ACA Premium Subsidies and Housing Expenditures among Renters

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Previous studies of the life-cycle model of consumption have demonstrated the possible effects of having health insurance on household consumptions (Gruber & Yelowitz, 1999; Chou et al., 2003; Wagstaff & Pradhan, 2005). Health insurance may affect household consumption and finances through at least two potential channels. On the one hand, health insurance helps reduce out-of-pocket medical expenditures, and thus expands the budget constraint, increasing saving and consumption through the income effect. On the other hand, health insurance lowers the risk of large medical expenditures, reducing the need for precautionary saving and increasing current consumption. Together these factors imply that consumption should increase with health insurance. This claim has been empirically verified.

However, many of those studies have focused on the introduction of national public insurance in developing or industrialized countries besides U.S. For example, Chou et al. (2003) investigates the effect of health insurance on household precautionary savings and consumption using the introduction of national health insurance in Taiwan in 1995. Their results show that the introduction of health insurance reduced saving and increased total household consumption. Wagstaff and Pradhan (2005) examine changes in nonmedical consumption (food and non-food) using the introduction of Vietnam's health insurance in 1993 and found that health insurance increased nonmedical household consumption, including food consumption but mostly non-food consumption.

In this study, we extend this line of literature by estimating the consumption response to a large expansion of private individual health insurance (IHI) ownership in the U.S. facilitated by the introduction of the Affordable Care Act (ACA) premium subsidy provision. We focus on the response in housing expenditures, which hasn't been explored yet. Housing expenditures represent a large portion of total household spending, especially for low income households who, on average, spend more than half of their income on housing (Leventhal & Newman, 2010). Because many low-income households do not own homes, we focus on renters. Housing expenditures are a pure consumption good for renters. By contrast, housing constitutes both a consumption and investment good for homeowners. Thus, our focus on renters allows us to test the effect of the policy on housing consumption (rather than savings).

Under the ACA's premium subsidy provision, individuals who are ineligible for Medicaid, do not have access to employer sponsored insurance (ESI), and with family income between 100 and 400% of Federal Poverty Level (FPL) are eligible for premium

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subsidies.[4] The premium subsidy is substantial, and equals the difference between the unsubsidized total annual premium and the income cap. The income cap is 2% of total household income for individuals with income just above 100% FPL and 9.5% for individuals with income around 400% FPL. For example, a 30-year-old single adult in a Medicaid non-expansion states with income just above 100% FPL only needs to pay $240 per year for the health insurance[5]; the unsubsidized premium is $5,580 per year. Therefore, we expect that the subsidy eligibility threshold (100% FPL) should discontinuously increase the probability of having health insurance, and thus changes household's housing consumption.

We exploit a regression discontinuity (RD) design, that compares the IHI coverage status and housing consumption outcomes of individuals just below and just above the 100% FPL threshold. The main identifying assumption of this approach is that within a small income range around the eligibility threshold, individuals are nearly identical except insofar as those above the threshold are eligible for the premium subsidies, while those below are not. Therefore, the difference of interested outcome can be attributed to the effect of premium subsidies. Since all individuals with income below 138% FPL in Medicaid expansion states are eligible for Medicaid, and thus have small incentive to buy IHI, we focus on individuals live in non-expansion states, where there exists a "coverage gap", a group of individuals with income below 100% FPL but above the Medicaid eligibility income are eligible for neither Medicaid nor the premium subsidy. We estimate the following regression:

$$y_i = \alpha_0 + \beta_0 T_i + f(Z_i - x) + T_i \times f(Z_i - x) + \gamma_0 V_i + \varepsilon_i$$

Where y_i is our outcome of interest, including IHI coverage status and housing consumption. T_i is an indicator for households with income above the threshold (T_i= 1 if $Z_i \geq x$) who are eligible for the subsidies. Z_i (running variable) represents household income relative to the FPL; *x* is the cutoff threshold and equals 100%. We control flexible functions of household income relative to FPL, allowing for different slopes above and below the cutoff, with the terms $f(Z_i - x)$ and $T_i \times f(Z_i - x)$. V_i is a vector including other household characteristics such as age, race, gender, marital status, education, family size, and employment status. Our key coefficient estimate is β_0, which captures the average change in the outcomes variables at the 100% FPL cutoff. To check the robustness of our results, we show a variety of bandwidths and impose different polynomial orders to the functional form.

