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Original Research

The Association of Medicaid Estate Recovery with Homeownership, Home Equity, and Medicaid Enrollment

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Policy Points:

- This study examines the association between the implementation of Medicaid estate recovery and homeownership, home equity, and Medicaid enrollment among low-income adults.
- Estate recovery is associated with a decrease in Medicaid enrollment among unmarried, low-income older adults and a decrease in home equity overall and among Black respondents, White respondents, and adults over 74 years of age.
- These findings suggest that low-income adults may behave as intended, avoiding Medicaid and extracting housing wealth to cover care costs; still, it is worth reconsidering a policy that recoups less than 1% of the Medicaid budget to the detriment of low-income families with few assets.

Context: In response to the high cost of state-run Medicaid programs, the 1993 Medicaid estate recovery policy was established to enable states to recover assets from the estates of beneficiaries after death. Estate recovery may trigger behavioral responses from older adults who may no longer view real estate as an attractive asset, may borrow money from home equity to cover the cost of increasing care needs, or may avoid enrolling in Medicaid altogether.

Methods: Using 1992-2008 data from the Health and Retirement Study, this study exploits the time variation in state adoption of estate recovery to determine the association of recovery policies with homeownership decisions, home equity, and Medicaid enrollment among low-income older adults using a difference-in-difference fixed-effects model.

Findings: The implementation of estate recovery significantly decreased home equity in the overall sample and among Black and White subgroups as well as those over age 74 years. Additionally, estate recovery implementation was associated with a significant decrease in

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Medicaid enrollment among unmarried, low-income individuals aged 65 years and older. No significant association was found between homeownership and estate recovery overall or among subgroups.

Conclusions: These findings suggest that those most at risk for Medicaid estate recovery, namely, low-income older adults, may behave exactly the way policymakers intended, avoiding enrollment in Medicaid and extracting housing wealth to cover the cost of their care. Still, it is worth reconsidering a policy that recoups less than 1% of the long-term services and supports budget from Medicaid estate recovery to the detriment of low-income families who already had few assets. These findings reflect the limited choices that older adults and their families have in making long-term care decisions, filling a gap in the extant literature, which has not adequately explored the impacts of estate recovery.

Introduction

Wealth is an important indicator of financial health and well-being and socioeconomic mobility.[1] In the United States, differences in wealth across racial/ethnic groups and more specifically, the Black-White wealth gap, have been well-documented.[2–12] Intergenerational transfers (i.e., inheritances and bequests) account for more of the Black-White wealth gap than a broad range of key demographic and socioeconomic indicators, including education, income, and household structure.[4,8,13] For low-income individuals and their families, homeownership has been identified as a primary source of wealth accumulation.[14] However, Medicaid estate recovery[15] enables states to seek repayment for Medicaid debts accrued through long-term services and supports (LTSS), often resulting in states taking ownership of the homes of Medicaid recipients. This prevents Medicaid recipients—many of whom are low-income Black and Hispanic or Latine people—from transferring assets to heirs.[16] Thus, Medicaid estate recovery may be exacerbating the Black-White wealth gap, hindering the ability of low-income older adults to pass their remaining assets on to the next generation.

Medicaid and Long-Term Care

Approximately 70% of adults aged 65 years and older will develop a need for LTSS before they die,[17] and only one-third will be able to pay for their care out of pocket.[18,19] The provision of LTSS includes paid and unpaid medical and nonmedical services and supports to assist older adults and individuals of any age with a broad range of intellectual, developmental, and physical disabilities; behavioral health diagnoses (e.g., dementia); and chronic conditions with activities of daily living (e.g., bathing, dressing, cooking, medication management).[20] Typically thought of as care provided in a nursing home, LTSS can take place in a range of settings beyond nursing homes including assisted living facilities, adult daycare programs, and professional or informal

home health aide services in the home.[20] Often, adult children are the first caregivers for their aging parents until a combination of burnout and more complex care needs go beyond family members' abilities to maintain caregiving duties without the support of long-term care facilities (e.g., nursing homes).[21] Regardless of whether care occurs in the home or in a nursing facility, the provision of LTSS is very expensive.[22] Data from 2023 indicate that one year in a private nursing home room can cost upward of $116,800 and one year of full-time home health aide support can cost about $68,640.[20]

Established in 1965 as America's health insurance for the poor,[23] Medicaid contributes a key provision to the policies that make up the social safety net for older adults in the United States by extending beyond traditional health insurance to include home- and community-based care and LTSS.[23] Medicaid covers the cost of residential care for 6 in 10 nursing home residents.[24] Although non-Hispanic Black and Hispanic older adults are less likely to move into a nursing home than their non-Hispanic White counterparts,[25] they comprise a disproportionate share of the Medicaid population, with Black and Hispanic adults representing about half of Medicaid beneficiaries in 2023.[26]

