

Does Medicaid Increase the Ability of Low-Income Households to Self-Insure?

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January 7, 2018

Medicaid

- **Largest public health insurance** program in the U.S.
- Enacted in 1965 under Title XIX of the Social Security Amendments.
- Provided health insurance coverage for the **non-elderly poor population** for more than 40 years.
- **Means-tested program**
 - Administered by the state government, while the federal government provides matching funds for states.
 - **Income-test: median 48%** federal poverty level (**FPL**)
 - Alabama: 18% FPL; Arizona: 138% FPL in 2017.
 - **Asset-test:** assets valued at less than its threshold, with a **modal value of \$2,000**, generally counting savings and financial assets in bank accounts along with real-estate assets, with exemptions on one vehicle and one primary resident home.

Medicaid under the Affordable Care Act (ACA)

- On March 2010, the Medicaid program was scheduled to extend its eligibility in *all states*, beginning on **January 1, 2014**.
 - Cover individuals and families with **income up to 138% FPL**.
 - Cover **childless adults**.
 - **Eliminated the asset-test**.
 - Supreme court: Medicaid expansion *exceeded* the legitimate power of Congress.
- **Policy debate: who benefits** from the expansion?
 - **Low-income and high-assets vs. low-income and low-assets**
 - Individuals with lots of money spread across bank accounts and **real estate but with low taxable income** would take advantage of the Medicaid program.
 - Majority of Medicaid beneficiaries have very **low levels of life-time wealth**, and thus these low-income and low-asset households would mostly benefit from the asset-test elimination and **increase their ability to self-insure** against health-related risk.

Research Focus

- 1 Examine whether the ACA Medicaid expansion affect **low-income household savings**:
 - **Increase unearned income** such as dividends and interest from savings and investment?
 - **Decrease financial aid** from relatives and friends?
 - Asset-test elimination.
 - Initially were **constrained by the asset-test cutoff**?
 - "**Welfare stigma**" (Moffitt, 1983).
- 2 Identify **which group of low-income households** increased their unearned income:
 - **low-income and low-asset vs. low-income but high-asset.**

Main Findings

- After the ACA Medicaid expansion, households with no dependent children and income below 100% of FPL significantly
 - ① increased dividend and interest income by \$63 and \$84, respectively,
 - ② reduced the financial assistance from relatives or friends by \$159,
 - ③ did not increase labor and total income.
- Among those low-income households, households with **low-assets** (i.e., policy-targeted group) significantly increased their unearned income.

Main Contribution

- 1 First to evaluate the ACA Medicaid effects on savings and investments for low-income, **childless** adults.
- 2 Suggest that the ACA Medicaid expansion meet the key issue of the **asset-test elimination**.
- 3 With the **income-test** in mind, focus on several types of income, rather than just the level of savings.
 - Savings or real-estate assets (e.g., primary residential housing and vehicles) that generate **little or no unearned income**.
 - Households generate **non-trivial** unearned income through an increase in savings or financial assets in response to an asset-test elimination, which consequentially is bound to the **income-test** cutoff.

Theory of Asset-Test and Optimal Savings

- Hubbard et al. (1994a; 1994b; 1995)
 - Asset-test that restricts eligibility for a welfare program can **discourage asset accumulation**.
- Two-period model
 - Suppose Medicaid pays a **benefit** M to a person if its earnings fall below the **income-eligibility cutoff level** G and its assets fall below the **asset limit** L_C .
 - Assume
 - The person's first period (exogenous) earnings (Y_1) *exceed* the income eligibility level.
 - The person accumulated no assets prior to period 1.
 - Earned income in period 2 (Y_2) is zero.
 - The period gross rate of return to saving is 1.

Asset-Test and Optimal Savings

1. In the absence of Medicaid program

- **Accumulate positive wealth** to finance period 2 consumption, S^N , as illustrated by **point** A_N .

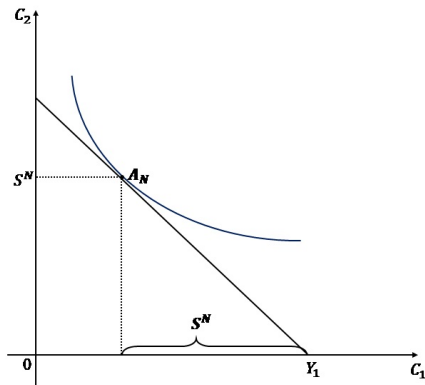


Fig. 1. Saving decision under a means-tested welfare program.

