APPROVAL SHEET

Title of Dissertation: Better off at Age 19 or 26?: A beginning step to testing the ability of the Affordable Care Act to meeting the grand challenge of closing health insurance gaps for children and youth with special healthcare needs as they transition into adulthood

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Abstract

Children and Youth with special healthcare needs (CYSHCN) experience gaps in health insurance coverage as they transition into adulthood by aging out of children's public health insurance programs or off their parents' private health insurance policies (Anderson, Dobkin, & Gross, 2012; Fishman, 2001). CYSHCN are a vulnerable, high medical care use population and the continuity of their insurance coverage is a key part of their healthcare transition into adulthood.

Effective September 23, 2010, the Affordable Care Act (ACA) stipulated that private insurance policies were required to cover children under their parents' policies until age 26. This dissertation explores whether this policy change (e.g. moving the cutoff for private insurance from age 19 to age 26) helped youth with special healthcare needs as well as overall youth in terms of lessening the number of insurance gaps they experienced as they transitioned to adulthood.

A literature review of uninsurance on children and young adults in general as well as for CYSHCN was conducted. Four themes emerged: policy changes are associated with insurance discontinuity in children's public insurance programs, the lack of a common definition of CYSHCN to apply to standardized datasets, the existence of demographic effects with a focus on age and race/ethnicity and the association of medical insurance transition with key ages.

Hill and Shaefer's (2011) conceptual model of the dynamics of child health insurance coverage was used along with the 2008 Survey of Income and Program Participation (SIPP) in a difference in difference research design. An algorithm to subset out CYSHCN from the SIPP was developed. The difference in difference regression equation encompassed both CYSHCN and overall youth before and after the intervention in the following two age groups: 19 to 26

(treatment group) and 27 to 29 (control group). Ordinary Least Squares (OLS), Fixed Effects (FE), Random Effects (RE) models were employed. Due to the SIPP's stratified sampling, techniques such as robust standard errors and robust clustering of the standard errors by state were used in addition to the regular standard error. OLS, FE and RE estimates found that the policy significantly lessened insurance gaps for youth with special healthcare needs. OLS estimates found that the policy significantly lessened insurance gaps for overall youth but both RE and FE provided no strong evidence of reduced insurance gaps for overall youth. This study also found that the policy's impact was greater for CYSHCN than for overall youth. Falsification tests assuming that the reform took place at various placebo dates were also performed. Falsification results were consistent in all specifications and strengthen the main results and conclusions.

The experiences of CYSHCN are a litmus test of how the healthcare delivery system and infrastructure is working in general, with insurance coverage availability being an important policy lever. This dissertation proposal's exploration of the ACA age 26 policy is only a first step in the process of studying insurance adequacy for transitioning CYSHCN. More extensive research needs to be done in the area of youth with special healthcare needs and their retention of medical insurance as they transition into adulthood.

Better off at Age 19 or 26?: A beginning step to testing the ability of the Affordable Care Act to meeting the grand challenge of closing health insurance gaps for children and youth with special healthcare needs as they transition into adulthood

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Dedication

This dissertation is dedicated to my brother, Atom, whom as a young adult with special healthcare needs, lacked access to adequate health insurance and passed away due to a health disparity.

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Chapter 1: Introduction

Children and Youth with special healthcare needs (CYSHCN) lack access to adequate health insurance options putting them and their families at risk for unmet medical needs and financial hardship. In addition, they also experience gaps in coverage as they transition into adulthood by aging out of children's public health insurance programs or off their parents' private health insurance policies (Anderson, Dobkin, & Gross, 2012; Fishman, 2001).

The Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau (MCHB) defines CYSHCN as those who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally (McPherson et al., 1998).

Childhood chronic conditions often share similar consequences in terms of function and service use. The general public health emphasis in this area has been on identifying the functioning and service need consequences these children experience rather than on the identification of the presence of a chronic condition. Therefore, CYSHCN is an umbrella term that encompasses a diverse range of youth with disabilities that is not diseased based but rather is consequences based (Stein, Bauman, Westbrook, Coupey, & Ireys, 1993). The MCHB's standardized screener qualifies a child as CYSHCN when he or she experiences one or more of the following consequences for more than 12 months (Children with Special Health Care Needs Screener - CSHCNS-Fast-Facts.pdf, n.d.):

1) Need or use of prescription medications;

2) An above routine use of medical services compared to most children of same age;

3) Need or use of specialized therapies (physical, occupational, speech);

4) Need or use of mental health counseling (emotional, behavioral, developmental); or

5) Functionally limited in ability to do things most children of the same age can do.

Thus, based on the above criteria, CYSHCN are able to be classified as more or less complex, with "less complex" as qualifying on the first criterion alone (prescription medication use only) and increasing complexity as seen when a child meets two or more of the criteria or comorbidities. According to the National Survey of Children with Special Health Care Needs, CYSHCN ages 17 and under make up 15% of the population of United States children, with 8% qualifying on one screener criterion and 7% qualifying on two or more screener criteria. Twenty-three percent of households in the United States have one or more CYSHCN. Forty-two percent of households in the United States with CYSHCN have incomes consisting of 0-199% of the Federal Poverty Level (FPL) and 29% of CYSHCN households have incomes at 200-399% FPL. Sixty percent of CSHCN are White, 16% are Black and 17% of CYSHCN are Hispanic (NS-CSHCN 2009/10).

CYSHCN are less likely than other children to have adequate health insurance coverage (National Survey of Children's Health [NSCH] 2007). Adequate insurance is defined as having medical insurance that meets the following adequacy components: allows CYSHCN to see needed healthcare providers, covers needed services and has reasonable out of pocket expenses (NS-CSHCN, n.d.). The proportion of CYSHCN with adequate coverage has varied over time from 2001 to 2009/10. Among privately covered CYSHCN, the proportion with adequate coverage declined from 63% to 60% while among publicly covered CYSHCN the proportion

increased from 63% to 71% (Ghandour et al., 2015). The problem of adequate health insurance is worse for children whose conditions are more complex. CYSHCN qualifying on three or more screener criteria have a lower probability of having adequate insurance to cover needed services than those with fewer chronic conditions (NS-CSHCN 2009/10).

The insurance industry in the United States is primarily for profit. It is not in their best interest to cover all the needed medical expenditures of CYSHCN, a high use population for medical services (Ubel, 2014). CYSHCN account for 41% of total medical expenditures for children with technology dependent children having the most expensive care (Chevarley, 2006). Nationally, nearly half of families with private insurance in high deductible plans whose members have chronic conditions face substantial financial burden (Galbraith et al., 2011). The high rates of cost-sharing in private plans for these families lead to healthcare service underuse (Choudhry, Rosenthal, & Milstein, 2010), potentially exacerbating these children's chronic conditions and increasing their long-term healthcare costs. Families of CYSHCN experience negative impacts in terms of increased financial burden and increased time spent navigating the health insurance system. Nationally, 22% of CYSHCN families experienced financial hardship due to their child's medical condition and incurred out of pocket costs of $1,000 or more. Further, 18% of CYSHCN family members avoided changing jobs due to concerns of maintaining insurance (NS-CSHCN 2009/10).

Public insurance programs. Compared with the broader population, CYSHCN are the most affected by federal healthcare legislation because of their high healthcare utilization (Fishman, 2001). Government-funded programs for CYSHCN include Medicaid and the Children's Health Insurance Programs (CHIP) as well as the Title V Maternal and Child Health Block Grant Program.

Forty-four percent of CYSHCN are covered by Medicaid or CHIP (Rosenthal et al., 2012). Poor and near-poor children are disproportionately burdened with chronic conditions as compared to their higher income counterparts. The prevalence of severe chronic health conditions such as cancer, cystic fibrosis, severe asthma, HIV and sickle cell anemia are three to five times higher among Medicaid-insured children than privately insured children (Burwell et al., 2007). Medicaid is generally more comprehensive insurance for CYSHCN than private insurance or CHIP because of its mandatory Early and Periodic Screening, Diagnostic and Treatment (EPSDT) services benefit in place in every state for children age 18 and under (Rosenthal et al., 2012).

There is great state variation in the administration of Medicaid and CHIP. Some states administer these two programs together as they are very similar in design, while other states administer these two programs separately or both together and separately for different populations. These various government programs provide vital services to CYSHCN but are covering different subsets of children at different times (Rosenthal et al., 2012). CYSHCN who receive Medicaid are enrolled into different eligibility categories that do not directly correspond to the MCHB definition of CYSHCN as specified in their standardized screener. There is evidence that these two programs work best for children when administered together (see accompanying Literature Review Theme 1).

One pathway for Medicaid eligibility is for a family to have income under their state's set FPL for the child's age which ranges from 133% to 319% FPL ("medicaid-and-chip-eligibility-levels-table.pdf," n.d.). States also have varying FPL for CHIP ranging from under 200% FPL to over 300% FPL (Rosenthal et al., 2012). Unlike Medicaid, which is an entitlement, federal dollars to states on CHIP are capped so that states have more flexibility in CHIP's design than

for Medicaid (Rosenthal et al., 2012, p. 12-14).

In 25 states, children living at home with disabilities that qualify for an institutional level of care are eligible for Medicaid regardless of parental income (Rosenthal et al., 2012, p. 23). In addition, the Title V program will pay for healthcare services for CSHCN, but the program has very restrictive criteria limiting services to children with specific conditions and/or certain income limits. Title V, like CHIP, is also not an entitlement program. Therefore, funding is capped but Title V will generally pay for services not available through Medicaid or CHIP. Collaboration between the Title V program, Medicaid and CHIP is required by several federal statutes and regulations (Rosenthal et al., 2012).

All of the above described public programs have strict eligibility and income requirements as well as frequent recertification procedures and considerable state variation as to their administration. Due to these factors, eligible children often cycle on and off these programs leaving them vulnerable to periods without insurance. Even in the state of Massachusetts, an early adopter of healthcare reform, CYSHCN who were uninsured at any time during the previous year were nearly five times more likely to experience an unmet service need such as specialty medical care, dental care, therapy services, mental health services than privately insured CYSHCN (Hill, Freeman, Yucel, & Kuhlthau, 2008).

Terms such as continuity of insurance and/or insurance discontinuity refer to characterizations of the processes related to insurance status or an assessment of time with regard to coverage or gaps in insurance (Guevara et al., 2014). While critical for all CYSHCN, this issue of insurance continuity is especially crucial for young adults with special healthcare needs than for their younger counterparts.

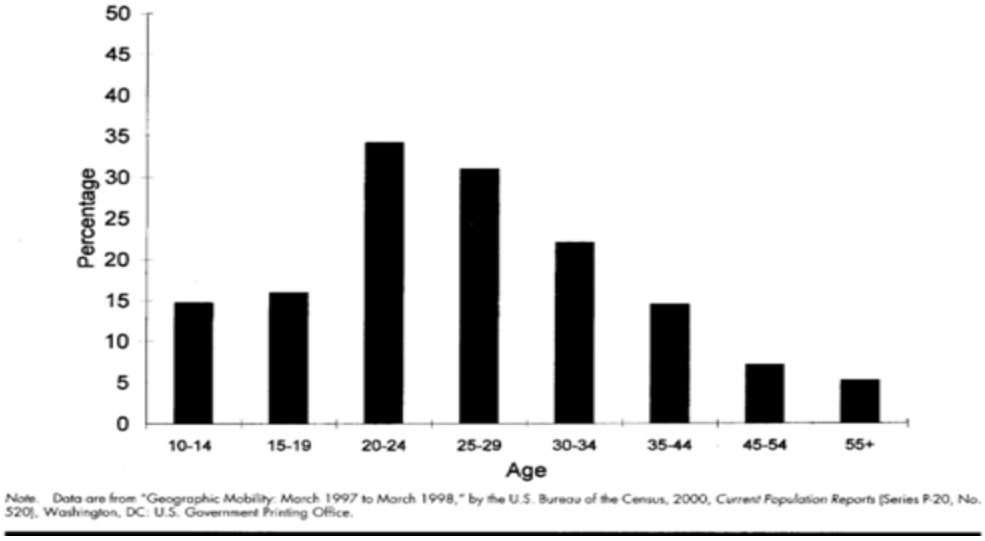
Emerging Adulthood. The age of majority, which is the legally defined age when a person

is considered an adult with all the rights and responsibilities of adulthood, varies by state but in most cases is 18 years. Rights acquired upon reaching the age of majority include the right to vote and the right to consent to marriage. In general, the parental duty of support to a child also ceases when the child reaches the age of majority ("Age of Majority Law & Legal Definition," n.d.). However, at this life stage, most young adults are resource poor and economically dependent on their parents.

The concept of emerging adulthood (EA) is useful in understanding this period of life. EA is theoretically and empirically distinct from adolescence and young adulthood (YA) and primarily applies to youth in developed countries that do not have children, do not live in their own home and do not have sufficient income to become fully independent in their early to late 20s. EA roughly spans ages 18 to 25 while YA spans approximately one's 30's (Arnett, 2000).

During EA, many different directions are possible and the process through which one transitions from EA to YA is gradual and fluid. The exploratory quality of EA is reflected in frequent residential changes and the instability of residential status (Arnett, 2000, p. 471-2). These changes include moving back with one's parents and then out again at least once in the course of one's late teens and 20's (Goldscheider & Goldscheider, 1994). These life circumstances are in line with the Affordable Care Act's (ACA's) rationale of moving the age threshold from 19 to 26 for dependent coverage.

Figure 1: Residential Change by Age, 1998 (Arnett, 2000 p.472)



Note. Data are from "Geographic Mobility: March 1997 to March 1998," by the U.S. Bureau of the Census, 2000, *Current Population Reports* (Series P-20, No. 520). Washington, DC: U.S. Government Printing Office.