Unlike Medicare, the health insurance program for the elderly, Medicaid eligibility is means-tested; to qualify, individuals must meet strict state-determined asset and income requirements or pay for services out of pocket, spending down their wealth until they are eligible to apply.[27] Policymakers carved out several exemptions, including a recipient's primary vehicle and owner-occupied housing assets, in an effort to prevent illness from causing impoverishment.[23] There are several ways to become eligible for Medicaid such as by qualifying for Supplemental Security Income (SSI), a means-tested program for low-income and disabled people. Another is known as the "300% rule", where most states (41 as of 2025)[28] extend eligibility so that individuals living either at home or in a nursing home who require an institutional level of care can apply if they have incomes up to 300% of the SSI limit. Relatedly, 25 states permit qualified income trusts (QITs), as of 2026, presenting a pathway for applicants with incomes that exceed state eligibility limits to make monthly deposits into a QIT until they become eligible. States that do not permit QITs offer a "medically needy" pathway, an alternative model to reducing income. Many elderly Medicaid beneficiaries become eligible through a process of spending down their assets, often on medical care. Whereas some older adults who require LTSS enter nursing homes already eligible and enrolled in Medicaid, others begin the process of spending down assets at the nursing home, entering first as private-pay residents.[23] Savvy older adults wishing to preserve an inheritance for surviving family members may transfer any remaining assets to adult children contingent on following rules dictated by state look-back periods. Outwardly, these transfers then appear as ordinary spend-down behavior to meet Medicaid eligibility requirements.

Designed to prevent Medicaid applicants from strategic wealth transfers, look-back periods evaluate whether an asset transfer occurred within a certain window of time before an individual applied for Medicaid.[29] Before determining eligibility, Medicaid reviews all financial transactions, including those made by a spouse or deposited into a QIT, and if the look-back rule is violated, an applicant is determined to be ineligible for a specific penalty period. Nearly all 50 states and the District of Columbia have a 60-month (i.e., 5-year) look-back period, apart from California and New York, which have shorter periods (30 months) depending on the type of Medicaid being applied for (e.g., community Medicaid vs nursing home). The literature indicates that look-back periods have been effective in their goal of limiting wealth transfers. Liu and Mukherjee (2021) estimated the effect of look-back periods on parent-child asset transfers after the passage of the 2005 Deficit Reduction Act (DRA), which widely extended look-back periods from 3 to 5 years.[18] They found a reduction in financial transfers among married individuals with a high likelihood of nursing home entry.[18]

In an effort to address the aging population and the increased demand for highly skilled care, the Medicaid estate recovery policy was enacted in 1993 as a part of the Omnibus Budget Reconciliation Act.[15] Because Medicaid operates as both a state and federal program, states must share in the financing of the program and balance their budgets annually. Although states were granted significant latitude in designing their programs, estate recovery was designed to constrain state spending by requiring states to seek repayment for debts often accrued through the use of LTSS benefits[30] and to prevent Medicaid recipients from transferring assets to heirs while also benefiting from taxpayer funds.[16] Enacted as a part of the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982, the TEFRA lien is one of the most popular components of the estate recovery policy, whereby a lien can be placed on a recipient's home while they are still alive.[27] As of 2022, 26 states have chosen to adopt liens into their Medicaid estate recovery policies.[27,31] Given their ability to raise the level of awareness among Medicaid beneficiaries, liens may encourage affected beneficiaries to engage in estate planning or wealth transfer to protect remaining assets, an option that may be viable only to well-resourced families more familiar with navigating complicated legal processes.[27,29]

Behavioral Responses to Estate Recovery

Medicaid estate recovery has the potential to influence behavioral responses, including enrollment in Medicaid insurance and homeownership or home equity decisions. Older adults with knowledge of the consequences of estate recovery may no longer view real estate as an attractive asset or may opt out of Medicaid altogether, preferring to rely on informal caregiving structures with lower risk to their largest asset. Alternatively, they may choose to invest more in their home, making safety upgrades or improvements to increase the value of their home and ensure their ability to age in place.

Medicaid estate recovery can trigger proactive estate planning, whereby a homeowner may opt to transfer ownership of their home to shield them from recovery.[29] Although it is possible to safeguard assets from estate recovery through estate planning, significant disparities exist in who has access to an elder law attorney or estate planner to put these protections in place.[29,32] In combination with estate recovery, look-back periods may also deter some amount of planning; however, as Liu and Mukherjee (2021) found, look-back periods may primarily impact those with lower financial literacy. This is further evidence that access to planning resources plays a critical role in how estate recovery may differentially impact low-income families with varying levels of financial literacy.

Cumulative disadvantage theory[33] lends itself to understanding disparities in health and wealth as a result of Medicaid estate recovery. This theoretical framework suggests that, throughout the life course, differences in opportunities and barriers can lead to increasing inequities.[32,33] In other words, structural racism, discrimination, and racist policies as well as individual life events (e.g., adverse childhood experiences) may explain disparities in access to resources and knowledge that contribute to disparities in health and wealth over time. The cumulative disadvantages that Black families experience can lead to Black older adults having fewer assets than their White counterparts later in life. Fewer assets may lead to disproportionate enrollment in Medicaid, lower rates of homeownership, and lower home values compared to those of White older adults. For those with limited assets, especially less equity in their homes, policies that impact homeownership or home equity may be felt more acutely among Black families. In a study that uses this theoretical framework to understand differences in estate planning between White and Black older adults, Koss and Baker found that Black families were significantly less likely than White families to have engaged in estate planning.[32] They also found homeownership, household net assets, and household income to be protective factors that increased the likelihood of having a will or trust.[32] However, even after controlling for all of these protective factors, Koss and Baker found that White older adults were still four times more likely than Black older adults to have engaged in estate planning.[32] Cumulative disadvantage theory offers a way to understand how Medicaid estate recovery may perpetuate disparities in intergenerational wealth.