Asset-Test and Optimal Savings

2. With an asset-tested Medicaid program

- The **savings** the person carries out of period 1 can **preclude participation in the Medicaid** program.
- Finds it marginally attractive to **'undersave,'** $S^C, (< S^N)$ in period 1 (point B_C) because of the prospect of **future welfare participation**.

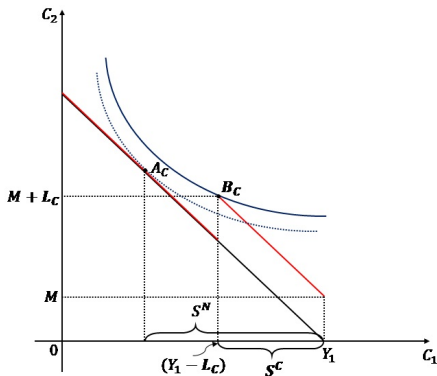


Fig. 1. Saving decision under a means-tested welfare program.

Asset-Test and Optimal Savings

- **Optimal path of wealth holding** as the asset-test limit varies.

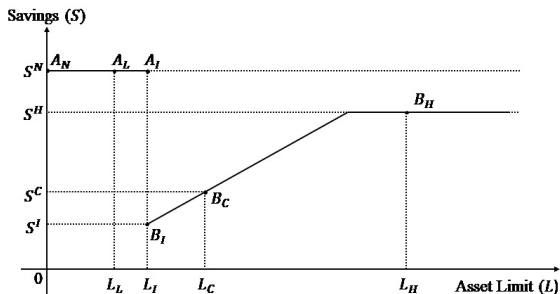


Fig. 2. Optimal wealth holdings as a function of asset limit.

- Savings response of a welfare-prone group to a **sudden, exogenous, change in an asset test.**

Asset-Test and Optimal Savings

- 1 Absence of a Medicaid program
 - Optimal wealth holdings are S^N .
- 2 Asset limit is **sufficiently low** (L_L)
 - Welfare participation is **undesirable**, and wealth holdings are S^N .
- 3 Asset limit is **so large** (L_H)
 - that the asset test is **never binding** on saving behavior
 - S^H will be the optimal stock of wealth.
- 4 Asset limits that are **not so low** as to discourage participation, but **not so high** as to be irrelevant (L_C)
 - Wealth accumulation is **constrained by the limit**, and wealth holdings are S^C
- 5 Medicaid program was income- but not asset-tested
 - S^H will be the optimal stock of wealth.

Asset-Test and Optimal Savings—High Asset Limit

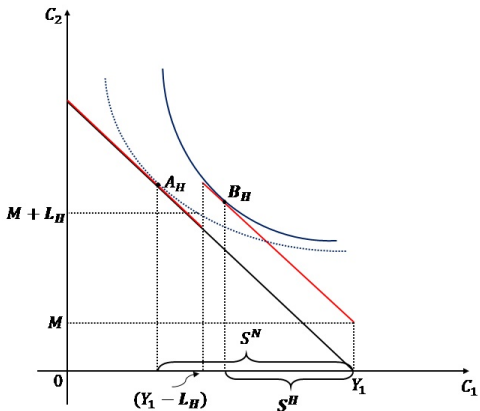


Fig. 1. Saving decision under a means-tested welfare program.

Asset-Test and Optimal Savings—Constrained

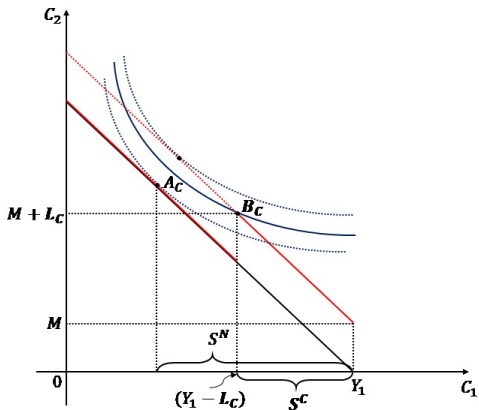


Fig. 1. Saving decision under a means-tested welfare program.

