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Incentives for Home and Community Based Care Under the Affordable Care Act

Implications for Supplemental Security Income Receipt

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Abstract

One in three 65-year-olds will require long-term care at some point in their lives. Most long-term nursing home stays cost more than $3,500 a month, and eventually exhaust the financial resources of most families. Medicaid currently covers these expenses for 6 out of 10 nursing home residents. Not all those who require care need the extent of care offered in a nursing home, but in many states Medicaid will not pay for care received at home; this institutional bias could lead to overuse of nursing home services. The Balancing Incentives Program (BIP), which is part of the Affordable Care Act, encouraged states to adopt structural changes and redirect funds to cover care received while living at home, with relatives, or in assisted-living facilities. This policy may have important interactions with the Supplemental Security Income (SSI) program because SSI payment amounts depend in part on where the recipient lives. Payment amounts for those living independently can be as much as 25 times greater for those living in a nursing home, and 50 percent greater than when living with family without paying room and board. This paper examines whether and in what ways the BIP changed living arrangements and SSI receipt, using data from the American Community Survey (ACS), Health and Retirement Study (HRS), Centers for Medicare and Medicaid Services (CMS), and Social Security Administration (SSA). We find no consistent effects of the BIP on rates of institutional residence, but we do find a reduction in cohabitation with family members. These changes in cohabitation coincide with increases in SSI receipt and SSI payment amounts.

1 Introduction

One in three 65-year-olds will require long-term care at some point in their lives (Henry J. Kaiser Family Foundation, 2017). Medicaid currently covers approximately 60 percent of all long-term care expenses nationwide. However, it does not cover care received at home or in assisted-living facilities unless there is a state waiver program that permits coverage of care in noninstitutional settings (O'Shaughnessy, 2014). The Affordable Care Act's (ACA) Balancing Incentives Program (BIP) included additional federal funds for selected states to support waiver programs and build infrastructure to enable Medicaid coverage of services in home and community-based settings (HCBS). The BIP aimed to encourage states that spend 50 percent or more of total long-term care expenses on institutional care to "balance" their expenditures by shifting spending to HCBS. Although BIP-supported activities were not specific to older adults, the share of long-term care Medicaid spending devoted to HCBS in BIP-eligible states was approximately 30 percent (Wiener et al., 2015). HCBS spending constituted over 60 percent of total long-term care spending for adults with intellectual or developmental disabilities, but the overall HCBS share across all populations receiving long-term care was approximately 40 percent and most persons who need assistance with activities of daily living are over age 65 (Wiener et al., 2015). Thus, to reach the balancing benchmark of 50 percent, most states that participated in the BIP had to target efforts at the older-adult population.

The BIP's impact on the older-adult population may have important interactions with the Supplemental Security Income (SSI) program. SSI provides cash benefits to persons who are aged 65 and older or disabled or blind and have limited income. In 33 states, SSI determinations also qualify individuals for Medicaid coverage without a separate application. Further, SSI benefit amounts depend in part on where the recipient lives. Table 1 displays the maximum federal SSI payments for individuals in three different scenarios: living independently in the community, living with family and not paying their share of room and board, and living in a nursing home or institution. These figures are for 2011, when the BIP was announced, but 2019 payments exhibit the same patterns. Individuals living in the community who meet the income limits for SSI are generally eligible for higher payments than those who are institutionalized because Medicaid covers room and board for persons living in institutions. Therefore, if BIP accomplished its goals of reducing the institutional bias in Medicaid and streamlining processes to obtain services, it also may have increased SSI uptake and payment amounts. Although the espoused goal of the BIP was to reduce institutionalization, it may also have enabled independent living for older adults who would have otherwise lived with family members and received informal care. If so, then the BIP may lead to an increase in SSI recipients and payments through this channel, too. This study investigates the question, what was the impact of the ACA's Balancing Incentives Program on the living arrangements of older adults and their receipt of SSI income?

Table 1: Monthly Federal SSI Payment Amounts by Residency, 2011

Living Situation	Single	Married
Independent	$674	$1,011
Living with family, not paying room and board	$449	$674
Nursing home	$30	$30

Amounts reflect federal SSI payments amounts and do not include state supplemental funds. Actual amounts received depend upon income. Benefits while living with family can be higher if contributing to rent and food expenses. Benefits while living in a nursing home may not be reduced if the stay is temporary.

1.1 The Balancing Incentives Program

The BIP authorized over $3 billion in federal funds between 2011 and 2015 to support implementation of structural reforms in states' long-term care systems that increase access to HCBS. States were eligible to participate if they spent less than 50 percent of their total Medicaid long-term care dollars on HCBS in 2009. Of the 38 eligible states, 21 were approved to participate and 18 continued to participate through May 2015 (Watts et al., 2015).

1.1.1 Participating vs. Nonparticipating States

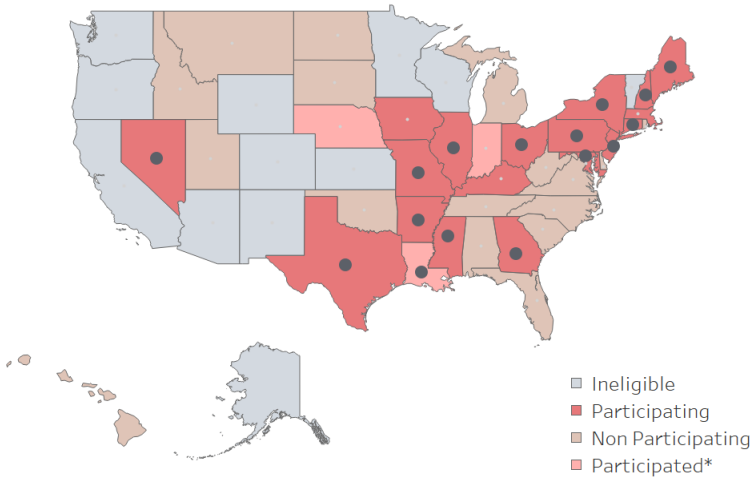
Participating states spent an average of 39.2 percent of their total long-term care Medicaid expenditures on HCBS in 2009, whereas states that were eligible but did not participate ("eligible nonparticipating" states) spent 38.6 percent and ineligible states spent 59.5 percent (Wiener et al., 2015). Figure 1 displays a map of ineligible, eligible nonparticipating, and participating states. Fifteen of the participating states specifically listed adults aged 65 and older as a target population in their BIP applications. These states are located in different geographical regions of country, which is important for our ability to separate potential policy effects from regional differences in long-term care unrelated to the BIP.

Participating states that targeted BIP activities at older adults are also socioeconomically diverse, as reflected by their positions in the distribution of Federal Medical Assistance Percentage (FMAP) multipliers displayed in Figure 2.[1] For example, in Mississippi, the federal government matches each dollar of state Medicaid spending with at least $2.96 in federal funds; in Connecticut, Maryland, New Hampshire, New Jersey, and New York, the federal match for $1 of state spending is just $1.

Participating states received Federal Medical Assistance Percentages (FMAP) for long-term care expenses that were 2 percentage points above their standard FMAP rate (5 points above

[1]FMAP rates are a function of states' per capita personal income.

Figure 1: BIP Participating, Eligible but Nonparticipating, and Ineligible States



Indiana, Louisiana and Nebraska all had approved BIP applications but quit participating before the end of the performance period in 2015. Dots denote states that listed older adults (age 65 and older) as a target population for BIP activities.

for Mississippi). Figure 3 shows the impact of these BIP subsidies on multipliers for the 15 participating states that targeted older adults. In Mississippi, which received the largest federal subsidy, the BIP offered an additional $0.98 from the federal government for every state dollar spent on long-term care, putting the total federal match at $3.94. In other states, the additional BIP matching funds amounted to only $0.08 per state dollar spent.

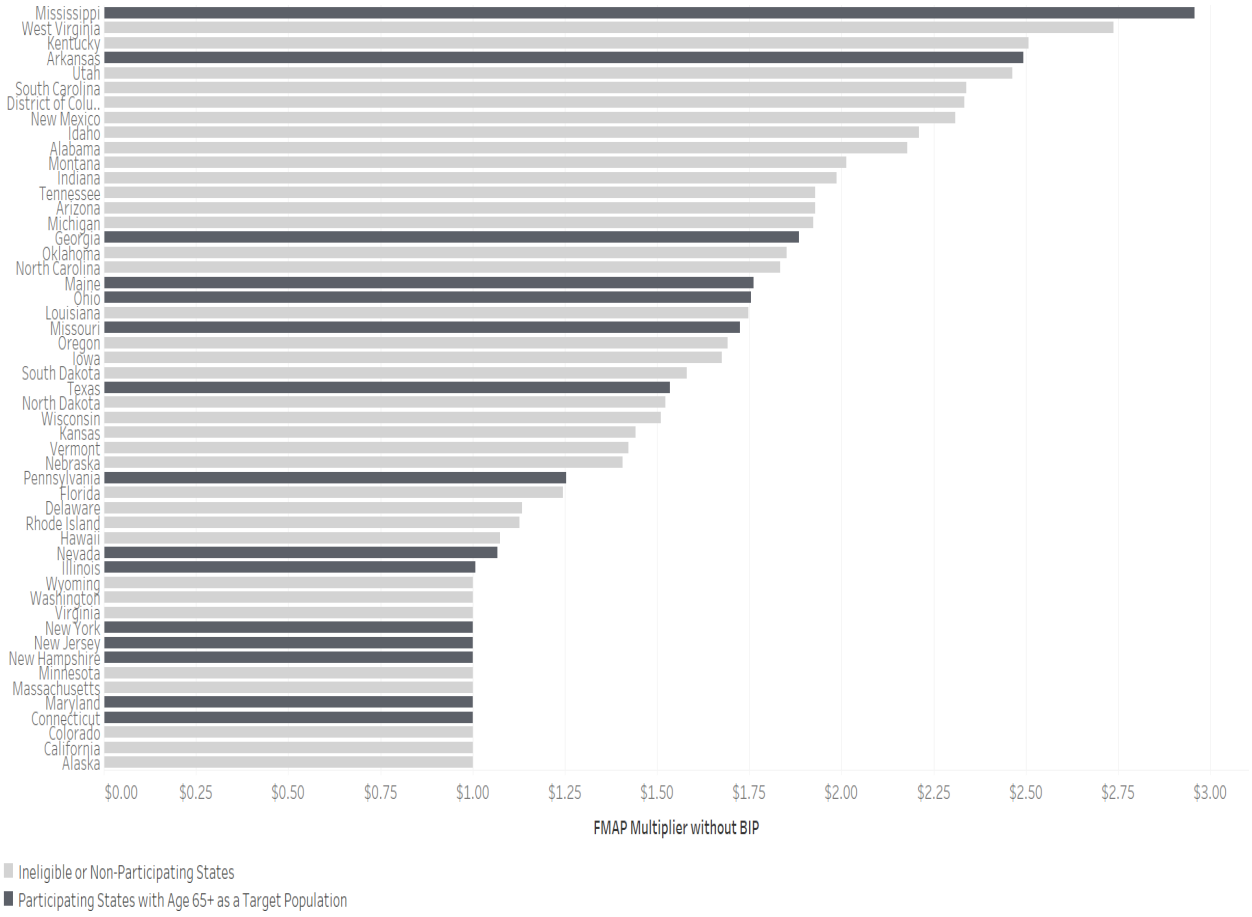
All participating states except Mississippi had to increase the HCBS share of Medicaid long-term care spending to 50 percent of total Medicaid long term care spending by September of 2015. Mississippi had a target of only 25 percent because 2009 HCBS spending levels for that state were below 25 percent. By 2014, 9 of the 15 states that targeted older adults had achieved their balancing benchmarks (Lester et al., 2015).