Prior Literature

Although Medicaid estate recovery has important implications for the financial health of older adults and their families, few studies have been able to assess the impact of Medicaid estate recovery, and is a dearth of research is available on its effects and scope. This study addresses this gap in the knowledge base to investigate the impact of Medicaid estate recovery on homeownership, home equity, and Medicaid enrollment. To date, only one causal study has investigated the relationship between

Medicaid estate recovery and housing and asset decisions of older adults.[27] Using data from the Health and Retirement Study (HRS), Greenhalgh-Stanley found that state adoption of estate recovery induced unmarried older adults aged 70 years and older to decrease homeownership by 4.6% and to decrease home equity by 15%.[27] Although the existing literature is informative, gaps remain on how estate recovery affects racial and ethnic disparities in homeownership, home equity, and enrollment in Medicaid. The present study addressed these gaps in the literature by adding a key outcome variable (i.e., Medicaid enrollment); conducting subgroup analyses to understand differential impacts; using newer methods that consider staggered policy implementation and event studies; and limiting the sample to those most likely to be impacted by the policy, namely, low-income older adults living below 150% of the federal poverty level (FPL). Medicaid enrollment was selected as an outcome variable given that the founders of estate recovery hoped it would disincentivize families from relying on Medicaid and instead purchase long-term care insurance.[34,35] This analysis also benefits from several more years of data to capture full policy implementation.

This study sought to address two key questions. First, this analysis took advantage of variations in the timing of state implementation of Medicaid estate recovery to understand the impact of the policy on homeownership, home equity, and Medicaid enrollment. Medicaid estate recovery may be influencing preemptive maneuvers such as selling or making upgrades to one's home or avoiding Medicaid coverage to preserve assets for adult children. Second, this analysis examined the differential impact of Medicaid estate recovery on groups that may be differentially affected by the policy. Informed by a review of the literature, the author hypothesized that state implementation of Medicaid estate recovery would decrease homeownership, home equity, and Medicaid enrollment. Knowledge of the consequences of estate recovery may only trigger behavioral responses for those who have more resources to make long-term care decisions that take into account the preservation of familial wealth.

Methods

Data and Sample

The data for this research came from the Health and Retirement Study (HRS) from 1992 to 2008 accessed through the University of Michigan.[36,37] HRS is a representative panel study that surveys approximately 20,000 households every two years, specifically designed to survey older adults, making it an ideal survey for this analysis.[38] Respondents are recruited between the ages of 51 and 61 years and are generally followed until their death. Eligibility is restricted to people who are not institutionalized at the time of recruitment, but respondents are not excluded from the sample in future survey years should they become institutionalized. The survey

collects information about income, work, assets, health insurance, disability, and physical health.

The pretreatment period was limited to one year with no policy change (1992) because that was the first year of HRS data. As Medicaid estate recovery was first enacted in 1993, this year was used to ensure that the parallel trends assumption holds in the pre-policy period. Restricted-access HRS data was used to attach the state of residence to each respondent to identify state-by-time variations.[39] Given that all states became treated (i.e., implement estate recovery) during the study period, identification was instead based on variations in treatment timing where states that adopted estate recovery later were used as controls before their implementation year and the states that adopted the policy earlier were used as controls after their implementation year begins. States with less than 20 respondents per year (i.e., Alaska, Hawaii, and Rhode Island) were excluded from the study, giving a final sample of 47 states and the District of Columbia. Full details of state policy implementation year by state can be found in Appendix Table A1. The study period ended in 2008 to account for a changing health policy environment in later years due to the Affordable Care Act, as well as impacts on housing from the Great Recession, which could introduce bias. The sample was limited to those most likely to be impacted by the policy: individuals aged 65 years and older with incomes below 150% of the FPL.

Measures

The main outcomes of interest were home equity, homeownership, and Medicaid enrollment. Home equity was measured as a continuous variable representing a dollar value, whereas homeownership and Medicaid enrollment were measured as binary variables. Home equity measures the home's value less housing debt. Homeownership described whether a respondent owned their home, and Medicaid enrollment indicated whether a respondent was enrolled in Medicaid.

Individual and state-level characteristics were used as covariates in analyses that could otherwise affect variations in findings. State-level characteristics included whether a respondent lived in a state with a TEFRA lien. There are several reasons to account for TEFRA liens in adjusted models. States that utilize TEFRA liens are considered more aggressive, as they allow a lien to be placed on a recipient's home prior to their death. Typical estate recovery procedures wait until a recipient is deceased to start the recovery process. TEFRA liens may also raise the level of awareness a recipient has about the policy, which could induce behavioral changes such as homeownership decisions and enrollment in Medicaid.

Individual characteristics included a respondent's age in years, race/ethnicity, educational attainment, marital status, and gender. Age was categorized as a 4-level categorical variable (65-74 years, 75-82 years, 83-89 years, and 90 years of age or older). Race and ethnicity were recoded as a combined 4-level categorical variable

(Hispanic/Latine, non-Hispanic [NH] White, NH-Black, and NH-other/multiracial). An indicator measuring urbanicity was measured as a 3-level categorical variable of living in an urban, suburban, or rural area. Educational attainment (high school graduate or less, more than high school), marital status (married, not married), and gender (male, female) were categorized as binary variables. Categories were created to handle missing data for all covariates following the single imputation strategy for missing values conducted as standard methodology.[40]

Statistical Analysis

Main Analysis. To isolate the causal effects of the policy, the variation in the timing of the implementation of estate recovery was exploited using a staggered difference-in-difference (DID) two-way fixed-effects (FEs) approach. State-level FEs were used to control for state-wide differences that may have impacted homeownership, home equity, and Medicaid enrollment. Year FEs were included to control for any time-specific effects. Standard errors were clustered at the state level. Confidence intervals were calculated using wild bootstrap procedures by state.[41] Data were weighted using HRS household weights.