Emerging adults disproportionately lack health insurance as a group (Adams et al. 2007). Insurance coverage patterns for young adults with special healthcare needs also reflect this trend. An Ohio-based study found that roughly 30% of that state's young adults with special health care needs ages 19 to 26 lacked health insurance as compared to 5% of their younger CYSHCN counterparts ages 13 to 18 (Goudie & Carle, 2011). Another study found that after adjusting for sociodemographic factors, uninsured young adults ages 19 to 29 with disabling chronic conditions had eight times greater odds of reporting unmet healthcare needs and six times greater odds of having no usual source of care relative to insured respondents with disabling chronic conditions (Callahan & Cooper, 2006).

The "age out" problem also occurs as definitions of disability for public programs (e.g., Supplemental Security Income [SSI]) change in adulthood. A sort of reshuffling occurs because disability is defined at the adult level very differently than at the childhood level and

transitioning young adults with special healthcare needs and their families must figure out how to fit into the new criteria in order to obtain medical insurance on the basis of disability. Un-employability is the standard test for adult disability for both public and private insurance coverage (Fishman, 2001). This criterion about the inability to work in order to obtain health insurance in both the private and public sectors excludes two key groups of young adults with special health care needs: those with functional disabilities whom can work and those with chronic conditions that are expensive to treat but may not limit their ability to work (Fishman, 2001).

Public insurance, such as CHIP and Medicaid, ceases at age 19 for youth (Centers for Medicare & Medicaid, n.d.). Public options at the adult level now vary by state as some states have opted to implement the ACA's Medicaid expansion while other states have not. Before the ACA, private insurance for youth ceased at age 19 with exceptions being made if the child was still in school or did not work (Goldman, 2013).

Before the ACA Medicaid expansion, in order to qualify for public insurance as an adult, meeting the SSI criteria was generally required for most adults with disabilities. Meeting SSI criteria involves having functional loss, medical severity, and an inability to work as opposed to having expensive costs associated with medical treatment (Office of Retirement and Disability Policy, n.d.). Except for a handful of states with broad Medicaid waivers, public insurance eligibility for young adults with special healthcare needs was limited to meeting SSI criteria and having low income and assets (Fishman, 2001).

There are age out provisions to retain Medicaid in place for those young adults who previously met SSI criteria as children but are now employed and earn a modest income (Fishman, 2001, p. 259). Also, a very small number of states have optional coverage groups

which extend Medicaid coverage to employed persons who meet the SSI severity of impairment earning up to 250% FPL (Pollitz, Sorian, & Thomas, 2001). Other programs such as Title V program extensions exist but are also very restrictive and dependent upon having a specific condition or restricted to those enrolled in that program as a child due to being ineligible for Medicaid.

SSI, however, will not cover individuals with a non-disabling condition that is managed or under control but is expensive to treat such as cancer, cystic fibrosis, severe asthma, human immunodeficiency virus (HIV) infection, and sickle-cell anemia (Fishman, 2001). It was estimated that 74% of children on Medicaid have a severe medical condition or serious chronic condition that did not meet SSI criteria (Burwell et al., 2007). When these children turn 19, they will have enormous health costs but will not be eligible for Medicaid (Fishman, 2001). Before the ACA, Medicaid for adults not meeting SSI criteria was largely limited to medically needy options if it was available in their state. Some adults with disabilities might also qualify through another mandatory coverage category (e.g., certain low income groups are automatically eligible for Medicaid). For adults eligible through the medically needy option, they must first incur and be financially responsible for their high health expenditures in order to qualify for the Medicaid spenddown program which is only a safety net measure and temporary because one has to incur expenses consistently to qualify (Schulzinger, 2000).

Private Insurance. In the realm of private insurance, the options are even more limited. Before the ACA, private insurance for youth through their parents' coverage also ceased at age 19 with exceptions being made in most states if the child was enrolled as a full-time student--, which might not be feasible for all young adults with special healthcare needs-- or if the youth did not work (Fishman, 2001). Families with transitioning youth with special healthcare needs

might also seek out plans that cover adult dependents with disabilities though the urgency of these youth's chronic conditions or health need makes them very unattractive to private insurers. These youth might also seek dependent coverage through the Consolidated Omnibus Budget Reconciliation Act (COBRA) if their parent previously had employer sponsored coverage or through their state's high risk pools. Both of these options entail very high insurance premiums (Fishman, 2001).

Healthcare transition planning. Hence, none of the above pathways offer a clear path to health insurance coverage for the vast majority of young adults with disabilities and chronic conditions. This phenomenon of insurance discontinuity among young adults with special healthcare needs is part of why one of the core outcomes under the MCHB for CYSHCN is youth with special healthcare needs receiving the services needed for adult transition ("map_indicators-outcomes_0910-final.pdf," n.d.). Healthcare transition planning is defined by the National Survey of Children with Special Health Care Needs (NS-CSHCN) as the preparation that a child with special healthcare needs and his or her family receives before he or she becomes an adult and gets ready to manage his or her own health care. Transition planning includes written plans or discussions with doctors and other healthcare providers to make sure he or she understands his or her health, can make decisions about his or her own health care, and has access to adult doctors who have the competencies to deliver specialized care and adult health insurance. Transition planning also includes the development of self-management skills (both the management of the condition and competencies for community living). On the NS-CSHCN in order to meet this core outcome, CYSHCN aged 12-17 years must meet all of the following components:

1) If a discussion about transitioning to adult care was needed, it must have happened;

2) If a discussion about changing health care needs as child becomes an adult was needed it must have happened;

3) If a discussion about transitioning insurance to maintain eligibility was needed it must have happened; and

4) Medical providers usually or always encouraged responsibility for self-care, such as taking medication, understanding his/her diagnosis or following medical advice.

While this outcome is intended to ensure that youth with special health care needs receive the services necessary to make appropriate transitions to adult health care, work and independence, these guidelines are only the beginning steps to the transition process. Oswald et al. (2013) reviewed and consolidated the existing literature on transition to adult care to outline a comprehensive algorithm of what constituted a successful transition for young adults with special healthcare needs:

1) had a usual health care source or personal doctor/nurse;
2) had a health care provider who did not treat only children, teens, or young adults;
3) had health insurance coverage that meets his/her needs;
4) had at least one recent (within the past 12 months) preventive health care visit;
5) was satisfied with health care services; and
6) had not recently (within the past 12 months) delayed or foregone needed health care services.

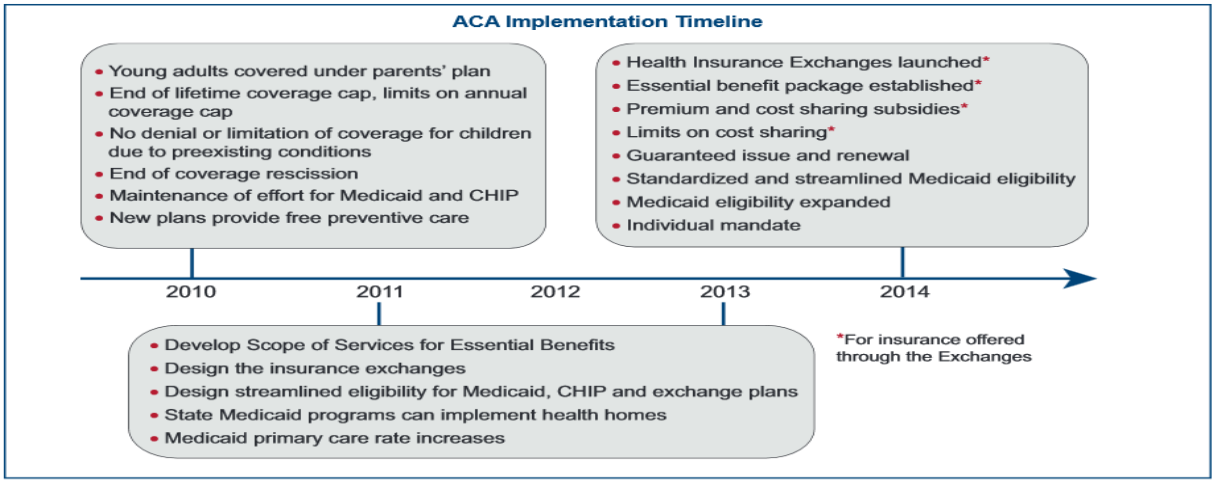
(Oswald et al., 2013).

Hence, CYSHCN are a vulnerable, high medical care use population and the continuity of their insurance coverage is a key part of their healthcare transition into adulthood. There is evidence of the higher prevalence of psychological symptoms as well as comorbidities

experienced by members of this population (Kendall & Owen, 2015) which further underscores how critical coverage is. Changing medical insurance is among a key set of inputs such as changing medical care, developing self-care skills and education and job planning that will lead to continuous access to high quality medical care and better quality of life (Lotstein, Inkelas, Hays, Halfon, & Brook, 2008; Lotstein, Kuo, Strickland, & Tait, 2010).

ACA and CYSHCN. The recent ACA reforms were enacted in an attempt to reform the prevailing problems in the nation's healthcare delivery system, which is particularly exemplified by the vulnerability of emerging adults with special healthcare needs. The ACA is a complex and nuanced piece of legislation; its effectiveness in helping emerging adults with special healthcare needs increase access to adequate medical insurance remains to be seen.

Figure 2: Implementation of Key Provisions in the ACA Timeline (Association of Maternal and Child Health Programs, 2012)



Under the ACA, starting in January 2011, Medicaid health homes for adults with certain chronic conditions were financed with 90% of federal dollars for specified health home services for a period of two years. Grants are available for Medicaid programs to create incentives for

healthy behaviors and manage chronic diseases such as mental illness, substance use disorders, asthma, heart disease, diabetes, and obesity (Rosenthal et al., 2012, p.46). In order to qualify, individuals must have at least two chronic conditions or have one chronic condition and be at risk for another or have a serious and persistent mental health condition (Catalyst Center, 2011 p.8; Farrell et al., 2011, p.26). However, a Medicaid health home will not help emerging adults with special healthcare needs if they are not eligible for Medicaid or are not in a state that has implemented a health home consistent with their specific conditions.

Under the ACA, public insurance cutoffs for children remain at age 19. Also, public options at the adult level now differ by state as some states have opted to implement the Medicaid expansion while other states have exercised their constitutional right to opt out (Kaiser Family Foundation, 2017). The ACA Medicaid expansion started in 2014 but states participating in the expansion implemented programs at variable dates. As of January 2017, 32 states including the District of Columbia have adopted the Medicaid expansion for adults with income less than or equal to 138% FPL. In the 19 states that chose not to implement the Medicaid expansion, with the exception of Wisconsin at 100% FPL, childless adults who are not eligible through SSI are ineligible for Medicaid (Kaiser Family Foundation, 2017).

The ACA also stipulates that a child can stay on their parents' private insurance until age 26 for private plans or policy years beginning on or after September 23, 2010 ("Summary of the Affordable Care Act | The Henry J. Kaiser Family Foundation," n.d.). Also effective on this date:

1) private insurers cannot deny or limit coverage to children under age 19 due to a preexisting condition;
2) private insurers cannot exercise coverage rescission meaning that they cannot drop an insured person after a costly episode by citing a mistake or omission on their initial

application; and

3) private insurers can no longer impose a lifetime benefit cap or annual benefit cap of less than $750,000.

(Catalyst Center, 2011).

However, many grandfathered private insurance plans e.g. individual health insurance policies purchased on or before March 23, 2010 ("Grandfathered Health Plan - HealthCare.gov Glossary," n.d.) are exempt from many of the ACA provisions but still must comply with other provisions, including:

1) provide a uniform explanation of coverage;

2) report medical loss ratios and provide premium rebates if medical loss ratios are not met;

3) prohibit lifetime and annual limits on essential health benefits;

4) extend dependent coverage to age 26;

5) prohibit health plan rescissions;

6) prohibit waiting periods greater than 90 days; and

7) prohibit coverage exclusions for pre-existing health conditions.

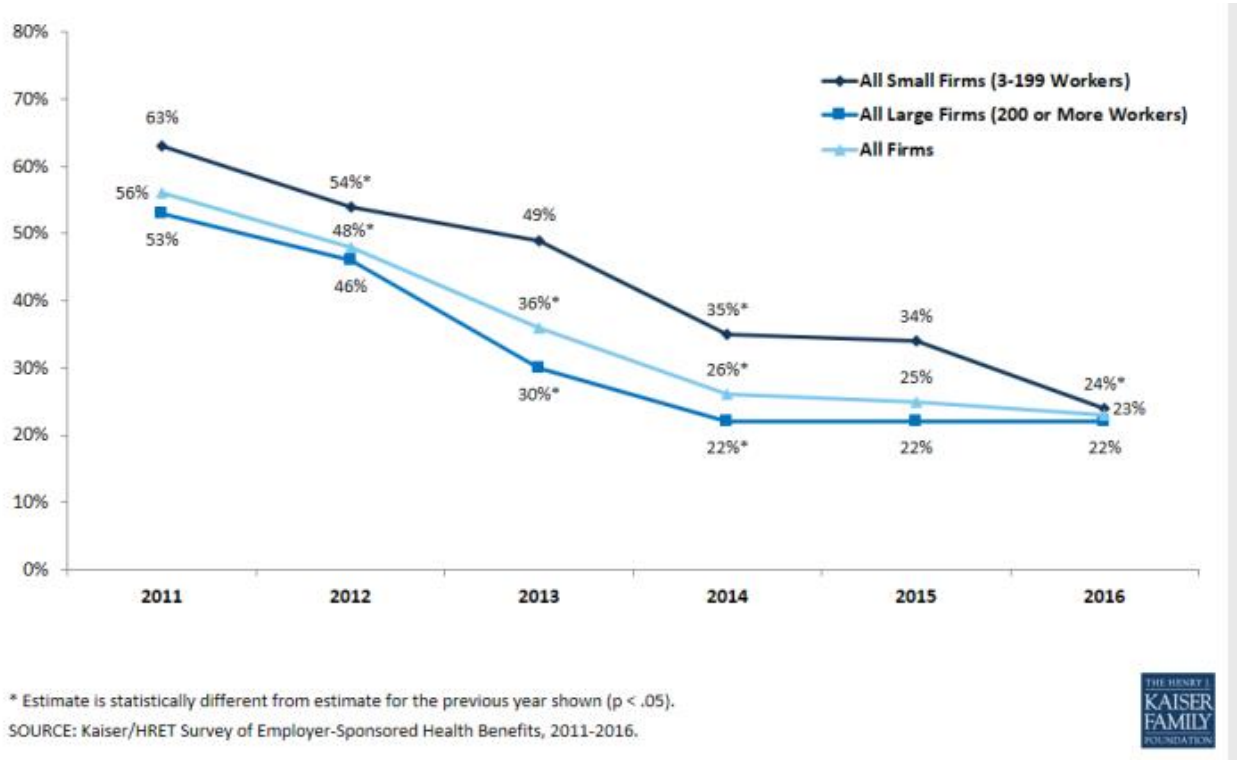
(Department of Health and & Human Services, 2010).