Asset-Test and Optimal Savings

Q. What happens when the **asset limit is increased**?

- ① **Initially not participated** in Medicaid (point A_L)
 - Making the **participation** option more attractive
 - Person holding S^N prior to the policy change may **reduce savings** in response to a limit increase.
- ② **Initially constrained** by the limit (point B_C)
 - Wish to **increase their savings** to a new, higher, optimal level.
- ③ **Initially not constrained** by the limit (point B_H)
 - Asset limits are high relative to the desired life-cycle savings of low-income households both before and after the change .
 - They will **not bind** behavior in either period, and **savings should not be affected** by the change.

Hypotheses

Medicaid expansion under ACA has

- **H1:** a **positive** effect on **dividend** income ($\alpha_1 > 0$)
- **H2:** a **positive** effect on **interest** income ($\alpha_1 > 0$)
- **H3:** a **negative** effect on **financial assistance** from relatives or friends ($\alpha_1 < 0$)
- **H4:** **no** effect on **total** income ($\alpha_1 = 0$)
- **H5:** **no** effect on **labor** income ($\alpha_1 = 0$)

for low-income households with no dependent children.

Medicaid Expansion under ACA

- **Expansion states** (treatment group)
 - **25 states** including D.C. expanded its eligibility as of **January 2014**.
 - Among them, 13 states experienced **limited prior expansion** of the Medicaid program before ACA.
 - 5 states had **comprehensive prior expansion** before ACA.
 - For example, California and Colorado expanded their Medicaid eligibility to childless adults earlier than 2014, but their prior expansion was limited in that California eliminated the asset-test after January 2014 and Colorado capped its program at 10,000 in 2012.
- **Non-expansion states** (control group)
 - **26 states** opted out the expansion as of January 2014.
 - Among them, 7 states (Alaska, Indiana, Louisiana, Michigan, Montana, New Hampshire, and Pennsylvania) **expanded later** than January 2014.

March Current Population Survey (CPS)

- U.S. Census Bureau and Bureau of Labor Statistics
- Representative sample of the nationwide U.S. population
- Detailed information of **health insurance coverage, insurance type, and household income**
- **Data 2011–2016** (covering the calendar years of 2010–2015)
- **Not a panel** structure and thus, *unable* to control for unobservable characteristics.

March CPS Supplement

- Households **aged 26 to 55 years with no dependent children**
- Households with income **below 100% FPL**
 - **Between 100% and 138% FPL** cannot be a control group due to receiving **insurance premium subsidy** in "health exchange."
- **Five different income** measures
 - 1 Dividends
 - 2 Interest
 - 3 Financial assistance
 - 4 Labor income
 - 5 Total income

Summary Statistics

Table 2: Summary Statistics: March CPS Supplement 2011-2016

	Pre-2014						Post-2014					
	Expansion States			Non-Expansion States			Expansion States			Non-Expanded States		
	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
Total income	7959.99	-16149.20	26885.0	8542.93	-9999.0	36942.0	7562.28	-9199.08	27784.0	7928.47	-14685.04	30823.68
Labor income	3290.26	0	26600.0	3547.30	0	36848.0	3354.72	0	25760.0	3459.43	0	23000.0
Dividends	18.11	0	7600.0	65.03	0	9700.0	36.12	0	4600.0	26.64	0	13800.0
Interest	41.44	0	3538.56	86.05	0	10000.0	58.72	0	5387.52	40.28	0	3335.0
Financial assistance	201.95	0	12000.0	76.49	0	9400.0	45.69	0	5520.0	111.55	0	18400.0
Age	45.09	26	55.0	45.57	26	55.0	44.84	26	55.0	46.04	26	55.0
Education	12.32	0	21.0	12.04	0	21.0	12.33	0	21.0	12.29	2.5	21.0
Sex (M=0, F=1)	0.55	0	1	0.54	0	1	0.57	0	1	0.60	0	1
Marital status (U=0, M=1)	0.58	0	1	0.57	0	1	0.58	0	1	0.59	0	1
N of HHs	1014			875			465			337		