The identification equation used was

$$\text{Outcome}_{ist} = \alpha_0 + \alpha_1 \text{PostXTreatment}_{st} + \alpha_2 \text{StateFE} + \alpha_3 \text{YearFE} + \alpha_4 X_i + \varepsilon_{ist}$$

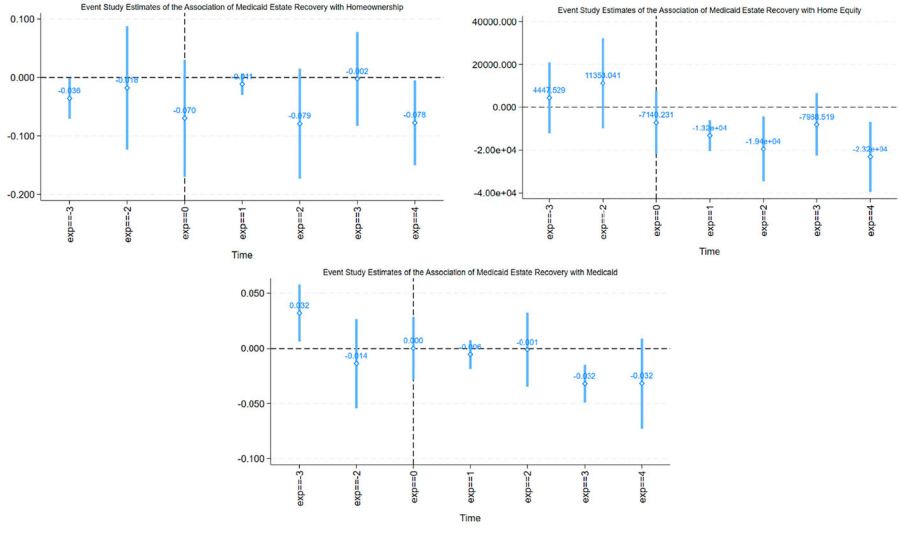
where Outcome_{its} represents the outcome of interest (homeownership, home equity, or Medicaid) for an individual respondent i living in state s in year t, $\text{PostXTreatment}_{st}$ represents the DID estimate for the outcome in states after the policy. StateFE and YearFE represent state and year fixed effects, respectively. X_i represents a vector of control variables, and ε_{ist} represents the error term.

Stratified analyses were conducted to examine the effects of Medicaid estate recovery on homeownership, home equity, and Medicaid enrollment for individuals who may be more or less impacted by the policy. These subgroups included NH-Black respondents, NH-White respondents, respondents aged 75 years and older, rural respondents, and unmarried respondents. Respondents aged 75 years and older were included in stratified analyses because, at their age, they are more likely to be using LTSS, they may have a heightened awareness of the costs associated with these services, and they may be making homeownership and insurance decisions accordingly. As in prior analyses, rural respondents may be more impacted by estate recovery because of the higher rates of homeownership and different price trends in rural regions compared to urban areas.[27] Unmarried respondents are particularly at risk of estate recovery because recovery mechanisms and TEFRA liens are not enacted on a home where there is a surviving spouse. Unmarried respondents are also more likely to rely on Medicaid given the income constraints of being a single adult.

Additional Analyses. A primary assumption for a valid DID is parallel pretreatment trends. This assumption is necessary to indicate whether, in the absence of the policy change, the trends in outcomes would have been similar between early and late adopters. Event studies were conducted to establish that the parallel trends hold for all groups, comparing trends in treated states and always treated states for each year relative to the year before policy implementation (year − 1) in models. Following Schmidheiny and Siegloch (2020), the end points were binned to reduce bias associated with an unbalanced panel.[42] In each event study conducted, there was no evidence of pretreatment trends. Figure 1 contains a visual representation of the event studies conducted for the overall sample. More information on the event studies conducted among subgroups can be found in Appendix Figures A1–A3.

Figure 1. Event Studies of the Estimated Association of Medicaid Estate Recovery with Homeownership, Home Equity, and Medicaid Enrollment, HRS 1992-2008[a]

[a]Based on the author's analysis of data from the Health and Retirement Study (HRS), 1992-2008, of respondents aged 65 years and older with incomes below 150% of the federal poverty level. Data were weighted using HRS household survey weights. This figure contains the visual representation of event studies conducted for homeownership, home equity, and Medicaid enrollment for the overall sample. Models were adjusted for age, educational attainment, marital status, race and ethnicity, gender, urbanicity, and Tax Equity and Fiscal Responsibility Act (TEFRA) policy adoption. Standard errors were clustered by state. Confidence intervals were calculated using wild cluster bootstrap procedures by state.



