Health Insurance and the Boomerang Generation: Did the 2010 ACA dependent care provision affect geographic mobility and living arrangements among young adults?

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ABSTRACT

We test whether the ACA dependent care provision is associated with young adults' propensity to live with/near parents and to receive food assistance. Data come from the 2008 Survey of Income and Program Participation. Findings indicate that the provision is associated with a 3.0 percentage point increase in young adults' living with parents during the period in which the ACA had been passed but the provision was not effective, and a 6.0 percentage point increase during the time between the provision becoming effective and the end of 2013. In some specifications, the provision is associated with reduced use of food assistance.

1. Introduction

Young adults in the US historically have had the lowest rates of health insurance coverage of any age group, with about 32 percent of 19-25 year olds lacking any coverage in 2009 (Rodean, 2012). The Patient Protection and Affordable Care Act (ACA), enacted in March 2010, included a number of provisions to address this problem. One of the first provisions of the ACA to go into effect, in fact, was the dependent care provision, which mandated that virtually all private health insurance plans that offer dependent coverage must allow young adults to stay on their parents' health insurance plans until the age of 26. The dependent care provision became effective on September 23, 2010 (6 months after the signing of the ACA), and applies to young adults regardless of their marital status, their status as students, and whether their parents claim them as dependents on their tax returns. An estimated 5.5 million young adults aged 19-25 years old gained insurance coverage due to the ACA dependent care provision between October 2010 and September 2015 (US DHHS, 2015). Prior studies show that the provision increased insurance coverage, expanded access to health care, improved some health outcomes, and possibly increased job mobility/flexibility among young adults (Antwi, Moriya & Simon, 2013; Amuedo-Dorantes & Yaya, 2016; Colman & Dave, 2015; Bailey & Chorniy, 2016).

In addition to the health and labor market-related outcomes that have been studied, the ACA dependent care provision also may have affected young adults' decisions about geographic residence and living arrangements. The provision does not require young adults to live with or near a parent to be eligible to obtain health insurance coverage from him/her. Nevertheless, to be able to take advantage of a parent's health insurance benefits, young adults need to live within the parent's health provider network, which typically encompasses a single county, state, or small region. Otherwise, in most cases, young adults will face high out-of-network costs or no insurance coverage at all, and may be better off obtaining health insurance from other sources.[1]

Many popular press articles have focused on understanding the causes of the large and rising percentage of young adults in the US who live with a parent (Kirkham, December 21, 2016; Freedman, September 18, 2015). Two recent Wall Street Journal articles, for example, suggest that the reasons 40 percent of young adults aged 18-34 years old lived with a parent in 2015 include economic factors, delayed marriage and childbearing, and closer relationships

[1] This point was highlighted in a recent *Wall Street Journal* article entitled "Should young adults stay on their parents' health plan?" (Wieczner, 2013).

between adult children and their parents (Kirkham, December 21, 2016; Freedman, September 18, 2015). Economists view the option of living with parents as a form of insurance against labor market risk (Kaplan, 2012; Matsudaira, 2016). In this sense, the ACA dependent care provision makes it more affordable for young adults to live independently from their parents, since now a young adult can be added as a dependent to a parent's plan, usually at little or no cost to the parent, and no longer has to pay for his/her own health insurance plan.[2]

On the other hand, after the ACA dependent care provision became effective, the "moving home" option becomes more valuable insurance against labor market risk, since now living near a parent allows a young adult to stay in the parent's health provider network and be able to use the parent's health insurance coverage. This effect may lead to an increase in young adults' propensity to live near or with their parents. In addition to these direct effects, which may work in either direction, the ACA dependent care provision also may have indirect effects on geographic location and living arrangements through its impact on other outcomes, such as marital status, labor market outcomes, education, and relationships with parents. Thus, the net effect of the dependent care provision on living arrangements and geographic location decisions is an empirical question.

It is critical to understand how the ACA dependent coverage provision may have affected young adults' decisions about living arrangements and location. First of all, if health insurance coverage from a parent can only be used in the parent's locality, young adults may find themselves less mobile and "geography locked" if they take advantage of the dependent care provision. This is important to study since one rationale for the dependent care provision was that it would reduce "job lock" among young adults, since they can now move freely between jobs and in and out of employment without being concerned about health insurance coverage.[3] Second, if the dependent care provision induces young adults to move back to their parents' households, this may affect their need and eligibility for public assistance programs. This is particularly true for low-income young adults, and young adults who have their own children,

[2] Parents already covering other dependents typically will not have any added cost of adding a young adult dependent. Also, many plans allow parents to pay for young adult coverage with pre-tax dollars. However, parents with individual plans must pay for family coverage if they add a dependent young adult (Goldman, 2013).

[3] This is one possibility, but we acknowledge that in this study we cannot test whether the shift from living without parents to living with parents makes the young adult better or worse off.

and may be receiving welfare and food assistance. Finally, if young adults extend the time period they spend living with parents, they may spend less money on establishing their own households and major purchases, which may have a negative long-term impact on aggregate spending and economic growth (Dettling & Hsu, 2015; Bleemer et al. 2014). All of these effects may be unintended, but consequential, effects of the ACA dependent care provision.

In this study, we test whether the ACA dependent care provision is associated with young adults' propensity to live with or near their parents. We also examine young adults' receipt of public program assistance, since living with parents may affect the need or eligibility for such assistance. To our knowledge, this is the first study to examine the effects of the ACA dependent care provision on these outcomes. Data come from the 2008 Survey of Income and Program Participation (SIPP), a longitudinal national sample which allows us to examine both "stock" measures (levels) of these variables, as well as "flow" measures (changes) in moving in and out of different living arrangements, and in and out of public assistance. We use a difference-in-difference (DD) approach, comparing the outcomes of young adults targeted by the policy change before and after the ACA was passed to those of a comparison group of slightly older young adults who were not targeted.

The findings indicate that the ACA dependent care provision is associated with statistically significant, 3.0 percentage point increase in the likelihood that young adults live with their parents during the period when the ACA was passed but the provision had not yet become effective (the enactment period -- March 2010 to September 2010), and a 6.0 percentage point increase during the time period between when the provision became effective and the end of 2013 (the implementation period -- October 2010 to November 2013). The pattern of findings suggests that these effects are driven by young adults moving from living independently into living in their parents' households. In addition, in some specifications, we find that the ACA dependent care provision is associated with reduced use of federal food and nutrition programs, suggesting that assistance from parents may displace support from public programs.

2. Background

Conceptual Motivation

This paper draws on two distinct literatures in economics – our study is linked in a broad sense to economic theories of migration and, more narrowly, to the theory of household

formation. According to economic theories of migration, individuals compare the discounted value of earnings at a potential new location to that of their current location, taking into consideration relocation costs and job search costs at the new location (Sjaastad, 1962; Hernandez-Murillo et al., 2011). If the relative benefits of the new location outweigh the costs, then the individual will move to that location. The ACA dependent care provision allows young adults with privately insured parents to obtain insurance at little or no cost, but this insurance is most useful if young adults live in the same locality as the parents. The dependent care provision therefore would be expected to increase the relative return to moving home, or staying home, since now young adults who live close to home can obtain insurance at little or no cost from their parents, increasing the benefits of staying or returning home.

We can gain greater insight, however, from drawing on theories of household formation since most young adults either currently live with their parents or have recently left home. Economists view the option for young adults to co-reside with parents as a form of insurance against labor market risk (Bitler & Hoynes, 2015; Kaplan 2012; Dettling & Hsu, 2014; Rosenzweig & Wolpin, 1993, 1994). In the context of a life cycle model, young adults may adjust to economic shocks by moving in with parents and receiving transfers from them in the form of housing, food and other goods and services. These transfers allow young adults to reduce their current living expenses and smooth their consumption (Kaplan, 2012). Few young adults pay market rates to live with parents, and many live at home rent-free (Parker, 2012).[4] In addition, living with parents allows young adults to take advantage of public goods in the household that can be consumed jointly by parents and children ("..free laundry and stocked refrigerator.." notes a Wall Street Journal reporter), potentially reducing the need for public assistance (Rosenzweig & Wolpin, 1993, 1994; Freedman, September 18, 2015).

On the other hand, there are costs associated with co-residing with parents. Young adults may prefer to live independently, with this preference becoming stronger as they move through the life cycle (Kaplan, 2012). There may be a loss of privacy involved in living with parents, and this may be particularly true for young adults who are dependents on their parent's health insurance plans, since an explanation of any health care utilization is sent to policyholder

[4] In a 2011 Pew Research Survey, only 35 percent of 18-34 year olds who live at home pay rent to their parents, but 75 percent contribute to household expenses and 96 percent do some chores around the house. (Parker, 2017)

(Goldman, 2013). Young adults make the decision regarding whether or not to live with parents, depending on the utility gained from each alternative living arrangement, which depends in part on the parental transfers available in each alternative.

While the dependent care provision effectively requires young adults to live near parents to take advantage of the coverage, it does not require young adults to reside in the same household as parents. In our context, therefore, we argue that the ACA dependent care provision increases the value of parental transfers when the child lives with the parent or when the child lives near the parent. In this way, the dependent care provision increases the relative return for a young adult to live with or near a parent. As we discuss below, however, the dependent care provision in some cases also offers tax incentives for young adults to live in the same household as parents. Thus, holding other factors constant, we may expect that the ACA dependent care provision is associated with increased rates of young adults both living close to parents and living with parents.

Economic Conditions and Young Adults' Living Arrangements

As of 2014, for the first time in more than 130 years, young adults aged 18-34 years old were more likely to live with a parent than in any other type of living arrangement (Domonoske, 2016; Fry 2016). The popular press has used the term "Boomerang Generation" to describe the recent trend among young adults to move in with their parents after a period of living independently. Based on data from the Current Population Survey (CPS), Dettling & Hsu (2015) report that as of 2014, 36 percent of adults aged 18 to 31 lived in their parent's household; this percentage was about 32 percent during the time period 2000-2006. Although the boomerang effect often has been linked to the Great Recession, the rate of co-residence with parents among young adults has been increasing since 2006, before the start of the Great Recession in December 2007, and it has continued to increase since the Great Recession officially ended in June 2009 (Dettling & Hsu, 2015). Certain sub-groups of young adults are more likely to live with their parents – males, lower-educated individuals, African-Americans and Latinos (Domonoske, 2016; Fry 2016).

Empirical studies generally support the idea that young adults use "moving home" as a form of insurance against labor market risk. Matsudaira (2016), using Census data on young adults from 1960 to 2001 and the 2001 American Community Survey, finds that changing

patterns of employment opportunities, wages, and housing costs can explain a large portion of the increase in young adults co-residing with parents between 1970 and 2011, and this is particularly true for young men. Dettling & Hsu (2014), using 2005-2013 panel data on credit histories, find that credit problems and debt increase the probability that a young adult moves into a parent's household, and increases the time spent in the parent's household. Similarly, Kaplan (2012) uses Current Population Survey data from 1979 to 2010 and reports that when labor market conditions worsen in states, young adults' rates of co-residence with parents tend to increase. Bitler & Hoynes (2015), however, use 1981-2014 data from the Annual Social and Economic Supplement (ASEC) of the March Current Population Survey (CPS), and find little evidence that within-state changes in unemployment rates are associated with the probability that young adults live with their parents.

The ACA Dependent Care Provision

The ACA mandated that as of September 23, 2010, all private health insurance plans that offer dependent coverage must cover dependent children (including medical, behavioral and pharmacy benefits) until age 26.[5] The federal law applies until the day before the young adult turns 26, but some plans may choose to cover young adults until the end of the month or year in which they turn 26, or until the young adult turns 27 (United Healthcare, 2010; Andrews, 2013). Young adults must receive the same level of coverage and the same price as their parents receive. Health coverage provided to a young adult through a parent's insurance is exempt from federal taxes until the young adult turns 27 for parents who have access to tax-free benefit options (IRS, 2010). The ACA provision applies to all young adults up to age 26, regardless of whether or not young adults: live with their parents; are classified as dependents on their parents' tax returns; are married; are currently in school or the military; or can access health insurance through a state exchange. Initially, the ACA dependent care provision did not cover young adults who had an offer of employer-sponsored health insurance, but, starting in 2014, even this restriction was lifted. Many insurance companies began voluntarily enrolling young adults during the time period when the ACA had been passed, but the provision had not yet gone into effect (Goldman, 2013; CMS, 2017). Public awareness of the dependent care provision was

[5] The full text of provision is available here: http://www.ecfr.gov/cgi-bin/text-idx?SID=8b9f2ea527f457b1c036e736c7b0fd4e&mc=true&node=se29.9.2590_1715_62714&rgn=div8

high, with 70 percent of the public having knowledge of the provision one month after the ACA was passed (Goldman, 2013).