A plan loses its grandfather status and becomes subject to the ACA by making major changes such as significantly raising premiums or reducing benefits (Farrell et al., 2011). As noted above, the coverage rescission policy does apply to grandfathered plans as does the age 26 extension if the youth is not eligible for his or her employer-based coverage. However, grandfathered individual plans are not subject to the new preexisting condition policy and the annual benefit caps of less than $750,000 whereas grandfathered group plans and any new plans are subject to this policy. Nevertheless, private insurers can still cap the benefits themselves such as the

number of visits. While all plans except grandfathered individual plans could not deny anyone under age 19 based on preexisting conditions on plan/policy years beginning after September 23, 2010, the law did not preclude them from denying someone over the age of 19 coverage based on preexisting conditions until January 1, 2014; grandfathered individual policies remain exempt from this provision (Catalyst Center, 2011; US Department of Health and Human Services, n.d.).

It is estimated that 56% of covered workers with employer-sponsored insurance were in a grandfathered plan in 2011 (Kaiser Family Foundation, 2016). The Association of Maternal & Child Health Programs (AMCHP, 2012) estimates that grandfathered plans cover half of CSHCN with Autism Spectrum Disorder and Other Developmental Disabilities. Trend analysis from the Health Research & Educational Trust's (HRET) Survey of Employer Sponsored Health Benefits estimated that grandfather plans decreased 33% from 2011 to 2016.

Figure 3: Percentage of Covered Workers Enrolled in Grandfather Plans under the ACA 2011-2016 (Kaiser Family Foundation, 2016)



The more robust reforms of the ACA took effect January 1, 2014 when 26% of plans were still grandfathered (see Figure 3). ACA requirements that are applicable to all plans include:

1) extension of dependent coverage to age 26 regardless of whether have access for employer based benefits; and
2) prohibit excessively long waiting periods.

ACA requirements not applicable to grandfather group plans and individual coverage but applicable to all others include:

3) prohibition of discrimination based on health status.

ACA requirements not applicable to grandfathered group plans and grandfathered individual

plans and new self-insured plans but applicable to all others include:

4) guaranteed issue, guaranteed renewal; and

5) essential health benefits.

(Catalyst Center, 2011; Farrell, et al., 2011).

The numerous reforms stipulated by the ACA are espoused to be beneficial to CYSHCN, although many of these reforms' evaluation are currently limited due to the fact that they were implemented in the past few years and datasets that collect relevant variables are not yet available. However, one very simple yet important ACA reform relevant to CYSHCN was implemented fairly early on and testable/available with some datasets.

Effective September 23, 2010, private insurance policies were required to cover children under their parents' policies until age 26. This reform took effect along with other policies prohibiting private insurers from 1) denying or limiting coverage to children under age 19 due to a preexisting condition; 2) rescinding coverage after a costly episode by citing a mistake or omission on their initial application; 3) imposing a lifetime benefit cap or annual benefit cap of less than $750,000.

Despite the number of grandfathered plans in effect at this time, did this early set of ACA reforms lessen the insurance gaps CYSHCN experienced? Will these policies have more of an impact over time as more of these plans lose their grandfathered status? The purpose of this dissertation is to more closely examine this first set of policies to evaluate the effectiveness of the ACA in lessening the number of insurance gaps for children and young adults with special healthcare needs.

The ensuing chapters will cover a literature review of uninsurance on children and young adults in general as well as for CYSHCN. There will be a discussion of the themes found in the

literature review as well as findings from more recent relevant studies. Then, the research questions and hypotheses of this study will be presented along with the theoretical model, research methods, data source, study design, study variables as well as the evaluation methodology. Finally, the findings of the study will be presented along with a summary discussion, policy implications and limitations of the study.

Chapter 2: Literature Review

Children typically age out of public and private insurance programs at around age 19. Important insurance administrative cutoffs at age 19 affect CYSHCN as they make their transition to adulthood. Prior to the enactment of the ACA, public sources of insurance for children (CHIP, Medicaid) ceased at age 19 and public insurance options at adulthood were very limited. In the same vein, private insurance ceased at age 19 with exceptions in most states being made if the child was still in school or did not work (Goldman, 2013; White, 2002). These cutoffs were especially problematic for young adults with special healthcare needs because they are in particular need of health care and the continuity of medical coverage is crucial for them to access and retain medical care. The continuation of health insurance into early adulthood is paramount to achieving positive outcomes for CYSHCN. As stated previously, the continuity of insurance coverage includes characterizations of the processes related to insurance status or an assessment of time with regard to coverage or gaps in insurance (Guevara et al., 2014). It is critical to examine the existing research on the continuity of insurance of children in general and children and youth with special healthcare needs. How are insurance gaps in these populations studied and measured?

I. Methods

A literature review is the evaluation of a body of research that addresses a particular research question. A literature review not only identifies what is already known about an area of study but may also identify questions that the body of research does not answer and make the case for why further study of research questions is important to a field (Lillvik, n.d.). This literature review addressed the general question of: "What is the existing research on the

continuity of insurance or insurance gaps of children in general and children and youth with special healthcare needs?"

A review of the research literature was conducted using the eight steps for conducting a systematic review. The steps included:

1) Formulating a review question;
2) Defining inclusion /exclusion criteria;
3) Locating studies;
4) Selecting studies;
5) Analyzing study quality;
6) Extracting data;
7) Analyzing and presenting results; and
8) Interpreting results.

("What is a systematic review? : The Campbell Collaboration," n.d.)

The following preliminary inclusion criteria were established:

1) The study examined the phenomenon in the United States;
2) The study made or allowed for statistical comparisons of outcome or included at least one measure of continuity of insurance coverage as a component of the main analysis;
3) The study employed a rigorous design or statistical technique e.g. randomized controlled trials, quasi experimental techniques or observational/multivariate analysis;
4) The study encompassed children and youth up to 28 years of age;
5) The study was published in a peer-reviewed journal;

The following preliminary exclusion criteria were established:

1) The study examined the phenomenon outside the United States;
2) The study was published as a dissertation, master's thesis, governmental report, conference proceedings or introduction speeches;
3) The study population focused exclusively and solely on working age to retirement age adults; and/or
4) The study contained measures of the continuity of care, source of care, transition planning, provider interactions but not continuity of insurance coverage.

The search terms went through a series of iterations between Spring and Fall 2015. The finalized Keywords Boolean/Phrase syntax are as follows:

(("special health care needs") or ("children with disabilities") OR ("disabled children) OR ("young adults with disabilities") OR ("youth with disabilities") OR ("transition to adulthood")) AND (("continuity of insurance") OR ("insurance gaps") OR ("continuity of coverage") OR ("medicaid buy-in"))

The initial search came up with 228 articles using the University of Maryland, Baltimore County's "AOK Onesearch" web tool which searched a variety of academic databases across diverse scholarship in law, policy, and the allied health disciplines (e.g., nursing, medicine, social work, rehabilitation, among others). After restricting to empirical and peer reviewed studies and removing duplicates, 187 articles remained. After applying preliminary inclusion and exclusion criteria, the relevant studies were coded and input into an excel spreadsheet for further evaluation. Initial classification or grouping was done by types of sources (e.g. primary, secondary, conceptual/theoretical and anecdotal/opinion/clinical) (Cronin, Ryan, & Coughlan, 2008). A total of 28 articles were catalogued from the search terms. An additional 36 other

relevant articles were found in references or footnotes and also catalogued.

After a subsequent first read of the articles, further decisions were made to only include studies which included a measure of insurance continuity or insurance gap as the primary dependent variable. While there seems to be numerous studies using unmet needs or delayed access to care as the main outcome variable with medical insurance status or the presence of medical insurance coverage or the lack thereof as either a key or the main predictor variable, there were a surprisingly small number of studies employing insurance coverage or gaps as the main outcome variable. Outcome measure variations that were measures of insurance discontinuity in the articles included: insurance status; insurance gap; insurance regain; insurance loss; continuity of coverage; un-insurance; the likelihood of insurance coverage (continuous coverage, uninsured, or lapsed); likelihood of dropping coverage; final enrollment status; the percentage of children still enrolled one year later; and the share of dis-enrollees who became uninsured. Many of these studies employed very simple statistical techniques (e.g. bivariate analysis) and were not included in this review due to failing preliminary inclusion criterion number 3.

Therefore, 1) after only considering studies where with insurance gap or a similar measure of insurance discontinuity was the main outcome measure; and 2) elimination of studies only utilizing bivariate analyses as their main form of statistical analysis, 13 articles remained. Out of these 13 articles, four main themes emerged.

II. Results

Table 2.1 indicates the studies associated with each of the four themes found through the review. Table 2.2 summarizes each study.

Table 2.1 Themes

Theme 1: Policy changes associated with insurance discontinuity in Children's Public Insurance Programs		
Type of Study and Basic Research Approach	**Children or Youth with Special Healthcare Needs (CYSHCN)**	**Children or Young Adults**
Multivariate Analysis		Haley & Kenney (2003);
Various types of Logistic Regression		Sommers (2005); Ketsche et al.(2007); Adams et al. (2007)
Hazard Model		Fairbrother et al (2011);
Total Studies	**0**	**5**
Theme 2: Lack of Common definition of CYSHCN		
Type of Study and Basic Research Approach	**CYSHCN**	**Children or Young Adults**
Various types of Logistic Regression	Satchell and Pati (2005); Macon et al. (2007); Wang et al. (2010)	
Hazard Model and Logistic Regression	Liu et al (2005);	
Kaplan Meier Survival	Wang et al. (2009)	

Functions		
Total Studies	**5**	**0**
Theme 3: Demographic Effects with a focus on Age and Race / Ethnicity		
Type of Study and Basic Research Approach	**CYSHCN**	**Children or Young Adults**
Hazard Model and Logistic Regression	Liu et al (2005);	Fairbrother et al (2011); Hill and Shaefer (2011);
Various types of Logistic Regression	Satchell and Pati (2005); Wang et al. (2010)	Adams et al. (2007)
Total Studies	**3**	**3**
Theme 4: Medical Insurance Transition with Key Ages		
Type of Study and Basic Research Approach	**CYSHCN**	**Children or Young Adults**
Various types of Logistic Regression	Wang et al. (2010)	Ketsche et al.(2007); Callahan et al. (2006); Adams et al. (2007)
Kaplan Meier Survival Functions	Wang et al. (2009)	
Regression Discontinuity		Dahlen (2015)
Total Studies	**2**	**4**

Table 2.2 Summaries of Studies

Author	CSHCN	Year	Location	Unit of Analysis	Time Period	Data Source	Design	Primary Analytic Method	Results
Adams, Newacheck, Park, Brindis, Irwin	N	2007	US	Individuals 13 to 32 years old	2002-2003	National Health Interview Survey	Pooled Cross sectional	Logistic Regression	Overall, insurance patterns displayed a U-shaped curve across age categories. Rates were highest at 13 to 14 years old and lowest at 23 to 24 years old and subsequently gradually increased with age. While private insurance rate patterns followed the above overall pattern, public insurance rate patterns decreased across all ages. After adjusting for confounding variables, Hispanic groups had statistically significantly lower insurance rates than the white group, and low and middle income groups had statistically significantly lower insurance rates than the high-income group. Post age 18, all age groups were susceptible to lack of insurance. Rate increases post 25 to 26 years old were attributable to increases in private coverage. Decreases in public coverage were indicative of the lack of a full recovery to the higher public insurance rates seen in adolescence.
Callahan, Hickson, Cooper	N	2006	US	Hispanic and White young adults (19–29 years old)	1999–2002	National Health Interview Survey	Pooled Cross sectional	Logistic Regression	Young adults of Central/South American, Mexican, or Puerto Rican origins were more likely than whites to be uninsured (28%–64% vs. 22%) and this was especially true for noncitizens. Central/South American and Mexican young adults without U.S. citizenship were most likely to be uninsured (63% and 73%, respectively). The majority of noncitizens also lacked a usual source of care and had no health professional contact in the prior year. After adjustment, the risk of un-insurance was 60% higher for Mexican and Central/South American young adults relative to white peers. Mexican young adults also had higher risk of lacking a usual source of care and having no health professional contact.
Dahlen	N	2015	US	Unmarried 24 to 28 year olds	2011-2013 (before ACA's individual mandate)	National Health Interview Survey	Pooled Cross sectional	Regression Discontinuity	Post age 26, uninsurance rates did not increase. There was a statistically significant increase (5 %) in direct purchase private health insurance and a statistically significant increase (15%) in reporting subsequent coverage was worse. For men, there was a statistically significant 8% increase in employment and a statistically significant 10% increase in labor force participation; For women there was a statistically significant 18% increase in reporting subsequent coverage was worse.