1.1.2 BIP Structural Reforms

States had to implement three types of structural reforms to promote access to HCBS. First, they had to implement a No Wrong Door/Single Entry Point system, to make the pathways to coverage for long-term services and supports (LTSS) easier to find and simplify the application process from eligibility determination through enrollment. Second, they had to develop core standardized assessment instruments to identify needs for all persons applying for LTSS, though the measures could vary by population. Third, states had to implement conflict-free case management to ensure that the entities that would be receiving funds for provision of care were not the same entities carrying out the initial assessment.[2]

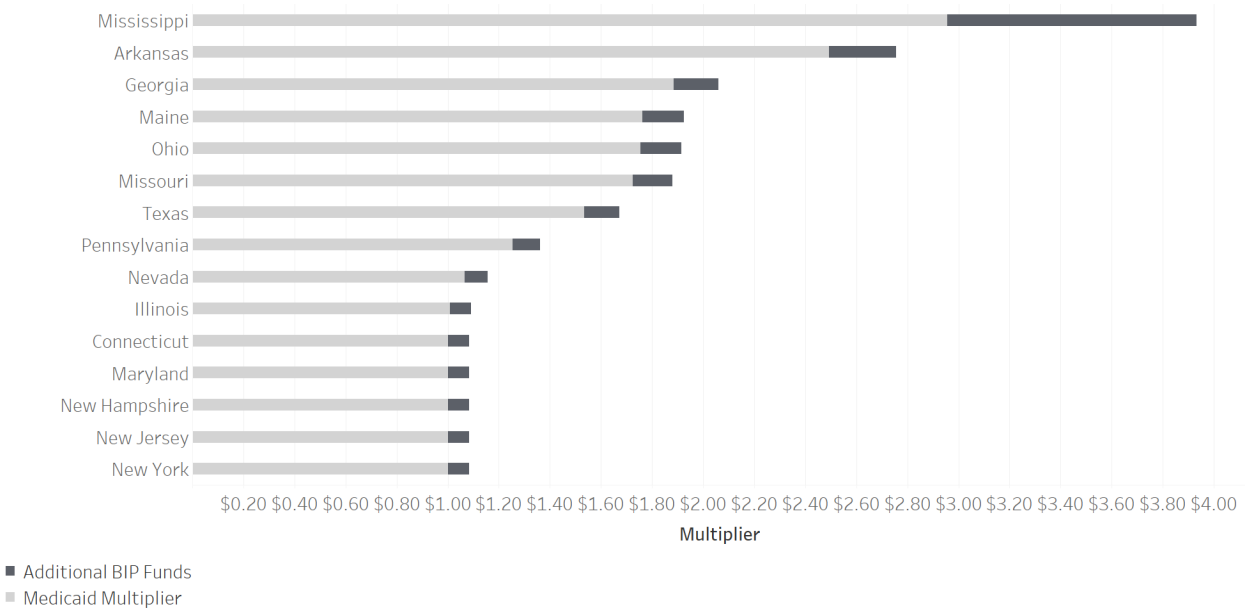
[2]For a detailed discussion of each of these requirements and final reporting of outcomes and extensions, see Karon et al. (2019)

Figure 2: Federal Multipliers for Long Term Care Spending, FY 2011



Federal multipliers are computed as $(FMAP/100)/(1-(FMAP/100))$ and exclude BIP funds.

Figure 3: Federal Multipliers for Long Term Care Spending with BIP Funds, FY 2011



Amounts are based on FY2011 FMAP rates.

1.1.3 BIP Timeline

The time from initial program announcement to program initiation was relatively short. The BIP was part of the Affordable Care Act passed in 2010. Centers for Medicare and Medicaid Services (CMS) sent official notifications of the funding opportunity and application materials to state Medicaid directors in September 2011, and the program went into effect in October 2011. The first states began participating in 2012, as shown in Table 2. Interestingly, between 2009 and their application year, most BIP states had already increased the proportion of long-term care dollars spent on HCBS (Wiener et al., 2015), perhaps because states that did not meet the rebalancing and structural goals outlined in their work plans by September 30, 2015 were supposed to lose the additional FMAP. [3] In practice, however, extensions were granted through September 2017. During the pre-BIP period, the HCBS share of total long-term expenditures increased by 47.8 percent on average across BIP states, by 59.1 percent in eligible nonparticipating states, and by 54.0 percent in states that were ineligible to participate (Wiener et al., 2015). Growth in long term care expenditures overall was relatively similar across states from 2004 to 2009 (19.6 percent in BIP states, 22 percent in eligible nonparticipating states, and 21.3 percent in ineligible states) (Wiener et al., 2015).

[3] In two extreme examples, Maryland and Texas had already met their balancing expenditure benchmarks by the time they applied.

1.1.4 BIP Program Specifics

States could spend BIP funds to start, continue, or expand a variety of existing waiver programs. Programs that were used include, Section 1915(c), 1915(i), and 1915(k) waivers, Money Follows the Person (MFP) programs; and Health Homes (HH) programs. States participating in the BIP used a combination of these approaches.

Section 1915(c) waivers allowed states to provide services to those who need care in their homes or communities, while waiving certain Medicaid program requirements. Under this mechanism, states were able to provide care for people who might not otherwise be eligible under Medicaid. All states participating in the BIP used Section 1915(c) waivers. Of the participating states 15 (Connecticut, Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maine, Massachusetts, Mississippi, Missouri, New Hampshire, New York, and Pennsylvania) expanded the use of their existing Section 1915(c) waivers (Karon et al., 2016).

Section 1915(i) and 1915(k) are State Plan Options that were also used, although less often than Section 1915(c) waivers. Section 1915(k), the Community First Choice Option, provides enhanced FMAP for states that are providing HCBS to people who need assistance at an institutional level of care; Section 1915(i) allowed states to provide HCBS as a State Plan option.

At the start of the BIP, only three participating states (Connecticut, Iowa, and Louisiana) were using a 1915(i) State Plan option, and only Iowa continued its existing 1915(i) program during the BIP. Four states (Indiana, Maryland, Mississippi, and Nevada) implemented a new 1915(i) State Plan option. None of the participating had a Section 1915(k) State Plan option in place at the start of the BIP. Maryland, Connecticut, New York, and Texas adopted the Section 1915(k) option as part of their BIP activities.

At the start of the BIP, all participating states also participated in the MFP program. Half of the participating states (Connecticut, Indiana, Iowa, Louisiana, Mississippi, Missouri, Nevada, New Hampshire, and New Jersey) expanded their MFP programs using BIP resources with the goal to serve more people.

The Health Homes program, a State Plan option whose goal was to offer primary, acute, and behavioral health services and LTSS to Medicaid beneficiaries with chronic conditions, was used by some BIP participating states. Five states (Maine, Missouri, Nevada, New York, and Ohio) had Health Homes programs in place before the BIP. Maine and Ohio expanded their Health Homes programs. Five states (Illiois, Iowa, Maryland, New Jersey, and Pennsylvania) began Health Homes State Plan programs during the BIP (Karon et al., 2016).

Program specifics are very important when seeking to understand and explain any heterogeneous effects of the BIP across participating states. We collected all the program specifics of the BIP participating states into a database, which will be made publicly accessible after completion of this research project. In this report, we include state-by-state estimates of the impact of BIP on each of the outcomes we study and reference information in our database to explain cross-state differences.

1.2 Potential Interactions between BIP and SSI

Most adults over age 65 who qualify for Medicaid coverage are financially vulnerable and therefore eligible for SSI, too. In all but 18 states, individuals who apply for and are determined eligible to receive SSI are automatically qualified for Medicaid without a separate application. Table 1 displays the maximum benefit amounts in 2011 when the BIP was announced. Individuals with less than $2,000, and couples with less than $3,000, in monthly resources were eligible for SSI benefits in 2001. In 2015, the end of the BIP performance period, the resource limits were the same and the maximum federal benefit levels were $773 per month for individuals and $1,100 for couples (Office of Retirement and Disability Policy, 2015; Social Security Administration, 2019). Persons with more resources received reduced benefit amounts and those living with family or in institutions may also have received reduced benefits.

When a person moves into a nursing home for a long-term stay, SSI benefits are generally capped at $30 per month (SSI, 2018). For recipients living with family, monthly benefit amounts may be reduced by up to one-third of the maximum benefit amount if the older adult is not paying for living expenses, like rent or food. For example, in 2011, a recipient living with family without paying for rent or food would have received benefits reduced by $225 per month if single and $337 per month for a couple, or $2,700 and $4,044 annually, compared to recipients living independently or paying for rent and food.

The BIP aimed to transition older adults from nursing homes to the community or enable older adults to"age in place," delaying moves into nursing facilities. When older adults transition from nursing homes to community residence, the amount of SSI received is likely to increase. Similarly, when older adults remain in the community instead of moving into an institution, their SSI payments should be higher, all else equal. Also, the BIP's increased HCBS spending may have enabled older adults to move into independent living situations from cohabitation situations by replacing unpaid family care with Medicaid-covered services. Such a move also should increase the amount of SSI received. Although Medicaid eligibility is tied to the SSI application process in most states, the median state Medicaid coverage rate among adults over age 65 is approximately 12 percent while the median percentage receiving federal SSI payments is only 3 percent.[4] This difference could be because some states apply more generous criteria to Medicaid eligibility than the federal SSI eligibility criteria. Or it could simply be that countable income is greater than the maximum federal benefit for elderly living in nursing homes because the maximum benefit is only $30 per month. For example, an individual receiving $300 a month in Social Security benefit income would have $280 in countable income, which exceeds the monthly benefit amount of $30 for those living in institutions. Indeed, SSI program participation among older adults has been shrinking

[4]These figures are based on authors' calculations using Kaiser Family Foundation State Health Facts Medicaid Enrollment by age for FY2013, Social Security Administration published SSI Recipients by State and County for FY 2013, and American Community Survey population estimates. KFF's State Health Facts, Data source Medicaid Statistical Information System (MSIS) (2013); Social Security Administration, Research, Statistics Policy Analysis (2014)

since the 1970s, and prior research has shown that participation is sensitive to the generosity of benefits and to asset limits (Elder and Powers, 2006). For these reasons, we also expect the BIP to result in increases in the share of older adults who receive any SSI.

Because SSI eligibility for older adults is means-tested, we also expect that increases in SSI receipt and amount due to the BIP will be larger for individuals who are lower income. While the structural changes required by the BIP may have changed the residence patterns of some higher-income individuals, for example, by easing coordination of home care services, we expect the effects on lower-income individuals' residence patterns to be greater due to the effects of both the structural changes and the increased spending on HCBS among the financially vulnerable population. We also expect the BIP will have a larger impact on adults who are more likely to require help with activities of daily living (ADLs). These adults are likely to be among the oldest and to indicate they have a disability when answering survey questions. Although it may seem obvious to expect effects to be greatest among the Medicaid eligible population, this comparison is not straightforward. Some states used BIP funds to expand access to Medicaid services and cover new persons. If these newly covered persons are systematically younger and healthier than the pre-BIP Medicaid population, then they will also be more likely to live independently and reduce the rate of institutionalization within the Medicaid population. In this case, we would not expect changes in SSI receipt because no changes in residence or countable income occurred. Therefore, although we compare changes among Medicaid and non-Medicaid covered persons, we interpret these results with caution.

2 Literature Review

2.1 Living Arrangements, HCBS, and SSI

In recent decades public policy has increasingly moved toward helping older adults "age in place." Indeed, most individuals prefer to live in the community rather than in a nursing home (Barrett, 2014). As illustrated by the AARP's 2014 Study, "Home and Community Preferences of the 45+ Population," 88 percent of older adults age 65 and over agree (74 percent strongly) that "what I'd really like to do is stay in my current residence for as long as possible." When asked why, a majority want to stay in their home because they like what the community offers. Desirable amenities of community living include living near friends and family, places they want to go, and living in a walkable area. Indeed, these are important factors in older adults' well-being. Moving to a nursing home generally means removal from one's community, in addition to other discomforts, such as decreased privacy and a less homelike atmosphere. These changes may negatively impact well-being.

While healthy older adults almost exclusively prefer remaining in their current community living arrangement to moving to a nursing home, older adults with high care needs may have different preferences or needs. The level and types of care needed, the ability and cost to obtain such care in the community, and the degree to which aging adults still have social networks and social contacts in the community may cause them to prefer or need to live

in a nursing facility. Financially vulnerable individuals may be particularly likely to enter nursing homes as they cannot pay for home care (Orsini, 2010). Therefore, changes in the accessibility of funds for HCBS may cause moves from nursing homes back to the community or avert or delay some nursing home stays, especially among the financially vulnerable.