One limitation of the ACA dependent care provision is it did not include any accommodations for young adults who reside outside of the parent's insurance plan provider network. Thus, if young adults live in a different geographic area than their parents, there may be no local providers in their parents' health insurance network, limiting the usefulness of this coverage (Andrews, 2013; UnitedHealthcare, 2010). Health insurance companies typically contract with a local network of particular physicians, hospitals, and other health providers in order to be able to negotiate lower rates. Enrollees are offered more generous coverage if they use these in-network providers. In some cases, if enrollees use services from an out-of-network provider, this care is not covered by insurance at all. In other cases, the enrollee would be subject to "balance billing" and would be responsible for paying the difference between the insurance plan's coverage and the provider's charge (Giovannelli, Lucia & Corlette, 2016).[6] Thus, living outside a parent's health insurance network substantially decreases the benefits of being able to stay on a parent's health insurance plan as a dependent.[7]

In addition to this effect through health insurance networks, the dependent care provision may have provided a separate tax incentive for young adults to live in the same household as their parents. Shane & Zimmer (2017) argue that the dependent care provision may have induced families to claim young adults as dependents on their tax forms in order to pay for the increased costs of providing family-level coverage. Based on data from the Medical Expenditure Panel Survey, they find that the ACA dependent care provision is associated with about a 3 percentage point increase in the likelihood of being claimed as a dependent tax exemption among 19-25 year olds (Shane & Zimmer, 2017). In addition, if parents buy health insurance in the ACA Marketplaces, including a low-income young adult in the household may increase the

[6] Selective contracting has been used since the emergence of managed care in the 1990's. However, it has become even more widespread since the ACA was passed since many other practices that insurance companies used to rely on to control costs, such as medical under-writing and preexisting conditions exclusions, are now illegal (Giovannelli, Lucia & Corlette, 2016).

[7] Some insurance plans will not allow dependents living outside the parent's insurance service area to join the parent's insurance plan. In these cases, the parent must switch insurance plans so that the service area covers the location of the young adult, or the young adult must move to the service area of the parent. See, for example, the case of GIC, the insurance plan covering state employees in MA: http://www.mass.gov/anf/employee-insurance-and-retirement-benefits/status-changes/dependent-ages-19-26.html

probability that the whole family qualifies for a government health insurance subsidy (Wieczner, 2013). These two mechanisms represent ways in which the dependent care provision may create incentives for young adults not just to live close to their parents but to live in their parents' households.

Prior State Dependent Care Laws

Prior to the ACA, 37 states already had passed laws that required insurance companies to cover young adults up to varying ages, but most of these laws only applied to certain groups of young adults, typically who were unmarried, financially dependent on parents, and/or students (NCSL, 2017). Also, health plans offered by self-insured firms are exempt from state mandates because they are regulated under federal law according to the Employee Retirement and Income Security Act (ERISA). Previous research on postpartum discharge laws suggests that 40-55 percent of the privately insured US population is not subject to these mandates, and the ERISA reduces the effects of these mandates on outcomes (Liu, Dow & Norton, 2004; Jaggar 1996; Dato et al., 1996). Perhaps for this reason, prior research shows that state dependent coverage laws did not have significant effects on insurance rates among young adults (Levine et al., 2011; Monheit et al., 2011).

Some aspects of the state dependent care laws that pre-dated the ACA are particularly relevant to this study. First of all, to be eligible for dependent care coverage, some state dependent coverage laws (CO, CT, DE, FL, IA, NH, NY, OH, PA) required young adults, particularly non-students, to live in the same state or household as parents (NCSL, 2017). For example, in Colorado, there was a law in place prior to the ACA that insurance companies had to cover unmarried, financially dependent young adults as long as they shared the same permanent address as the parents. In states with prior laws that had some kind of residency requirement, the ACA dependent coverage provision actually may increase the likelihood that young adults live apart from parents since now young adults are no longer subject to this requirement. Thus, we may expect a more mixed pattern of findings in states that had prior laws with residency requirements. The ACA dependent care provision may encourage young adults to live within their parent's provider network, but, on the other hand, the elimination of the state residency requirements allow young adults to leave their parent's household, but still be eligible for dependent coverage.

A second complication involving prior state laws is that as of 2012, six states (FL, NJ, NY, OH, PA, WI) had state laws that covered young adults up to age 29 to 31, or adults of any age if they are students (WI). In these states, the ACA dependent care provision would be expected to have a more limited effect since some young adults well beyond the age targeted by the ACA provision already had access to dependent coverage through their parents before the ACA was passed. Even in these states, the ACA broadened the group eligible for dependent care by eliminating restrictions on marriage and student status, and because the ACA applied to insurance plans offered by self-insured firms. Nevertheless, we still may expect a weaker pattern of findings in these states since some of our comparison group already had access to dependent coverage in these states.

Finally, although the ACA dependent care provision does not cover spouses or children of dependent young adults (grandchildren of the insurance policy holder), state laws may pertain to grandchildren (United Healthcare, 2010).[8] Also, once young adults become dependents on their parents' health insurance plans, these plans may voluntarily cover grandchildren as well.[9] We lack data regarding whether insurance plans are voluntarily covering the children of young adults covered under the ACA dependent care provision. A recent paper, however, suggests that the ACA dependent care provision is associated with a shift from Medicaid coverage to private insurance coverage of births to young adults under age 26 (Antwi, Ma, Simon & Carroll, 2016), even though the ACA does not require plans to cover the maternity benefits of young adult dependents (Andrews, 2012; Waldrop, 2016). This may imply that at least some private insurance companies are choosing to cover the children of young adults as well (at least just after birth), even when not mandated to do so. Therefore, the ACA dependent care provision may be especially helpful for young adults with their own children.

To address these issues regarding prior state laws, we consider several sub-sample analyses. First, we estimate the models using sub-samples of young adults living in states with and without prior state laws. On the one hand, there may be more limited effects on young adults living in states with prior dependent care laws if these laws already were somewhat effective. On the other hand, there may be stronger effects in these states if experience with a

[8] As of 2009, seven states had laws mandating coverage of grandchildren as dependents.
[9] See http://www.personalhealthinsurance.com/does-health-insurance-cover-grandchildren/ and http://time.com/money/4063510/add-grandchildren-to-health-insurance/.

similar prior law has led to greater awareness and understanding about the ACA dependent care provision. Second, we estimate the models excluding states that have state laws covering a more expansive age group than the ACA, and also estimate the models excluding states that previously had state laws with residency requirements. We expect stronger results from models estimated using these more limited samples. Finally, we estimate the models using sub-samples of young adults with and without their own children. Young adults with their own children may be particularly affected by the provision if there is a possibility that the grandchildren may obtain insurance coverage as well.

Prior studies have documented the effects of the ACA dependent care provision on health insurance, health, and labor market outcomes. Antwi, Moriya & Simon (2013), using difference-in-difference (DD) methods and data from the 2008 SIPP, document that the ACA dependent care provision is associated with a 3.2 percentage point increase in insurance coverage among targeted young adults, which translates into a 9.5 percent fall in being un-insured, during the early post-implementation period. They also find that the provision decreased employer-sponsored insurance held in young adults' own names, decreased individually purchased non-group insurance, and reduced work hours and full-time work among young adults.

Subsequent papers, mostly using DD methods and large, national data sets, have documented that the ACA dependent care provision had led to greater access to health care and possibly even better health outcomes among young adults. Antwi, Moriya, & Simon (2015) find that the provision is associated with increased inpatient care based on data from the 2007-2011 Nationwide Inpatient Sample. Ameudo-Dorantes & Yaya (2016), using 2002-2013 data from the National Health Interview Survey, report that the provision is associated with large reductions in delaying needed care and forgoing prescription drugs among 19-25 year old young adults. Barbaresco et al. (2015), using data from the 2007-2013 Behavioral Risk Factor Surveillance System (BFRSS), report that the provision is associated with better self-assessed health and lower body mass index, but also with increased risky drinking. Burns & Wolfe (2016), on the other hand, find little evidence that the ACA dependent care provision affected mental health outcomes, aside from a small improvement in emotional well-being.

In this paper, we contribute to this recent literature by considering location choice and living arrangements, as well as receipt of public assistance, as outcomes. To our knowledge, no prior study has considered the effects of the ACA dependent care provision on young adults'

choices about where to reside. More broadly, although there are many studies of "job lock" (see Gruber & Madrian, 2002; Rashad & Sarpong, 2006 for recent reviews), there is no prior work in the existing literature that has considered whether health insurance networks constrain workers' ability to move in and out of labor markets. This is particularly timely to study for two reasons. First, policymakers have expressed concern about the narrowness of health provider networks in the ACA marketplaces, mainly because of the potential to reduce access to care; "geography lock" due to limitations in networks has not been considered. Second, there is recent literature in economics related to the migration of workers and the sorting of different types of workers across geography (Kaplan & Schulhofer-Wohl, 2011, 2017; Wozniak 2010; Diamond, 2016). This literature is based on the idea that workers move in and out of different geographic labor markets when conditions change, helping the economy respond to economic shocks (Kaplan & Schulhofer-Wohl, 2011). Our study is related to this literature in the sense that if young workers are restricted by their parents' health provider networks, they may be hindered in responding to changes in labor markets by moving in and out of their parent's state or city.

3. Data

Data for this study come from the 2008 panel of the Survey of Income and Program Participation (SIPP). The SIPP is a longitudinal, nationally-representative household survey which includes extensive information on household composition, economic outcomes, health insurance, demographics, and participation in government programs. The entire sample is interviewed every 4 months, which is called a wave.[10] Most SIPP questions involve asking the respondent to report information for every month of the four months prior to the interview month (termed "reference months") (SIPP Users' Guide, Chapter 2). Thus, person-month information is available for the entire study period for many variables which are important for this study, such as living arrangements. The 2008 SIPP panel includes more than 50,000 households.

During the first wave of the 2008 SIPP, the interviewer attempts to collect information for all household members 15 years old or older. After the first wave, the household roster is updated to include any new members. One household member, usually the owner or renter of the residence, is considered the reference person for the household. The SIPP keeps track of the

[10] The sample is divided into four random subsamples, called rotation groups, and one rotation group is interviewed per month during a 4-month wave.

relationships of all other individuals in the household to the reference person (SIPP Users' Guide, Chapter 2). This is particularly useful for this study since it allows us to determine whether a young adult is living with a mother, father, or guardian in every month. In addition, we can confirm in every month whether the parent versus the young adult is the owner/renter of the property in which a family co-resides. The SIPP compiles a complete roster of all people living or staying in the sampled household; any individual who is a usual resident in the household is considered a household member.[11] Notably, the SIPP continues to follow household members aged 15 and older if they move away from the household, and collects data on all eligible members of the movers' new households as well (SIPP Users' Guide, Chapter 2).

In this study, we draw on data from the 2008 SIPP core survey. The 2008 SIPP included 16 waves, with the first wave starting in May 2008 and the last wave ending in November 2013. Depending on the wave and the rotation group, some information collected is based on reference months prior to the enactment of the ACA, while other information is based on reference months after the ACA was passed. We pool data from all 16 waves of 2008 SIPP panel.

The analysis is conducted at the person-month level. We use two samples in the analysis – a "full sample," and a "parental information sub-sample." Our "full sample" includes 2008 SIPP respondents aged 23-29 years old at the time of the interview, excluding 26-year-olds (N = 373,553 person-months; 18,803 observations). Respondents aged 26 at the time of the interview are excluded since for these respondents, insurance companies vary in terms of when the dependent is considered to have aged out of the coverage. Thus, it is unclear whether 26 year olds belong in the treatment vs. the comparison group. Using the full sample, we generate our main results, and we also consider whether effects of the ACA dependent care provision vary by sub-samples defined by characteristics of the young adults, such as students versus non-students.

Our "parental information sub-sample" (N = 134,177 person-months; 6,932 observations) is limited to full sample respondents who have lived in the same household with at least one parent in at least one month of the 2008 SIPP, and this parent is participating in the SIPP in the current month (regardless of whether the parent and young adult live in the same household currently). The advantage of the parental information sub-sample is we can test whether effects

[11] A college student living away from home who still has a bedroom held at home is still considered a household member at the sampled address (SIPP User's Guide, 3rd edition, p.44).

of the dependent care provision vary by sub-samples defined by the characteristics of the parent measured in the current month. Also, using the parental information sub-sample, we can test whether the ACA dependent coverage provision is associated with young adults living in the same state as their parent. We cannot examine this outcome using the full sample since we need to know the geographic location of the young adult's parent for this analysis.

The disadvantage of the parental information sub-sample is the findings may not be as readily generalized as findings generated using the full sample, since the parental information sample is limited to respondents who were living with at least one parent at some point during the 2008 SIPP. Also, as we discuss below, we have concerns about divergent pre-period trends in this sample. Appendix Table 1 provides further information about sample construction.