Author	CSHCN	Year	Location	Unit of Analysis	Time Period	Data Source	Design	Primary Analytic Method	Results
Fairbrother, Madhavan, Goudie, Watring, Sebastian, Ranbom, Simpson,	N	2011	Ohio	A cohort of newly enrolled children in Ohio Medicaid to determine length of time in Medicaid and characteristics associated with duration	1-year time period between July 2007 and June 2008 and followed for 18 months	Monthly eligibility files from the Ohio Medicaid Management Information Systems (MMIS) Data Warehouse.	Longitudinal Cohort Study	Cox Proportional Hazard Model	Approximately 26% of children aged <1 year and 35% of children aged 1 to 16 years dropped from Medicaid by 18 months, with the steepest drop occurring after 12 months, the point of renewal. Likelihood of dropping was associated with the higher income eligibility groups, older children, and Hispanic ethnicity. Approximately 40% of children who were dropped at renewal re-enrolled within 12 months. Children in the lowest income group returned sooner and in higher proportions than other children.
Haley and Kenney	N	2003	US	Medicaid eligible citizen children	1997-1999	National Survey of America's Families	Pooled Cross sectional	Multivariate Analysis	More than 20 million children qualified for Medicaid, but many were uninsured. Insurance coverage deteriorated for eligible children between 1997 and 1999, particularly for those who also qualified for cash assistance; this deterioration in coverage was largely due to dramatic declines in cash assistance participation. This paper shows that following federal welfare reform, states have faced new challenges reaching and enrolling the growing numbers of eligible children who are not connected with the welfare system.
Hill, Shaefer	N	2011	US	Children ages 0 to 17 years	1990-2005	Survey of Income and Program Participation	Longitudinal	Discrete-time Hazard (DTH) Model	Changes in the employment and marital status of the family head are highly associated with an increased risk of a child losing and gaining public and private coverage, largely in hypothesized directions. The exception is that marital dissolution and job loss are associated with an increased probability of a child losing public insurance, despite there being no clear policy explanation for such a relationship.
Ketsche, Adams, Snyder, Zhou, Minyard, Kellenberg	N	2007	Georgia	Enrollment of children pre & post their 6th birthday compared with a cohort reaching their 9th birthday, a point at which no programmatic change is required and premiums for coverage do not change	2000-2002	Data from Georgia's S-CHIP (PeachCare) and Medicaid programs	Longitudinal Cohort Study	Multivariate Logistic Regression	Over 17% of 6-year-olds versus only 7% of the control cohort (9 year olds) dropped coverage. After controlling for other factors (e.g., race/ethnicity, prior enrollment, and geographic region) having lower historical expenditures is predictive of dropping coverage among all children, although the unadjusted effect is stronger among children enrolled in PeachCare before their sixth birthday. Only 1% of Medicaid children who remained covered transitioned to PeachCare

Author	CSHCN	Year	Location	Unit of Analysis	Time Period	Data Source	Design	Primary Analytic Method	Results
Liu, Zaslavsky, Ganz, Perrin, Gortmaker, McCormick	Y	2005	US	Children aged 1–19 years	January and December 1996	1995 National Health Interview Survey (NHIS) and 1996 Medical Expenditure Panel Survey (MEPS)	Cross sectional	Logistic Regression and Cox Proportional Hazard Model	In 1996, more than 8% of CSHCN were uninsured for the entire year. For those who were insured in January 1996, 14% lost their coverage by December 1996. CSHCN were more likely than other children to be insured (92% vs. 89%), mainly due to their better access to public insurance (35% vs. 23%). Conversely, CSHCN were less likely than other children to stay insured if they were school-aged, non-Hispanic White, from working, low-income families or the US Midwest region. Higher parental education improved health insurance enrollment for CSHCN, whereas higher family income or having activity limitations protected them from losing coverage. Regardless of CSHCN status, being publicly insured was associated with a higher risk of losing coverage for children.
Macon, Miller, Gaboda, Simpson, Cantor	Y	2007	New Jersey	Children were randomly selected from the universe of children enrolled in New Jersey FamilyCare as of May 2002, and their families were surveyed during 2003	2003	New Jersey FamilyCare Supplement to the Survey	Cross sectional	Multinomial Logistic Regression	Roughly 1 of every 5 children in New Jersey FamilyCare had 1 special health care need. Older children and boys had greater odds of having special healthcare needs than others. Children with special health care needs had only one fourth the odds of becoming disenrolled and uninsured compared with children without special health care needs, even when controlling for age, gender, race/ethnicity, and insurance plan level. There was no difference in likelihood of finding other health insurance according to children with special health care needs status.
Satchell, Pati	Y	2005	US	Children (younger than 18 years) who were sampled in the 1999–2001 MEPS linked to the 1997–2000 NHIS	1997-2001	1999–2001 Medical Expenditure Panel Survey linked to the 1997–1999 National Health Interview Survey	Pooled Cross sectional	Multivariate Ordinal Logistic Regression	From 1999 to 2001, we found that >9 million American children annually had gaps in coverage and that 5 to 6 million children annually were uninsured for the entire year. 60% of children experienced gaps of at least 4 months, and >40% of all publicly and privately insured children had coverage gaps. After accounting for relevant covariates, children with chronic conditions were just as likely as other children to have gaps in coverage or be uninsured; Hispanic children were most likely to have insurance gaps or be uninsured; and children from poor and near-poor families were 4 to 5 times more likely to have lapsed coverage than children from high-income families. Poverty and maternal education were the strongest factors associated with lapsed coverage.

Author	CSHCN	Year	Location	Unit of Analysis	Time Period	Data Source	Design	Primary Analytic Method	Results
Sommers	N	2005	US	All children 18 years or younger enrolled in Medicaid with no other reported form of insurance during the preceding 12 months	1998-2001	Insurance status, income, and demographics from the Current Population Survey (CPS) March Supplement (1998–2001); eligibility data from the National Governors Association; and policy data from the former Health Care Financing Administration (HCFA), state welfare offices, and previous research	Pooled Cross sectional	Multivariate Logistic Regression	Of the children enrolled in Medicaid or CHIP, 27.7% were no longer enrolled 12 months later. Of those, 45.4% dropped out despite apparently remaining eligible and having no other insurance——corresponding to 3.0 million children annually. Drop-out varied significantly across states. Children without siblings in public insurance were at a higher risk for drop-out. Children with more educated parents were more likely to leave Medicaid for private insurance or to lose Medicaid eligibility, while black children and infants were less likely to lose their eligibility. Decreased Medicaid provider reimbursement rates were strongly associated with drop-out, while Medicaid managed care increased the exodus to private insurance.
Wang, Grembowski, Watts	Y	2009	US	Youth with and without disabilities between the ages of 15 and 25 at SIPP baseline whom initially had insurance coverage	February 2001 through January 2004	2001 Survey of Income and Program Participation	Longitudinal	Kaplan-Meier Survival Functions	This study includes 1,310 youth who entered the SIPP with insurance and became uninsured. 985 youth (75%) regained insurance. Based on SIPP waves, median duration of un-insurance was two waves (between 5 and 8 months) for youth with severe disabilities and three waves (between 9 and 12 months) for youth with nonsevere disability. Youth with nonsevere disabilities had decreased odds of regaining health insurance compared to youth without disabilities.

Author	CSHCN	Year	Location	Unit of Analysis	Time Period	Data Source	Design	Primary Analytic Method	Results
Wang, Grembowski, Watts	Y	2010	US	Youth with and without disabilities between the ages of 15 and 25 at SIPP baseline whom initially had insurance coverage	February 2001 through January 2004	2001 Survey of Income and Program Participation	Longitudinal	Logistic Regression	36% of insured youth without disabilities lost insurance compared to 43% of insured youth with non-severe disabilities and 41% of insured youth with severe disabilities. Youth with non-severe disabilities on public insurance have an estimated 61% lower odds of losing insurance compared to youth without disabilities on public insurance. Further, youth with severe disabilities on public insurance have an estimated 81% lower odds of losing insurance compared to youth without disabilities. When examining youth with private insurance, we find that youth with severe disabilities have 1.63 times higher odds of losing health insurance compared to youth without disabilities. Insurance type interacts with disability severity to affect odds of insurance loss among insured youth.

Theme 1: Policy changes are associated with insurance discontinuity in Children's Public Insurance Programs

Program policy changes are often associated with insurance discontinuity in children's public insurance programs. Medicaid and CHIP have strict eligibility and income requirements as well as frequent recertification procedures. There is also considerable state variation as to the administration of these two programs. Due to these factors, eligible children often cycle on and off these programs leaving them vulnerable to periods without insurance.

Haley and Kenney (2003) studied children's enrollment in Medicaid. They found that children's insurance coverage can deteriorate quickly in response to policy changes, even those policies that did not intend to reduce coverage. They found that decreased welfare rolls in the late 1990's related to the implementation of the 1996 Temporary Assistance to Needy Families (TANF) legislation was associated with decreased Medicaid coverage. Even though eligibility for cash assistance and Medicaid were delinked administratively through TANF, it remained linked in many of the former recipients' minds and took time and outreach to change perceptions (Haley & Kenney, 2003).

Other studies have found that state variation in Medicaid or CHIP Program design greatly effects children's continuity of insurance. States that have separate programs for CHIP and Medicaid lead to more un-insurance rates among children as opposed to states that have programs that are integrated or synonymous (Ketsche et al., 2007; Sommers, 2005). Sommers (2005) also found that the Medicaid reimbursement rate as well as not having a sibling already on Medicaid to be significant factors for eligible dropouts. According to Sommers, the reasoning behind the sibling factor is administrative burden. If families feel that Medicaid is not needed or not worth the effort, they will not go through the cumbersome reapplication or recertification

process. However, if a family has multiple children on Medicaid, the administrative burden lessens with each subsequent child (Sommers, 2005).

The detrimental effects of policy on children's public health insurance status are evident but now insurance continuity of these programs has become a policy imperative. The 2009 Children's Health Insurance Reauthorization Act (CHIPRA) and 2015 Medicare Access and CHIP Reauthorization Act made insurance stability a priority for Medicaid and CHIP as well as for private plans that insure children (Congressional Budget Office, 2015; Fairbrother et al., 2011). Reporting on insurance continuity has also become an integral part of quality of care and can yield important insights about insurance program design. In a risk-adjusted survival analysis of children cycling through Medicaid and CHIP, Fairbrother et al. (2011) found that on average 18% of children who dropped coverage for either Ohio's various versions of Medicaid or Ohio's various versions of CHIP returned immediately after 3 months and that 41% returned by the end of a full year. They also found that the poorest children had the most stability in Medicaid and that linkages to other programs such as Supplemental Nutrition Assistance Program (SNAP) and TANF help lessen administrative burden for families. Adams et al. (2007) found that young adults have the lowest rate of insurance coverage of any age group. They attribute this finding to the removal of protective safety net policies in place for children that are not in place for young adults once they turn 19 and that this problem persists into one's 30s for those who are in poverty and those who are of Hispanic origin.

Theme 2: The lack of a common definition of CYSHCN to apply to standardized datasets

Studying CYSHCN and insurance continuity can be difficult due to the lack of uniform and easily available criteria to identify CYSHCN that can be used in various datasets. Due to

these limitations, it remains to be seen whether insights yielded from these studies can be compared to each other.

Satchell and Pati (2005) were the first to examine "CYSHCN" type children and insurance gaps during the period right before the National Survey of Children with Special Healthcare Needs started doing so. Using the 1999–2001 Medical Expenditure Panel Survey (MEPS) linked to the 1997–1999 National Health Interview Survey (NHIS), they examined children with chronic conditions and minority children having insurance gaps in any type of insurance. They found that children with chronic conditions are just as likely as other types of children to have insurance gaps and be uninsured. However, the study had limitations with being able to definitively include all of the different types of childhood chronic conditions. Therefore, the authors contend that this likely led to an underestimate of the prevalence of the types of chronic conditions children experience (Satchell & Pati, 2005).

Liu et al. (2005) used the Questionnaire for Identifying Children with Chronic Conditions (QuICCC) to identify CYSHCN in order to study their insurance enrollment patterns in the 1995 NHIS and the 1996 MEPS. The QuICCC is an instrument that identifies CYSHCN based on the consequences of their conditions in functional limitations, dependence on compensatory aids and service use or need beyond routine care (see Appendix 2). They found that CYSHCN were more likely to have insurance coverage but not more likely to stay insured than non CYSHCN. They also found that higher parental educational attainment has a stronger protective effect on being insured for CYSHCN than non CYSHCN (Liu et al., 2005).

Macon et al. (2007) used the MCHB screener to identify CYSHCN in administrative eligibility data to study their retention in the New Jersey State Children's Insurance Program. They found that CYSHCN are more likely to remain enrolled in CHIP and less likely to be

uninsured than non CYSHCN. However, they also found that typical children rated by their parents as being in fair or poor health were four times as likely to become uninsured and or dis-enrolled. While the authors did not specifically mention whether these children were typical children or CYSHCN, they interpreted their results as "those with acute health problems not captured by the SHCN screener had very different patterns than those with chronic conditions" (Macon et al., 2007) which implied that these children were not CYSHCN but were rather typical children experiencing a one-time acute health crisis.

Wang, Grembowski and Watts (2009 and 2010) examined youth with severe and nonsevere disabilities in two studies concerning the risk of losing insurance and insurance regain utilizing the 2001 Survey of Income and Program Participation (SIPP). The authors contend that while their definition of disability is different from other definitions of disability and special health care needs, their study design and analysis can be repeated using other definitions of disability to compare findings (Wang, Grembowski, & Watts, 2010). The main findings of their two studies are summarized in the Theme 4 sub-section.