Sensitivity Analyses. Several sensitivity analyses were conducted to assess the robustness of the results. First, the effects of Medicaid estate recovery on homeownership, home equity, and Medicaid enrollment were estimated at additional income levels, rather than being restricted to respondents living below 150% of the FPL. Additional income levels included those living below 100% of the FPL and those living at 150% of the FPL and above. Individuals in higher income bands might have more access to resources for estate planning to shield assets through the transfer of homeownership to heirs via a trust. Conversely, but relatedly, higher-income individuals may put more money into their home, reflected in the data as higher home equity. Among these groups, one might then expect to see larger negative effects for homeownership and larger positive effects for home equity. For Medicaid enrollment among higher-income bands, one might again expect a decrease in enrollment given that this group may have access to long-term care insurance or higher savings to support long-term care needs. This may delay Medicaid enrollment because it would take longer for higher-income groups to become eligible for Medicaid insurance through spend-down procedures. These effects might be expected to be more pronounced for those living at 150% of the FPL and higher.

Next, the Callaway and Sant'Anna estimator was used to address weaknesses associated with two-way FE DID models with variations in treatment time.[43] A nascent body of literature has identified biases in the presence of heterogeneities in treatment effects, suggesting that a staggered two-way FE DID model may not provide valid estimates.[43–45] The Callaway and Sant'Anna estimator adds transparency and objectivity to the analysis by identifying groups as they are first treated and creating average effects for pre- and post-treatment periods. The purpose of this final analysis was to test whether the original unadjusted estimates were valid given that every state eventually implemented Medicaid estate recovery. Toward this end, the not-yet-treated group was used as a comparison group as opposed to a never-treated group. Observations from Michigan, the last state to adopt the policy in 2007, were dropped from the analysis as no comparison group remained. Subgroup analyses were not conducted using the Callaway and Sant'Anna estimator because of sample size limitations.

Results

Demographic characteristics of the study sample are summarized in Table 1. The total sample size included 25,496 respondents who were aged 65 years or older with incomes below 150% of the FPL. Well over half of the sample were women (69.2%) and majorities were non-Hispanic White (58%), had a high school degree or less (58.8%), and were unmarried (67%). A quarter of the sample reported being on Medicaid insurance (25.5%). Nearly one-third of respondents resided in rural areas (31.8%), and

Table 1. Baseline Characteristics of Low-Income Adults Aged 65 Years and Older, HRS 1992-2008[a]

Sample Characteristic	
Age (years)	
65-74 (%)	42.61 (42.00-43.21)
75-82 (%)	32.06 (31.49-32.64)
83-89 (%)	18.58 (18.11-19.07)
≥90 (%)	6.75 (6.45-7.06)
Educational Attainment	
High school education or less (%)	58.79 (58.18-59.39)
More than high school (%)	41.21 (40.60-41.81)
Race/Ethnicity	
White, non-Hispanic (%)	58.03 (57.42-58.63)
Black, non-Hispanic (%)	23.42 (22.90-23.94)
Hispanic/Latine (%)	15.80 (15.36-16.26)
Other, non-Hispanic (%)	2.70 (2.51-2.91)
Marital Status	
Unmarried (%)	67.00 (66.42-67.57)
Married (%)	32.90 (32.33-33.48)
Gender	
Female (%)	69.24 (68.67-69.80)
Male (%)	30.76 (30.20-31.33)
Urbanicity	
Urban (%)	44.17 (43.56-44.78)
Suburban (%)	24.04 (23.52-24.57)
Rural (%)	31.79 (31.22-32.36)
Health Insurance	
Medicaid (%)	25.50 (24.97-26.05)
Non-Medicaid (%)	74.50 (73.95-75.03)
Homeowner (%)	59.06 (58.46-59.67)
Home Equity (mean, $)	51,081.54 (49,838.80-52,324.29)
Observations	25,515

[a] Based on the author's analysis of data from the Health and Retirement Study (HRS), 1992-2008, of respondents aged 65 years and older with incomes below 150% of the federal poverty level. Estimates are presented as unweighted totals with 95% confident intervals in parentheses.

a majority owned their homes (59.1%). Respondents reported an average of $51,081 in home equity.

Figure 1 provides a visual representation of the parallel pretreatment trends for the main analysis. Visually, one can observe that the homeownership and Medicaid enrollment rates were relatively flat prior to the implementation of estate recovery, suggesting that, in the absence of the adoption of estate recovery, the trends in

homeownership and enrollment in Medicaid would be similar between both early and late policy adopters. After policy implementation, a slight, albeit not statistically significant, decline can be observed in both the homeownership and Medicaid enrollment rates. Similar flat pre-policy trends were present for home equity, but after policy implementation, there was a statistically significant decline in home equity, suggesting that estate recovery may lead to a decline in home equity.

Table 2 reports the DID estimates for the impact of the implementation of estate recovery on homeownership. Living in a treated state after the implementation of Medicaid estate recovery was not associated with a change in homeowner status (coefficient [coef], −1.34; 95% CI, −8.42 to 3.55 in adjusted models). The confidence intervals suggest that there is no detectible evidence of a meaningful or statistically significant relationship between homeownership decisions and Medicaid estate recovery. Similarly, in stratified models, no detectible evidence of significant effects of estate recovery on homeownership was found among any subgroups (i.e., race and ethnicity, marital status, age, and urbanicity). Although none of these results were statistically significant, larger negative effect sizes were observed among NH-Black respondents (coef, −2.18; 95% CI, −11.76 to 6.50), NH-White respondents (coef, −4.10; 95% CI, −8.97 to 1.82), and respondents aged 75 years and older (coef, −1.91; 95% CI, −8.28 to 4.02) relative to the coefficients for the adjusted total population model.