We use two sets of dependent variables – a set of "stock" variables and a set of "flow" variables. The stock variables are binary indicators of the following, all of which pertain to the current month: (1) whether or not the young adult resides in the same household with either or both parent(s)/guardian(s); (2) whether or not the young adult resides in a household with other relatives or non-relatives, but neither parent; (3) whether or not the young adult lives alone; (4) whether or not the young adult resides in the same state with either or both parent(s)/guardian(s); (5) whether or not the young adult receives assistance from the Supplemental Nutrition Assistance Program (SNAP - food stamps); and (6) whether or not the young adult receives assistance from Women, Infants and Children (WIC - sample limited to females).[12] The first three stock variables are constructed based on the household roster for that month; these categories are mutually exclusive and include all possible living arrangements. The third stock variable, "lives in same state as parent", is constructed based on the parent's state of residence and the young adult's state of residence in that month; as mentioned previously, this variable can only be constructed for the parental information sub-sample.

The remaining two stock variables (SNAP and WIC) are based on program participation in that particular month. SNAP provides food assistance based on household size and resources, income, employment and immigration status (USDA, 2017a). WIC is a nutritional assistance

[12] As public assistance outcomes, we also considered receipt of TANF and receipt of general public assistance, but sample sizes were too small to generate reliable estimates.

program for low-income, pregnant, postpartum, and breastfeeding women and children up to age 5 who meet income eligibility guidelines and are considered to be at nutritional risk (USDA, 2017b). For both programs, income eligibility is based on the household's income and size; thus, parental income would affect eligibility for young adults living at home. In the SIPP, information was collected on whether women aged 15 to 45 with at least one child under age 5 received WIC benefits during the reference period; if they did, information was collected on whether they received WIC in each month of the reference period. Information was collected on whether all SIPP respondents 18 years old and over received Food Stamps during the reference period, and, if so, whether they received it in every month of the reference period.

Construction of the flow dependent variables is more complicated compared to the stock dependent variables, since we aim to capture transitions into and out of a household/state or public assistance receipt in two consecutive months. The flow variables for living arrangements are moved into parent's household; moved into parent's state; moved out of parent's household; moved out of parent's state; moved out of household with other relatives/non-relatives; and moved out of living alone. The "moved into…" variables are based on the current month and the previous month. These variables are set equal to one if the young adult lives in same household/state with at least one parent/other non-relatives this month, conditional on the respondent not being in a parent's household/state/other relatives' household, or not being in the SIPP at all, in the previous month. The covariates in these models are based on current month.

The "moved out…" variables are based on the current month and the next month. These variables are set equal to one if the young adult does not live in same household/state with at least one parent/other relative/alone next month or is not in the SIPP at all next month, conditional on the respondent living in a parent's or other relative's household/state or living alone in the current month. The covariates used in these models are based on the current month.[13] The flow versions of the public assistance variables capture whether the young adult currently receives SNAP or WIC in the current month, conditional on not receiving it in the prior

[13] We do not create these variables using information on the reference person. It is possible, therefore, that the young adult moves in with the parent, and the young adult or some other household member other than a parent is the reference person of the household. However, in about 92% of cases in our sample in which the young adult lives with at least one parent, the young adult's parent is the reference person.

month. These models are limited to respondents who were in the SIPP in the current month and the previous month. The covariates used in this model again are based on the current month.[14]

One complication in using the flow versions of the dependent variables is the 2-month period used to create each flow variable may cross over the pre-policy and post-policy time periods. For example, a young adult not living with his parent in February 2010 could move into a parent's household in March 2010, and this 2-month period straddles the pre-period and the enactment period. As a sensitivity check, we re-estimate the models based on the flow dependent variables: (1) dropping all observations from February-April 2010 and September-November 2010, since these there is cross over potential during these time periods; and (2) dropping observations from the entire 2010 calendar year.[15]

Table 1 shows weighted sample means for the full sample and the parental information sub-sample. In the full sample, about 31 percent of observations lived with a parent, 58 percent lived with other-relatives/non-relatives, and 11 percent lived alone. The rate of living with a parent is much higher (87 percent) in the parental information sub-sample because, by construction, this sample is limited to respondents who had lived with their parent in at least one month of the SIPP, regardless of their current living arrangements. In the full sample, about 14 percent of observations received SNAP, and 4 percent of female respondents received WIC. These rates were a little lower in the parental information sub-sample (Table 1).

4. Methods

We use a DD approach to examine the effect of the ACA dependent care provision on living arrangements/location and receipt of public program benefits. The treatment group is comprised of young adults aged 23-25 – these individuals are covered by the ACA dependent care provision. The comparison group is comprised of young adults aged 27-29 years old – these young adults are not covered by the ACA dependent care provision since they are older than 26 years old. In sensitivity checks, we experiment with a broader treatment group (aged 19-25) and

[14] We also considered "moved into household with other relatives/non-relatives", "moved into living alone", "stopped getting SNAP" and "stopped getting WIC" as outcomes but sample sizes became small for these outcomes, and findings were not statistically different from zero. Results are available upon request.

[15] There is no way to confirm that young adults are not moving from one parent's household to another parent's household since one parent may not be in the SIPP.

a broader comparison group (aged 27-33), as well as with a narrower treatment and comparison group (age 24-25 vs. age 27-28). Following Antwi et al. (2012), we divide the post policy period into two parts: the first part, the "enactment period (Post_ACA1)", approximately represents the time period between when the ACA was passed (March 2010) and when the dependent care provision became effective (September 2010); the second part, the "implementation period (Post_ACA2)", represents the time period between when the dependent care provision became effective (October 2010) and the end of our data (November 2013). During the enactment period (Post_ACA1), even though the dependent care provision had not yet become effective, many insurance companies had started to enroll young adults in anticipation of the policy change.

We estimate the following general specification:

$$Outcome_{ijt} = \beta_0 + \beta_1 \text{ Age23-25}_{ij} + \beta_2 \text{Post\_ACA1}_t + \beta_3 \text{Post\_ACA2}_t + \beta_4 \text{Age23-25}_{ij} * \text{Post\_ACA1}_t + \beta_5 \text{Age23-25}_{ij} * \text{Post\_ACA2}_t + \alpha' \text{State}_j + \lambda' \text{Month}_t * \text{Year}_t + \delta' X_{ijt} + \gamma' Y_{jt} + \omega' \text{State}_j * t + u_{ijt} \quad (1)$$

The analysis is conducted at the person-month level, and the analysis samples are limited to young adults who are either in the treatment group or the comparison group. Data used in the study span the time period from May 2008 to November 2013. The pre period spans May 2008 to February 2010, the enactment period (Post_ACA1) spans March 2010 to September 2010, and the implementation period (Post_ACA2) spans October 2010 to November 2013.

The dependent variable in Equation (1) is a measure of living arrangements or public program benefits receipt for young adult i, living in state j, in month t. On the right hand side of Equation 1, the model includes an indicator for whether the young adult is aged 23-25 years old (Age23-25); an indicator for whether the SIPP interview took place in a month in which the ACA has passed but the dependent care provision was not yet in effect (Post_ACA1, an indicator for March 2010 to September 2010); an indicator for whether the SIPP interview took place in a month in which the ACA dependent care provision was in effect (Post_ACA2, an indicator for October 2010 to November 2013); interaction terms between Age23_25 and each of the two Post_ACA indicators ($\text{Age23-25}_{ij} * \text{Post\_ACA1}_t$ and $\text{Age23-25}_{ij} * \text{Post\_ACA2}_t$); state fixed effects (State_j); interview month by interview year fixed effects ($\text{Month}_t * \text{Year}_t$); a vector of characteristics of the young adults ($X_{ijt,}$) and state time-varying characteristics (Y_{jt}).

The state fixed effects are based on the SIPP respondent's initial state of residence when s/he entered the survey. The state fixed effects are included to capture time-invariant

characteristics of states, while the interview month by year fixed effects are included to capture time-varying events that affect all young adults' outcomes. The vector of young adult characteristics includes dummy indicators for female (male as the baseline), age, student status, whether the respondent was married in the first month s/he participated in the SIPP, and indicators for race/ethnicity (African-American, Latino and Asian with non-Latino white as the baseline). The state time-varying characteristics are the current share of college graduates in the current state and year; and the age-specific state-specific unemployment rate for the age group 21-25 or 26-30 (depending on the young adult's age) in the current year.[16] We also include state-specific linear time trends in all models, which capture unmeasured state-level, time-varying factors.

The estimated coefficients of greatest interest in Equation (1) are β_4 and β_5 which are the DD estimates of the effect of the ACA dependent care provision on living arrangements and public assistance outcomes among young adults. The DD estimates capture the pre-post policy change in outcomes among young adults targeted by the policy change, differencing out the same pre-post policy change in outcomes among young adults slightly older and thus not targeted by the policy, and adjusting for other potentially confounding characteristics and trends. Although our dependent variables are binary, we estimate Equation 1 using linear probability models (LPM) with survey weights to make interpretation of interaction terms straight-forward (Karaca-Mandic et al., 2012).[17]

In the main findings, we estimate robust standard errors accounting for clustering on age, since the treatment group classification is based on age. As a sensitivity check, we also cluster on age/year, but we prefer to cluster on age only in the main findings (a more conservative approach) since it is likely that regressors and errors in a single age category may be correlated across years (Cameron & Miller, 2015). Clustering on age yields six clusters. Cameron & Miller (2015) point out that when the number of clusters is small, the critical values used for

[16] We calculated these education measures and unemployment rates using the American Community Survey (ACS). The unemployment rates are calculated for the age groups age 21-25 and age 26-30. Using age-specific state-specific unemployment rates addresses the possibility that unmeasured trends specific to certain age groups within young adults may confound our findings. Estimating the models with state monthly unemployment rates instead of age-specific yearly state unemployment rates did not appreciably affect the findings.

[17] We use the person weight variable called "wpfinwgt." This is the appropriate weight to use in our case because we are essentially stacking a set of weighted cross-sections of data from the 2008 SIPP panel.

hypothesis testing should be based on a *t*-distribution with degrees of freedom equal to the number of clusters minus l. Thus, the critical values used for our hypothesis testing are based on a *t*-distribution with 5 degrees of freedom (Barbaresco et al., 2015). Since there remains a risk of over-rejection of the null hypothesis, even with this adjustment, we also implement the wild cluster bootstrapping approach proposed by Cameron & Miller (2015) as a sensitivity check.

The DD model is based on the assumption that trends in outcomes among young adults aged 23-25 would have been similar to those of young adults aged 27-29 if the ACA policy had not been enacted. Figures 1-6 show trends in the outcome variables for the full sample. The figures show the percentage of young adults who: (1) live with at least one parent (Figure 1); (2) live with other relatives or non-relatives (Figure 2); (3) live alone (Figure 3); (4) are covered by SNAP (Figure 4); (5) are covered by WIC (Figure 5 - females only); and (6) live in the same state as a parent (Figure 6 - parental information sub-sample). Figures 1 and 2 show fairly similar trends in living with a parent (Figure 1) and living with other relatives/non-relatives (Figure 2) between the treatment and comparison groups prior to the passage of the ACA, although the levels are quite different. After the ACA was passed, however, there appears to be an increasing trend in living with parents and a declining trend in living with other relatives/non-relatives in the treatment group vs. the comparison group. In Figure 3, we observe a somewhat less stable trend in living alone, both before and after the ACA was passed, but there is a declining trend in living alone in the treatment group vs. the comparison group at the end of the post-ACA time period. In sum, Figures 1-3 offer suggestive evidence that the ACA dependent care provision may have increased the likelihood that young adults targeted by the policy choose to live with their parents.

In Figure 4, it appears that SNAP receipt is very similar in the treatment and comparison groups until the quarter in which the ACA was passed. After that point, SNAP receipt appears to increase sharply in the comparison group, and then appears to decline and stabilize. In the treatment group, there is a steadier increase in SNAP participation that appears to stabilize in 2013. This is consistent with the idea that the ACA dependent care provision reduced young adults' participation in SNAP. The WIC participation figure (Figure 5) is very noisy, making it hard to draw any conclusions from it. We interpret the findings from the WIC models with caution, given the volatile pattern of participation in our data.

Finally, in Figure 6, we see that trends in living in the same state as a parent are similar in the treatment and comparison until late in 2009 and the beginning of 2010, when the rate seems to fall in the comparison group and stay fairly stable in the treatment group. By 2013, however, the percent of young adults living in the same state as a parent starts to decline sharply in the comparison group and rise in the treatment group. Note that unlike Figures 1-4, which are based on the full sample, Figure 6 is based on the parental information sub-sample. The parental information sub-sample is limited to respondents who live with a parent at some point during the SIPP, and who have a parent that is currently in the SIPP. As a result, for observations that we observe at the start of the SIPP (first quarter of 2008), all respondents are living in the same state as a parent. This is a limitation of this sample.

Figures 1-6 offer helpful descriptive information, but we cannot draw conclusions from them since there may exist confounding by other factors. In addition, while the common trends assumption seems reasonable for most outcomes based on a visual inspection of the figures (lives in same state as parent perhaps is an exception), more investigation is required. The common trends assumption that underlies the DD method cannot be tested directly, but we can test whether trends in outcomes were different between the treatment group (23-25 year olds) vs. the comparison group (27-29 year olds) before the ACA policy went into effect. To do so, we limit the samples to the pre-policy time period and estimate a version of Equation 1 which includes an interaction term between a linear time trend and the treatment indicator (the Post_ACA1, Post_ACA2, Post_ACA1*Age23_25 and Post_ACA2*Age23_25 terms are not included since the model does not include data from the post-policy period). Alternatively, we also estimate a model in which the interaction between the treatment indicator and the linear time trend is replaced by a set of interaction terms between Year/Month and Age23_25.