Hence, the lack of a common definition of CYSHCN that can be used in standardized datasets makes it hard to reconcile the various studies and findings regarding CYSHCN and insurance gaps. Every childhood condition cannot be identified and screened for in a standardized dataset as seen in the limitations of the Satchell and Pati study. Although there are subtle differences between them, the QuICCC and the MCHB screener was assessed to be very similar to each other (see Appendix 1 and Appendix 2) with the MCHB screener being more standardized and streamlined than the QuICCC.

Theme 3: Demographic Effects with a focus on Age and Race/Ethnicity

Older Age

Although not a part of the main effect studied, age differentiation was an effect consistently found in many of the studies in the literature review. Fairbrother et al. (2011) found that older children were more likely to lose Medicaid than younger children. Liu et al. (2005) found that adolescent CYSHCN continue to have lower enrollment rates of health insurance and public insurance than younger CYSHCN.

Other studies also exhibit the complexities of this older age effect. Satchell and Pati (2005) found that youth older than 12 years old had the highest rates of being uninsured for the entire year but had the lowest rate of having gaps in coverage than for younger children (p.1157). Hill and Shaefer (2011) found that teenagers' insurance coverage is more stable than the coverage for younger children and that insured teenagers are less likely to become uninsured. Specifically, they found that 15 to 17 year olds were less likely to lose coverage of either public or private insurance than younger children even though these adolescents were more likely to be uninsured in a given point in time. They also found that these teenagers tend to be uninsured at higher rates than younger children; that is, 15 to 17 year olds who are uninsured were less likely to gain public or private coverage than younger children. Hill and Shaefer's study also provided a very specific theoretical model about the dynamics of child health insurance coverage illustrating the probability of a child experiencing a transition in health insurance coverage as a function of both static and dynamic variables. Intended to model health insurance change in younger children, the model can also be applied toward a young adult's transition to adulthood and the medical insurance changes that they face.

Race/Ethnicity

There were clear race/ethnicity effects among the studies examined. Satchell & Pati (2005) found that Hispanic children were most likely to have insurance gaps or be uninsured. Fairbrother et al. (2011) found that Hispanic children were more likely to lose Medicaid than non-Hispanic children. Adams et al. (2007) found that this insurance disparity for Hispanics continued into adulthood. Callahan, Hickson and Cooper (2006) found that young adults of Central/South American, Mexican, or Puerto Rican origins were more likely than Whites to be uninsured, lack a usual source of care and to have had no health professional contact in the prior year and that this was especially the case if they did not have American citizenship (Callahan, Hickson & Cooper, 2006).

Socioeconomic Status

Satchi and Pati (2005) found that children from poor and near-poor families were 4 to 5 times more likely to have lapsed coverage than children from high-income families. Poverty and maternal education were the strongest factors associated with lapsed coverage. Adams et al. (2007) found that low and middle income groups had significantly lower insurance rates than the high-income group they studied. However, Fairbrother et al. (2011) found that higher income children were more likely to lose Medicaid than poor children.

CYSHCN's Interaction with Other Demographic Factors

Liu et al. (2005) found that CYSHCN were less likely than other children to stay insured if they were school-age, non-Hispanic White, from working, low-income families or from the US Midwest region. Wang, Grembowski and Watts (2010) found racial and socioeconomic

disparities as well as older age effects in their study of typical and nonsevere and severely disabled youth. They found that youth who lost insurance were frequently covered by public insurance in the 18 to 21 age group and Hispanic; and that youth who maintained insurance coverage were more frequently White, working full time and living above poverty. They also found that insurance type interacts with disability severity to affect the odds of insurance loss among insured youth. The main findings of their study are summarized in the Theme 4 sub-section.

Theme 4: Association of Medical Insurance Transition with Key Ages

Medical Insurance Transition is associated with certain key ages. Ketsche et al. (2007) hypothesized that age 6 is when many children will move from Medicaid to CHIP in Georgia and that the turnover at this transitional birthday identifies a common pathway for children becoming uninsured. However, their findings actually showed substantially more children switching from CHIP to Medicaid at this age instead of the other way around. The authors largely attribute these findings to the time period of their study. They claim that the economic recession in the early part of the 2000's made it more likely for low income families to experience a decline in family income rather than an increase (Ketsche et al., 2007, p. 2414-5).

Callahan et al. (2006, p. 631-2) came upon the issue of young adults transitioning or aging out of public insurance programs when they turn 19 in their study of Hispanic youth. The authors espouse that young adulthood is the ideal time to initiate screening and prevention for health disparities to prevent and identify many of the conditions that can lead to excess morbidity among US Hispanics. They cite several reports from the Centers for Disease Control and Prevention as well as from the American Academy of Pediatrics' consensus statement on health

care transitions for young adults with special healthcare needs that emphasize young adulthood as a high risk period for acute health problems (e.g. sexually transmitted diseases) as well as an increasing number of chronic medical conditions. Adams et al. (2007) also found that post age 18, young adults were susceptible to the lack of insurance due to the disappearance of safety net of public programs and that this problem persisted into one's 30s for those who are in poverty and of Hispanic origin.

Wang, Grembowski and Watts also examined this problem by conducting two studies on adolescents and young adults with and without disabilities using the 2001 SIPP dataset. In their first study (2009), they used a longitudinal design to study insurance regain among youth age 15 to 25 with nonsevere and severe disabilities as well as typical youth. They employed a discrete time survival analysis adjusting for personal characteristics to measure the duration of an un-insurance spell to calculate the association between disability status and insurance regain. The median duration of un-insurance was between 5 and 8 months for youth with severe disabilities and between 9 and 12 months for youth with nonsevere disability. Their main finding is that youth with non-severe disabilities are more at risk of losing insurance and not regaining it during transition than the other two groups. They also found that insurance type (e.g. public, private) interacts with disability severity to affect the odds of insurance loss among insured youth. They infer that youth with invisible or non-apparent disabilities may have more trouble securing public assistance or qualifying for adult programs. The authors recommend Medicaid eligibility pathways for youth with nonsevere disabilities.

Although the SIPP is longitudinal, Wang, Grembowski and Watts used a cross-sectional design to indirectly study the severity of disability and insurance gaps in adolescents and young adults ages 15 to 25 in their second study (2010). Individuals were selected for the study if they

were between the ages of 15 to 25 and had insurance coverage at the SIPP survey baseline. The authors defined a gap as no insurance for 3 months over the 3 year period and used a logistic regression to calculate the association between disability and insurance loss. They found that youth with and without disabilities were at equal odds of losing coverage due to aging out of coverage. They found that more insured youth with severe and nonsevere disabilities lost insurance than insured youth without disabilities. They also found that insurance type interacted with disability severity to affect the odds of insurance loss among insured youth.

Wang, Grembowski and Watts' second study demonstrates the multiple interactions between insurance type and disability status. Non-severe and severe youth with disabilities, who are already on public insurance, had lower odds of losing insurance compared to youth with no disabilities on public insurance while youth with severe disabilities on private insurance have slightly higher odds of losing insurance compared to peers with no disabilities on private insurance.

Lastly, there were two studies that examined the health insurance coverage rates of young adults around age 26. Adams et al. (2007) studied this age range as a part of a larger study prior to the ACA's dependent coverage rule change from 2002-2003 while Dahlen (2015) specifically studied the cutoff at age 26 in 2011-2013 after the ACA instituted its dependent coverage age extension.

Adams et al. (2007) found that insured rates were highest at 13 to 14 years old and lowest at 23 to 24 years old, subsequently gradually increasing with age. They found that while private insurance rate patterns followed the above overall pattern, public insurance rate patterns decreased across all ages. The authors attributed their rate increases post 25 to 26 years old to increases in private coverage.

Dahlen (2015) found that post age 26 uninsured rates did not increase. However, unlike Adams et al., she found that there were no significant changes in coverage types (e.g. public, private, uninsured). Dahlen found a statistically significant increase in direct purchase private health insurance and a statistically significant increase in reporting subsequent coverage was worse. Dahlen also found gender differences. She found that for men there was a statistically significant increase in employment and a statistically significant increase in labor force participation and that for women there was a statistically significant increase in reporting subsequent coverage was worse. Thus, the new aging out provision was associated with increased employment among men, employer sponsored health insurance offers for women, and reports that health insurance coverage was worse than it was a year previously overall and for young women (Dahlen, 2015).

Hence, despite the importance of insurance coverage for CYSHCN as they transition into young adulthood, there have not been very many studies using an insurance gap or health insurance coverage as the primary outcome variable. With the exception of one recent study (Dahlen, 2015), most of the studies in the literature review utilized data from the early 2000's. Of the few studies that have been conducted, most have only employed bivariate analysis as the main statistical analysis. Even fewer have used multivariate analyses, including logistic regression and hazard models. While multivariate analysis can reveal and elaborate associations between measured variables, it cannot attribute causality. Multivariate analysis only suggests macro-sociological causal factors because a perfect correlation does not exist between the factors found in the real world. Multivariate analysis is purely statistical and any causal inference goes beyond the technique itself (Jensen, 2009). Therefore, the studies found in the literature review employed research methods that only suggest significant associations between the observed

variables but do not definitively establish causality. Stronger quasi-experimental research methods exist that can more definitively establish causality such as a difference in difference design (Remler & Van Ryzin, 2011). More recent data years of many datasets are currently available and many of the recent relevant ACA changes to healthcare can begin to be studied.

There were also two research studies not included in the literature review because the dependent variable studied was not insurance gap. Although not in the scope of the literature review, the studies examine the ACA and health insurance using more rigorous methods and use more recent data than many of the studies in the literature review.

Like Dahlen (2015), Cardella and Depew (2014) used a regression discontinuity design to study the age cutoff for medical insurance. But unlike Dahlen who studied post ACA dependent coverage changes, Cardella and Depew used age 19 as their cutoff and health status as their dependent variable to study the pre-ACA period of 1997-2010. They found that when an individual turns 19, there is an abrupt 6% decrease in being covered by health insurance and that this leads to a significant decrease in the likelihood of reporting excellent health.

Antwi, Moriya, and Simon (2015) used a difference-in-difference design to study the impact of the ACA's enactment (Quarter 2 to Quarter 3 2010) and implementation (Quarter 4 2010 and after) on young adults aged 19 to 29 using hospital admissions as their dependent variable. They found that for non-birth admissions their treatment group without health insurance decreased by 3% ($p<.01$) as result of the law's implementation and decreased by 1% ($p<.01$) as a result of the law's enactment. They also found that their treatment group with private insurance increased by 2% ($p<.01$) as a result of the law's enactment and increased by 6% ($p<.01$) as a result of law's implementation for non-birth admissions. In terms of mental health admissions, they found their treatment group without health insurance decreased by 0.1% ($p<.01$) as result of

the law's enactment and decreased by 1.3% ($p<.01$) as a result of the law's implementation. They also found that their treatment group with private insurance increased by 0.6% ($p=.011$) as a result of the law's enactment and increased by 5.8% ($p<.01$) as a result of law's implementation for mental health admissions.

Building upon the above review, the research questions of this dissertation elaborated on the themes found. Effective September 23, 2010, private insurance policies were required to cover children under their parents' policies until age 26. This reform took effect along with other policies prohibiting private insurers from 1) denying or limiting coverage to children under age 19 due to a preexisting condition; 2) rescinding coverage after a costly episode by citing a mistake or omission on their initial application; and 3) imposing a lifetime benefit cap or annual benefit cap of less than $750,000. While the ACA stipulated that a child can stay on their parents' private insurance until age 26 for private plans or policy years beginning on or after September 23, 2010, public insurance cutoffs for children remain at age 18. Public options at the adult level vary by state. Pre-ACA, private insurance for youth also ceased at age 18 with exceptions in most states being made if the child was still in school or did not work (White, 2002). Cut-offs for public sources of insurance for children (i.e., CHIP, Medicaid) remain at age 18. Despite the number of grandfathered plans in effect at this time, did this early set of ACA reforms lessen the insurance gaps CYSHCN and overall youth experienced?

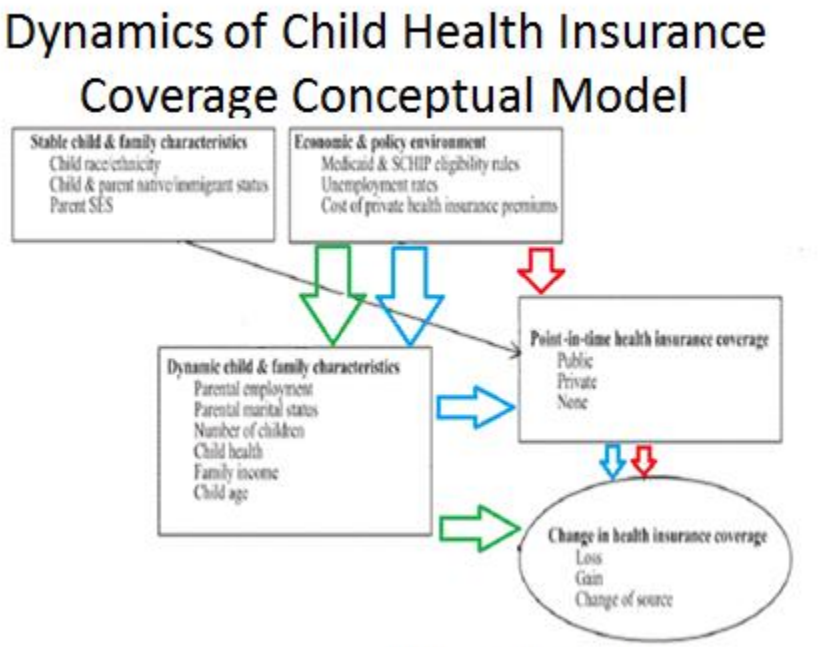
Chapter 3: Research Questions and/or Hypotheses

I. Theoretical Model

Hill and Shaefer's (2011) conceptual model of the dynamics of child health insurance coverage illustrates the probability of a child experiencing a transition in health insurance coverage as a function of both static and dynamic variables. The model's static or time-invariant variables include family and child characteristics such as race or ethnicity and family socioeconomic status. These time invariant factors influence point-in-time coverage directly through eligibility requirements and take-up rates. The model's dynamic or time variant variables such as changes to family life (e.g. parental employment or parental marital status) are also likely to alter the probability and type of coverage. Static and dynamic changes in family life interact with the dynamic economic and political context as well as with the changing administrative requirements of insurance programs to affect the outcome of the child's point in time insurance status, giving rise to changes in health insurance coverage, that is, losses, gains or changes in source.