Table 3 displays the DID estimates for the impact of estate recovery implementation on home equity. In adjusted models, living in a treated state after implementation of Medicaid estate recovery was found to be associated with a statistically significant $16,513.16 decrease in home equity overall (95% CI, −13,584.06 to −1,167.62; $P < .05$). In stratified analyses, the effects were largest among NH-White, NH-Black, and those aged 75 years and older. Medicaid estate recovery was also found to be associated with a statistically significant decrease of $18,872.40 (95% CI, −37,152.32 to −1,408.69; $P < .05$) in home equity for NH-White respondents and a statistically significant decrease of $13,502.63 (95% CI, −25,394.58 to 1,757.75; $P < .05$) for NH-Black respondents. For Black, older adults with low incomes, who had a baseline mean home equity of $22,951.79, this change represents a nearly 60% decrease in home equity compared to an approximately 45% decrease in home equity among their White counterparts, who had almost twice the baseline mean home equity ($41,694.20). Among adults aged 75 years and older, evidence was found of a statistically significant decrease in home equity of $14,950.06 (95% CI, −27,779.24 to −2,280.30; $P < .05$).

Table 4 reports the DID estimates for the impact of the implementation of estate recovery on Medicaid enrollment. Living in a treated state after the implementation of Medicaid estate recovery was not found to be associated with a change in Medicaid enrollment among the overall sample (coef, −0.46; 95% CI, −3.32 to 3.14 in adjusted models). However, among unmarried respondents, living in a treated state

Table 2. Association of the Implementation of Medicaid Estate Recovery with Homeownership, HRS 1992-2008[a]

	Baseline Mean (%)	Unadjusted Difference-in-Difference Estimate	Adjusted Difference-in-Difference Estimate
Overall ($N = 25{,}496$)	58.66	−0.73 (−6.59 to 3.69)	−1.34 (−8.42 to 3.55)
NH-Black respondents ($n = 5{,}971$)	54.67	−2.75 (−13.60 to 5.84)	−2.18 (−11.76 to 6.50)
NH-White respondents ($n = 14{,}795$)	61.13	−3.19 (−8.04 to 2.80)	−4.10 (−8.97 to 1.82)
Unmarried respondents ($n = 17{,}082$)	50.28	−1.18 (−7.80 to 4.06)	−1.60 (−9.52 to 4.36)
Respondents aged ≥75 years ($n = 14{,}633$)	54.35	−0.47 (−6.14 to 4.66)	−1.91 (−8.28 to 4.02)

95% confidence intervals in parentheses.
*$P < .05$, **$P < .01$, ***$P < .001$.
[a] Based on the author's analysis of data from the Health and Retirement Study (HRS), 1992-2008, of respondents aged 65 years and older with incomes below 150% of the federal poverty level. Data were weighted using HRS household survey weights. This table reports the estimated association with homeownership of living in a state that delayed implementation of Medicaid estate recovery. Difference-in-difference model adjusted for age, educational attainment, marital status, race and ethnicity, gender, urbanicity, Tax Equity and Fiscal Responsibility Act (TEFRA) policy adoption, and state and year fixed effects. Standard errors were clustered by state. Estimates are presented in terms of percentage points. Confidence intervals were calculated using wild cluster bootstrap procedures by state.

Table 3. Association of the Implementation of Medicaid Estate Recovery with Home Equity, HRS 1992-2008[a]

	Baseline Mean	Unadjusted Difference-in-Difference Estimate	Adjusted Difference-in-Difference Estimate
Overall ($N = 25{,}496$)	36,935.45	−15,971.72** (−30,178.95 to −1,818.95)	−16,513.16** (−31,584.06 to −1,167.62)
NH-Black respondents ($n = 5{,}971$)	22,951.79	−13,687.39** (−25,051.85 to−1,829.12)	−13,502.63** (−25,394.58 to −1,757.75)
NH-White respondents ($n = 14{,}795$)	41,694.20	−18,376.01*** (−35,229.61 to −3,348.83)	−18,872.40** (−37,152.32 to −1,408.69)
Unmarried respondents ($n = 17{,}082$)	31,105.51	−11,744.81* (−23,966.57 to 27.55)	−11,808.24* (−24,804.66 to 226.94)
Respondents aged ≥75 years ($n = 14{,}633$)	33,386.72	−13,318.36** (−25,636.80 to −1,613.58)	−14,950.06** (−27,779.24 to −2,280.30)

95% confidence intervals in parentheses.
*$P < .05$, **$P < .01$, ***$P < .001$.
[a] Based on the author's analysis of data from the Health and Retirement Study (HRS), 1992-2008, of respondents aged 65 years and older with incomes below 150% of the federal poverty level. Data were weighted using HRS household survey weights. This table reports the estimated association with home equity of living in a state that delayed implementation of Medicaid estate recovery. Difference-in-difference model adjusted for age, educational attainment, marital status, race and ethnicity, gender, urbanicity, Tax Equity and Fiscal Responsibility Act (TEFRA) policy adoption, and state and year fixed effects. Standard errors were clustered by state. Estimates are presented in terms of percentage points. Confidence intervals were calculated using wild cluster bootstrap procedures by state.