Our data is from the American Community Survey (ACS) 2011-2016. The main analysis uses post-2014 data, since the ACA became effective in January 2014, pre-2014 data are used in a falsification check. The ACA surveys about 3 million individuals each year, and has detailed information about the source of health insurance coverage and

[4] In Medicaid expansion states, the eligibility threshold is set at 138% FPL since all individuals with income below are eligible for Medicaid.
[5] In 2014, 100% FPL for single adult is $10,500.

geographic information of each respondent. The survey also contains information on income, and household consumption related to housing, such as monthly rent payments, dwelling characteristics (i.e., facilities, number of rooms, etc.), and when the respondent moved houses.

We restrict our sample to renters aged between 27 and 64. In the ACS, income, health insurance, and demographic characteristics are reported at the individual level, while housing outcomes are at the household level. There could be unrelated persons such as roommates or visitors living in the same house, to accurately estimate the effect of health insurance on housing decisions, we only keep household heads, who is usually the person responsible for housing expenditures. Since we focus on the effect of the premium subsidies, which are targeted at those otherwise uninsured through Medicaid or employer-sponsored insurance (ESI), we restrict our sample to households without other types of insurance (i.e., ESI, Medicare, military health insurance), since they are unlikely to seek the IHI through the Marketplace. Based on our research design, we also limit the sample to individuals with income below 200% of FPL and live in Medicaid non-expansion states, which we define as the 18 states that had not expanded Medicaid by 2016.[6]

Our preliminary results show that premium subsidy does, in fact, increase the probability of having IHI. The effect is larger for single households and older households (age 50-65) who might have higher needs for health insurance (results are shown in Figure 1 and Table 1). We then focus on housing expenditures and conditions among these two groups. We check monthly rent, moved to current residence within the past year, the number of bedrooms, and the age of the building. Figure 2 and Table 2 show the results of single households.[7] Single households who are eligible for the subsidy have higher monthly rental expenditures (about $50 more) as compared to those who are ineligible. This represents 10 percent increase in monthly rent.[8] There is also limited evidence that eligible renters are more likely to have moved recently. However, we do not find evidence that they live in larger or newer residences.

We conduct falsification tests by running our analysis on housing consumption outcomes for those in non-expansion states in pre-ACA years, and for those in expansion states post-ACA. If our results are indeed attributable to the subsidies, which occurs after 2014, then we should not observe discontinuities in any of our outcomes at 100% FPL in these two samples (untreated groups). As expected, the results (not shown) are not statistically significant.

These pieces of evidence suggest that the ACA, and provision of health insurance may allow lower income renters to increase housing expenditure and move to better houses. Thus, health insurance may provide additional benefits to household wellbeing beyond improved health and lower medical-related expenditures. Our preliminary results do not

[6] These states are Alabama, Florida, Georgia, Idaho, Kansas, Maine, Mississippi, Missouri, Nebraska, North Carolina, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, and Wyoming. Note: we exclude Massachusetts because of its unique state-level insurance system.
[7] The result (not shown) of older individuals (age 50-65) has similar pattern with the result of single adults.
[8] The coefficient estimates are consistent with different bandwidth and functional forms. However, they are sensitive to inclusion of demographic covariates, which is unexpected.

indicate whether our results are driven by the income effect or by the risk reduction generated by health insurance. However, it does appear that the ACA may produce additional, indirect health benefits since better housing conditions have been linked to improved health outcomes and socioeconomic status (Rauh et al., 2008; Leventhal & Newman, 2010).