While Hill and Shaefer's model suggests that dynamic time variant changes to family structure and economic circumstances such as parental employment and marital status are more likely than static time invariant child and family characteristics to directly influence the stability of coverage between two time points, recent changes in the economic and policy environment in terms of the enactment of the ACA have significant implications for children's insurance coverage. Also, Hill and Shaefer's paradigm is a very simplistic model of health insurance dynamics and has limitations as it pertains to factors such as health literacy, actual health insurance enrollment and utilization, and is not specific to young adults nor CYSHCN.

Figure 4: Conceptual Model of the dynamics of child health insurance coverage (H. D. Hill & Shaefer, 2011).



Utilizing Hill and Shaefer's model, the ACA policy changes can influence a child or young adult's insurance coverage through multiple pathways:

A) They can directly influence point in time health insurance coverage leading to changes in health insurance coverage;

B) They can influence dynamic child/young adult and family characteristics which then can directly influence point in time health insurance coverage leading to changes in health insurance coverage; or

C) They can influence dynamic child/young adult and family characteristics which then can directly result in a change in health insurance coverage.

II. Research Question

Did the ACA policy change (e.g. moving the cutoff for private insurance from age 19 to age 26) help youth with special healthcare needs as well as overall youth in terms of lessening the number of insurance gaps they experience as they transition to adulthood?

III. Definition of Successful Outcomes and Research Hypotheses

Defining successful outcomes is critical to evaluating the effectiveness of ACA in reducing gaps in insurance coverage for overall youth and youth with special healthcare needs. Definitions of successful outcomes would be fewer insurance gaps after the ACA age 26 policy than before the policy.

The research hypotheses are as follows:

1) the NULL hypothesis is that the ACA policy WILL NOT lessen insurance gaps as experienced by youth with special healthcare needs

2) the alternative hypothesis is that the ACA policy WILL lessen insurance gaps as experienced by youth with special healthcare needs

3) the NULL hypothesis is that the ACA policy WILL NOT lessen insurance gaps as experienced by overall youth

4) the alternative hypothesis is that the ACA policy WILL lessen insurance gaps as experienced by overall youth

The universal mandate was not in effect for the study period for the waves available (2008-2013). Therefore, it is hypothesized that CYSHCN will take advantage of the ACA

post-26 policy change whereas overall youth will not. The effect will be greater in youth with special healthcare needs than overall youth.

5) the NULL hypothesis is that the ACA policy's take-up (e.g. effect) WILL NOT be greater in youth with special healthcare needs than overall youth.

6) the alternative hypothesis is that the ACA policy the take-up (e.g. effect) WILL be greater in youth with special healthcare needs than overall youth.

Chapter 4: Research Methods

I. Data Source

The 2008 Survey of Income and Program Participation (SIPP) is the primary dataset of interest. The SIPP is a household interview/questionnaire based survey designed as a continuous series of national panels sponsored by the U.S. Census Bureau. The main objective of the SIPP is to provide accurate and comprehensive information about the income and program participation of individuals and households in the United States. The SIPP survey design is a continuous series of national panels, with sample size ranging from approximately 14,000 to 52,000 interviewed households and can be used to examine a limited number of sub-national geographies, including region and certain states (US Census, 2015).

The 2008 SIPP consists of 16 waves spanning from 2008 to 2013. While September 23, 2010 might be "effective date" for the ACA policies of interest, these provisions will technically not take effect until an individual's plan or policy year begins or renews after that date (Catalyst Center, 2011). It is assumed that this date will be January 1, 2011 which is when the new plan year begins for the majority of cases. Therefore, both Wave 7 (September 2010 - December 2010) and Wave 8 (January 2011 - April 2011) can be marked as the post implementation period of the age 26 ACA regulation:

Wave 1 September 2008 - December 2008

Wave 2 January 2009 - April 2009

Wave 3 May 2009 - August 2009

Wave 4 September 2009 - December 2009

Wave 5 January 2010 - April 2010

Wave 6 May 2010 - August 2010

Wave 7 September 2010 - December 2010

Wave 8 January 2011 - April 2011

Wave 9 May 2011 - August 2011

Wave 10 September 2011 - December 2011

Wave 11 January 2012 - April 2012

Wave 12 May 2012 - August 2012

Wave 13 September 2012 - December 2012

Wave 14 January 2013 - April 2013

Wave 15 May 2013 - August 2013

Wave 16 September 2013 - December 2013

The SIPP is a longitudinal survey that interviews the same respondents three times a year for up to four years and provides very detailed information on health insurance. The SIPP is useful for examining monthly dynamics across time at the national level (such as how long a person remains uninsured, how many people obtain coverage, and any changes in a person's coverage within a given year). The information is collected on a family unit basis with the household reference person serving as the head of the household. The data then can be manipulated and aggregated on an individual level. Each household member (over age 15) is asked whether or not they were covered in each of the prior 4 months by health insurance such as Medicare, Medical Assistance, and any other form of medical insurance. ("About Health Insurance - U.S Census Bureau," n.d.).

II. Sample Selection and the Making of a CYSHCN algorithm that will extend into Young Adulthood

As seen in the literature review, sub-setting CYSHCN out of standardized datasets is difficult due to the lack of uniform and easily available criteria to identify CYSHCN that can be used in standardized datasets. At the emerging and young adult levels, many research articles often conveniently and without much explanation combine the term "disabilities" with the term "special healthcare needs" (see Appendix 3). The two terms, however, are not synonymous.

As discussed in the introduction, disability at the child level is also defined differently than disability at the adult level. At the adult level, the terms severe and non-severe are also used to reference disability levels in the SIPP disability modules (see Appendix 4). It is not really known if the term "nonsevere" at the adult level includes those with functional disabilities whom can work and those with chronic conditions that are expensive to treat but may not limit their ability to work. Wang, Grembowski, and Watts concede that the SIPP definition of disability is different from other definitions of disability and special health care needs (2010). In addition, the Questionnaire for Identifying Children with Chronic Conditions (QuICCC) and the MCHB standardized screener are very similar to each other although there are subtle differences between them (see Appendix 1 and Appendix 2).

Hence, an algorithm to subset out CYSHCN that are transitioning into young adulthood from the SIPP needed to be developed. A disability advocate trained by the Maryland Department of Disabilities in Benefits Counseling and Work Incentives (Bellomo, 2016) was consulted in order understand the background of how and why disability variables were presented in certain ways. It is important to keep in mind that while disability criteria for the

purposes of applying to government programs might be quantitative, the grounds for a disability is qualitative and has many dimensions. Numerous disability criteria also encompass the risk or impact of having such condition(s).

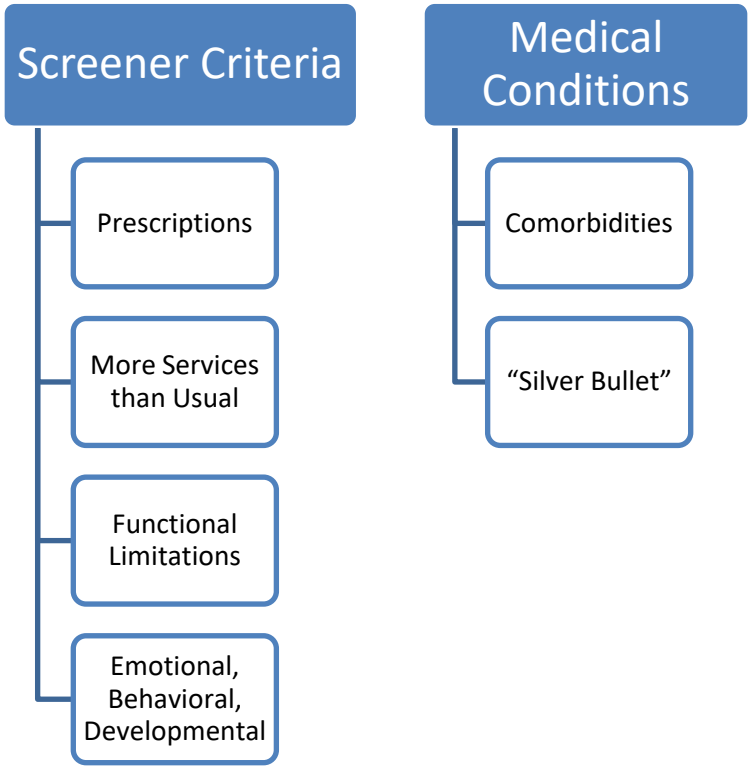
In Part 1 of the algorithm, the CYSHCN screener, due to its standardization and conciseness as well as its high interrater reliability to the QuICCC (Bethell et al., 2002, 2015; Davidoff, 2004), was mapped to the SIPP disability modules' variables in order to subset out CYSHCN. The following SIPP components were used: the Work Disability History Topical Module (TM) in Wave 2; the Adult Functional Limitations TM in Wave 6 and the Child Functional Limitations TM in Wave 6. In addition, relevant "CYSHCN" type variables from the Medical Expenses TMs in Waves 4, 7 and 10, which ask identical questions over multiple waves, were also used (See Appendix 5).

In addition, the SIPP TMs include many variables that yield rich information on a person's specific medical conditions. In Part 2 of the algorithm, these medical conditions were used to subset out CYSHCN. First and foremost, a comorbidities approach was adopted as there is evidence of the higher prevalence of psychological symptoms as well as comorbidities experienced by CYSHCN (Kendall & Owen, 2015). Therefore, if the young adult had two or more medical conditions, they were deemed CYSHCN. Subsequently a "silver bullet" approach was also adopted, e.g. if the young adult had one medical condition that was not determined to be too nonspecific, they were deemed CYSHCN. Specifically, if the young adult had a medical condition other than an alcohol or drug problem or disorder, broken bone/fracture, or nonspecific "Other" response, they were designated as CYSHCN. These "silver bullet" medical conditions include: cancer, blindness or vision problems, deafness or serious trouble hearing, mental or

emotional conditions, missing limbs/foot/hand/finger, multiple sclerosis (MS), paralysis of any kind or a learning disability (See Appendix 6 for Sample List of Conditions).

Any young adult fitting part 1 or part 2 of the CYSHNC Algorithm schematic criteria is designated as CYSHCN. Due to the chronic nature of CYSHCN, if the youth was ever identified as CYSHCN, then they were always counted as CYSHCN in this study.

Figure 5: CYSHCN Algorithm Schematic



Study Design and Variables

The majority of the studies in the literature review utilized statistical methods that did not definitively establish causality. In the testing of the hypotheses and model, a difference in

difference research design was used. This type of study is a pre and post study with a comparison group which compares the difference between two before and after differences. A key strength of this design is that conducting this study is feasible in a real world policy setting and it provides fairly good evidence of causation (Remler & Van Ryzin, 2011, p. 451-2).

The difference-in-difference regression equation was used for both CYSHCN and overall youth before and after the intervention (e.g., ACA policy implementation) in the following two groups: age 19 to 26 youth with special healthcare needs (treatment group) and age 27 to 29 (control group) youth with special healthcare needs as well as age 19 to 26 overall youth (treatment group) and age 27 to 29 overall youth (control group). The above two age groups were used in the Antwi et al. (2015) difference in difference design and this approach is consistent with Arnett's theory of Emerging Adulthood as discussed in the introduction.

The general regression equation is as follows:

$$Y = B_0 + B_1 \text{ Controls} + B_2 \text{ Post} + B_3 \text{ Treatment} + \mathbf{B_4 (Post \times Treatment)} + B_5 \text{CYSHCN} +$$

$$\mathbf{B_6 (Post \times Treatment \times CYSHCN) +} B_7 (\text{Post x CYSHCN}) + B_8 (\text{Treatment x CYSHCN}) + \text{Error}$$

In the above equation, the impact of the ACA on all youth is measured by $\mathbf{B_4}$. The coefficient of $\mathbf{B_6}$ measures whether the impact on CYSHCN is different from the impact on all youth. $\mathbf{B_6}$ is the additional impact of CYSHCN beyond the base impact on all youth measured by $\mathbf{B_4}$. Therefore, the full impact of the ACA on CYSHCN youth is $\mathbf{B_4} + \mathbf{B_6}$.

Dependent Variables:

Various insurance variables are collected longitudinally in the 2008 SIPP dataset. The

dependent variable of this study is the insurance gap for each relevant individual for the SIPP waves available from September 2008 to December 2013. There are two measures for insurance gap derived from different health insurance variables available in the SIPP dataset. The first variable, Uninsured1, is the insurance gap derived from a simple recoding of the Health insurance coverage flag variable (Rcutyp58) in the dataset. The second variable, Uninsured2, is the insurance gap derived from a calculation used by the National Poverty Center (NPC) at the University of Michigan Ann Arbor to ascertain uninsured cross sectional estimates from the dataset (see Appendix 7). The NPC methodology generates a variable that assumes an individual is uninsured as a default unless it is indicated that the individual has Medicaid (including CHIP), Medicare or another type of coverage for the time period. This NPC measure is espoused to be based upon the questions about the insurance types asked on the SIPP questionnaire (see Appendix 7). Because of the different nature of these two gap variables, both measures were utilized. The two measures provide checks against each other because Uninsured1 is calculated by SIPP and the Uninsured2 is manually calculated based on information available in the dataset.