Econometric Framework

- **Difference-in-Differences (DD)** as an identification strategy
 - Households with no dependent children and income below 100% of FPL living in the **Medicaid-expansion states** vs. those living in the **non-expansion states**
 - **Before and after** the Medicaid expansion

$$y_{i,s,t} = \alpha_1 I(\text{Exp.St.}) \cdot I(\text{Post 2014}) + \alpha_2 I(\text{Exp.St.}) + \alpha_3 I(\text{Post 2014}) + X'_{i,s,t} \alpha_4 + T'_t \alpha_5 + \vartheta'_s \alpha_6 + \epsilon_{i,s,t}$$

where

- $y_{i,s,t}$: annual amount of a certain income (i.e., total, labor, dividend, interest, or financial assistance) for a household i living in state s at time t
- $I(\text{Exp.St.})$: indicator for households living in the Medicaid-expansion states
- $I(\text{Post 2014})$: indicator for the post-treatment period
- $X_{i,s,t}$: vector of heads of households demographic characteristics that possibly affect households income portfolio, including education, age, square of age, race, sex, and marital status
- T_t : vector of year dummies
- ϑ_s : control for state fixed effects

Econometric Framework—Identification Strategy

- Appropriate for using residential states as the identification strategy?
 - Households with no dependent children and income below 100% of FPL were more likely to move into the expansion states after 2014 than those with dependent children and income below 100% of FPL.
 - Among households with no dependents and income below 100% of FPL, on the basis of their health conditions.

Table 3: Effects of the Medicaid Expansion on Migration

	With Dependents vs. Childless		Health vs. Sick	
	Whether to Move	Move to Expansion States	Whether to Move	Move to Expansion States
	(1)	(2)	(3)	(4)
$I(\text{Childless}) \times I(\text{Post 2014})$	0.089 (0.056)	0.034 (0.058)	-	-
$I(\text{Healthy}) \times I(\text{Post 2014})$	-	-	-0.046 (0.073)	-0.019 (0.052)
R^2	-	0.147	-	0.406
Pseudo- R^2	0.047	-	0.092	-

Notes: All the estimates are weighted by the March CPS household sampling weights. State and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Econometric Framework

- **Parameter of interest:** α_1
- **Linear model** as a baseline
 - Ease of interpretation and computation of marginal effects of interacted variables in the model with clustered standard errors (Ai and Norton, 2003).
- In addition, **type-I Tobit model** is used for the Medicaid expansion effects on labor, dividend, interest, and financial assistance income.

Empirical Results—Prelim

- Examine how the Medicaid expansion affected **health insurance coverage** and **health conditions** for low-income, childless households.

Table 4: Effects of the Medicaid Expansion on Health Insurance Coverage and Health Status

	Health Insurance Coverage			Health Status		
	OLS	Probit		OLS	Ordered Logit	Ordered Probit
	(1)	(2)	(3)	(4)	(5)	(6)
$I(\text{Exp. States}) \times I(\text{Post 2014})$	0.092*** (0.031)	0.266*** (0.087)	0.084** (0.038)	0.009 (0.089)	0.018 (0.173)	0.015 (0.093)
R^2	0.159	—	—	0.124	—	—
Pseudo- R^2	—	0.125	—	—	0.026	0.027

Notes: All the estimates are weighted by the March CPS household sampling weights. State and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Empirical Results—Main

Table 5: Effects of the Medicaid Expansion on Household Savings

	OLS					Tobit			
	Total	Labor	Dividend	Interest	Fin. Asst.	Labor	Dividend	Interest	Fin. Asst.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$I(\text{Exp. States}) \times I(\text{Post 2014})$	172.816 (503.444)	277.742 (379.200)	62.886* (38.014)	86.349*** (26.063)	-159.265** (74.152)	242.847 (437.802)	58.125*** (8.816)	71.034*** (17.638)	-106.452*** (6.837)
R^2	0.059	0.067	0.048	0.041	0.040	-	-	-	-
Pseudo- R^2	-	-	-	-	-	0.007	0.10	0.032	0.031

Notes: All the estimates are weighted by the March CPS household sampling weights. State and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Empirical Results—Main

- Low-income and low-asset households vs. low-income but high-asset households
 - Not a panel
 - "How many months during the previous year was the respondent covered by Medicaid?"
 - Medicaid benefits during the entire 12 months in the previous year.
 - Entire 12 months vs. Partial months.

Table 6: Effects of the Medicaid Expansion on Household Savings: Low-Asset vs. High-Asset Households

	Full 12-Month Coverage					Partial-Month Coverage				
	Total	Labor	Dividend	Interest	Fin. Asst.	Total	Labor	Dividend	Interest	Fin. Asst.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$I(Exp. States) \times I(Post\ 2014)$	1648.011*	1706.067**	52.796**	89.065***	-118.784*	-679.417	3.784	74.765	104.385***	-171.753*
	(866.300)	(661.069)	(23.460)	(24.548)	(62.307)	(582.287)	(533.500)	(46.770)	(34.243)	(91.604)
R^2	0.056	0.083	0.046	0.039	0.050	0.061	0.070	0.050	0.043	0.042

Notes: All the estimates are weighted by the March CPS household sampling weights. State and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Empirical Results—Prior Expansion

- Split the treatment group into three parts depending on whether the state experienced no, limited, or comprehensive expansion before the ACA Medicaid reform.