Reference

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Figure1: Discontinuity in renters' IHI coverage at premium subsidy threshold (Full sample/Singles/Older individuals)

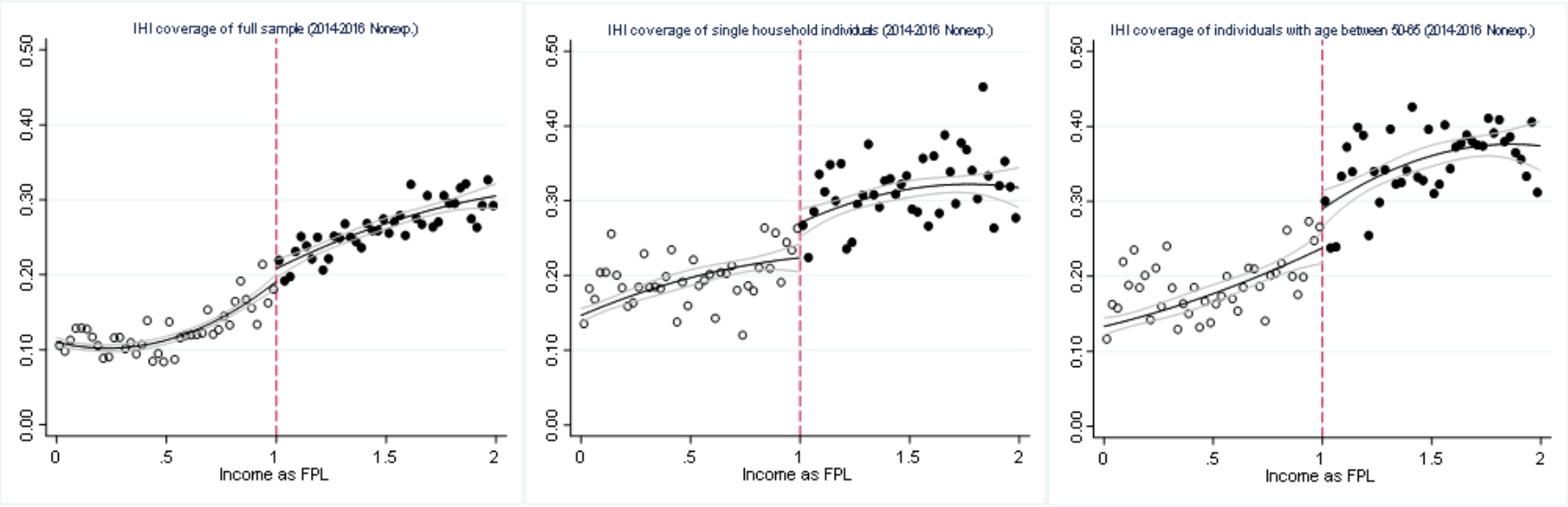

Figure2: Discontinuity in renters' housing outcomes at the premium subsidy threshold (Single households)

