only restricted Medicaid benefits are excluded. HCBS include 1915(c) waiver services and state plan services for personal care, residential care, home health, adult day care, and private duty nursing. ILTC includes services provided in nursing homes, ICFs/IID, mental hospitals for the aged, and inpatient psychiatric facilities for people under age 21.

a. Enrollees with ID/DD include those enrolled in ID/DD waivers or using ICF/IID services.

b. Potential LTC users include SSI recipients and individuals with income up to 300% of the SSI limit who are under 65 and have a physical, mental, or emotional condition lasting 6 months or more resulting in difficulties in learning, remembering or concentrating (but no reported difficulties with ADLs).

c. National figure includes 38 states (includes data for District of Columbia, Washington, and Wisconsin and excludes data for Indiana and Utah).

N/A = not available (ID/DD data were unavailable or unreliable for District of Columbia, Washington, and Wisconsin; first new spells data were unavailable or unreliable for Indiana and Utah).

MEASURING STATES' PROGRESS IN MAINTAINING AND EXPANDING MEDICAID HOME AND COMMUNITY-BASED SERVICES

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Interstate Variation and Progress Toward Balance in Use of and Expenditure for Long-Term Services and Supports in 2009

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Medicaid-Financed Institutional Services: Characteristics of Nursing Home and ICF/IID Residents and Their Patterns of Care

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