Table 7: Effects of the Medicaid Expansion on Household Savings: Three Treatment Groups

	Total	Labor	Dividend	Interest	Fin. Asst.
	(1)	(2)	(3)	(4)	(5)
$I(\text{Exp. States with no prior exp.}) \times I(\text{Post 2014})$	515.184 (994.389)	863.102 (674.167)	136.126** (53.557)	130.324** (54.767)	-180.525 (129.286)
$I(\text{Exp. States with limited prior exp.}) \times I(\text{Post 2014})$	513.825 (392.400)	270.263 (376.072)	40.798 (35.676)	72.274** (28.650)	-184.865** (89.205)
$I(\text{Exp. States with comprehensive prior exp.}) \times I(\text{Post 2014})$	-1242.902** (464.363)	-367.824 (335.084)	45.689 (36.697)	78.467*** (21.550)	-58.053 (51.570)
R^2	0.060	0.068	0.049	0.041	0.040

Notes: All the estimates are weighted by the March CPS household sampling weights. State and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Empirical Results—Pre-Reform Trends

- Examine whether the income patterns between households in the treatment and control groups are **similar in the pre-reform period**.

Table 8: Household Income Trends in the Pre-Reform Periods

	Total	Labor	Dividend	Interest	Fin. Asst.
	(1)	(2)	(3)	(4)	(5)
$I(\text{Exp. States}) \times \text{Trend}$	-155.015 (268.469)	1.019 (266.493)	-20.051 (37.657)	-34.215 (27.936)	57.679 (68.585)
R^2	0.055	0.083	0.048	0.042	0.053

Notes: All the estimates are weighted by the March CPS household sampling weights. State and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***) , 5% (**), and 10% (*) levels.

Empirical Results—Placebo Test

- Might be attributed to **dynamics in household income structures** across different households over time.

Table 9: Effects of the Medicaid Expansion on Household Savings: Placebo Tests

	Total	Labor	Dividend	Interest	Fin. Asst.
	(1)	(2)	(3)	(4)	(5)
$I(\text{Exp. States}) \times I(\text{Post 2011})$	-956.602* (478.489)	-309.625 (609.183)	-16.099 (54.257)	-53.867 (43.546)	72.224 (134.963)
$I(\text{Exp. States}) \times I(\text{Post 2012})$	-59.142 (584.717)	283.062 (551.798)	-23.403 (70.786)	-61.202 (57.502)	56.283 (127.774)
$I(\text{Exp. States}) \times I(\text{Post 2013})$	-38.717 (793.799)	-72.533 (643.161)	-82.759 (109.057)	-90.166 (85.589)	228.575 (193.560)

Notes: All the estimates are weighted by the March CPS household sampling weights. Other covariates, and state and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***) , 5% (**), and 10% (*) levels.

Empirical Results—Different Age Cut-Off

Table 10: Effects of the Medicaid Expansion on Household Savings: Different Age Cutoffs

	Total	Labor	Dividend	Interest	Fin. Asst.
	(1)	(2)	(3)	(4)	(5)
26 ≤ Age Cutoff ≤ 56					
$I(Exp. States) \times I(Post 2014)$	69.971 (506.952)	130.907 (428.040)	58.472*** (9.088)	69.906*** (19.105)	-80.946*** (5.951)
26 ≤ Age Cutoff ≤ 57					
$I(Exp. States) \times I(Post 2014)$	238.441 (499.640)	219.228 (450.233)	77.861*** (10.549)	60.281*** (16.051)	-76.979*** (5.573)
26 ≤ Age Cutoff ≤ 58					
$I(Exp. States) \times I(Post 2014)$	64.942 (522.212)	165.268 (437.609)	55.964*** (7.166)	46.446*** (15.368)	-76.109*** (4.985)
26 ≤ Age Cutoff ≤ 59					
$I(Exp. States) \times I(Post 2014)$	-43.490 (475.041)	112.012 (461.333)	70.599*** (7.652)	55.960*** (17.819)	-45.670*** (5.163)
26 ≤ Age Cutoff ≤ 60					
$I(Exp. States) \times I(Post 2014)$	-43.612 (440.407)	-8.587 (427.320)	71.609*** (7.194)	66.896*** (21.938)	-50.874*** (4.177)

Notes: All the estimates are weighted by the March CPS household sampling weights. Other covariates, and state and time fixed effects are included in the estimation but not reported. State-clustered robust standard errors are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), and 10% (*) levels.