The evidence for cost-effectiveness of HCBS versus nursing homes, and health outcomes under HCBS and in nursing homes does not consistently show differences when comparing individuals of similar health and with low care needs in the community to those in nursing homes (Chen and Berkowitz, 2012; Blackburn et al., 2014). As such, for financially vulnerable individuals who could be well-served by either HCBS or a nursing facility, the trade-off may come down to a choice between individual well-being (higher in the community, lower in nursing homes) and SSI cost savings (lower in the community, higher in nursing homes). Thus, policy changes that shift funding to HCBS from nursing home care, such as the BIP, may negatively affect the finances of the SSI program, but also improve older-adult well-being.

2.2 Studies of the BIP

An excellent brief overview of the BIP is provided in Karon and Knowles (2018). The authors note that the BIP did not change the fact that LTSS spending for people with intellectual or developmental disabilities is mostly in the HCBS context, while LTSS spending on older adults and people with physical disabilities in an HCBS context is much lower. However, HCBS spending as a share of LTSS spending on older adults and people with physical disabilities did increase by seven percentage points over the BIP period, from 27.4 to 34.6 percent (Karon et al., 2019).

Many detailed policy reports and case studies documenting the activities states used BIP funds for and the changes in HCBS expenditures exist.[5] These reports show dramatic changes in HCBS spending in BIP states. The average share of HCBS expenditures across all participating states increased from 38.2 percent in 2009 to 51.2 percent by 2015, while spending in ineligible states increased from 61.8 percent to 66.1 percent, and spending in eligible nonparticipating states increased from 39.7 percent to 47.5 percent(Karon et al., 2019). As of 2017, 14 of the 18 participating states had achieved all three infrastructure requirements (Karon et al., 2019). Among the 15 states that listed older adults as a target population in their application, the share of HCBS expenditures for older people and individuals with physical disabilities increased in all but two states (New Jersey and New Hampshire), and five states made progress on expanding HCBS to serve more individuals or new populations through a combination of 1915(i), 1915(k), and Health Home programs (Karon et al., 2019).

Less is known about the potential impact of the program on the individuals served. Indeed, we know of only one other study that examines the impact of the BIP on living arrangements. In a doctoral dissertation, Wang (2019) uses difference-in-differences and event study regression techniques with CMS data to examine the effects of the BIP on use of long-term in-

[5]For example, see Karon et al. (2019, 2016); Cas (2017a,b,d,c,e,e)

stitutional care by older adults, as well as on cost and health outcomes. Restricting the CMS sample to community-dwelling, dual-eligible (Medicare and Medicaid-eligible) older adults (65+) in a chosen set of treatment and control states, Wang finds a moderate reduction in use of institutional long-term care in BIP states relative to eligible but nonparticipating states. The data, population, states chosen for treatment and control groups, and other specifics of the analytic approach are different from our own; however, our findings and Wang's are not necessarily at odds with one another. Effectively, Wang finds a reduction in flows into institutional care settings, while we find little to no effect on stocks overall but a small reduction in stocks when we restrict the sample to dual-eligible persons only. Restricting to the dual-eligible population may overestimate the effect of the BIP because the BIP enabled expansions in Medicaid coverage through, for example, additional waiver slots and reductions in waiting lists. This effect could have changed the proportion of the community-dwelling population that is eligible for Medicaid without actually changing residency patterns. Wang finds no concomitant effect on utilization or spending on skilled nursing facilities, which points to this possibility. If the reduction in institutionalization driven primarily by expansions in Medicaid coverage rather than changes in residency, interaction with SSI eligibility and receipt is unlikely.

2.3 Studies of HCBS and Medicaid policies

Prior studies of HCBS spending and Medicaid policies regarding long-term care support our hypothesized impacts of the BIP. For example, Miller (2011) examines the relationship between state share of long-term care spending on HCBS and nursing home utilization using state-level data for the years 2000 to 2007 and finds the rate of nursing home residence among older adults declines by approximately 1.5 percentage points for each percentage point increase in HCBS spending. Using Census and ACS data from 1980 through 2009 to investigate the relationship between Medicaid spend-down policies, institutional residence, and cohabiting with adult children, Mommaerts (2018) finds that older adults living in states with a spend-down provision are less likely to live with their adult children and more likely to live in a nursing home, which indicates family care and institutional care may be substitutes. If this is true, the BIP may also affect cohabitation rates. Segelman et al. (2015) compared the efficacy of Medicaid 1915(c) waiver programs, which enable states to provide Medicaid-covered HCBS to older adults, to the Program for All-Inclusive Care for the Elderly (PACE) across 12 states using individual-level longitudinal CMS data from 2005 to 2009. They find that PACE enrollees had a 31 percent lower rate of institutionalization than waiver program enrollees, and were in worse health when institutionalized. This finding indicates that the impact of the BIP may depend on the specific types of programs states adopt. Chen and Berkowitz (2012) also used longitudinal data, but from the Second Longitudinal Survey on Aging, which followed a nationally representative sample of persons aged 70 and older who were community dwelling at the baseline interview in 1994. Although they did not study a particular policy or program, Chen and Berkowitz (2012) provide a detailed exploratory analysis of differences in the types of care received by older adults with different patterns of residential transitions. For example, they find the use of personal care services to be

positively associated with longer community dwelling and transitions back to the community after a nursing home stay. This finding again suggests the specific activities supported by BIP funds may produce different outcomes; assuming a homogeneous impact may mask actual program effects. In contrast to these studies, Grabowski and Gruber (2007) examine the relationship between nursing home utilization and state Medicaid eligibility rules and conclude there is no association between these state policies and utilization.

2.4 Studies of Medicaid Waivers

Prior literature documents the use of Medicaid waivers beginning in the early 1980s and becoming widespread before the BIP, even among BIP states (Miller et al., 1999). Yet there are reasons to expect the BIP to have an impact on older adults over and above that of existing programs. Prior to the BIP, many states used cost containment strategies like waiting lists and caps to control waiver enrollment and expenditures. Caps on expenditures and enrollment and more stringent asset limits were widespread as of 2002, and waiting lists for Elderly and Disabled (E&D) Waivers had an average of 5,733 people (Kitchener et al., 2004). BIP funds could be used to expand eligibility criteria and clear waiting lists. For example, Texas, a BIP state that listed older adults as a target population, had the largest number of people waiting for coverage under their E&D Waiver program in 2002, and Georgia, another BIP state that targeted activities at older adults, had the longest average wait time at over three years (Kitchener et al., 2004).

2.5 Our Contribution

To this literature, we contribute an analysis of changes in living patterns among older adults, including cohabitation with adult children, across all BIP states using samples designed to be representative of the total population. Our analysis includes the full 2011-2015 BIP funding period and the extension years of 2016 and 2017. We also offer the first assessment of potential program interactions with SSI. We primarily focus on the ACS dataset, then we cross-validate findings using longitudinal data from the HRS and aggregate administrative records from CMS and SSA. In our ACS analyses, we also examine several alternative specifications to reflect the complexity of institutional program details, which are not feasible in smaller samples.

3 Data and Methods

3.1 American Community Survey vs. Health and Retirement Study

The data used in most of our analyses come from the ACS, years 2006 through 2017. During these years, the ACS sample frame includes persons living in nursing homes. Most other large-scale surveys with the statistical power needed to estimate the impact of state-level policy exclude this population. Using annual survey data allows us to make use of the staggered timing of BIP application approvals (see Table 2) to attempt to disentangle policy effects from concurrent trends.

Table 2: Timing of BIP Participation

Application Accepted	2012	2013	2014
	GA	AR	NV
	MD	CT	PA
	MS	IL	
	MO	ME	
	NH	NJ	
	TX	NY	
		OH	

Despite these advantages, the ACS has some key limitations. First, there were important changes to the sampling methodology for group quarters over our study period (Beaghen and Stern, 2009; Asiala and Beaghen, 2013). Though state-level estimates are generally comparable across these changes, comparisons within states would be invalid. Second, the survey is not longitudinal, so we cannot follow people as they move from institutional settings back into the community or vice versa. Third, the reporting of SSI receipt is negatively biased in the ACS, though bias in reporting of transfer income is a problem in all major household surveys (Meyer et al., 2015). Fourth, the ACS contains less-detailed measures of disability and health status than the HRS or administrative sources like the CMS Minimum Data Set.

For these reasons, we cross-validate findings from the ACS using HRS data from years 2006 through 2016. The HRS is longitudinal, contains detailed income questions more likely to accurately capture SSI receipt, and has more sensitive measures of disability. We also produce estimates of BIP impact using state-level counts of nursing home residents from published CMS reports and counts of SSI recipients published by the SSA.

3.2 Sample Construction

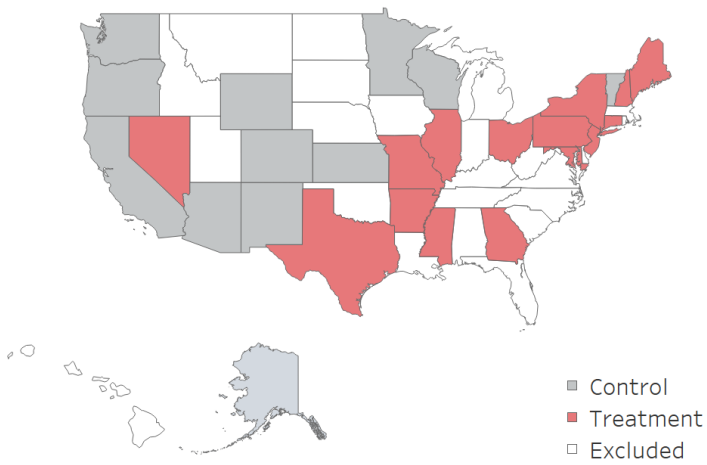
In both the ACS and HRS, we include all persons aged 65 and older living either in the 15 BIP states that identified older adults as a target population in their BIP application or in

the 12 BIP-ineligible states. We do not restrict the analytic sample by income or Medicaid coverage because BIP funds could be used to expand Medicaid eligibility, and infrastructure investments like informational websites may also have benefited older adults who are not eligible for Medicaid. Yet it is reasonable to expect any impact of the policy to be greatest among low-income persons and persons eligible for Medicaid, so we also produce estimates that allow for heterogeneous impact, with the caveat that the BIP may have directly affected Medicaid eligibility and financial decisions that influenced countable income and thus affect qualification for Medicaid and SSI.

3.3 Estimation Strategy

Our estimation strategy follows previous literature in using a difference-in-difference estimator, which is the most common approach in policy evaluation studies. It attempts to mimic an experimental research design using observational study data by studying the differential effect of the policy implementation on a treatment group versus a control group. In our study, the treatment and control groups are older adults living in BIP- participating states that focused on older adults and in ineligible states, respectively, as shown in Figure 4.

Figure 4: Treatment and Control Group



We estimate associations between the BIP policy and five outcomes using the following empirical model, which is a generalized difference-in-differences (DD) specification appropriate for the staggered timing of BIP program start dates:

$$y_{ijt} = \beta_0 + \beta_1 Post_{jt} + \tau_t + \phi_j + Z'_{ijt}\theta + \epsilon_{ijt} \quad (1)$$

Our five outcomes are: (1) whether individual i lives in an institutional setting at time t, (2) whether individual i lives with family,[6] (3) whether the individual has moved (changed residence) within the past year, (4) whether the individual receives any SSI, and (5) the amount of SSI received, if any. The key explanatory variable is $Post_{jt}$ which is equal to one in BIP states in the years after their BIP application was approved (i.e., when treated), and equal to zero before approval and in BIP-ineligible states. In the year the application was approved, we set $Post_{jt}$ equal to the fraction of the year remaining at the time of approval, including the approval month. We also test the sensitivity of our results to setting $Post_{jt}$ equal to one in the year states are approved and all years thereafter. We include state and year fixed effects, ϕ_j and τ_t, to control for time-constant cross-state heterogeneity and a common (across states) nonparametric trend in each outcome, respectively.

The vector Z_{ijt} includes individual-level control variables that account for socioeconomic and demographic characteristics, including sex, marital status, race, ethnicity, educational attainment, and individual income.[7] We also control for whether the individual was widowed within the past year, as cross-state differences in longevity of partners may lead to differences in patterns of residence not captured by our model if the patterns do not remain stable over the study period. Additionally, we control for whether respondents were born outside the United States because the likelihood of living with adult children varies with cultural background and is higher among more recent immigrants. Finally, we include a full set of age dummy variables to address differences in age distributions. Equation 1 is estimated using weighted least squares applying the ACS person-level sampling weights. Robust standard errors clustered at the state level are produced using replicate weights.