Table 4. Association of the Implementation of Medicaid Estate Recovery with Medicaid Enrollment, HRS 1992-2008[a]

	Baseline Mean (%)	Unadjusted Difference-in-Difference Estimate	Adjusted Difference-in-Difference Estimate
Overall ($N = 25{,}496$)	19.96	−0.85 (−3.83 to 1.81)	−0.46 (−3.32 to 3.14)
NH-Black respondents ($n = 5{,}971$)	31.88	−2.36 (−8.64 to 5.26)	−1.73 (−7.49 to 4.66)
NH-White respondents ($n = 14{,}795$)	14.11	0.24 (−2.85 to 3.73)	0.55 (−2.76 to 4.74)
Unmarried respondents ($n = 17{,}082$)	22.38	−3.40** (−7.31 to −0.18)	−3.43** (−6.56 to −0.20)
Respondents aged ≥75 years ($n = 14{,}633$)	20.15	−1.39 (−4.84 to 1.83)	−0.32 (−3.85 to 3.12)

95% confidence intervals in parentheses.

*$P < .05$, **$P < .01$, ***$P < .001$.

[a] Based on the author's analysis of data from the Health and Retirement Study (HRS), 1992-2008, of respondents aged 65 years and older with incomes below 150% of the federal poverty level. Data were weighted using HRS household survey weights. This table shows the estimated association of living in a state that delayed implementation of Medicaid estate recovery on Medicaid enrollment. Difference-in-difference model adjusted for age, educational attainment, marital status, race and ethnicity, gender, urbanicity, Tax Equity and Fiscal Responsibility Act (TEFRA) policy adoption, and state and year fixed effects. Standard errors were clustered by state. Estimates are presented in terms of percentage points. Confidence intervals were calculated using wild cluster bootstrap procedures by state.

after the implementation of Medicaid estate recovery was associated with a 3.43 percentage point decrease in Medicaid enrollment (95% CI, −6.56 to −0.20; $P < .05$ in adjusted models). No detectible evidence of significant effects of estate recovery on enrollment was found among any other subgroups. Although larger negative effect sizes were observed among NH-Black respondents (coef, −1.73; 95% CI, −7.49 to 4.66), relative to the coefficients for the adjusted total population model, they were not statistically significant.

Appendix Table A2 and Appendix Figure A4 present results from estimating unadjusted models for homeownership, home equity, and Medicaid enrollment using the estimator developed by Callaway and Sant'Anna (2021).[43] The association of homeownership with Medicaid estate recovery was robust to this specification and remained statistically insignificant, but it appeared to be larger in magnitude. Diverging from the main difference-in-differences models, the association of home equity with Medicaid estate recovery was statistically insignificant and smaller in magnitude. The association of Medicaid enrollment with the implementation of Medicaid estate recovery was robust to this specification and appeared to be larger in magnitude, similar to estimates for homeownership, albeit the models remained statistically insignificant.

Appendix Tables A3 and A4 present results from estimating models for all outcomes at different income bands: living below 100% of the FPL and living at 150% of the FPL and above. The results were robust across income levels, indicating a statistically significant association between home equity and estate recovery among those living at 150% of the FPL and above (coef, -$33,780.34; 95% CI, −58,143.41 to −6,500.02; $P < .05$). There were otherwise no observable significant associations between homeownership or Medicaid enrollment and estate recovery. Appendix Figures A5 and A6 represent event studies conducted for both sets of income bands. No evidence of significant pretreatment trends can be observed.

Discussion

Analysis of 1992-2008 HRS data from 47 states and the District of Columbia indicates that, overall, the implementation of estate recovery decreased home equity among older adults with incomes below 150% of the FPL, as well as among subgroups of non-Hispanic Black respondents, non-Hispanic White respondents, and respondents over the age of 74 years. A significant association was also found between the implementation of estate recovery and Medicaid enrollment, with a 3.4 percentage point decrease in enrollment observed among unmarried low-income older adults. In contrast, this study found no detectible evidence of Medicaid estate recovery impacting homeownership decisions or enrollment in Medicaid overall or among remaining subgroups beyond marital status.

These results suggest that Medicaid estate recovery may deter low-income, unmarried older adults from enrolling in Medicaid; this is precisely the population targeted by the policy and the group most likely to end up on Medicaid.[46] This finding may point to awareness of Medicaid estate recovery and a conscious choice to avoid Medicaid enrollment in favor of preserving an inheritance for the next generation. Moreover, it demonstrates the high priority older adults place on leaving a legacy behind for surviving adult children, perhaps in lieu of receiving necessary care. Future work should investigate the relationship between Medicaid estate recovery and delayed or foregone care.

The decreases in home equity after policy implementation found in this study are consistent with the results of the only other known causal study on Medicaid estate recovery, which used the same data but a different sample limited to unmarried adults aged 70 years and older.[27] Using a sample of low-income adults aged 65 years and older, however, the present study determined larger decreases in home equity both overall and across most subgroups. These findings suggest that Medicaid estate recovery may induce the lowest-income portion of the population to either extract housing wealth to help cover the cost of health care[47] or fall behind on home repairs considering their home to be worth less when recovered by the state postmortem. Low-income White respondents were found to have larger decreases in home equity after policy implementation compared to their Black counterparts. However, considering the differences in baseline home equity, in that Black homeowners retained about half the amount of equity as White homeowners, this study found low-income Black older adults to be disproportionately impacted by the effects of recovery on home equity. Prior research determined that Black, Latine, and low-income homeowners report the least equity in their homes, despite their homes accounting for most of their accumulated wealth,[47] supporting the home equity disparities highlighted by this study's analysis. States have little to gain from recovering the estates of Black Medicaid beneficiaries relative to the cost of a state's Medicaid LTSS budget. However, the finding that Medicaid estate recovery decreases home equity for Black homeowners by nearly 60% means that their surviving relatives miss out on an inheritance with the potential to meaningfully reduce the Black-White wealth gap.