We estimate these models for the six stock dependent variables, and for the eight flow dependent variables; the results from the linear time trend/treatment interaction term approach are shown in Appendix Tables 2-3. Out of the 14 models estimated, the interaction term between treatment and the linear time trend is statistically significant in two cases – "lives in same state as parent" (Appendix Table 2) and "starts to get WIC" (Appendix Table 3). When we use the other approach (including a set of interactions between year/month and the treatment indicator), overall, there is no statistically significant difference in outcomes between the treatment and comparison groups before the ACA was passed (results available upon request). This provides

us with some degree of confidence in the assumption of similar trends between 23-25 year olds and 27-29 year olds in the absence of the policy change.

Nevertheless, we interpret the findings from the "lives in same state as parent" and "starts to get WIC" models with caution. Also, we acknowledge that confounding by divergent pre-period trends in the treatment vs. the comparison group is still a concern in this analysis, particularly in the sub-sample that is limited to respondents who have a parent in the SIPP. To address this concern directly, we take advantage of the fact that the dependent care provision only applies to young adults who currently have a parent with private insurance in his/her own name. Using this information, we estimate a triple difference (DDD) model in which we interact both the Post_ACA1*Age23_25 and Post_ACA2*Age23_25 terms with an indicator of whether the young adult has a parent with private health insurance in his/her own name in the current month.[18] All relevant double interaction terms are included as well. This DDD approach has two advantages. First, we can "difference out" any trends in living arrangements that are specific to 23-25 year olds. Second, we can include a richer set of interaction terms, which are intended to capture age-specific time trends that may be confounding the main analyses. The drawbacks of this DDD strategy include: (1) one may argue that parental insurance status is endogenous to the ACA; (2) sample sizes become smaller; and (3) we can only estimate this model using the parental information sub-sample, which has the drawbacks discussed in the previous section.

Another approach to addressing the possible problem of confounding by divergent, age-specific pre-period trends is simply to estimate the model using more narrowly defined treatment and comparison groups. There are less likely to be divergent pre-period age trends if we compare 24-25 year olds to 27-28 year olds, which we do as a sensitivity check. The disadvantage is sample sizes grow smaller with this approach.

5. Results

Main findings: Stock dependent variables

[18] As a sensitivity check, we also estimated DDD models using measures of parental insurance that were constructed slightly differently: (1) young adult's parent has employer-sponsored health insurance (ESHI) in own name; (2) young adult's parent has ESHI in own name or as dependent; (3) young adult's parent has private health insurance as dependent or own name. Results were very similar to those shown in the paper.

Table 2 summarizes DD findings from the stock variables, showing only the estimated coefficients on the interaction term between treatment group and Post1 ("enactment effect") and the interaction term between treatment group and Post2 ("implementation effect"). The table is based on results generated using the full sample, with the exception of the "young adult lives in same state with parent" model, which is based on the parental information sub-sample. In Column 1 of Table 2, the results show that during the enactment period, the ACA dependent care provision is associated with a statistically significant 3.0 percentage point increase in the likelihood a young adult lives with a parent; during the implementation period, this effect increases to a statistically significant 6.0 percentage point increase. These effects represent 9 and 18 percent increases at the pre-period treatment group mean (Table 2, Column 1).

Column 2 in Table 2 provides further information by showing results from a model in which the dependent variable is "young adult lives with other relatives/non-relatives." We find that the dependent care provision is associated with a 3.0 percentage point decrease in the likelihood of living with other relatives or non-relatives in the enactment period, and a 6.0 percentage point decrease during the implementation period. The magnitudes of these effects represent 5 and 11 percent declines at the pre-period treatment group means. There is no effect of the ACA dependent care provision on the likelihood of living alone (Table 2, Column 3). In addition, there is no effect of the provision on the likelihood of living in the same state as a parent (Table 2, Column 6). We emphasize that this latter model is estimated using the parental information sub-sample, which is limited to respondents who had lived with a parent during at least one month of the SIPP. In sum, the pattern of findings in Table 2 indicates that the ACA dependent care provision increased the likelihood that young adults live with a parent, and decreased the likelihood that they live with other relatives/non-relatives.

If young adults live with parents, it may reduce their need/eligibility for public assistance since now they can take advantage of public goods in the parent's household, such as food, child care, and utilities. In Columns 4 and 5 of Table 2, we show results from models that shed light on these kinds of effects. Indeed, the pattern of findings suggests that the ACA dependent care provision is associated with reduced use of food assistance among young adults. The ACA dependent care provision is associated with reductions of 1.7 and .7 percentage points in the likelihood of receiving SNAP and WIC respectively during the implementation period. These effects represent 13 and 12 percent reductions in SNAP and WIC usage respectively at the

treatment group pre-period mean (Columns 4-5, Table 2). There are no statistically significant associations between the ACA dependent care provision and food assistance receipt during the enactment period.

Note that this finding is consistent with Antwi, Ma, Simon & Carroll, 2016, who find that young adults in the age group targeted by the dependent care provision are more likely to have births covered by private insurance (presumably from a parent) instead of Medicaid. Our findings indicate there may have been a shift from WIC to food support from parents as well. The negative effects of the ACA dependent coverage on young adults' propensity to use nutrition assistance programs suggests that as young adults start to live with parents, they may be able to access food/kitchen facilities in the parent's household and no longer require food assistance. They also may lose eligibility for food assistance programs when they move in with a parent.

Main findings: Flow dependent variables

Table 3 shows findings from the same outcomes, but now these outcomes are measured as flow variables. Results from these models help us understand whether the associations that we observe in Table 2 are consistent with young adults' transitions in and out of different living arrangements, and transitions in and out of utilization of public assistance, measured between two consecutive months. Overall, the pattern in Table 3 is consistent with the results in Table 2, although we appear to have limited power in some models. Starting with Column 1 in Table 3, we see that the dependent care provision is not associated with the likelihood of moving into a parent's household; the estimated coefficient is positive in sign and relatively large, but not statistically significant at conventional levels (Column 1, Table 3). There also is no statistically significant association between the dependent care provision and the likelihood that young adults move into a parent's state, although the estimated coefficient is large in magnitude and (counter-intuitively) negative in sign (Column 2, Table 3). We note that the sample size for this outcome is very small compared to those of the other outcomes because it is based on the parental information sub-sample. The implementation of the ACA, however, is associated with a 0.4 percentage point reduction in the likelihood that young adults move out of a parent's household and a 0.4 percentage point reduction in the likelihood of moving out of a parent's state. These effects correspond to 10 and 12 percent reductions, respectively, at the pre-period treatment group means (Columns 3-4, Table 3).

In Column 5 of Table 3, we see that the dependent care provision increases the likelihood of moving out of other relatives/non-relatives households by about 46 percent, and increases the likelihood of moving out of living alone by about 73 percent during the enactment period. There are no statistically significant effects on these outcomes during the implementation period. Finally, the dependent care provision is associated with about a 7 percent reduction in the likelihood of starting to get SNAP, although this effect is only statistically significant during the implementation period. The association between the dependent care provision and starting to get WIC is negative in sign and large in a relative sense, but not statistically significant during either the enactment or the implementation periods.

Overall, the pattern of findings based on the flow dependent variables related to living arrangements in Table 3 is consistent with those based on the stock dependent variables presented in Table 2. These findings also provide insight into the transitions that may have been induced by the dependent care provision. The enactment of the ACA in March 2010 is associated with young adults moving out of living arrangements with others and moving out of living alone. The dependent care provision implementation in October 2010 is associated with reductions in leaving parents' households and parents' states, and a decline in SNAP utilization.

Results for sub-samples

In Table 4, we show findings from models based on sub-samples of the main sample that are defined by characteristics of the young adults – private insurance status, gender, race/ethnicity, marital status, education, whether the young adult is currently a student, whether the young adult has his/her own children, whether the young adult has a work-limiting health condition, and whether the young adult is currently living in a state that has a prior state dependent coverage law. All of the findings in Table 4 are based on the stock versions of three dependent variables – lives in parent's household (Panel A), covered by SNAP (Panel B), and covered by WIC (Panel C). For the models of the living arrangements outcome (Panel A of Table 4), we see differences across sub-samples defined by whether the young adult is privately insured. There is no association between the dependent care provision and living arrangements for young adults who are not privately insured, while there is a large, strong association among privately insured young adults (Panel A, Table 4). This is very intuitive, and is consistent with the idea that young adults live with parents to be able to take advantage of parent's private

insurance coverage. Panel A of Table 4 also suggests that young adults without their own children are more likely than those with their own children to change their living arrangements in response to the ACA dependent care provision. This may suggest that it is less costly to move for a childless young adult compared to a young adult with his/her own children.

During the enactment period, young adults living in states with a prior state dependent coverage law are more likely than those living in states without a prior state law to change their living arrangements in response to the ACA dependent coverage law (Panel A, Table 4). It is possible that young adults living in states with prior laws (which were more limited in scope) were more familiar with the dependent care provision and could respond more quickly compared to young adults living in states without a prior state law. However, the effect of the dependent care provision on residing with a parent is statistically significant for both young adults with and without a prior state law during the implementation period. There is a stronger pattern of findings for more educated young adults, and also for non-students, who most likely were not covered by prior state dependent care laws (Panel A, Table 4). Surprisingly, there is no association between the dependent care provision and living arrangements for young adults with work-limiting disabilities, perhaps because these young adults were more likely to be already living at home and/or covered by parent's insurance or by public insurance (Panel A, Table 4).

For the public assistance outcomes, we see that the association between the dependent care provision and WIC is stronger for privately insured young adults, which again is intuitive (Panels B-C, Table 4). The findings for SNAP, however, are statistically different from zero for privately insured young adults only during the enactment period and not during the implementation period, which is surprising. The SNAP findings appear to be driven by respondents who are racial/ethnic minorities and unmarried, while the WIC findings are strongest for married, more educated, Non-Latino Whites. (Panels B-C, Table 4).

Using the parental information sub-sample, we also can consider sub-samples based on parental characteristics, including whether the parent lives in a state with a prior state dependent coverage law; parental age and marital status; whether the parent is college educated and whether the parent's occupation is white collar vs. blue collar.[19] Table 5 shows results from these sub-

[19] White collar is defined as Census occupational classifications of: Management, professional, and related occupations; service occupations; and sales and office occupations. Blue collar is defined as farming, fishing and forestry; construction, extraction, maintenance and repair; and production, transportation, and material moving occupations. If both parents were available in the current month, we

sample analyses for the three main stock dependent variables – lives in parent's household (Panel A), SNAP (Panel B), and WIC (Panel C). A consistent pattern of findings emerges from Table 5. First of all, the "lives with a parent" and "covered by SNAP" results are driven by young adults whose parent is currently covered by a private health insurance plan in his/her own name. which is intuitive. Results for the WIC outcome are not statistically different from zero.

Second, the dependent care provision affected living arrangements mainly among young adults from more advantaged families. The sub-sample analyses show a stronger pattern of findings for young adults with older, more educated, white-collar, married parents. Again, this is intuitive since more advantaged families are more likely to have private insurance plans that offer dependent coverage, and they may be more likely to be able to accommodate and provide support to a young adult who moves home. Results for the SNAP and WIC are generally statistically insignificant in the sub-samples (Panels B-C, Table 5). Also, the findings for living arrangements are driven by young adults whose parents live in states without prior state laws. This is somewhat in contrast to what we found for young adults – for living arrangements, young adults living in states without prior state laws were actually less affected by the dependent care provision (during the enactment period only).

In Table 6, we summarize findings from the DDD models. This table shows estimated coefficients from the two triple interaction terms in the DDD models: a triple interaction between parent is privately insured, treatment indicator, and enactment period; and a triple interaction term between parent is privately insured, treatment indicator, and implementation period. The models include all relevant double interaction terms, as well as the same set of covariates used in previous models, although these coefficients are not shown. The models are estimated using the parental information sample. Intuitively, the DDD model compares outcomes of 23-25 year olds with privately insured parents, pre and post-ACA, to those of 23-25 year olds without privately insured parents, differencing out the same comparison among 27-29 year olds.

The pattern of DDD findings for living arrangements is consistent with the stock outcome DD results for the parental information sub-sample in Appendix Table 4. Both sets of findings suggest that the ACA dependent care provision is associated with increased living with parents, and decreases in living with others and living alone, although the magnitudes and statistical

took characteristics of older, married, and more advantaged parent. For example, if one parent is over age 54 and the other parent was 54 or younger, the young adult is coded as having a parent over age 54.

significance of the findings vary across the DD and DDD models. The findings for the DDD models are large and statistically significant for "lives with parent" and "lives alone" while in the DD models, the results for "lives with parent" are smaller and the results for "lives alone" are not statistically different from zero. The ACA is associated with reductions in "lives with others" that are statistically significant in the DD models, but not in the DDD models. Surprisingly. implementation of the dependent care provision is associated with a statistically significant reduction in living in the same state as a parent, which is not consistent with the other findings. The effects on food assistance program participation are generally negative, but not statistically significant in all models, probably due to the smaller sample sizes.