For state-level analysis using CMS counts of institutional residents and SSA counts of SSI recipients over the age of 65, we aggregate all control variables from the ACS to the state level, applying sampling weights, and we use ACS-derived population estimates to compute rates of institutional residence and SSI receipt. Although SSA publishes aggregate SSI payment amounts, these amounts are not reported separately by age group, so our analysis focuses only on receipt of any SSI.

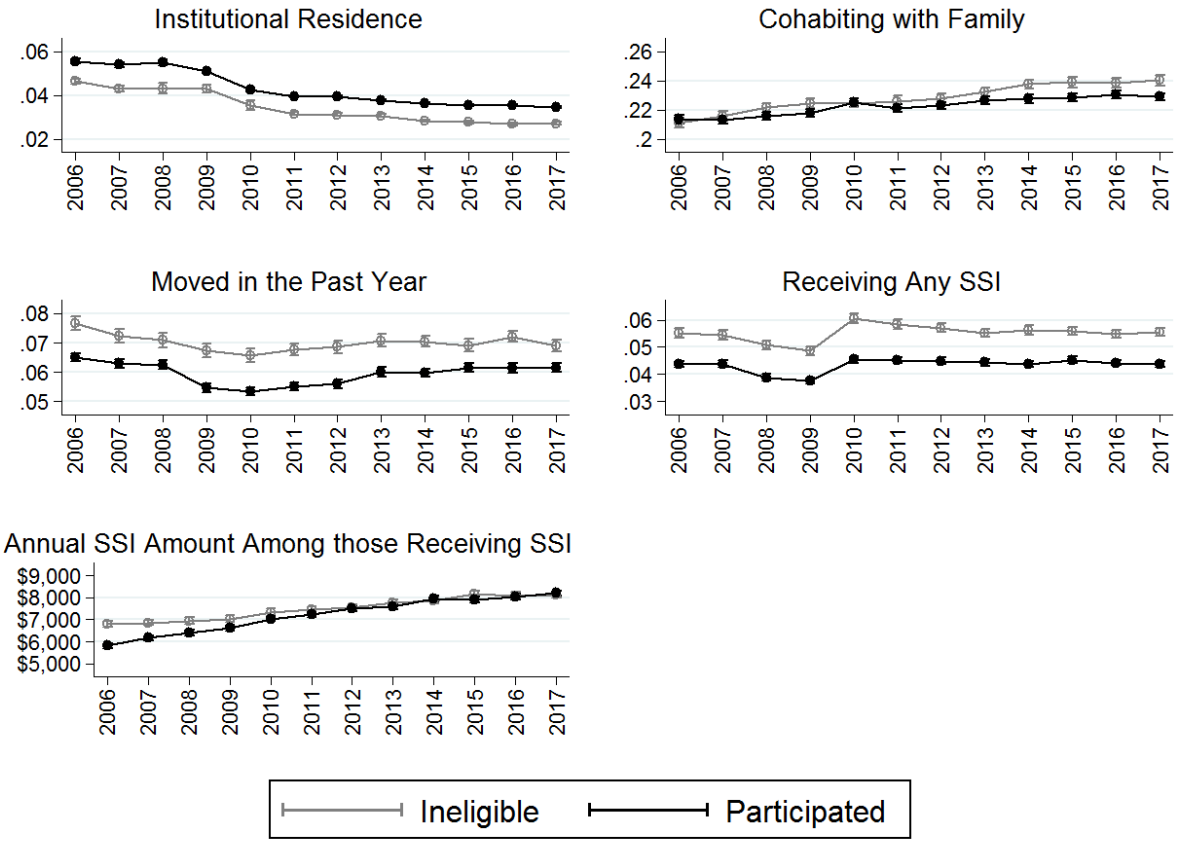
3.4 Identification Strategy

The identifying assumption for Equation 1 is that, without the BIP, participating states would have followed the same trend in each outcome as ineligible states. Figure 5 plots the trends in each outcome for participating and ineligible states over the study period. The BIP was created as part of the ACA in 2010, the official announcement of the BIP was sent to state Medicaid directors in 2011, and the first states were approved to participate in 2012, as shown in Table 2. Trends in the years prior to 2010 are clearly parallel for all outcomes except amount of SSI received, but we more formally test for possible anticipation

[6] In the ACS, our definition includes any cohabiting with related family in a household that includes at least two generations. Thus, older adults living with grandchildren or with nieces or nephews would be counted as cohabiting. In the HRS, we include only cohabiting with adult children.

[7] In the HRS, we use income of the respondent and their spouse/partner, if any.

Figure 5: Trends in Outcomes Across BIP-Participating States and Ineligible States



Error bars denote 95% confidence intervals estimated using replicate weights.

effects using policy leads, too. It is important to note that the apparent drop in institutional residence and corresponding rise in SSI receipt between 2009 and 2010 are not reflected in CMS aggregate nursing home counts or SSA published counts of SSI recipients. These trends in the ACS likely reflect changes in methodology over this time, but, because they are reflected in both the treatment and control groups, they will be captured by the common nonparametric trend τ_t.

We choose to compare participating states to ineligible states because eligibility was based on an arbitrary cut-point for 2009 long-term care expenditures. Eligible states could choose whether to participate, and the factors that determined participation may be complex and difficult to control for in our analysis. For example, eligible states that foresaw difficulties in achieving the required expenditure targets, like projected shortages in community-based care providers, may have been been less likely to participate. Equation 1 is only robust to this sort of selection into participation if it manifests as time-constant cross-state differences in the outcomes or is captured by our time-varying covariates, Z_{ijt}. However, we include a robustness check that pools together ineligible and nonparticipating states as a control

group, which offers increased precision in our estimates, and another check that uses eligible states as an alternative control group. We also estimate Equation 1 with lags to allow for delayed policy impact, and we explore differences in treatment estimates within states across groups that we expect to respond differently to the policy.

4 Results

Table 3 contains the results of estimating Equation 1 among older adults living in BIP-participating and BIP-ineligible states, with estimates of the policy impact reported in the first row. We find no evidence of differences in institutional residence across participating and ineligible states. The estimated standard error is very small, indicating a precisely estimated null effect.

We do find that older adults in BIP states were approximately 0.6 percentage points less likely to live with family and 0.4 percentage points more likely to have moved in the past year. Together, these findings indicate that the BIP may have enabled older adults to move out of cohabiting situations or remain in independent settings instead of cohabiting. At the same time, the share of older adults receiving any SSI increased by 0.1 percentage points and, for the population receiving SSI, the average annual amount received rose by approximately $236. These changes in SSI receipt are in the expected direction, given our results for residence. The estimated increase in SSI benefits is significantly below the maximum change in benefits that individuals might experience when moving from a cohabiting situation in which they don't pay room and board expenses to an independent living situation where they do; the estimate may be lower because older adults were paying for some room and board while living with family or because they do not qualify for full benefits even when living independently.

All of our estimates are small relative to the effects of other covariates. For example, in Table 3, older adults who identify as Black, Native American and Alaskan Native, Chinese, or other Asian or Pacific Islander all have rates of cohabitation at least 14 percentage points above the rate for whites. These large differences point to the importance of socioeconomic and demographic factors in shaping trends.

Table 3: Changes in residency and SSI receipt, ACS sample

	Institution	Cohabiting	Moved	Any SSI	Amt SSI ($)
BIP	0.000	−0.006**	0.004*	0.001*	235.678**
	(0.000)	(0.001)	(0.002)	(0.001)	(56.249)
Sex	−0.006**	0.003**	−0.006**	0.002**	−581.280**
	(0.000)	(0.000)	(0.000)	(0.000)	(31.680)

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Table 3 – *Continued from previous page*

	Institution	Cohabiting	Moved	Any SSI	Amt SSI ($)
Marital Status					
Separated	0.030**	0.040**	0.068**	0.083**	−277.527**
	(0.001)	(0.002)	(0.003)	(0.002)	(54.134)
Divorced	0.026**	0.028**	0.041**	0.038**	−552.396**
	(0.026)	(0.001)	(0.001)	(0.000)	(38.617)
Widowed	0.029**	0.111**	0.031**	0.019**	210.392**
	(0.000)	(0.001)	(0.001)	(0.000)	(33.051)
Never married	0.109**	−0.072**	0.026**	0.059**	−277.354**
	(0.001)	(0.001)	(0.001)	(0.001)	(51.774)
Race, Ethnicity					
Black	0.001*	0.143**	0.001	0.033**	−729.231**
	(0.001)	(0.001)	(0.001)	(0.001)	(44.504)
Native	−0.010**	0.143**	−0.005*	0.052**	−1,137.028**
	(0.002)	(0.005)	(0.003)	(0.003)	(95.045)
Chinese	−0.008**	0.163**	0.007**	0.070**	−840.308**
	(0.001)	(0.003)	(0.002)	(0.002)	(52.573)
Japanese	−0.011**	0.018**	−0.017**	−0.029**	−456.288
	(0.002)	(0.005)	(0.002)	(0.002)	(269.233)
Asian or PI	−0.001*	0.263**	0.019**	0.067**	−528.566**
	(0.001)	(0.003)	(0.002)	(0.002)	(40.038)
Other race	0.004**	0.084**	0.008**	0.006**	46.037
	(0.001)	(0.003)	(0.002)	(0.002)	(49.021)
Two races	−0.002	0.074**	0.019**	0.025**	−423.499**
	(0.001)	(0.004)	(0.002)	(0.002)	(90.448)
Three plus	−0.012**	0.103**	0.023**	0.026**	−867.074**
	(0.004)	(0.011)	(0.008)	(0.007)	(262.616)
Mexican	−0.016**	0.186**	−0.014**	−0.003**	−1,457.918**
	(0.001)	(0.002)	(0.001)	(0.001)	(41.933)
Puerto Rican	−0.017**	0.100**	0.015**	0.081**	−900.719**
	(0.001)	(0.004)	(0.003)	(0.003)	(68.030)
Cuban	−0.001	0.004	0.006	0.012**	−681.037**
	(0.002)	(0.006)	(0.006)	(0.004)	(158.949)
Other ethnicity	−0.017**	0.145**	0.000	0.008**	−1,028.856**
	(0.001)	(0.003)	(0.000)	(0.001)	(61.990)
Education					
Grades pre-4	0.009**	−0.037**	−0.014**	−0.012**	−453.999**
	(0.001)	(0.004)	(0.003)	(0.003)	(43.778)
Grades 5-8	0.028**	−0.075**	−0.008**	−0.061**	−465.454**
	(0.001)	(0.002)	(0.002)	(0.002)	(39.023)
Grade 9	0.017**	−0.098**	−0.004*	−0.074**	−502.188**
	(0.001)	(0.003)	(0.002)	(0.003)	(62.662)

Continued on next page

Table 3 – *Continued from previous page*

	Institution	Cohabiting	Moved	Any SSI	Amt SSI ($)
Grade 10	0.009**	−0.102**	−0.005*	−0.087**	−360.461**
	(0.001)	(0.002)	(0.002)	(0.002)	(62.046)
Grade 11	0.010**	−0.110**	−0.009**	−0.092**	−360.487**
	(0.001)	(0.002)	(0.002)	(0.002)	(59.244)
Grade 12	−0.001	−0.123**	−0.011**	−0.112**	−34.908
	(0.001)	(0.002)	(0.002)	(0.002)	(39.525)
1 yr College	0.001	−0.159**	−0.009**	−0.121**	−74.671
	(0.001)	(0.002)	(0.002)	(0.002)	(75.604)
2 yrs College	−0.004**	−0.146**	−0.011**	−0.118**	10.034
	(0.001)	(0.002)	(0.002)	(0.002)	(74.945)
4 yrs College	0.003*	−0.167**	−0.006**	−0.123**	−191.609**
	(0.001)	(0.002)	(0.002)	(0.002)	(61.861)
5+ yrs College	0.006**	−0.179**	−0.004*	−0.124**	−162.495
		(0.002)	(0.002)	(0.002)	(86.363)
Income, 10,000s	−0.005**	−0.005**	−0.003**	−0.003**	1,046.229**
	(0.000)	(0.000)	(0.000)	(0.000)	(60.506)
Income, $10,000s^2$	0.000**	0.000**	0.000**	0.000**	−17.500**
	(0.000)	(0.000)	(0.000)	(0.000)	(2.420)
Widowed last year	−0.033**	−0.032**	0.025**	0.004**	−85.160
	(0.001)	(0.002)	(0.002)	(0.001)	(73.872)
Foreign born	−0.018**	0.094**	0.008**	0.033**	27.423
	(0.000)	(0.001)	(0.001)	(0.001)	(52.525)
Constant	0.032**	0.359**	0.074**	0.136**	6,014.833**
	(0.032)	(0.007)	(0.005)	(0.004)	(370.913)
N	3,999,237	3,999,237	2,467,103	3,999,237	176,385

*$p < 0.05$, **$p < 0.01$

Weighted least squares estimates reported with heteroskedasticity-robust standard errors, clustered at the state level. Includes state and year fixed effects.