The homeownership results from this study may differ from those of the previous analysis on Medicaid estate recovery for many reasons, including differences in the study sample and data used. The prior study relied on a specific cohort, the AHEAD (Achieving Healthcare Efficiency through Accountable Design) cohort, that consisted of unmarried individuals who were born between 1890 and 1923.[27] The makeup of that cohort may be meaningfully different from the sample of low-income adults aged 65 years and older identified by this analysis. Other factors that may explain how these findings differ from prior work include the clustering of standard errors by state in this analysis, which accounts for the state level of policy adoption in the models. Further, this study used wild bootstrap procedures to calculate confidence intervals

and identified different covariates as controls for adjusted models and stratified the analysis by subgroup, specifically examining differences by race and ethnicity. This variation in design specifications may explain differences in the findings between this study and the existing literature.

The complex nature of long-term planning reflects a lack of available choices for people as they age. Low-income older adults face substantial financial barriers when it comes to aging, making difficult decisions that can impact the financial health of their family for generations. When faced with limited choices, families may not have the freedom to consider the implications of Medicaid estate recovery and to make different decisions about long-term care. Only those with the highest incomes have the luxury to preserve an inheritance for their adult children while also receiving LTSS through advanced aging, having been able to save significant portions of their wealth in a way that lower income families cannot.

This study concludes that implementation of estate recovery was associated with a decrease in Medicaid enrollment for unmarried low-income older adults, as well as a decrease in home equity, especially for those older than 74 years of age and for White and Black homeowners. These findings suggest that those most at risk for Medicaid estate recovery, namely, low-income older adults, may behave exactly the way policymakers intended, avoiding enrollment in Medicaid and extracting housing wealth to cover the cost of their care. Still, it is worth reconsidering a policy that recoups less than 1% of the LTSS budget from Medicaid estate recovery[31,35] to the detriment of low-income families who have few assets to begin with.

Limitations

This study has several limitations. First, no population-level dataset is available from which Medicaid estate recovery can be directly observed, which may be obscuring the relationship between the policy with Medicaid enrollment, homeownership, and home equity. Further research using data that more precisely captures Medicaid estate recovery should be pursued to better understand its impacts. Relatedly, whereas this study found some evidence of racial disparities in the association between Medicaid estate recovery and home equity, no other differences by race and ethnicity could be detected, demonstrating the limitations of the data, including small sample size constraints. Moreover, homeownership is a narrow outcome that may not entirely capture more granular financial impacts related to intergenerational transfers of wealth. Home equity provides slightly more detail, but further research is warranted using data that may better encapsulate the overall financial health of families, including stock holdings, savings, and the completion of a will or trust. Additionally, changes to other policies may have occurred during the study period. This would make it challenging to attribute the measured outcomes specifically to Medicaid estate recovery. Moreover, a reliance on cross-state variations may mask other factors that vary

across states and affect homeownership, home equity, and enrollment in Medicaid. State and year fixed effects were included in modeling to account for this limitation. Lastly, unobserved structural and institutional barriers may be influencing enrollment in Medicaid and homeownership or home equity decisions.[21,48] Notably, this limitation would bias estimates of the impact of Medicaid estate recovery downward, strengthening the policy relevance of any significant findings.

Conclusions

Overall, this analysis indicates that Medicaid estate recovery may encourage low-income older adults to avoid Medicaid enrollment and a reliance on state and federally funded LTSS by borrowing home equity to pay for costly care. These findings reflect the limited choices older adults and their families have in making long-term care decisions, filling a gap in the extant literature, which has not previously explored the relationship between estate recovery and Medicaid enrollment. To better understand the impacts of Medicaid estate recovery, there is a need for data that can adequately capture the asset and long-term care decisions of older adults and their families, as well as studies that pursue a deeper understanding of the scope of Medicaid estate recovery, including whether individuals are using wills or trusts for long-term planning and who, if anyone, is inheriting wealth and property.

This study underscores the fact that, when older adults are making decisions related to long-term care, they may not have the freedom or resources to consider anything other than their immediate care needs. Long-term care may be an equalizer among middle- and low-income older adults given how prohibitively expensive it is. Medicaid estate recovery reflects a downstream solution to an upstream problem. The downstream solution of recovering homes from low-income families may not be an effective or equitable method for combatting the upstream problem of the astronomical costs of long-term care. These findings contribute to ongoing policy discussions on Medicaid, wealth, and intergenerational poverty. The 2021 Medicaid and CHIP Payment and Access Commission (MACPAC) report to Congress made several relevant recommendations, including one that urges Congress to make the policy optional.[31] This analysis can inform states considering changes to their Medicaid estate recovery policies in line with recommendations from the MACPAC report.

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Supplementary Material

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