Table 4.1 List of Dependent Variables

Variable	Descriptor	Source	Coding
Uninsured1	Insurance Gap recoded from SIPP health insurance coverage flag (Rcutyp58)	SIPP Waves	1=gap 0=no gap
Uninsured2	Insurance Gap calculated from SIPP Health insurance coverage variables recommended by NPC[1]	SIPP Waves	1=gap 0=no gap

[1] See Appendix 7: Insurance Variables and How to Derive NPC Calculated Insurance Gaps

Control Variables:

Control variables capture important differences between the treatment and the control group in order to rule out other causes to the treatment effect (Remler & Van Ryzin, 2011, p. 455). The following control independent variables were obtained from Hill and Shaefer's conceptual model (2011):

I. family and child time invariant or static factors: 1) child's race or ethnicity, 2) parental socioeconomic status, 3) child and 4) parental native/immigration status;

II. family and child time variant or dynamic factors: 1) parental employment, 2) parental marital status, 3) number of children, 4) child health, 5) family income, 6) child age;

III. time variant or dynamic economic and policy environment: 1) Medicaid expansion by state, 2) unemployment rates, 3) average cost of private health insurance premiums

IV. additional variables: 1) whether or not the individual or the main household reference member received public insurance (as it is suspected that people who received public insurance when they were children may be less likely to live in families with access to private insurance and will therefore be more likely to experience an insurance gap even after the ACA reforms).

Originally intended to model health insurance change in young children, some variables in Hill and Schaefer's model were modified in this dissertation to reflect constructs relevant to the transition into emerging adulthood and the associated medical insurance changes that they face.. A young adult might have a cyclical living situation insofar as he or she may start out living with their parents, then move to independent living in the community, then move back in with their parents and so forth. For this reason, several control variables in the model were obtained for both the young adult as well as the main household reference member (e.g., parent). The specific variables and categories are as follows:

Table 4.2 Young Adult Only Control Variables[2]

Variable	**Descriptor**	**Status**	**Source**	**Coding**
Erace	Young Adult's Race	Invariant	SIPP Waves	1=White Alone; 2=Black Alone;3=Asian Alone; 4=Residual;
Healthstatus	Young Adult's health status	Variant	Aggregated/ Imputed from SIPP Topical Modules in waves 4, 6, 7, and 10.	1=Excellent; 2=Very good; 3=Good; 4=Fair; 5=Poor
Tage	Young Adult's Age	Variant	SIPP Waves	Age as of last birthday
Ssi[3]	Young Adult Eligible for SSI	Variant	SIPP Waves	0= ineligible for SSI; 1=Eligible for SSI;

[2] These variables are child level variables from the Hill and Shaefer Model (except for SSI);
[3] Variable added by Dissertation Committee Suggestion.

Table 4.3 Young Adult and Household Reference Person Control Variables

Variable	Descriptor	Status	Source	Coding
Eorigin, Eorigin_href	Ethnicity: Spanish, Hispanic or Latino	Invariant	SIPP Waves	1=Yes; 2=No;
Ecitizen, Ecitizen_href	Native/immigration status	Invariant	SIPP Waves	1=Yes; 2=No;
Rmesr1; Rmesr1_href	Employment	Variant	SIPP Waves	1= With a job entire month; 2= With a job at least 1 but not all weeks; 3= No job all month;
Ems; Ems_href	Marital status	Variant	SIPP Waves	1=Married, spouse present; 2= Married, spouse absent; 3=Widowed; 4=Divorced; 5=Separated; 6=Never Married;
Rfnkids; Rfnkids_href	Total number of children	Variant	SIPP Waves	Total number of children under 18 in family. This is family level information placed on the record of each person in the family
Household Level Variables that have identical values in the dataset for both the Young Adult and the Household Reference Person				
Inctoneeds	Socioeconomic status	Invariant[4]	Calculated from SIPP Waves	Income to needs ratio[5]

[4] While controversial, according to the Hill and Schaefer model, socioeconomic class is invariant.

[5] See Appendix 8 for calculation and meaning of this variable.

Thtotinc	Total household income this month	Invariant[6]	SIPP Waves	Dollar Amount
Rhpov	Poverty threshold for this household	Invariant[7]	SIPP Waves	Numeric Value

Table 4.4 Household Reference Person only Control Variables

Variable	**Descriptor**	**Status**	**Source**	**Coding**
Pubins_href[8]	Household reference person receives Public Insurance	Variant	SIPP Waves	0= Ineligible for Public Insurance; 1=Eligible for Public Insurance;

Table 4.5 Economic and Policy Environment Control Variables

Variable	**Descriptor**	**Status**	**Source**	**Coding**
Medexp	Medicaid expansion by state	Variant	Kaiser Family Foundation	1=Adopted Expansion; 2=Not Adopting Expansion at this time;
Ur	Seasonally adjusted state unemployment rates	Variant	Bureau of Labor Statistics, Local Area Unemployment Statistics	Percentage rates reported as numbers to three decimal places

[6] This variable is related to socioeconomic class. While controversial, according to the Hill and Schaefer model, socioeconomic class is invariant.

[7] This variable is related to socioeconomic class. While controversial, according to the Hill and Schaefer model, socioeconomic class is invariant.

[8] It is suspected that individuals who received public insurance when they were children may be less likely to live in families with access to private insurance and will therefore be more likely to experience an insurance gap even after the ACA reforms. It was not possible to get this type of information for the young adults in the sample, therefore this variable (Household reference person receives public insurance) was included as an alternative.

Singleprem	Average cost of private health insurance premiums - total single premium	Variant	Medical Expenditure Panel Survey (MEPS) - Insurance Component	Dollar Amount
Famprem	Average cost of private health insurance premiums - total family premium	Variant	Medical Expenditure Panel Survey (MEPS) - Insurance Component	Dollar Amount
Tfipsst	FIPS State Code Federal Information	Invariant	SIPP Waves	Processing Standards state (and state equivalent) code for the 50 states, and DC.

CYSHCN Variable:

The CYSHCN variable (Yshcn_flag) is defined as equal to 1 if the individual is CYSHCN; 0 if the individual is not CYSHCN.

Post Variable:

In the first analysis, the post variable (Post_policy) is initially defined as equal to 0 in the period September 2008 to August 2010 (waves 1 through 6) and equal to 1 in the period September 2010 through December 2013 (waves 7 through 16). In a second analysis, the post variable (Post_policy) is defined as equal to 0 in the period September 2008 to December 2010 (waves 1 through 7) and equal to 1 in the period January 2011 through December 2013 (waves 8 through 16).

Treatment Variable:

The treatment variable (Treatment) is defined as equal to 1 if the individual is 19 to 25 years old during the time period of each wave and equal to 0 if the individual is 27 to 29 during the time period of each wave.

Interaction Variables:

The interaction variables for the main results are as follows: Post x Treatment (**Interx**), Post x Treatment x CYSHCN (**Interxyshcn**), Post x CYSHCN (**Yshcnpost**) and Treatment x CYSHCN (**Yshcntreatment**).

III. Evaluation Methodology

Despite its limitations, all variables in the difference-in-difference regression equation were estimated using ordinary least squares (OLS) as a starting basis for further refinement. One shortcoming of OLS is that the collinearity or correlation of the independent variables can lead to misinterpreting of the coefficients (Kennedy, 2008, p.194). Additionally, omitted variables or unobservables that are correlated with the independent variables can lead to biased OLS estimates (Wooldridge, 2009, p. 93-94, Kennedy, 2008, p.283). Another drawback of the OLS estimator is that violation of the homoscedasticity assumption, e.g. that the underlying variance of the error term is the same for every observation, will cause the estimator to be inefficient and the OLS estimate of the variance to be biased downward (e.g. too small). Since the OLS standard errors are based on these variances, they are no longer valid for constructing confidence intervals and t tests (Wooldridge, 2009, p. 265). Consequently, additional techniques are needed to adjust for these factors.

A fixed effects (FE) model provides a method for controlling omitted variable bias in panel data. FE models do not estimate the effects of variables whose values do not change over time. In this model, subjects serve as their own controls. Theoretically, whatever effects the omitted variables have on the subjects at a given time will have the same effect at a later time, hence these effects will be constant or fixed. For this to be true, omitted variables must have time invariant values with time invariant effects (Allison, 2009). FE models take into account the within individuals variation but ignore between individual variation. FE models are based on the time series component of the data and estimates short run effects (Kennedy, 2008, p.283-4). Models with FE are used in this dissertation to control or partial out the effects of the time invariant variables in family and child individual characteristics with time invariant effects.

Another type of estimator, the random effects model (RE), will also be utilized. An important advantage of the RE model over OLS is that RE addresses the potential correlation between the regression errors for the same individuals in different periods of time. RE models use all the data available, have smaller standard errors and estimate the effects of time invariant variables but the estimates may be biased due to not controlling for omitted variables.

RE models are used with the assumption that the composite error is not correlated with the explanatory variables (Wooldridge, 2009, p. 490). There will be an upward bias in the RE estimator if the explanatory variables are correlated with the composite error. Models with RE are mainly a between individuals estimator. Within individual changes are modest in the model. RE models use both cross-sectional and time series to estimate both short and long term effects (Kennedy, 2008, p.285-6).

Wooldridge (2009, p.493) espouses that unless there is random assignment, in most cases the errors will be correlated with the regressors. Since FE will correct these factors and simulate an

experiment with random assignment, Wooldridge espouses that FE is more convincing for policy analysis because it is mechanically the same as allowing a different intercept for each cross-sectional unit. Kennedy (2008, p. 286), however, offers a philosophical approach: employ FE if one only wants to estimate short run effects; employ RE if one wants to estimate a mixture of both short and long term effects.

To adjust for heteroscedasticity, a procedure called robust standard errors or White-Huber standard errors was used. The SIPP's stratified sampling leads to overly narrow standard errors. Therefore, the robust standard error is necessary for justifying the use of standard errors to construct confidence intervals and t statistics (Wooldridge, 2009, p. 266-7). However, the robust standard error and robust t statistics are only justified as the sample size becomes "large" e.g. the n size is adequate statistically to infer proper confidence intervals and confidence levels. With smaller sample sizes, the robust t test can have distribution that are not very close to the t distribution and that could throw off the inferences (Wooldridge, 2009, p. 268). An additional adjustment method, robust clustering of the standard errors by state, was also employed to adjust for the standard errors (See appendix 9).

IV. Procedures

The 16 core waves were appended together via a loop statement and the relevant variables were obtained/generated for both the young adult (tage >18 & tage <30) and the young adult's associated household reference person in STATA. Subsequently, the young adult's associated household reference person and their relevant variables were merged together into the record of the young adult using the new variable name "href". In 70.2% of the cases in the dataset, the young adult was not the household reference person.

The SIPP collects 4 monthly records of observations per person at a certain point called a reference month during each wave. This collection method results in seam bias due to survey responses being the most accurate in the reporting month and affects the precision of the estimates (See Appendix 10). Due to this issue of seam bias and the fact that the monthly gaps are not independent across observations, only the reference-month record was retained for each wave. Therefore, the insurance gap used as the dependent variable is the triannual gap as opposed to the monthly gap. After this collapse of records, external variables such as the seasonally-adjusted unemployment rates, family and single health insurance premiums and whether their state adopted the Medicaid expansion or not were merged into the dataset by time period and or state. Subsequently, relevant variables from TM's 2,4,7,6, and 10 were merged into the dataset to identify CYSHCN and to give an indication of the individual's health status over time. For the main analysis, two different difference in difference equations were estimated for each of the two dependent variables uninsured1 and uninsured2.

It is meaningful to know that the associations identified are not spurious correlations. Therefore, falsification tests assuming that the reform took place at various placebo dates were performed and the difference in difference equations were then re-estimated with the various estimators and robust specifications. A falsification hypothesis is a claim that is unlikely to be causally related to the intervention in question (Frakt, 2014). In this study, two separate falsification tests were performed. Both falsification tests did not include Waves 7 and 8 which were the implementation periods of the ACA age 26 policy. Test 1 included Waves 1 to 3 in the pre period and included Waves 4 to 6 in the post period. Test 2 included Waves 9 to 12 in the pre period and included Waves 13 to 16 in the post period.

Chapter 5: Findings

The final SIPP dataset of young adults comprised of 148,748 records with 31,734 observations designated as CYSHCN across 16 waves. The dataset was collapsed into one record per person in order to garner basic descriptive statistics of the sample.