The estimates in Table 3 are for the entire older-adult population, but the BIP should have primarily impacted low-income older adults and those with disabilities. Table 4 reports the results of expanding Equation 1 to allow for differential treatment effects across older adults by income, age, disability, and Medicaid coverage. These regressions are "fully saturated," incorporating state-year fixed effects and all other two-way interactions between year, state, and comparison group (income, age, disability, and Medicaid coverage). These regressions are akin to a triple-difference specification, but we believe the policy likely created spillover

between the comparison groups, which we discuss alongside the results below. For this reason, we do not believe these estimates are likely to be more accurate than our main findings. Rather, we use them to better describe the possible heterogeneous impact of the BIP across population subgroups.

Table 4: Estimated Differential Impact of the BIP by Income, Age, Disability, and Medicaid Coverage

	Institution	Cohabiting	Any SSI	Amt SSI ($)
Income $\leq$ \$15K vs. $>$	-0.001	0.001	0.001	82.781
	(0.001)	(0.002)	(0.001)	(113.259)
Age 80+ vs. 65-79	0.002	-0.001	-0.004**	-117.415
	(0.001)	(0.002)	(0.001)	(99.733)
Any Disability vs. None	0.001	0.001	0.003*	-78.701
	(0.001)	(0.002)	(0.001)	(100.585)
Medicaid vs. Not	-0.005**	0.000	-0.002	11.030
	(0.002)	(0.003)	(0.003)	(377.929)
N	3,999,237	3,999,237	3,999,237	176,385

$^{*}p < 0.05$, $^{**}p < 0.01$

Weighted least squares estimates reported with heteroskedasticity-robust standard errors, clustered at the state level. Includes state and year fixed effects and following controls: sex, marital status, race, ethnicity, education, foreign born, widowed, plus the comparison groups identified in the rows and all two way interactions between these groups, state fixed effects, and year.

For institutional residence, we find no evidence of statistically significant differences across income or disability status in BIP states relative to BIP-ineligible states. Across age groups, the point estimates indicate that the difference in institutional residence rates between adults aged 80 and above and those aged 65 to 79 increased in BIP states relative to the difference in BIP-ineligible states, though this estimate is only significant at the 10% level. Conversely, we find that the difference in rates of institutional residence between Medicaid beneficiaries and other older adults fell in BIP states by 0.5 percentage points relative to BIP-ineligible states. This estimate might indicate that the BIP was successful in reducing institutional bias in Medicaid or could simply reflect changes in the composition of the Medicaid population. All of the point estimates for cohabiting are small and statistically insignificant, indicating that the overall reduction in cohabiting we report in Table 3 is not specific to any of these subgroups. This result could be because the structural reforms BIP states enacted

enabled independent living transitions for all older adults through, for example, informational websites that helped both public and privately insured persons to self-direct their care.

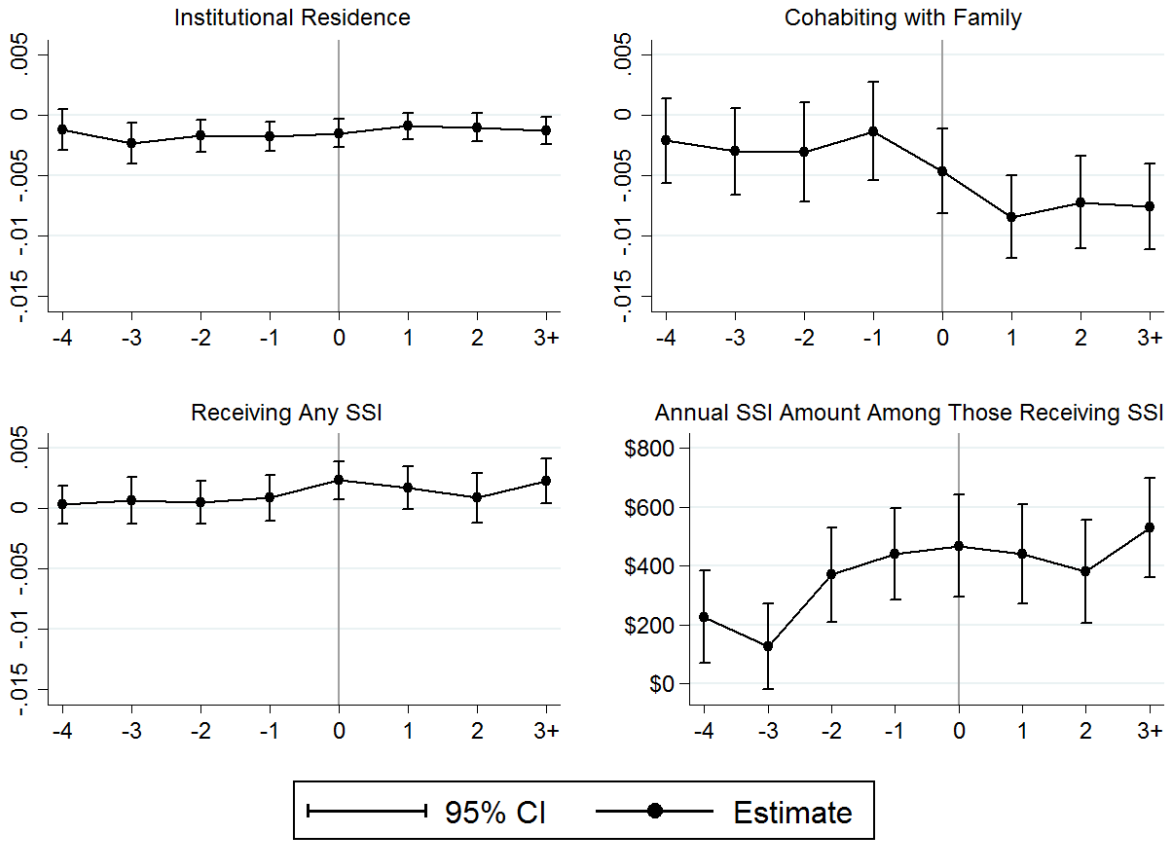
For regressions examining SSI receipt and amount, our estimates indicate that in BIP states, receipt of any SSI and amount received may have fallen among adults aged 80 and older relative to adults aged 65 to 79, over and above any change in BIP-ineligible states, though the estimated change in benefit amount is not statistically significant. If we take the point estimates for institutionalization and cohabitation by age literally, the SSI estimates follow the expected pattern. They imply a relative increase in institutionalization that was larger than the relative reduction in cohabiting, though we note that these estimates are too imprecise to draw strong conclusions. Conversely, we find an increase in SSI receipt among those with any disability relative to those without that is larger in BIP states than in ineligible states, but no evidence of changes in residence that would be consistent with this increase. However, BIP-required structural changes such as the standardized assessment may have fundamentally changed the population that identifies as disabled, and the increase in SSI may be a result of that shift.

It is also plausible that the BIP did not have an immediate impact on residence, and in turn did not immediately affect SSI receipt, either. If so, our main estimates may understate the program impact because they constrain the impact of all years of participation to be equal. To assess this possibility, we estimate expansions of Equation 1 that include lags to allow the policy estimate to vary across years of participation. Although no anticipation of the policy is evident in Figure 5, the staggered timing of approvals make this hard to assess visually, so we also include policy leads, omitting the lead in the year prior to approval.

Figure 6 provides a graphical summary of changes in residence and SSI receipt in BIP states relative to BIP-ineligible states estimated in the year of application approval, the first and second years after approval, the pooled effect for three years and beyond, and in the four years leading up to application approval. This specification constrains the outcomes in BIP states five or more years prior to approval to be equal to non-BIP states after conditioning on the covariates. This modelling choice is supported by the reasonably stable and parallel trends in the earliest years of the study period shown in Figure 5.

For institutional residence, we see no evidence of a delayed impact of the BIP. Estimates are very stable around zero. Cohabiting appears to decline in the year the application is approved and remain at the lower level thereafter, relative to rates in the six years leading up to the BIP. Prior to approval, there is no evidence of anticipation effects on cohabitation (the leads are not statistically significantly different from zero). Estimates for SSI exhibit small but significant relative increases in receipt in the year of approval, the first year after approval, and three years post-approval and beyond. Although there is no evidence of anticipation in SSI receipt, SSI amounts do appear to increase prior to approval. This is the one outcome that showed some violation of the parallel trends assumption for our main model, and here the pretrends in event time are statistically significantly different from zero. So, although the patterns are consistent with the changes in residence we find for other outcomes, we cannot rule out the possibility that changes in SSI benefit amounts are unrelated to the BIP.

Figure 6: Estimated Changes in Outcomes Across Four Years of Participation, BIP States Only



Error bars denote 95% confidence intervals estimated using replicate weights. Reference lines denote the year of BIP application approval.

4.1 Robustness Checks

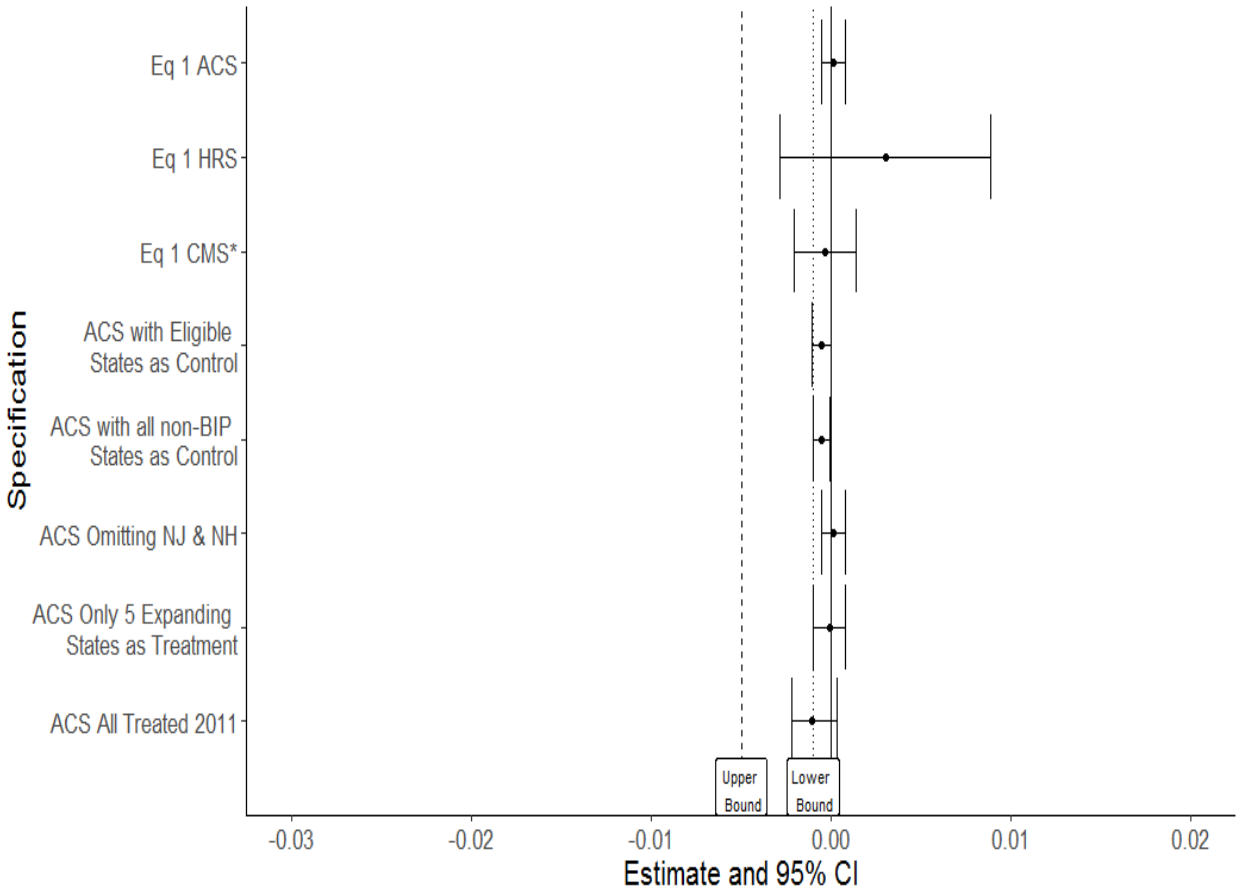
Our main estimates indicate no change in institutionalization associated with the BIP and only modest changes in cohabitation with family. However, these estimates may be sensitive to our decision to use ineligible states as the control group, they may be specific to the ACS sample, or they may mask important underlying heterogeneous effects across BIP states. To investigate these possibilities, we conducted several robustness checks. We summarize the results of these checks in Figure 7 for the institutional residence outcome. We provide similar graphs in the Appendix for the other outcomes.