Robustness and falsification checks

We conducted a number of sensitivity checks of the main findings. The results from these checks are shown in Appendix Table 5 (stock variables) and Appendix Table 6 (flow variables). These checks included: (1) dropping states with prior state laws covering young adults over age 26 (Panel A); (2) dropping states with prior state laws that had residency requirements (Panel B); (3) estimating un-weighted models (Panel C); (4) using a broader treatment and comparison group (age 19-25 vs. age 27-33) (Panel D); using a more narrow treatment and comparison group (age 23-24 vs. age 27-28) (Panel E); and (5) clustering standard errors by age/year instead of age. For the flow variables, we additionally considered the following changes: (6) dropping time periods in 2010 during which a young adult's move may cross over between a month in the pre-policy period and a month in the post-policy period (Panel F in Appendix Table 6); and (7) dropping 2010 all together from the sample to avoid this cross over problem (Panel G in Appendix Table 6). In all sensitivity checks, the pattern of findings persists, and in many cases becomes stronger in terms of statistical significance. In Appendix Tables 5 and 6, we note that moving from clustering on age/year to clustering on age (the broader approach taken in the main findings) does not change our interpretation of the findings.

In Appendix Table 7, we show results from a falsification test using outcome variables created from the SIPP household roster. We consider two outcomes that should *not* plausibly be affected by the ACA dependent care provision – the number of the young adult's household reference person's own children *under age 18* living in the household, and whether or not a child of the reference person *under age 18* lives in the household. There are no effects of the ACA

dependent care provision on these two outcomes, which is intuitive (Appendix Table 7). In contrast, as expected, we see a strong, positive effect of the ACA dependent care provision on the number of children *age 18 or older* of the reference person living in the household, and whether or not a child *age 18 or older* of the reference person lives in the household (Appendix Table 7).

Finally, in Appendix Table 8, we compare findings from the unweighted models clustered on age (shown previously in Panel C of Appendix Table 5) to unweighted models with p-values generated using the wild cluster bootstrapping approach. In Appendix Table 8, the original estimates from Appendix Table 5 are reproduced with the p-values from the wild cluster bootstrapping procedure shown in brackets. All of the effects that were statistically significant at the 0.05 level in Appendix Table 5 remain so when we apply the wild cluster bootstrapping, except for the effect of the dependent care provision on living with parents during the enactment period, which becomes insignificant when the bootstrapping method is applied. This sensitivity check strengthens our confidence in the pattern of main findings.

6. Conclusions

The ACA dependent care provision was intended to address a persistent public policy and public health problem – the high rate of un-insurance among young adults. By allowing young adults to remain on a parent's private health insurance plan, the dependent care provision was expected to increase access to medical care, while also reducing "job lock" and giving young adults more flexibility regarding work hours and educational decisions. Empirical studies show that the provision so far has been successful in this regard (Antwi, Moriya & Simon, 2013; Amuedo-Dorantes & Yaya, 2016; Colman & Dave, 2015; Bailey & Chorniy, 2016).

The dependent care provision, however, may have inadvertently reduced young adults' flexibility regarding geographic location since living near a parent typically will be needed to stay in the parent's provider network and take advantage of a parent's health insurance coverage. The results from this paper indicate that the provision is associated with increased likelihood that young adults live with a parent, driven by young adults choosing not to move out of a parent's household and/or state of residence, and choosing to move out of independent living arrangements. In this sense, the ACA dependent care provision may have reduced independent living and geographic mobility among young adults targeted by the policy. We emphasize that

we cannot directly test if the provider network is the mechanism through which the ACA dependent care provision induces young adults to move in with parents; other mechanisms, such as ACA-related tax advantages and an increased dependency on or closer relationship with parents induced by the dependent care provision, also may be important. In addition, if the ACA did indeed induce young adults to live with their parents, there may be advantages as well as disadvantages. The negative side of this change is young adults may be impeded in leaving their parent's state and household to seek work and educational opportunities elsewhere if they need to stay in the parent's provider network. On the other hand, living together may expand other opportunities for both young adults and their parents. We cannot explore whether the dependent care provision has made the family better or worse off; instead, we conclude only that the provision may have changed the relative benefits to a young adult of living at/close to home vs. other living arrangements.

Our findings also offer more suggestive evidence that the dependent care provision is associated with reduced receipt of food assistance program support among young adults. Although we cannot directly test this mechanism, it may be that living with parents offers access to household public goods, such as food, which reduces young adults need for food assistance programs. Moving in with parents may reduce income eligibility for these programs as well. Based on analysis of 2010 ACS data conducted by the Pew Research Center, only 9.8 percent of 25-34 year olds who lived in multi-generational households lived below the Federal Poverty Line (FPL) compared to 17.4 percent of 25-34 year olds who lived in non-multigenerational household types (Parker, 2012). Thus, the ACA dependent care provision may have increased rates of living with parents and, as a result, may have reduced the need for public assistance among young adults induced through changes in household composition.

In the case of WIC, the mechanism through which the dependent care provision reduces participation in the program is unclear, since we find that the provision changed living arrangements primarily among young adults who are childless. It is possible that the ACA dependent care provision induced pregnant or soon-to-be pregnant young women to live with a parent, reducing their need for WIC during the pregnancy. Although this explanation is consistent with our findings, as well as consistent with findings on Medicaid coverage of births from Antwi, Ma, Simon & Carroll, 2016, our sample is too small to test this hypothesis directly.

We emphasize that since our data end in 2013, the effects we report in this paper are short-term effects. Future research should address the possibility that the ACA dependent care provision had longer-term effects on living arrangements and public assistance receipt. Our findings suggest that this provision may be one of the reasons behind the increasing rate of young adults who choose to live in their parents' households.

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Table 1: Weighted sample means		
	Full sample of young adults	Young adults with parental information subsample
Stock dependent variables:		
Lives in parents' household	0.309	0.866
	(0.462)	(0.341)
Lives in the same state as parent (sub-samples only)		0.975
		(0.155)
Lives with other relatives/non-relatives	0.582	0.090
	(0.593)	(0.286)
Lives alone	0.108	0.044
	(0.311)	(0.205)
Covered by SNAP	0.139	0.122
	(0.346)	(0.328)
Covered by WIC	0.044	0.036
(females only)	(0.206)	(0.187)
	(N=191,339)	(N=62,708)
Control variables:		
Age 23	0.163	0.263
	(0.369)	(0.440)
Age 24	0.163	0.217
	(0.370)	(0.412)
Age 25	0.163	0.178
	(0.369)	(0.382)
Age 27	0.165	0.128
	(0.372)	(0.334)
Age 28	0.171	0.113
	(0.377)	(0.317)
Age 29	0.174	0.101
	(0.379)	(0.301)
Female	0.501	0.450
	(0.500)	(0.497)
White	0.607	0.557
	(0.488)	(0.497)
Black	0.127	0.155
	(0.333)	(0.362)
Hispanic	0.190	0.200
	(0.393)	(0.400)
Asian	0.043	0.052
	(0.204)	(0.222)

Other	0.032	0.036
	(0.176)	(0.187)
State-year unemployment rates for age group 21-25	0.142	0.144
	(0.029)	(0.027)
State-year unemployment rates for age group 26-30	0.101	0.103
	(0.024)	(0.022)
Share of college graduates in the current state	0.237	0.240
	(0.033)	(0.034)
Married in the first month in the survey	0.275	0.055
	(0.446)	(0.228)
Student	0.182	0.243
	(0.385)	(0.429)
N of obs	373,553	134,177
N of individuals	18,803	6,932
Flow dependent variables:		
Moved into parent's household	0.015	0.185
	(0.123)	(0.389)
	(N=254,272)	(N=21,365)
Moved out of parent's household	0.042	0.042
	(0.200)	(0.200)
	(N=115,159)	(N=115,159)
Moved out of other relative's/non-relative's household	0.006	0.033
	(0.075)	(0.179)
	(N=206,667)	(N=12,192)
Moved out from living alone	0.002	0.003
	(0.063)	(0.056)
	(N=317,929)	(N=123,218)
Start to get SNAP coverage	0.008	0.009
	(0.090)	(0.092)
	(N=299,855)	(N=111,369)
Start to get WIC coverage	0.006	0.004
(females only)	(0.074)	(0.065)
	(N=171,859)	(N=57,379)
Moved into parent's state		0.560
(sub-sample only)		(0.496)
		(N=7,839)
Moved out of parent's state		0.038
(sub-sample only)		(0.109)
		(N=129,469)

Notes: Weighted sample means are reported. Standard deviations and number of observations for flow dependent variables are reported in the parentheses.

Table 2: Difference-in-difference findings – Stock dependent variables			
	(1) Lives in parent's household	***(2) Lives with other (non-)relatives***	***(3) Lives alone***
Enactment effect	0.0304***	-0.0296**	-0.0008
	(0.0057)	(0.0090)	(0.0093)
Implementation effect	0.0599**	-0.0598**	-0.0001
	(0.0203)	(0.0188)	(0.0073)
N of obs	373553	373553	373553
Pre-policy, treatment	0.3428	0.5683	0.0890
Pre-policy, comparison	0.1701	0.7269	0.1030
Post-policy 1, treatment	0.3977	0.5141	0.0882
Post-policy 1, comparison	0.1960	0.6981	0.1059
Post-policy 2, treatment	0.4820	0.4338	0.0842
Post-policy 2, comparison	0.2390	0.6573	0.1038
	(4) Covered by SNAP	***(5) Covered by WIC (females only)***	***(6) Lives in the same state as parent***
			(Parental Information Sub-sample)
Enactment effect	-0.0103	-0.0101	0.0036
	(0.0092)	(0.0081)	(0.0062)
Implementation effect	-0.0177***	-0.0066**	0.0073
	(0.0024)	(0.0023)	(0.0066)
N of obs	373553	191339	134177
Pre-policy, treatment	0.1313	0.0545	0.9920
Pre-policy, comparison	0.1325	0.0427	0.9895
Post-policy 1, treatment	0.1456	0.0482	0.9805
Post-policy 1, comparison	0.1599	0.0488	0.9751
Post-policy 2, treatment	0.1483	0.0443	0.9713
Post-policy 2, comparison	0.1667	0.0407	0.9672

Notes: DD findings from LPMs with robust standard errors clustered on age estimated using full sample, except "lives in same state as parent" model, which is based on parental information sub-sample. Enactment effects are from interaction of treatment group and indicator for Mar-Sep 2010, while implementation effects are from interaction of treatment group and indicator for Oct 2010-Nov 2013. Covariates: age, gender, race/ethnicity, married in first SIPP month, student, age-specific year-state urates, share college grads in state, year*month fixed effect, state fixed effect and state linear trend. *, ** and ***denote statistical significance at 10, 5 and 1 percent.

Table 3: Difference-in-difference findings – Flow dependent variables				
	(1) Moved into parent's household	***(2) Moved into parent's state*** *(Parental Information Sub-sample)*	***(3) Moved out of parent's household***	***(4) Moved out of parent's state*** *(Parental Information Sub-sample)*
Enactment effect	0.0021	-0.0003	0.0018	-0.0005
	(0.0022)	(0.0468)	(0.0026)	(0.0017)
Implementation effect	0.0017	-0.0878	-0.0037*	-0.0042**
	(0.0047)	(0.0849)	(0.0017)	(0.0012)
N of obs	254272	7839	115159	129469
Pre-policy, treatment	0.0130	0.7016	0.0374	0.0326
Pre-policy, control	0.0118	0.7883	0.0343	0.0278
Post-policy 1, treatment	0.0193	0.5536	0.0448	0.0393
Post-policy 1, control	0.0148	0.6538	0.0388	0.0342
Post-policy 2, treatment	0.0233	0.4470	0.0454	0.0417
Post-policy 2, control	0.0184	0.6141	0.0457	0.0405
	(5) Moved out of other's household	***(6) Moved out of living alone***	***(7) Start to get SNAP***	***(8) Start to get WIC (Females only)***
Enactment effect	0.0031*	0.0029***	-0.0008	-0.0020
	(0.0014)	(0.0007)	(0.0009)	(0.0015)
Implementation effect	0.0002	0.0004	-0.0008*	-0.0010
	(0.0010)	(0.0005)	(0.0003)	(0.0006)
N of obs	206667	317929	299855	171859
Pre-policy, treatment	0.0067	0.0040	0.0108	0.0075
Pre-policy, control	0.0043	0.0034	0.0090	0.0060
Post-policy 1, treatment	0.0098	0.0063	0.0097	0.0061
Post-policy 1, control	0.0050	0.0033	0.0095	0.0063
Post-policy 2, treatment	0.0066	0.0033	0.0089	0.0053
Post-policy 2, control	0.0044	0.0029	0.0084	0.0048

Notes: All notes from Table 2 apply to Table 3.