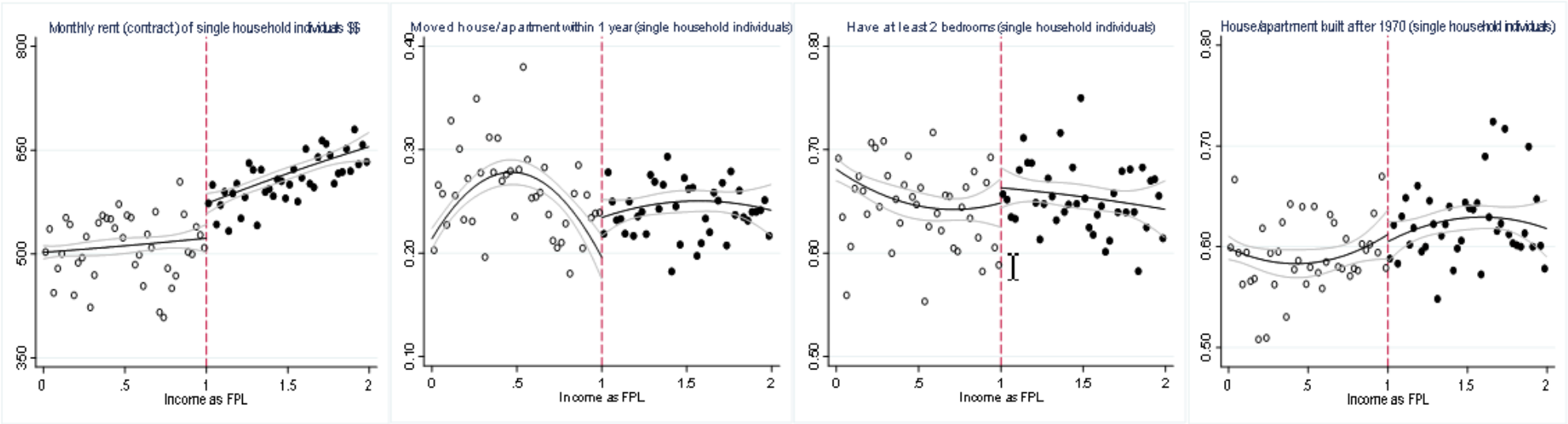

Table 1: Estimates of the effect of the premium subsidy threshold on the IHI coverage

	(1)	(2)	(3)	(4)
Panel (a)		**Full sample**		
Income >= 100% FPL	0.017*	0.017*	0.024**	0.017
	(2.218)	(2.116)	(2.923)	(2.037)
R-sq	0.015	0.224	0.009	0.236
N	79158	79158	40886	40886
Panel (b)		**Single household individuals**		
Income >= 100% FPL	0.046*	0.041*	0.034	0.031
	(2.844)	(2.209)	(2.030)	(1.564)
R-sq	0.025	0.089	0.011	0.066
N	32169	32169	15251	15251
Panel (c)		**Older individuals**		
Income >= 100% FPL	0.051**	0.046*	0.046*	0.039
	(2.844)	(2.209)	(2.030)	(1.564)
R-sq	0.018	0.078	0.022	0.053
N	22369	22369	11542	11542
Controls	No	Yes	No	Yes
Bandwidth	[0,200]	[0,200]	[50,150]	[50,150]
Polynomial order	2	2	1	1

Table 2: Estimates of the effect of the subsidy threshold on renter's housing outcomes (single household individuals)

Dependent variables	(1)	(2)	(3)	(4)
Panel (a)	**Monthly rent payment $$ (contract)**			
Income >= 100% FPL	49.706***	15.25	48.984***	14.994
	(5.167)	(1.610)	(4.435)	(1.383)
R-sq	0.019	0.183	0.012	0.181
Panel (b)	**Moved house/apartment within 1 year**			
Income >= 100% FPL	0.038*	0.026	0.016	0.006
	(2.775)	(1.811)	(1.370)	(0.464)
R-sq	0.002	0.025	0	0.025
Panel (c)	**Number of bedrooms >= 2**			
Income >= 100% FPL	0.015	0.019	0.014	0.019
	(1.017)	(1.568)	(0.791)	(1.284)
R-sq	0.001	0.034	0.001	0.037
Panel (d)	**Building was built after 1970**			
Income >= 100% FPL	-0.007	-0.008	0.008	0.001
	(-0.381)	(-0.516)	(0.410)	(0.059)
R-sq	0.001	0.025	0.001	0.023
Controls	No	Yes	No	Yes
Bandwidth	[0,200]	[0,200]	[50,150]	[50,150]
Polynomial order	2	2	1	1
N	32169	32169	15251	15251

Notes: The full sample includes respondents aged 27-64 living in Medicaid non-expansion state with income below 200% FPL. The sample of single household individuals are individuals with no spouse and children. The sample of older individuals are those with age between 50 and 64. Standard errors are clustered at state level. The number in the parentheses is t-statistics. *p = 0.05; **p = 0.01; ***p = 0.001.