In Figure 7, we also overlay two reference lines based on estimates from Mor et al. (2007) of the population likely to be affected by HCBS programs like the BIP. Mor et al. (2007) produced state level estimates from 2005 data of persons likely able to move out of institutional care back to the community and persons entering institutional care who could have stayed in the community under more and less strict sets of assumptions about their needs. We use those estimates under the less strict assumptions to compute the potential share of older adults we would expect to see leave institutional care in BIP states. Our upper-bound estimate includes both the stock of long-term institutional care residents who could return to community care and the flow of persons entering institutional care who could stay in the community in any given year. Our lower bound assumes that other programs prior to the BIP may have already addressed the stock of institutional residents and the potential population BIP could affect is limited to the annual flows. Importantly, Mor et al. (2007) argue that even their estimates based on less strict assumptions about care needs, which our upper and lower bounds are based upon, likely understate the true population that could be affected by HCBS programs.

The top point in Figure 7 is our original estimated change in the share of older adults living in an institution attributable to BIP using the ACS sample. The next two points are based on analysis in alternative samples. First, we use the same empirical specification (Equation 1) with the HRS sample. This estimate is far less precise but it is also positive, and the lower bound of the estimate remains above the upper bound expected effect based on Mor et al. (2007). Next, we use published CMS counts of the nursing home population and ACS-derived state population estimates. The point estimate is negative but still very close to zero and not statistically significantly different from our original estimate. In sum, our finding of no association between the BIP and institutional residence does not appear unique to the ACS.

Next, we examine robustness to use of alternative control groups. Our original estimate uses only BIP-ineligible states as the control group. When we instead use BIP-eligible but nonparticipating states, the estimate is negative and now statistically significantly different from zero but still very small. The estimate remains negative when we pool together ineligible and eligible nonparticipating states to construct the control group, but it is only about half the size of the lower-bound expected effect. These estimates are small relative to the estimated reductions in the shares of older adults living with family (see Figure A1) and relative to the estimated increases in the share who report moving within the past year (see Figure A2) produced using the same treatment and control group definitions. Together, these

Figure 7: Summary of Robustness Checks for Institutional Residence Outcome



Error bars denote 95% confidence intervals estimated using replicate weights.

findings suggest even if there was a small reduction in institutional residence, the reduction in cohabitation was much larger.

Next, to allow for differences in implementation of the BIP across participating states, we construct two additional, more limited treatment group definitions. First, we omit New Jersey and New Hampshire because, according to the final outcome evaluation, they did not expand spending on their Aged and Disabled Waiver programs, whereas the remaining 13 states did (Karon et al., 2019). Second, we restrict the treatment group to only the five states that expanded access to HCBS for older adults using their BIP funds (Connecticut, Maryland, Mississippi, New York, and Texas). The results of these two checks are summarized as the bottom two points in Figure 7. Both are nearly exactly zero.[8].

Finally, to allow for possible anticipation effects of the BIP, we conduct an analysis in which the BIP indicator variables are equal to one in 2011 and all years thereafter. We noted above that at least two BIP-participating states already achieved their balancing benchmarks by the time their applications were accepted into the program. In fact, state health policymakers were likely aware of the development of the BIP and its relatively short timeline prior to the application period. As a result, they might have begun to enact changes to meet the BIP requirements as early as 2011. The result of this robustness check is a small negative impact of the BIP on institutionalization, close to the lower-bound line based on Mor et al. (2007), but, like most of our other results for this outcome, not statistically significantly different from zero.

Results for other outcomes are also generally consistent across specifications, with the exception of using nonparticipating BIP-eligible states as the control group. Using eligible but nonparticipating states as the control group, we still find a reduction in cohabiting in BIP states, but we find a decline in SSI receipt and payment amounts. If states selected out of BIP participation because they foresaw shortfalls in state resources, this selection may also explain the decline in SSI. State that were unable to expand HCBS programs even with federal subsidies may have reduced the generosity of state supplements to federal SSI benefits.

5 Conclusion

We examine changes in residence and SSI receipt among older adults living in states that participated in the BIP relative to those living in states that were ineligible to participate. We find no consistent evidence of changes in the rates of institutional residence, but we do find a reduction in cohabitation with family members. These changes in cohabitation coincide with increases in SSI receipt and increases in SSI payment amounts among those receiving SSI. These findings are robust across several alternative specifications.

[8]In addition to these checks, we also produce state-by-state estimates using separate regressions for each state and the ineligible states as controls. The results of this analysis for all outcomes are summarized graphically in Figure A5

On one hand, these findings could be interpreted as evidence that the BIP enabled older adults in participating states to live independently of their families. This finding is especially notable given the overall trend towards higher rates of cohabitation. However, the change in cohabitation is small relative to differences across socioeconomic, racial, and ethnic groups, and although we attempt to empirically disentangle demographic trends from the effects of the BIP, it is possible that these trends contaminate the policy estimate. The direction and sign of bias is difficult to determine without a thorough analysis of differences in demographic trends by state and their association with residency patterns. Given the large differences in residency patterns across demographic groups, an analysis of this type may be of broader import.

Conversely, these findings could be interpreted as evidence of HCBS crowding out care that families would otherwise provide privately, or of a "woodwork effect," in which persons who are not at risk for institutionalization absent the program receive services without any reduction in the public provision of institutional care. Although states are required to ensure that HCBS waiver programs are budget neutral, rigorous cost-effectiveness analyses have indicate that many programs in the 1980s and 1990s were not in fact cost-effective. [9] For example, as prior studies have pointed out, HCBS waiver programs may increase eligibility and the likelihood of signing up to receive SSI. If so, any cost comparison focusing only on Medicaid savings may miss important fiscal impacts arising from program interactions. Our analysis provides the first empirical evidence of the expected association between SSI receipt and expansion of HCBS programs and infrastructure. However, we do not examine the possible impact of substituting public provision of care for family care on family members' labor supply and associated tax revenue.

The increase in SSI receipt and decrease in cohabiting we find are modest, but have important implications for SSI payments when we consider the size of the population. We estimate annual SSI payments increased by approximately $235 per year among those receiving any SSI, and the share of the population aged 65 and older that received SSI expanded by 1 percentage point in BIP states. At baseline, there were approximately 18 million older adults living in BIP states, and about 4 percent received SSI. A 1 percentage point gain translates to approximately 181,345 new recipients, and a total of 906,730 SSI recipients. A $235 increase for each equates to about a $42.6 million increase in SSI payments to older adults in BIP states. In 2009, the total amount of SSI payments to BIP states was approximately $1.6 billion, so our estimate implies an increase in payments of approximately 3 percent. If instead we take the estimated decrease in cohabitation rates of 0.6 percentage points, this would equate to a reduction of approximately 110,000 fewer cohabiting older adults across the 15 BIP states. Assuming those who moved from cohabiting to independent living had received the SSI payment amount for singles when living with family and not paying room and board, and they now receive the full independent benefit amount, our estimate implies an approximately $300 million (19 percent) increase in SSI payments associated with these moves. These assumptions are likely too strong, but they serve to illustrate the potential importance of residency for SSI payments.

This analysis is subject to several limitations. First, the ACS is used for most empirical

[9] See Doty (2000) for a thorough review of this literature

analyses, but it is not a longitudinal survey so, aside from one retrospective question about moves, we are unable to directly estimate changes in residence. The HRS is longitudinal, and we have replicated ACS findings using HRS data, but the HRS lacks sufficient statistical power to identify effects of the magnitude we expect if we attempt to examine moves more closely. The ACS also lacks measures of healthcare services received, quality of health care, and health outcomes, and it may capture SSI receipt imprecisely. With respect to SSI data quality, our replications at the state level using administrative data are consistent with our main findings. The ACS may also imperfectly measure the nursing home population, and changes in the ACS methodology to address group quarters sampling during our study period may not be fully accounted for using the control groups in our empirical design. Again, we note that state-level analyses using CMS data are also consistent with our findings. Finally, our analysis focuses only on the impact of the BIP on older adults, but the program also applied to physically or intellectually disabled persons under age 65. The BIP may have had different effects on this population.

References

(2017a, February). Innovations in the Balancing Incentive Program: Massachusetts. Technical report, Mission Analytics Group, Inc.

(2017b, February). Innovations in the Balancing Incentive Program: Mississippi. Technical report, Mission Analytics Group, Inc.

(2017c, February). Innovations in the Balancing Incentive Program: New Hampshire. Technical report, Mission Analytics Group, Inc.

(2017d, February). Innovations in the Balancing Incentive Program: New Jersey. Technical report, Mission Analytics Group, Inc.

(2017e, February). Innovations in the Balancing Incentive Program: Texas. Technical report, Mission Analytics Group, Inc.

(2018, July). Annual Report of the Supplemental Security Income Program. SSI Annual Reports, Social Security Administration.

Asiala, M. and M. Beaghen (2013). Using 2010 Census Data to Evaluate Imputation Methods to Improve the American Community Survey Estimates of the Group Quarters Population for Small Geographies. Technical report, U.S. Census Bureau.

Barrett, L. (2014). Home and Community Preferences of the 45+ Population 2014. *Real Possibilities*.

Beaghen, M. and S. Stern (2009). Usability of the American Community Survey Estimates of the Group Quarters Population for Substate Geographies. Technical report, U.S. Census Bureau.

Blackburn, J., J. L. Locher, and M. L. Kilgore (2014, 03). Comparison of Long-term Care in Nursing Homes Versus Home Health: Costs and Outcomes in Alabama. *The Gerontologist 56*(2), 215–221.

Chen, Y.-M. and B. Berkowitz (2012, August). Older Adults' Home- and Community-Based Care Service Use and Residential Transitions: A Longitudinal Study. *BMC Geriatrics 12*(1), 44.

Doty, P. (2000, June). Cost-Effectiveness of Home and Community-Based Long-Term Care Services. Technical report, US Department of Health and Human Services.

Elder, T. E. and E. T. Powers (2006). The Incredible Shrinking Program: Trends in SSI Participation of the Aged. *Research on Aging 28*(3), 341–358.

Grabowski, D. C. and J. Gruber (2007). Moral Hazard in Nursing Home Use. *Journal of Health Economics 26*(3), 560–577.

Henry J. Kaiser Family Foundation (2017). Medicaid's Role in Nursing Home Care.

Karon, S. L. and M. Knowles (2018, June). What Did We Learn from the Balancing Incentive Program? *Public Policy Aging Report 28*(2), 71–75.

Karon, S. L., M. Knowles, B. Lyda-McDonald, N. Thach, J. Wiener, D. Justice, S. Holladay, J. Tranfaglia, and M. Sowers (2016, February). Final Progress Evaluation of the Balancing Incentive Program. Technical report, US Department of Health & Human Services Office of the Assistant Secretary for Planning and Evaluation.

Karon, S. L., M. Knowles, B. Lyda-McDonald, N. Thach, J. Wiener, D. Justice, S. Holladay, J. Tranfaglia, and M. Sowers (2019, February). Final Outcome Evaluation of the Balancing Incentive Program. Technical report, US Department of Health & Human Services Office of the Assistant Secretary for Planning and Evaluation.