Table 4: Sub-samples based on young adults' characteristics – Stock dependent variables						
	A. Lives in parent's household		***B. Covered by SNAP***		***C. Covered by WIC***	
Private HI coverage	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
Enactment effect	0.0180	0.0399**	-0.0089	-0.0072**	-0.0176	-0.0039
	(0.0097)	(0.0112)	(0.0193)	(0.0020)	(0.0128)	(0.0049)
Implementation effect	0.0144	0.0940***	-0.0156***	-0.0034	-0.0014	-0.0082***
	(0.0194)	(0.0223)	(0.0026)	(0.0020)	(0.0055)	(0.0019)
N of obs	158596	214957	158596	214957	81426	109913
Gender	**Male**	**Female**	**Male**	**Female**		
Enactment effect	0.0238	0.0343**	-0.0028	-0.0174		
	(0.0141)	(0.0109)	(0.0026)	(0.0163)		
Implementation effect	0.0617*	0.0549**	-0.0112**	-0.0199**		
	(0.0244)	(0.0180)	(0.0034)	(0.0057)		
N of obs	182214	191339	182214	191339		
Race/ethnicity	**Non-white**	**White**	**Non-white**	**White**	**Non-white**	**White**
Enactment effect	0.0253	0.0363***	-0.0149	-0.0064	-0.0068	-0.0112***
	(0.0180)	(0.0042)	(0.0205)	(0.0047)	(0.0194)	(0.0026)
Implementation effect	0.0598*	0.0617**	-0.0308***	-0.0018	-0.0023	-0.0052
	(0.0285)	(0.0179)	(0.0057)	(0.0037)	(0.0106)	(0.0045)
N of obs	138582	234971	138582	234971	73456	117883
Marital status	**Not married**	**Married**	**Not married**	**Married**	**Not married**	**Married**
Enactment effect	0.0342***	0.0093	-0.0065	-0.0169	-0.0056	-0.0190*
	(0.0071)	(0.0082)	(0.0084)	(0.0092)	(0.0078)	(0.0092)
Implementation effect	0.0388	0.0259**	-0.0210**	-0.0065	-0.0041	-0.0102
	(0.0246)	(0.0078)	(0.0054)	(0.0133)	(0.0034)	(0.0063)
N of obs	248803	124750	248803	124750	119224	72115
Whether living with own children	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**

Enactment effect	0.0376***	-0.0030	-0.0008	-0.0104	0.0030	-0.0246
	(0.0093)	(0.0080)	(0.0048)	(0.0321)	(0.0030)	(0.0169)
Implementation effect	0.0642*	0.0004	-0.0030	-0.0162*	0.0041	-0.0137***
	(0.0281)	(0.0073)	(0.0041)	(0.0078)	(0.0025)	(0.0011)
N of obs	248319	125234	248319	125234	106737	84602
Education	**High school or less**	**More than high school**	**High school or less**	**More than high school**	**High school or less**	**More than high school**
Enactment effect	0.0117	0.0383***	-0.0124	-0.0069	-0.0137	-0.0086
	(0.0137)	(0.0075)	(0.0225)	(0.0077)	(0.0133)	(0.0096)
Implementation effect	0.0168	0.0806**	-0.0252*	-0.0178***	-0.0029	-0.0087*
	(0.0182)	(0.0236)	(0.0101)	(0.0034)	(0.0078)	(0.0036)
N of obs	131790	241763	131790	241763	60629	130710
Student status	**Non-student**	**Student**	**Non-student**	**Student**	**Non-student**	**Student**
Enactment effect	0.0233***	0.0466**	-0.0099	-0.0170	-0.0110	-0.0023
	(0.0048)	(0.0167)	(0.0106)	(0.0235)	(0.0067)	(0.0174)
Implementation effect	0.0565**	0.0563	-0.0169**	-0.0180	-0.0072*	-0.0018
	(0.0186)	(0.0301)	(0.0045)	(0.0114)	(0.0033)	(0.0085)
N of obs	306478	67075	306478	67075	154035	37304
Work-limiting condition	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
Enactment effect	0.0341**	-0.0299	-0.0070	-0.0334	-0.0104	-0.0223
	(0.0086)	(0.0495)	(0.0085)	(0.0210)	(0.0086)	(0.0355)
Implementation effect	0.0685**	-0.0176	-0.0186***	0.0344***	-0.0061*	-0.0298
	(0.0200)	(0.0489)	(0.0028)	(0.0081)	(0.0027)	(0.0222)
N of obs	347632	25921	347632	25921	179265	12074
Employed	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**
Enactment effect	0.0417*	0.0281***	-0.0129	-0.0031	-0.0108	-0.0080
	(0.0167)	(0.0032)	(0.0173)	(0.0071)	(0.0146)	(0.0068)
Implementation effect	0.0519*	0.0595**	-0.0151*	-0.0168***	-0.0127	-0.0038
	(0.0212)	(0.0187)	(0.0074)	(0.0037)	(0.0093)	(0.0033)
N of obs	101569	271984	101569	271984	61301	130038

Similar prior state law	No	Yes	No	Yes	No	Yes
Enactment effect	0.0080	0.0315**	-0.0203	-0.0066	-0.0176	-0.0089
	(0.0143)	(0.0082)	(0.0193)	(0.0099)	(0.0099)	(0.0102)
Implementation effect	0.0736*	0.0452**	-0.0200	-0.0156	-0.0089	-0.0058
	(0.0298)	(0.0160)	(0.0129)	(0.0095)	(0.0071)	(0.0043)
N of obs	125555	247998	125555	247998	64971	126368

Notes: All notes from Table 2 apply to Table 4.

Table 5: Sub-samples based on young adults' parent's characteristics – Stock dependent variables						
	A. Lives in parent's household		***B. Covered by SNAP***		***C. Covered by WIC***	
Parent's private HI coverage	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Enactment effect	0.0572***	-0.0237	-0.0085	-0.0011	-0.0119	0.0025
	(0.0115)	(0.0201)	(0.0113)	(0.0155)	(0.0209)	(0.0215)
Implementation effect	0.0409	-0.0098	-0.0241**	-0.0250	0.0053	-0.0078
	(0.0233)	(0.0157)	(0.0083)	(0.0128)	(0.0118)	(0.0129)
N	95657	38520	95657	38520	44906	17802
Parent's age	**54 or above**	**Below 54**	**54 or above**	**Below 54**	**54 or above**	**Below 54**
Enactment effect	0.0429**	0.0040	0.0109	-0.0416**	-0.0216	0.0130
	(0.0156)	(0.0152)	(0.0231)	(0.0133)	(0.0169)	(0.0266)
Implementation effect	0.0231	0.0074	-0.0082	-0.0589***	-0.0050	0.0157
	(0.0203)	(0.0141)	(0.0164)	(0.0145)	(0.0137)	(0.0137)
N	75753	58424	75753	58424	34849	27859
Parent's education attainment	**More than high school**	**High school or less**	**More than high school**	**High school or less**	**More than high school**	**High school or less**
Enactment effect	0.0396***	0.0263	-0.0033	-0.0195	-0.0041	-0.0103
	(0.0095)	(0.0292)	(0.0087)	(0.0209)	(0.0142)	(0.0387)
Implementation effect	0.0410	-0.0138	-0.0314***	-0.0030	0.0012	0.0137
	(0.0242)	(0.0112)	(0.0054)	(0.0221)	(0.0112)	(0.0195)
N	88732	45445	88732	45445	41109	21599
Parent's occupation	**White collar**	**Blue collar**	**White collar**	**Blue collar**	**White collar**	**Blue collar**
Enactment effect	0.0428***	0.0130	-0.0127	-0.0063	-0.0266*	0.0223
	(0.0054)	(0.0195)	(0.0168)	(0.0139)	(0.0105)	(0.0414)
Implementation effect	0.0397*	-0.0080	-0.0451***	-0.0151	-0.0091	0.0143
	(0.0169)	(0.0212)	(0.0046)	(0.0183)	(0.0084)	(0.0153)
N	86527	47650	86527	47650	41074	21634

Parent's marital status	**Married**	**Unmarried**	**Married**	**Unmarried**	**Married**	**Unmarried**
Enactment effect	0.0416***	0.0175	-0.0130	-0.0157	-0.0117	-0.0000
	(0.0098)	(0.0178)	(0.0199)	(0.0143)	(0.0125)	(0.0255)
Implementation effect	0.0400	-0.0096	-0.0244	-0.0290	-0.0022	0.0080
	(0.0223)	(0.0130)	(0.0131)	(0.0196)	(0.0092)	(0.0145)
N	87131	47046	87131	47046	40693	22015
Parent's state	**With similar prior law**	**Without**	**With similar prior law**	**Without**	**With similar prior law**	**Without**
Enactment effect	0.0302*	0.0296	-0.0143	-0.0038	-0.0063	-0.0061
	(0.0132)	(0.0233)	(0.0144)	(0.0362)	(0.0240)	(0.0246)
Implementation effect	0.0185	0.0244	-0.0202	-0.0324**	0.0062	-0.0062
	(0.0187)	(0.0165)	(0.0127)	(0.0087)	(0.0120)	(0.0139)
N	89193	44984	89193	44984	41509	21199

Notes: All notes from Table 2 apply to Table 5, except in Table 5 all of the models are based on the parental information sub-sample.

Table 6: Difference-in-difference-in-difference findings – Stock dependent variables			
	(1) Lives in parent's household	***(2) Lives with other (non-)relatives***	***(3) Lives alone***
Enactment effect	0.0566**	-0.0216	-0.0350**
	(0.0200)	(0.0284)	(0.0113)
Implementation effect	0.0485*	-0.0351	-0.0134*
	(0.0224)	(0.0196)	(0.00582)
N of obs	134177	134177	134177
Pre-policy, treatment	0.9453	0.0416	0.0131
Pre-policy, comparison	0.9236	0.0583	0.0181
Post-policy 1, treatment	0.8769	0.0884	0.0347
Post-policy 1, comparison	0.8399	0.1221	0.0380
Post-policy 2, treatment	0.8494	0.1039	0.0467
Post-policy 2, comparison	0.8104	0.1463	0.0433
	(4) Covered by SNAP	***(5) Covered by WIC (female only)***	***(6) Lives in the same state as parent***
Enactment effect	-0.0171	-0.0267*	0.0101
	(0.0225)	(0.0106)	(0.00633)
Implementation effect	-0.00576	-0.0000155	-0.0175*
	(0.0231)	(0.0135)	(0.00765)
N of obs	134177	62708	134177
Pre-policy, treatment	0.1073	0.0428	0.9920
Pre-policy, comparison	0.1259	0.0525	0.9895
Post-policy 1, treatment	0.1229	0.0375	0.9805
Post-policy 1, comparison	0.1703	0.0593	0.9751
Post-policy 2, treatment	0.1171	0.0315	0.9713
Post-policy 2, comparison	0.1714	0.0394	0.9672

Notes: DDD findings from LPMs with robust standard errors clustered on age estimated using parental information sub-sample. Enactment effects are from interaction of treatment, indicator for Mar-Sep 2010, and indicator for parent has private insurance in own name, while implementation effects are from interaction of treatment, indicator for Oct 2010-Nov 2013, and parent has private insurance in own name. Same covariates as Table 2.