Conclusions

- Medicaid expansion significantly increased unearned (dividend and interest) income for households with no dependent children and income below 100% of FPL.
- The increase in dividend and interest income is partially attributed to the increase in savings and financial investment by low-income and low-asset households.
- The expansion reduced the amount of financial assistance from relatives and friends after the expansion for those households.
- Suggest that the ACA Medicaid expansion with asset-test elimination increased the ability of low-income households to self-insure.
- Placebo tests suggest that the baseline DD framework is pertinent to precisely identify the Medicaid-expansion effects on household income.

Thank you!

Past Literature—Asset-Tests of Welfare Programs

- **Theory:** social insurance programs with a means-test based on income and assets **discourage savings** for households with a low level of lifetime income (Hubbard et al., 1995).
- **Empirical evidence:** mixed.
- **Single mothers** relying on **AFDC** or the **elderly** using long-term care (e.g., nursing home) coverage by **Medicaid**.

Past Literature—Effects of AFDC Asset-Test on Savings

- \$1 additional increase in the AFDC asset-test threshold leads to an **increase in savings** of approximately \$0.25 (Powers, 1998).
- Changes in asset restrictions of AFDC have **no measurable effect** on changes in liquid assets for female-headed households with children (Hurst and Ziliak, 2006)
- Vehicle exemptions have an important effect on vehicle assets but found **little evidence that asset limits have an effect** on the amount of liquid assets that single mothers hold (Sullivan, 2006).
- Liberalizing asset rules under the 1996 welfare reform **increases** vehicle assets (Ownes and Baum, 2012).

Past Literature—Medicaid Program

- Effects of its **asset-test** on the elderly behavior of **"spending-down"** assets for Medicaid eligibility.
- Effects of **real-estate recovery** for long-term care coverage by Medicaid on **savings and housing assets** for the elderly.
- **Supporting evidence**
 - \$10,000 increase in the level of assets a household can retain while qualifying for Medicaid coverage of long-term care expenditures would **crowd out** a 1.1 percentage point in private long-term care insurance coverage (Brown et al., 2007).
 - Investigated the effects of real-estate recovery and spousal protection laws for long-term care provided by Medicaid on elderly housing assets and other portfolio items and found that the estate recovery program of Medicaid makes the elderly **decrease home equity and home-ownership** (Greenhalgh-Stanley, 2012; 2015).

Past Literature—Medicaid Program

- **No evidence**

- Actual time of spending-down assets would be much longer than a predicted time from a base model with no behavioral effects due to the "**welfare averseness**" (Norton, 19995).
- Analyzed a life-cycle model of saving on single, retired elderly people and suggested that the minimum consumption level ("**consumption floor**") guaranteed by Medicaid and other public welfare programs causes those people to **accumulate** assets to self-insure (De Nardi et al., 2010).
- Examined a dynamic empirical model of health insurance coverage, long-term care arrangement, and asset and gift behavior for the elderly over time. Their long-term simulation results suggest that Medicaid eligibility and the generosity policy associated with nursing home services **have no effect** on Medicaid enrollment and asset transfer behavior (Gardner and Gilleskie, 2012).

Past Literature—Medicaid Expansion under ACA

- Medicaid under ACA focuses on low-income, **childless adults**.
 - **Labor supply** (Frean et al., 2016; Gooptu et al., 2016; Janicki, 2014; Kaestner et al., 2015; Levy et al., 2016b)
 - Little or no effects.
 - **Health insurance coverage** (Courtemanche et al., 2017; Frean et al., 2016; Levy et al., 2016a)
 - Significantly positive effects.
 - **Health conditions and behavior** (Na and Slusky, 2016; Simon et al., 2016)
 - Significantly positive effects.
 - **Financial well-being** (Hu et al., 2016)
 - Significantly reduced the number of unpaid bills and the amount of debt.