KFF's State Health Facts, Data source Medicaid Statistical Information System (MSIS) (2013). Medicaid enrollment by age.

Kitchener, M., T. Ng, and C. Harrington (2004). Medicaid 1915 (c) Home and Community-based Services Waivers: A National Survey of Eligibility Criteria, Caps, and Waiting Lists. *Home Health Care Services Quarterly 23*(2), 55–69.

Lester, R. S., C. V. Irvin, A. Mosca, and B. Ciara (2015, August). Tipping the Balance: The Balancing Incentive Program and State Progress on Rebalancing Their Long-Term Services and Supports. Reports from the field, Mathematica Policy Research. The National Evaluation of the MFP Demonstration.

Meyer, B. D., W. K. Mok, and J. X. Sullivan (2015). Household Surveys in Crisis. *Journal of Economic Perspectives 29*(4), 199–226.

Miller, N. A., S. Ramsland, and C. Harrington (1999). Trends and Issues in the Medicaid 1915 (c) Waiver Program. *Health Care Financing Review 20*(4), 139.

Miller, Nancy A., P. (2011, August). Relations Among Home- and Community-Based Services Investment and Nursing Home Rates of Use for Working-Age and Older Adults: A State-Level Analysis. *American Journal of Public Health 101*(9), 1735–41.

Mommaerts, C. (2018). Are Coresidence and Nursing Homes Substitutes? Evidence from Medicaid Spend-down Provisions. *Journal of Health Economics 59*, 125–138.

Mor, V., J. Zinn, P. Gozalo, Z. Feng, O. Intrator, and D. C. Grabowski (2007). Prospects for Transferring Nursing Home Residents to the Community. *Health Affairs 26*(6), 1762–1771.

Office of Retirement and Disability Policy (2015). OASDI and SSI Program Rates Limits.

Orsini, C. (2010). Changing the Way the Elderly Live: Evidence from the Home Health Care Market in the United States. *Journal of Public Economics 94*(1-2), 142–152.

O'Shaughnessy, C. (2014). National Spending for Long-term Services and Supports, 2012.

Segelman, M., X. Cai, C. van Reenen, and H. Temkin-Greener (2015, August). Transitioning from Community-Based to Institutional Long-Term Care: Comparing 1915(c) Waiver and PACE Enrollees. *The Gerontologist 57*(2), 300–308.

Social Security Administration (2019). SSI Monthly Payment Amounts, 1975-2019.

Social Security Administration, Research, Statistics Policy Analysis (2014). Ssi recipients by state and county, 2013.

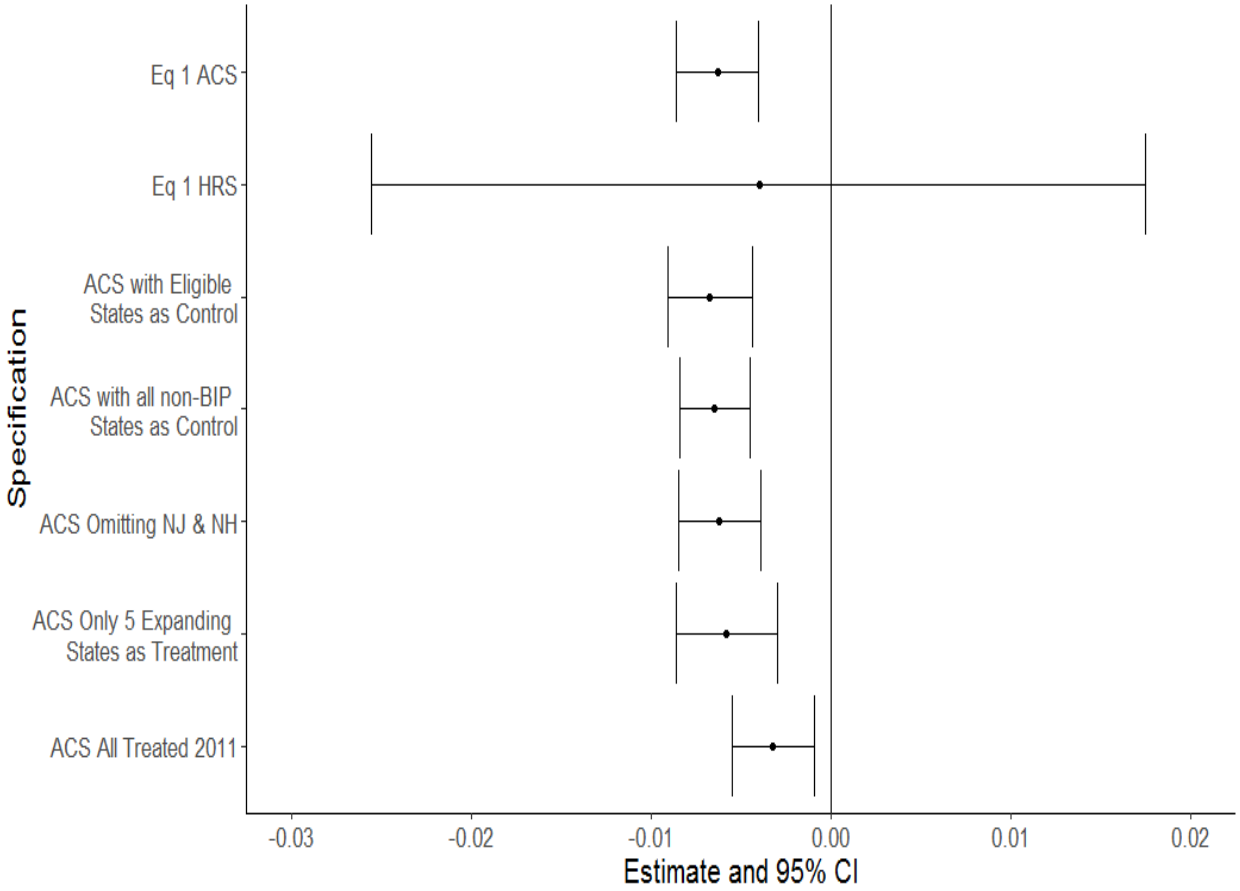
Wang, Y. (2019). *Understanding Home and Community-based Services: An Evaluation of Medicaid's Balancing Incentive Program*. Ph. D. thesis, The Pardee RAND Graduate School.

Watts, M. O., E. L. Reaves, and M. Musumeci (2015, June). Medicaid Balancing Incentive Program: A Survey of Participating States. Technical report, Kaiser Commission on Medicaid and the Uninsured.

Wiener, J. M., S. L. Karon, M. Mcginn-Shapiro, B. Lyda-McDonald, T. Thach, D. Justice, S. Holladay, K. Mooney, and M. Sowers (2015, August). Descriptive Overview and Summary of Balancing Incentive Program Participating States at Baseline. Technical report, US Department of Health & Human Services Office of the Assistant Secretary for Planning and Evaluation.

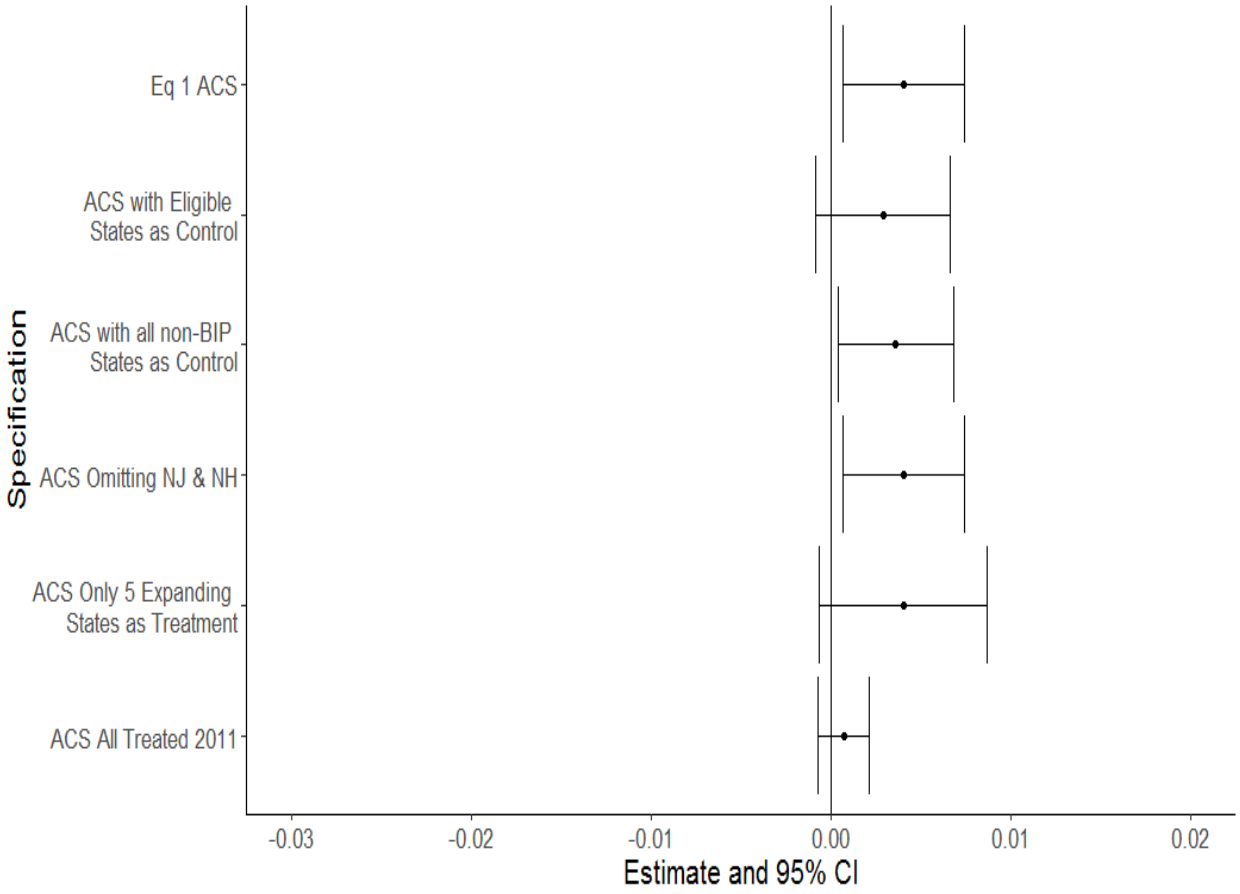
Appendix

Figure A1: Summary of Robustness Checks for Cohabiting Outcome



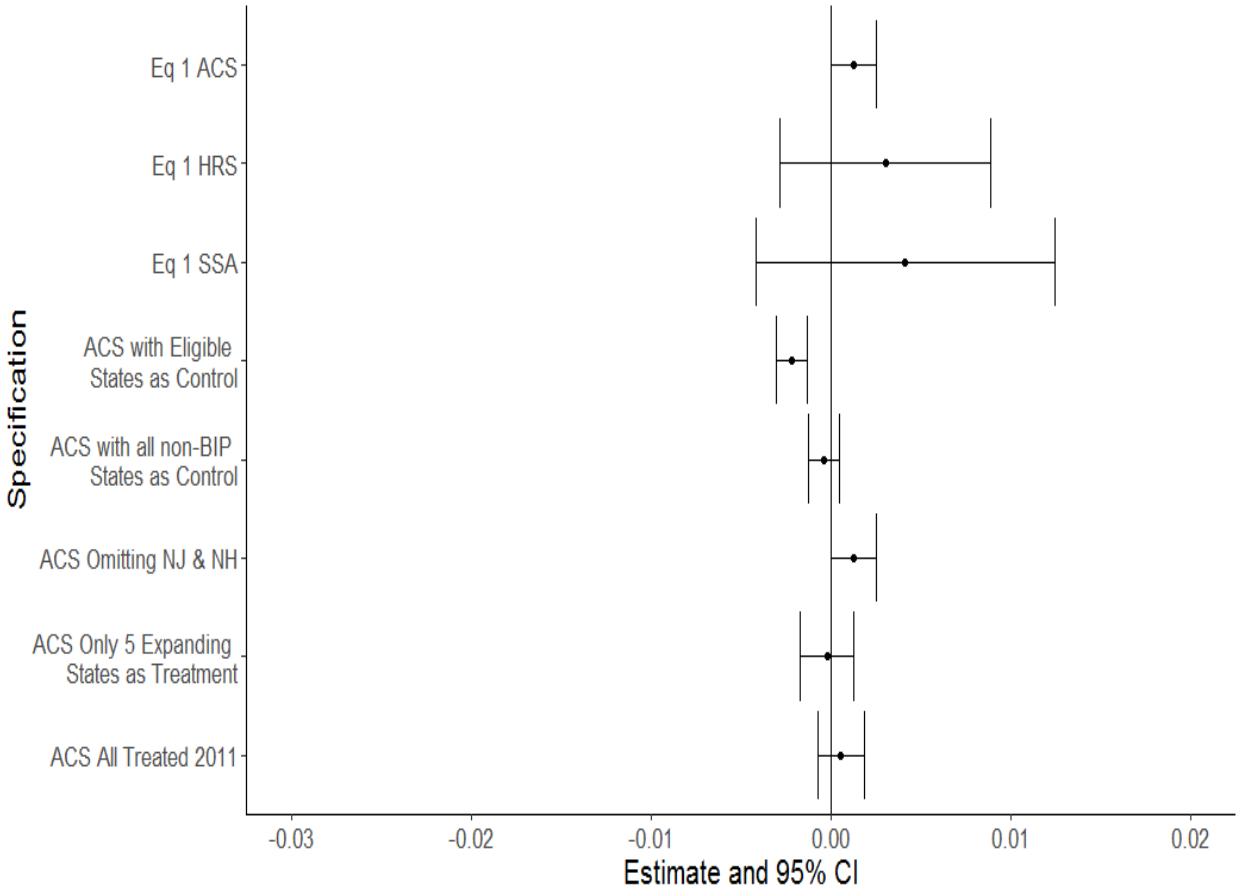
Error bars denote 95% confidence intervals estimated using replicate weights.