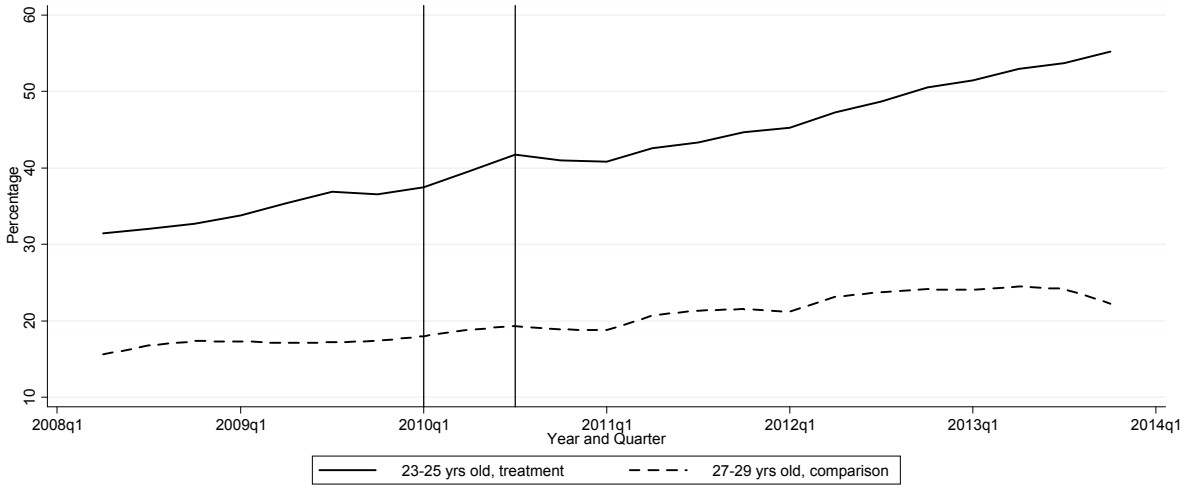

Figure 1: Percentage of Young Adults Living in Parent's Household

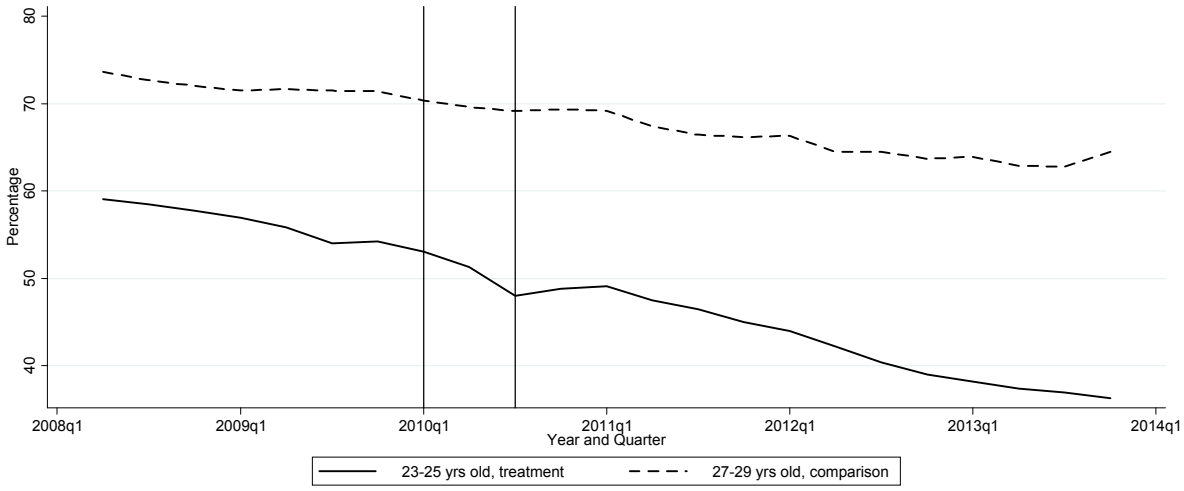

Figure 2: Percentage of Young Adults Living with Other Relatives/Non-relatives

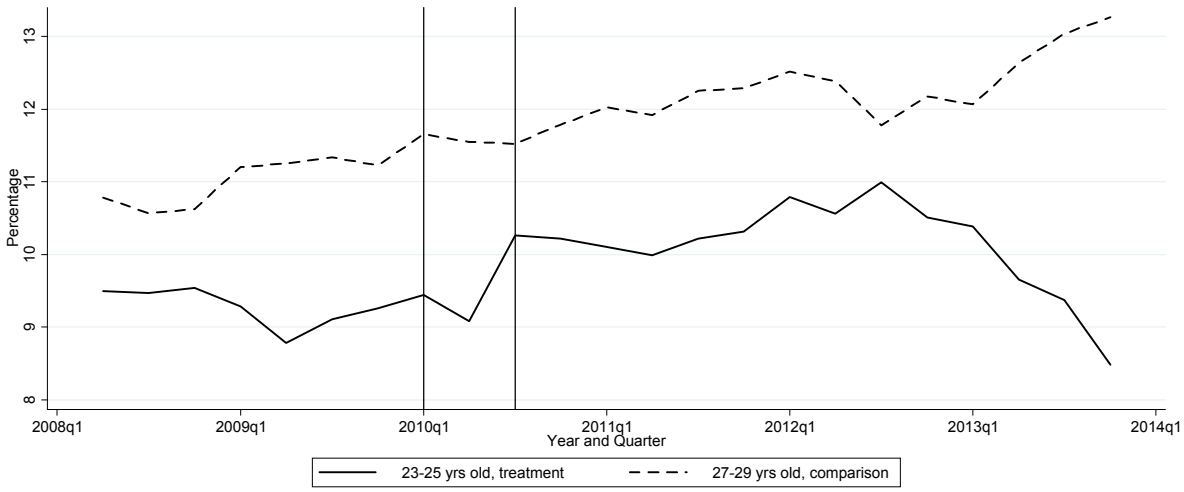

Figure 3: Percentage of Young Adults Living Alone

Notes: Sample weighted estimates from 2008 SIPP panel, using data from May 2008 to November 2013. The first vertical line indicates the first quarter of 2010 when the ACA was passed, and the second vertical line indicates the third quarter of 2010 when the dependent coverage mandatewas implemented. The estimate for a quarter averages reported as of the three interview months contained in that quarter.

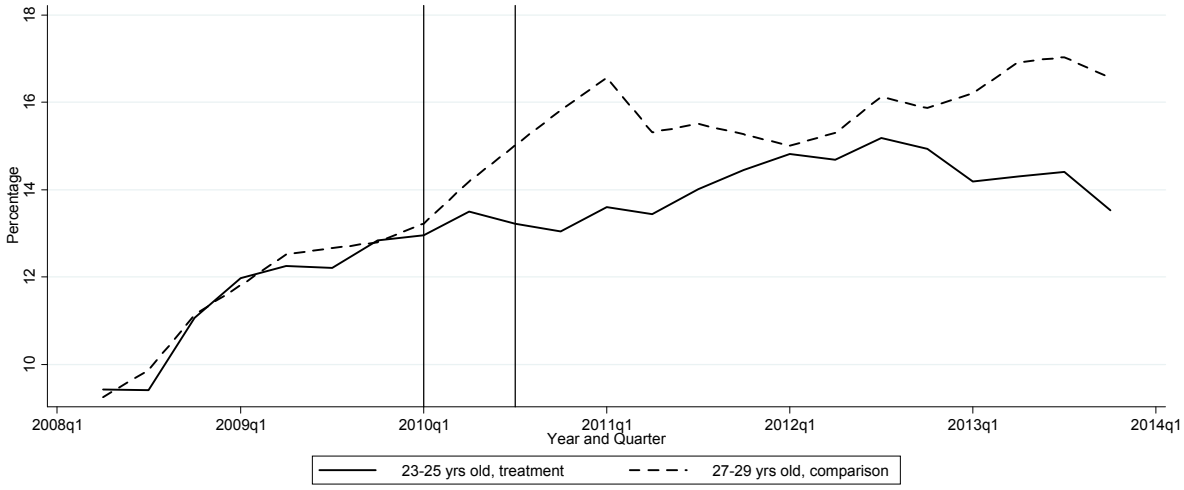

Figure 4: Percentage of Young Adults Covered by SNAP

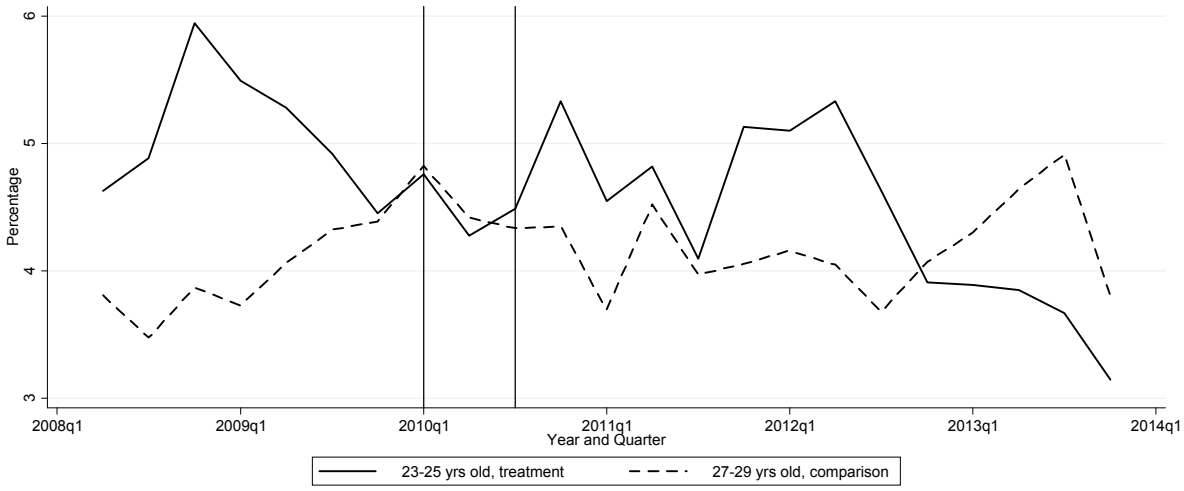

Figure 5: Percentage of Young Female Adults Covered by WIC

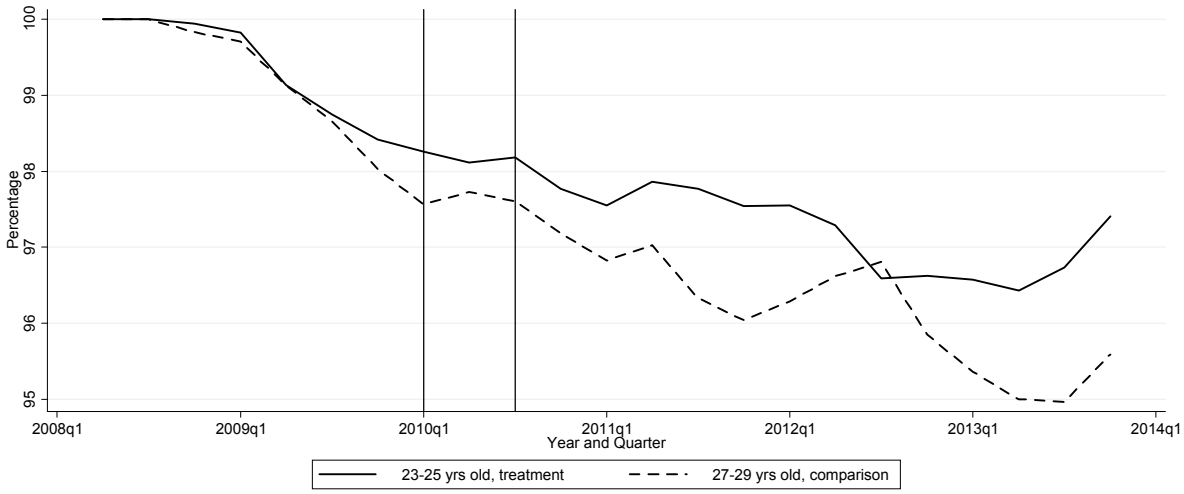

Figure 6: Percentage of Young Adults Living in the Same State as Parents

Notes: Sample weighted estimates from 2008 SIPP panel, using data from May 2008 to November 2013. The first vertical line indicates the first quarter of 2010 when the ACA was passed, and the second vertical line indicates the third quarter of 2010 when the dependent coverage mandatewas implemented. The estimate for a quarter averages reported as of the three interview months contained in that quarter.

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Appendix Table A1: Construction of samples	
Sample	Number of observations
SIPP 2008 panel	5,316,533
Limit to age 23-29	434,439
Drop age 26	60,886
Full sample: aged 23-25 & 27-28	373,553
Treatment group in full sample: aged 23-25	184,662
Comparison group in full sample: aged 27-29	188,891
Parental information sub-sample: Limit to young adults who have lived with a	134,177
parent in at least one month of SIPP and currently have a parent in SIPP	
Treatment group in parental information sub-sample	87,952
Comparison group in parental information sub-sample	46,225

Appendix Table A2: Tests for differences between treatment and comparison groups in pre-policy period trends: Stock dependent variables			
	(1) Lives in parent's household	***(2) Lives with other (non-)relatives***	***(3) Lives alone***
Treat*linear trend	0.0018	-0.0015	-0.0004
	(0.0010)	(0.0007)	(0.0006)
N of obs	143543	143543	143543
	(4) Covered by SNAP	***(5) Covered by WIC (female only)***	***(6) Lives in the same state as parent***
			(parental information sub-sample)
Treat*linear trend	-0.0003	-0.0011	0.0010**
	(0.0011)	(0.0008)	(0.0003)
N of obs	143543	74230	38989

Notes: All models from full sample limited to pre-policy enactment period, with exception of "lives in same state as parent" which is based on parental information sub-sample limited to pre-policy period. Findings from LPMs with robust standard errors clustered on age. Table shows estimated coefficients and standard errors from interaction of treatment group and linear time trend. Same covariates as Table 2 notes. *, ** and ***denote statistical significance at 10, 5 and 1 percent.