Figure A2: Summary of Robustness Checks for Moved Last Year Outcome



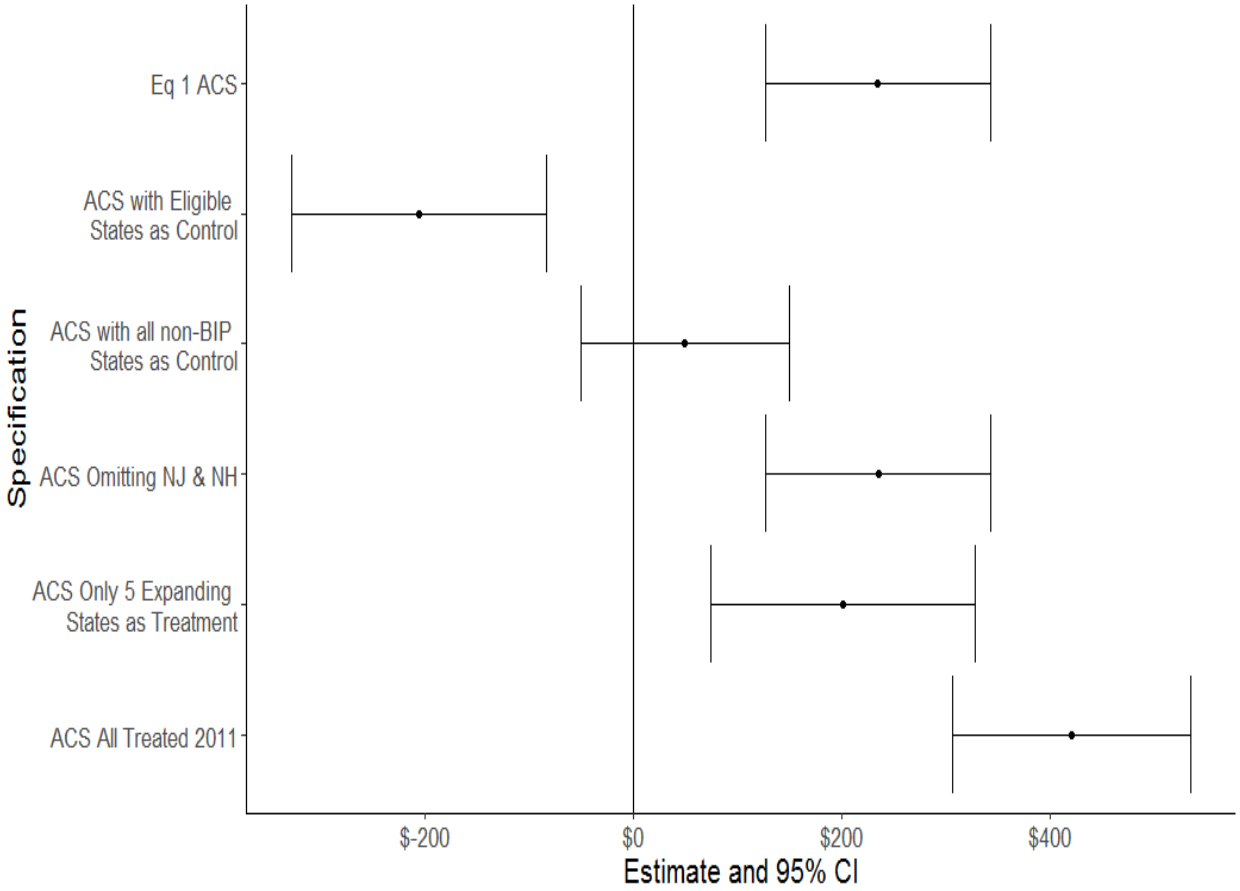
Error bars denote 95% confidence intervals estimated using replicate weights.

Figure A3: Summary of Robustness Checks for Receipt of Any SSI Outcome



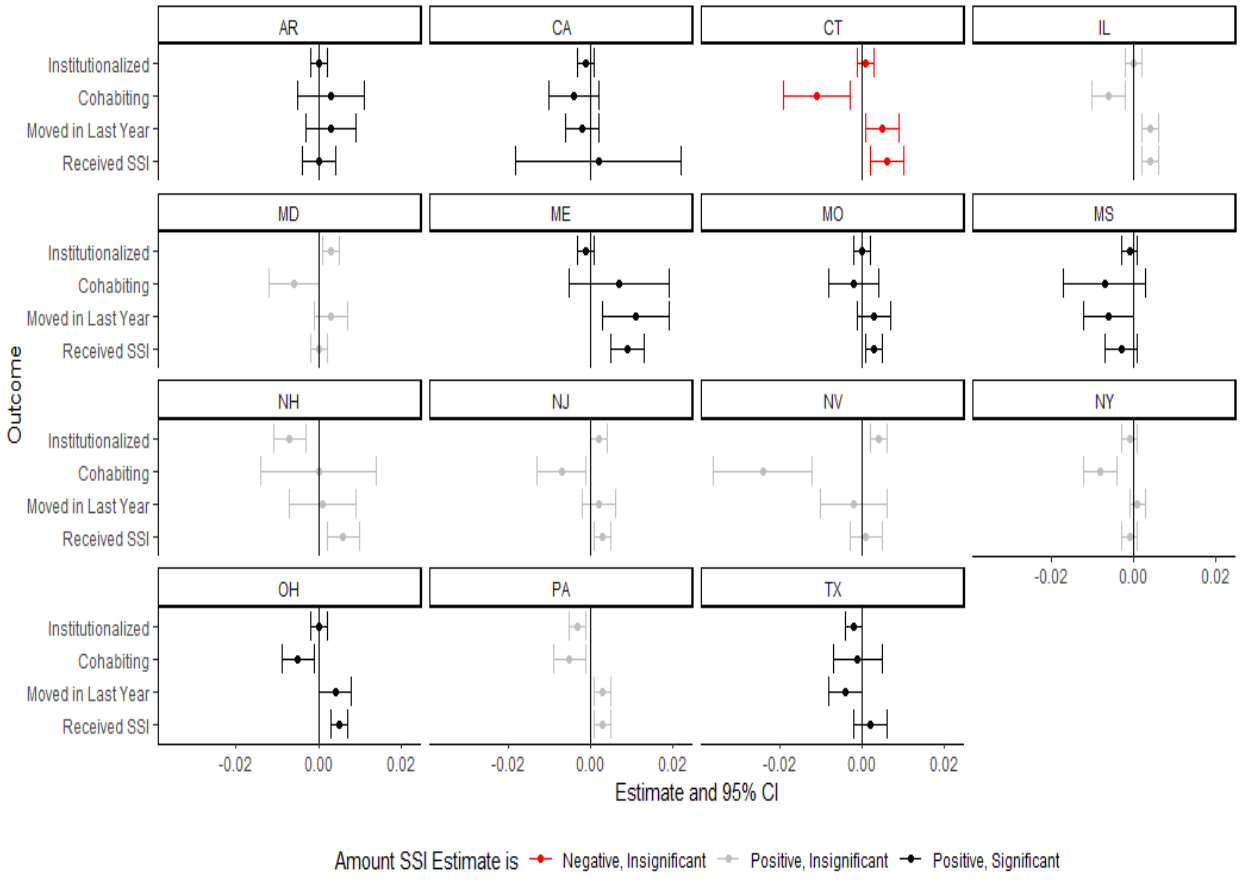
Error bars denote 95% confidence intervals estimated using replicate weights.

Figure A4: Summary of Robustness Checks for Amount of SSI Received Among Those Receiving SSI



Error bars denote 95% confidence intervals estimated using replicate weights.

Figure A5: Summary of State by State Estimates



Error bars denote 95% confidence intervals estimated using replicate weights.

Table A1: Full Reporting of Results of State-Level Analysis Using Administrative Data

	SSA	CMS
BIP	0.005	−0.000
	(0.004)	(0.000)
Sex	0.217	0.139**
	(0.326)	(0.042)
Age	−0.011**	0.002**
	(0.005)	(0.001)
Marital Status		
Separated	−0.066	−0.015
	(0.323)	(0.020)
Divorced	−0.065	−0.018
	(0.092)	(0.055)
Widowed	0.150	−0.026
	(0.118)	(0.023)
Never married	−0.445**	−0.026
	(0.170)	(0.020)
Race, Ethnicity		
Black	−0.104	−0.130
	(0.172)	(0.145)
Native	0.407	−0.185
	(0.330)	(0.158)
Chinese	−1.150*	−0.233
	(0.634)	(0.154)
Japanese	0.391	−0.206
	(0.539)	(0.165)
Asian or PI	−0.197	−0.019
	(0.274)	(0.167)
Other race	0.832**	−0.175
	(0.374)	(0.145)
Two races	−0.414	−0.143
	(0.705)	(0.153)
Three plus	−1.944**	−0.150
	(0.989)	(0.161)
Mexican	−0.691**	−0.050
	(0.399)	(0.046)
Puerto Rican	0.261	−0.010
	(0.620)	(0.034)

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Table A1 – *Continued from previous page*

	SSA	CMS
Cuban	2.218**	−0.073
	(1.042)	(0.154)
Other ethnicity	−0.608	−0.057
	(0.446)	(0.151)
Education		
Grades pre-4	1.931**	−0.024
	(0.576)	(0.042)
Grades 5-8	0.593	−0.132**
	(0.412)	(0.052)
Grade 9	0.380	0.024
	(0.347)	(0.032)
Grade 10	0.412	0.004
	(0.461)	(0.038)
Grade 11	0.223	−0.040
	(0.461)	(0.034)
Grade 12	0.528	−0.038
	(0.429)	(0.037)
1 yr College	0.456	−0.019
	(0.433)	(0.019)
2 yrs College	0.339	0.026
	(0.491)	(0.023)
4 yrs College	0.702	0.006
	(0.532)	(0.021)
5+ yrs College	0.551	−0.043*
	(0.455)	(0.024)
Income, 10,000s	−0.000**	0.000
	(0.000)	(0.000)
Income, $10,000s^2$	0.000**	−0.000
	(0.000)	(0.000)
Widowed last year	−0.311	0.051
	(0.366)	(0.038)
Foreign born	−0.370*	0.021
	(0.184)	(0.020)
Constant	0.147	−0.163
	(0.796)	(0.205)

Continued on next page

Table A1 – *Continued from previous page*

	SSA	CMS
N	332	336

$^{*}p < 0.05$, $^{**}p < 0.01$

Regressions are estimates on the state level.

All coefficients represent means.

Weighted least squares estimates reported with heteroskedasticity robust standard errors, clustered at the state level. Includes state and year fixed effects.

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