Appendix Table A3: Tests for differences between treatment and comparison groups in pre-policy period trends: Flow dependent variables				
	(1) Moved into parent's household	***(2) Moved into parent's state (parental information sub-sample)***	***(3) Moved out of parent's household***	***(4) Moved out of parent's state (parental information sub-sample)***
Treat*linear trend	0.0005	0.0050	-0.0002	-0.0002
	(0.0003)	(0.0052)	(0.0005)	(0.0005)
N of obs	101718	1680	36563	38645
	(5) Moved out of other's household	***(6) Moved out of living alone***	***(7) Start to get SNAP***	***(8) Start to get WIC (Female only)***
Treat*linear trend	0.0001	0.0001	0.0000	-0.0002**
	(0.0002)	(0.0001)	(0.0001)	(0.0001)
N of obs	84463	118269	113766	64428

Notes: All models from full sample limited to pre-policy enactment period, with exception of "moved out of/into same state as parent" which is based on parental information sub-sample limited to pre-policy period. Findings from LPMs with robust standard errors clustered on age. Table shows estimated coefficients and standard errors from interaction of treatment group and linear time trend. Same covariates as Table 2 notes. *, ** and ***denote statistical significance at 10, 5 and 1 percent.

Appendix Table A4: Difference-in-difference findings in parental information sub-sample			
	(1) Lives in parent's household	***(2) Lives with other (non-)relatives***	***(3) Lives alone***
Enactment effect	0.0303**	-0.0237***	-0.0066
	(0.0117)	(0.0052)	(0.0098)
Implementation effect	0.0210	-0.0291*	0.0081
	(0.0173)	(0.0128)	(0.0099)
N of obs	134177	134177	134177
	(4) Covered by SNAP	***(5) Covered by WIC (females only)***	***(6) Lives in the same state as parent***
Enactment effect	-0.0112	-0.0084	0.0036
	(0.0141)	(0.0207)	(0.0062)
Implementation effect	-0.0272**	0.0024	0.0073
	(0.0086)	(0.0117)	(0.0066)
N of obs	134177	62708	134177

Notes: These are the same models shown in Table 2 estimated using the parental information sub-sample.

Appendix Table A5: Sensitivity checks, Stock variables						
	(1) Lives in parent's household	*(2) Lives with other (non-)relatives*	*(3) Lives alone*	*(4) Covered by SNAP*	*(5) Covered by WIC (females only)*	*(6) Lives in the same state as parent (parental information sub-sample)*
	A. Drop states with prior state laws covering young adults over age 26					
Enactment effect	0.0257***	-0.0333***	0.0076	-0.0117	-0.0160**	-0.0024
	(0.0039)	(0.0067)	(0.0080)	(0.0095)	(0.0057)	(0.0059)
Implementation effect	0.0602**	-0.0685**	0.0083	-0.0177***	-0.0082***	0.0044
	(0.0192)	(0.0172)	(0.0073)	(0.0029)	(0.0014)	(0.0062)
N of obs	292813	292813	292813	292813	149631	100732
	B: Drop states with prior state laws that had residency requirements					
Enactment effect	0.0256**	-0.0319***	0.0063	-0.0111	-0.0162**	-0.0046
	(0.0086)	(0.0046)	(0.0113)	(0.0074)	(0.0057)	(0.0076)
Implementation effect	0.0586**	-0.0629**	0.0043	-0.0239***	-0.0099***	0.0043
	(0.0191)	(0.0166)	(0.0080)	(0.0028)	(0.0009)	(0.0071)
N of obs	298389	298389	298389	298389	152270	104906
	C: Un-weighted models					
Enactment effect	0.0203**	-0.0176	-0.0027	-0.0123	-0.0104	0.0028
	(0.0058)	(0.0089)	(0.0076)	(0.0084)	(0.0074)	(0.0056)
Implementation effect	0.0580**	-0.0555**	-0.0024	-0.0192***	-0.0068**	0.0012
	(0.0155)	(0.0155)	(0.0037)	(0.0026)	(0.0018)	(0.0048)
N of obs	373553	373553	373553	373553	191339	134177
	D: Broader treatment group (age 19-25) and comparison group (age 27-33)					
Enactment effect	0.0462***	-0.0395***	-0.0067	-0.0068	-0.0050	0.0070
	(0.0100)	(0.0103)	(0.0052)	(0.0050)	(0.0041)	(0.0041)
Implementation effect	0.0960***	-0.0811***	-0.0149**	-0.0196***	-0.0136***	0.0145***

	(0.0141)	(0.0124)	(0.0050)	(0.0041)	(0.0023)	(0.0043)
N of obs	908157	908157	908157	908157	463384	387333
	E: Narrower treatment group (age 24-25) and comparison group (age 27-28)					
Enactment effect	0.0283**	-0.0301	0.0018	-0.0017	-0.0039	-0.0005
	(0.0079)	(0.0143)	(0.0144)	(0.0119)	(0.0055)	(0.0090)
Implementation effect	0.0327	-0.0345	0.0017	-0.0159***	-0.0028**	0.0001
	(0.0162)	(0.0171)	(0.0014)	(0.0018)	(0.0009)	(0.0038)
N of obs	248084	248084	248084	248084	126885	85938
	F: Models clustered by age-year dummy					
Enactment effect	0.0304**	-0.0296**	-0.0008	-0.0103	-0.0101*	0.0036
	(0.0120)	(0.0113)	(0.0081)	(0.0075)	(0.0058)	(0.0048)
Implementation effect	0.0599***	-0.0598***	-0.0001	-0.0177***	-0.0066**	0.0073*
	(0.0123)	(0.0105)	(0.0058)	(0.0041)	(0.0031)	(0.0040)
N of obs	373553	373553	373553	373553	191339	134177

Notes: Each panel shows DD findings from a model similar to those shown in Table 2, but with the change indicated implemented as a sensitivity check.

Appendix Table A6: Sensitivity checks, Flow variables								
	(1) Moved into parent's household	(2) Moved into parent's state (parental information sub-sample)	(3) Moved out of parent's household	(4) Moved out of parent's state (parental information sub-sample)	(5) Moved out of other's household	(6) Moved out of living alone	(7) Start to get SNAP	(8) Start to get WIC (Females only)
	A. Drop states with prior state laws covering young adults over age 26							
Enactment effect	0.0020	-0.0458	-0.0005	-0.0011	0.0048**	0.0039***	-0.0012	-0.0031*
	(0.0015)	(0.0536)	(0.0038)	(0.0021)	(0.0014)	(0.0007)	(0.0012)	(0.0014)
Implementation effect	0.0020	-0.0895	-0.0019	-0.0024	0.0008	0.0003	-0.0009*	-0.0012
	(0.0039)	(0.0687)	(0.0029)	(0.0019)	(0.0010)	(0.0008)	(0.0004)	(0.0009)
N of obs	203468	6114	86089	97054	166303	249404	234366	134281
	B: Drop states with prior state laws that had residency requirements							
Enactment effect	0.0020	-0.0661	-0.0019	-0.0010	0.0048**	0.0039***	-0.0015	-0.0030**
	(0.0014)	(0.0344)	(0.0038)	(0.0031)	(0.0014)	(0.0008)	(0.0011)	(0.0011)
Implementation effect	0.0012	-0.1231	-0.0025	-0.0029*	0.0011	0.0007	-0.0012**	-0.0013
	(0.0039)	(0.0662)	(0.0021)	(0.0013)	(0.0009)	(0.0006)	(0.0004)	(0.0008)
N of obs	204630	6103	90391	101292	167007	254317	239066	136612
	C: Un-weighted models							
Enactment effect	0.0019	0.0106	0.0027	0.0008	0.0021**	0.0025***	-0.0017	-0.0019
	(0.0027)	(0.0487)	(0.0040)	(0.0027)	(0.0007)	(0.0003)	(0.0012)	(0.0015)
Implementation effect	0.0022	-0.0889	-0.0038**	-0.0037**	-0.0004	0.0001	-0.0013**	-0.0010
	(0.0049)	(0.0625)	(0.0014)	(0.0012)	(0.0008)	(0.0004)	(0.0004)	(0.0006)

N of obs	254242	7808	115159	129469	206706	317998	299920	171894
	D: Broader treatment group (age 19-25) and comparison group (age 27-33)							
Enactment effect	0.0061**	0.0105	-0.0010	-0.0007	0.0028**	0.0013*	-0.0005	-0.0016**
	(0.0025)	(0.0330)	(0.0036)	(0.0026)	(0.0011)	(0.0006)	(0.0005)	(0.0007)
Implementation effect	0.0140**	0.0015	-0.0032**	-0.0032**	0.0008	0.0001	-0.0001	-0.0015***
	(0.0054)	(0.0556)	(0.0012)	(0.0011)	(0.0007)	(0.0003)	(0.0005)	(0.0004)
N of obs	551365	16030	347474	377229	457790	796031	741238	422470
	E: Narrower treatment group (age 24-25) and comparison group (age 27-28)							
Enactment effect	0.0007	-0.0581*	0.0042	0.0014	0.0025**	0.0027**	0.0004	-0.0006
	(0.0030)	(0.0218)	(0.0034)	(0.0014)	(0.0008)	(0.0005)	(0.0008)	(0.0015)
Implementation effect	-0.0032	-0.1996**	-0.0029	-0.0052**	0.0002	0.0008**	-0.0009*	-0.0010
	(0.0055)	(0.0411)	(0.0022)	(0.0014)	(0.0007)	(0.0002)	(0.0004)	(0.0008)
N of obs	172514	5693	73030	82771	138717	208845	197618	113117
	F: Models clustered by age-year dummy							
Enactment effect	0.0020	-0.0010	0.0018	-0.0005	0.0031**	0.0029***	-0.0008	-0.0020
	(0.0025)	(0.0430)	(0.0023)	(0.0022)	(0.0013)	(0.0007)	(0.0011)	(0.0014)
Implementation effect	0.0017	-0.0875*	-0.0037**	-0.0042***	0.0002	0.0004	-0.0008	-0.0010
	(0.0025)	(0.0493)	(0.0018)	(0.0014)	(0.0009)	(0.0005)	(0.0007)	(0.0008)
N of obs	254242	7808	115159	129469	206706	317998	299920	171894
	G: Drop time periods in 2010 during which a young adult's move may cross over between a month in the pre-policy period and a month in the post-policy period							
Enactment effect	0.0040	0.0370	0.0009	-0.0027	0.0049*	0.0039***	-0.0004	-0.0030
	(0.0030)	(0.0414)	(0.0026)	(0.0017)	(0.0021)	(0.0007)	(0.0009)	(0.0015)
Implementation effect	0.0018	-0.0866	-0.0029*	-0.0035*	0.0001	0.0003	-0.0008	-0.0012

	(0.0047)	(0.0865)	(0.0012)	(0.0017)	(0.0011)	(0.0004)	(0.0005)	(0.0007)
N of obs	227902	7035	104273	117127	185323	286078	269936	154778
	H: Drop 2010 all together from the sample to avoid this cross over problem							
Implementation effect	0.0019	-0.0844	-0.0027*	-0.0031*	0.0002	0.0003	-0.0010*	-0.0012
	(0.0049)	(0.0855)	(0.0013)	(0.0014)	(0.0011)	(0.0004)	(0.0005)	(0.0009)

Notes: Each panel shows DD findings from a model similar to those shown in Table 3, but with the change indicated implemented as a sensitivity check.

Appendix Table A7: Falsification Tests, Alternative Outcomes		
	Number of children under 18 in the family	***At least one child under 18 in the family***
Enactment effect	-0.0077	-0.0074
	(0.0200)	(0.0080)
Implementation effect	0.0275	0.0051
	(0.0219)	(0.0143)
N of obs	373553	373553
	Number of children aged 18 or above in the family	***At least one child aged 18 or above in the family***
Enactment effect	0.0572**	0.0371***
	(0.0202)	(0.0069)
Implementation effect	0.1032**	0.0566**
	(0.0389)	(0.0178)
N of obs	373553	373553

Notes: Table shows same models as those shown in Table 2, but with different outcome measures.

Appendix Table A8: Wild cluster bootstrapping (unweighted models)			
	(1) Lives in parent's household	(2) Lives with other (non-)relatives	(3) Lives alone
Enactment effect	0.0203**	-0.0176	-0.0027
	(0.0058)	(0.0089)	(0.0076)
	[0.226]	[0.152]	[0.584]
Implementation effect	0.0580**	-0.0555**	-0.0024
	(0.0155)	(0.0155)	(0.0037)
	[0.034]	[0.036]	[0.572]
N of obs	373553	373553	373553
	(4) Covered by SNAP	(5) Covered by WIC (females only)	(6) Lives in the same state as parent
			(parental information sub-sample)
Enactment effect	-0.0123	-0.0104	0.0028
	(0.0084)	(0.0074)	(0.0056)
	[0.248]	[0.29]	[0.622]
Implementation effect	-0.0192***	-0.0068**	0.0012
	(0.0026)	(0.0018)	(0.0048)
	[0.002]	[0.002]	[0.708]
N of obs	373553	191339	134177
Note: Table reproduces unweighted estimates, standard errors and asterisks shown in Appendix Table 5, Panel C. The p-values using an alternative approach, the wild cluster bootstrap method, are reported in the brackets under the standard error (generated using STATA package "clustse"). Number of bootstrap replications is 1000. Models are clustered by age.			