Table 5.1 Descriptive Statistics of the Sample

Entire Sample		**Intervention Overall youth**	**Comparison group Overall youth**	**Intervention CYSHCN**	**Comparison group CYSHCN**
N	24,782 (Total) 4,277 CYSHCN (17.3% of Total)	17,950 (72.4% of Total)	6,832 (27.6% of Total)	2,957 (11.9% of Total)	1,320 (5.3% of Total)
Average Age	22.8	21.1	27.5	20.9	27.5
Race					
White	76.4%	76.1%	77.2%	76.6%	78.9%
Black	13.8%	14.2%	12.8%	13.3%	12.7%
Asian	4.7%	4.4%	5.5%	2.7%	3.0%
Other	5.1%	5.3%	4.5%	7%	5.4%
Ethnicity					

Hispanic	16.9%	16.8%	17.3%	12.2%	12.3%

A series of regression analyses were then performed with the following basic syntax:

regress uninsured* tfipsst erace ecitizen ecitizen_href eorigin eorigin_href thtotinc inctoneeds rhpov rmesr1_href rmesr1 ems ems_href rfnkids rfnkids_href healthstatus tage medexp ur singleprem famprem ssi pubins_href yshcn_flag treatment post_policy **interx interxyshcn** yshcnpost yshcntreatment

Interx denotes the interaction term of overall young adults in the difference in difference equation. Interxyshcn denotes the interaction term of CYSHCN in the difference in difference equation. As stated previously, the impact of the ACA on all youth is measured by Interx (B_4). The coefficient of Interxyshcn (B_6) measures whether the impact on CYSHCN is different from the impact on all youth. Interxyshcn (B_6) measures the additional impact of CYSHCN beyond the base impact on all youth as measured by Interx (B_4). Therefore, the full impact of the ACA on CYSHCN youth is Interx + Interxyshcn.

To assess for multicollinearity, F tests were conducted on the various income control variables in the equation: thtotinc (total household income this month) ; inctoneeds (socioeconomic status); rhpov (poverty threshold for this household). The results were significant meaning that all three variables contributed meaningfully and distinctly to the model. Therefore, all three socioeconomic variables were retained in the equation. The following variables were excluded from the FE model due to their invariant nature:

Table 5.2: Variables excluded from the Fixed Effects model

Variable	**Descriptor**	**Status**	**Source**	**Coding**
Tfipsst	FIPS State Code Federal Information	Invariant	SIPP Waves	Processing Standards state (and state equivalent) code for the 50 states, and DC.

Erace	Young Adult's Race	Invariant	SIPP Waves	1=White Alone; 2=Black Alone;3=Asian Alone; 4=Residual;
Eorigin, Eorigin_href	Ethnicity: Spanish, Hispanic or Latino	Invariant	SIPP Waves	1=Yes; 2=No;
Ecitizen, Ecitizen_href	Native/immigration status	Invariant	SIPP Waves	1=Yes; 2=No;
Inctoneeds	Socio-economic status	Invariant[9]	Calculated from SIPP Waves	Income to needs ratio[10]
Thtotinc	Total household income this month	Invariant[11]	SIPP Waves	Dollar Amount
Rhpov	Poverty threshold for this household	Invariant[12]	SIPP Waves	Numeric Value
YSHCN Flag	Denotes individual is a young adult with special healthcare needs	Invariant[13]	CYSHCN algorithm	1=Yes; 0=No;

[9] While controversial, according to the Hill and Schaefer model, socioeconomic class is invariant.

[10] See Appendix 8 for calculation and meaning of this variable.

[11] This variable is related to socioeconomic class. While controversial, according to the Hill and Schaefer model, socioeconomic class is invariant.

[12] This variable is related to socioeconomic class. While controversial, according to the Hill and Schaefer model, socioeconomic class is invariant.

[13] Due to the chronic nature of CYSHCN, if the youth was ever identified as CYSHCN, then they were always counted as CYSHCN in this study.

The following table displays the main results of the study. It lists the main difference in difference interaction term's coefficient for overall youth (Interx), CYSHCN (Interxyshcn) as well as for the sum of Interx and Interxyshcn (the full impact of the ACA on CYSHCN youth) for the two dependent variables employed in the study (uninsured1 and uninsured2) using the OLS, FE and RE estimators. Two separate difference in difference equations were estimated. The first difference in difference equation has the policy taking effect beginning in September 2010 e.g. the policy's implementation period (Wave 7). The second difference in difference equation has the policy taking effect beginning in January 2011 as per when most insurance policies renew at the beginning of the year (Wave 8). Three types of standard errors pvalues are also displayed: the unadjusted SE pvalue, the robust SE pvalue and the robust clustering of the SE by state.

Table 5.3 Main Results: Difference in Difference Interaction Terms

Estimator	**Implementation Period: Wave 7 Difference in Difference coefficient**	**Policy Renewal Period: Wave 8 Difference in Difference coefficient**
OLS uninsured1	Interx: -0.0479 SE pvalue : (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (<0.001)***	Interx: -0.0531 SE pvalue: (<0.001)*** Robust SE pvalue : (<0.001)*** Robust Clustering SE by State pvalue: (<0.001)***
	Interxyshcn: -0.0066 SE pvalue: (0.557) Robust SE pvalue: (0.549) Robust Clustering SE by State pvalue: (0.619)	Interxyshcn: -0.0060 SE pvalue:: (0.593) Robust SE pvalue: (0.584) Robust Clustering SE by State pvalue: (0.667)
	Interx + Interxyshcn: -0.0545 SE pvalue: (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (<0.001)***	Interx + Interxyshcn: -0.0591 SE pvalue: (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (<0.001)***
OLS uninsured2	Interx: -0.0485 SE pvalue: (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (<0.001)***	Interx: -0.0516 SE pvalue: (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (<0.001)***

	Interxyshcn: +0.0066 SE pvalue: (0.563) Robust SE pvalue: (0.549) Robust Clustering SE by State pvalue: (0.654)	Interxyshcn: +0.0032 SE pvalue: (0.718) Robust SE pvalue: (0.772) Robust Clustering SE by State pvalue: (0.834)
	Interx+ Interxyshcn: -0.0419 SE pvalue: (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (0.004)***	Interx + Interxyshcn: -0.0484 SE pvalue: (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (0.001)***
Fixed Effects uninsured1	Interx: -0.0002 SE pvalue: (0.974) Robust SE pvalue: (0.981) Robust Clustering SE by State pvalue: (0.984)	Interx: -0.0052 SE pvalue: (0.302) Robust SE pvalue: (0.477) Robust Clustering SE by State pvalue: (0.537)
	Interxyshcn: -0.0229 SE pvalue: (0.019)** Robust SE pvalue: (0.089)* Robust Clustering SE by State pvalue: (0.062)*	Interxyshcn: -0.0228 SE pvalue: (0.021)** Robust SE pvalue: (0.102)* Robust Clustering SE by State pvalue: (0.101)*
	Interx+ Interxyshcn: -0.0231 SE pvalue: (0.006)*** Robust SE pvalue: (0.044)** Robust Clustering SE by State pvalue: (0.017)**	Interx + Interxyshcn: -0.0280 SE pvalue: (0.001)*** Robust SE pvalue: (0.018)** Robust Clustering SE by State pvalue: (0.016)**
Fixed Effects uninsured2	Interx: +0.0048 SE pvalue: (0.382) Robust SE pvalue: (0.516) Robust Clustering SE by State pvalue: (0.626)	Interx: +0.0026 Interx SE pvalue: (0.633) Interx Robust SE pvalue: (0.732) Robust Clustering SE by State pvalue: (0.779)
	Interxyshcn: -0.0217 SE pvalue: (0.042)** Robust SE pvalue: (0.114)* Robust Clustering SE by State pvalue: (0.100)*	Interxyshcn: -0.0246 SE pvalue: (0.022)** Robust SE pvalue: (0.082)* Robust Clustering SE by State pvalue: (0.099)*
	Interx + Interxyshcn: -0.0169 SE pvalue: (0.065)* Robust SE pvalue: (0.143) Robust Clustering SE by State pvalue: (0.195)	Interx + Interxyshcn: -0.0220 SE pvalue: (0.018)** Robust SE pvalue: (0.066)* Robust Clustering SE by State pvalue: (0.108)*
Random Effects uninsured1	Interx: -0.0108 SE pvalue: (0.024)** Robust SE pvalue: (0.100)* Robust Clustering SE by State pvalue: (0.142)	Interx: -0.0164 SE pvalue: (0.001)*** Robust SE pvalue: (0.016)** Robust Clustering SE by State pvalue: (0.039)**
	Interxyshcn: -0.0217 SE pvalue: (0.021)** Robust SE pvalue: (0.087)* Robust Clustering SE by State pvalue: (0.041)**	Interxyshcn: -0.0213 SE pvalue: (0.025)** Robust SE pvalue: (0.107)* Robust Clustering SE by State pvalue: (0.089)*

	Interx+ Interxyshcn: -0.0325 SE pvalue: (<0.001)*** Robust SE pvalue: (0.003)*** Robust Clustering SE by State pvalue: (<0.001)***	Interx + Interxyshcn: -0.0377 SE pvalue: (<0.001)*** Robust SE pvalue: (<0.001)*** Robust Clustering SE by State pvalue: (<0.001)***
Random Effects uninsured2	Interx: -0.0130 SE pvalue: (0.011)*** Robust SE pvalue: (0.054)** Robust Clustering SE by State pvalue: (0.131)	Interx: -0.0159 SE pvalue: (0.002)*** Robust SE pvalue: (0.023)** Robust Clustering SE by State pvalue:(0.053)**
	Interxyshcn: -0.0140 SE pvalue: (0.167) Robust SE pvalue: (0.278) Robust Clustering SE by State pvalue: (0.230)	Interxyshcn: -0.0167 SE pvalue: (0.101) * Robust SE pvalue: (0.211) Robust Clustering SE by State pvalue: (0.218)
	Interx + Interxyshcn: -0.0270 SE pvalue: (0.002)*** Robust SE pvalue: (0.014)*** Robust Clustering SE by State pvalue: (0.023)**	Interx + Interxyshcn: -0.0326 SE pvalue: (<0.001)*** Robust SE pvalue: (0.004)*** Robust Clustering SE by State pvalue: (0.009)***

*** significant at the 0.01 level
** significant at the 0.05 level
* significant at the 0.10 level

Table 5.4: Insurance Gaps of Treatment and Control Groups before and after the ACA Implementation Period (Wave 7)

Overall Youth	
Treatment (Age 19-25)	
uninsured1: 45.3% uninsured2: 33.8%	uninsured1: 41.3% uninsured2: 29.6%
Control (Age 27-29)	
uninsured1: 41.3% uninsured2: 29.8%	uninsured1: 42.3% uninsured2: 30.6%
CYSHCN	
Treatment (Age 19-25)	
uninsured1: 49.7% uninsured2: 27.9%	uninsured1: 44.8% uninsured2: 23.8%
Control (Age 27-29)	
uninsured1: 44.6% uninsured2: 23.2%	uninsured1: 47.7% uninsured2: 24.9%
Non-CYSHCN	
Treatment (Age 19-25)	
uninsured1: 44.3% uninsured2: 35.3%	uninsured1: 40.5% uninsured2: 31.1%

Control (Age 27-29)	
uninsured1: 40.2% uninsured2: 31.9%	uninsured1: 40.7% uninsured2: 32.4%

Table 5.5: Insurance Gaps of Treatment and Control Groups before and after the Policy Renewal Period (Wave 8)

Overall Youth	
Treatment (Age 19-25)	
uninsured1: 45.4% uninsured2: 33.8%	uninsured1: 40.7% uninsured2: 29.1%
Control (Age 27-29)	
uninsured1: 41.6% uninsured2: 30.0%	uninsured1: 42.1% uninsured2: 30.5%
CYSHCN	
Treatment (Age 19-25)	
uninsured1: 49.5% uninsured2: 27.8%	uninsured1: 44.3% uninsured2: 23.4%
Control (Age 27-29)	
uninsured1: 44.9% uninsured2: 23.2%	uninsured1: 47.9% uninsured2: 25.1%
Non-CYSHCN	
Treatment (Age 19-25)	
uninsured1: 44.4% uninsured2: 35.2%	uninsured1: 40.0% uninsured2: 30.5%
Control (Age 27-29)	
uninsured1: 40.5% uninsured2: 32.2%	uninsured1: 40.4% uninsured2: 32.2%

The Difference in Difference analyses were performed using two waves to estimate the beginning of the policy change: 1) at the implementation date (Wave 7) and then 2) at the beginning of the year (Wave 8) when policies begin/renew.[14]

[14] While September 23, 2010 might be "effective date" for the ACA policies of interest, these provisions will technically not take effect until an individual's plan or policy year begins or renews after that date (Catalyst Center, 2011). For the sake of simplicity, it will be assumed that this date will be January 1, 2011 which is when the new plan year begins for the majority of cases.

Interx denotes the interaction term of overall young adults in the difference in difference equation. Interxyshcn denotes the interaction term of CYSHCN in the difference in difference equation. The impact of the ACA on all youth is captured by Interx. The coefficient of Interxyshcn measures whether the impact on CYSHCN is different from the impact on all youth. Interxyshcn measures the additional impact of CYSHCN beyond the base impact on all youth as measured by Interx. The full impact of the ACA on CYSHCN youth is captured by the sum of Interx + Interxyshcn. If Interx and Interxyshcn are significant, then Interx measures the impact on non-CYSHCN youth while the sum Interx + Interxyshcn is the impact on CYSHCN youth. If Interxyshcn is insignificant, then Interx is the impact on all youth (non-CYSHCN and CYSCHCN). Therefore, Interxyshcn is a test of whether the impact of the treatment is different for CYSHCN and non-CYSHCN youth. If Interx is insignificant but the sum of Interx + Interxyshcn is significant, this indicates a statistically significant impact on CYSHCN, but not on non-CYSHCN.

For both time periods, OLS results for Interx was associated with significant decreased gaps in coverage for overall young adults. In terms of Uninsured1, for the implementation period (Wave 7), OLS was associated with decreased gaps of 4.8% for overall young adults significant at the <0.001 level for both the standard and robust standard error as well as robust clustering of the SE by state. For the policy renewal period (Wave 8), OLS was associated with decreased gaps of 5.3% for overall young adults, significant at the <0.001 level for both the standard and robust standard error as well as robust clustering of the SE by state. In terms of Uninsured2, for the implementation period (Wave 7), OLS was associated with decreased gaps of 4.9% for overall young adults, significant at the <0.001 level for both the standard and robust standard error as well as robust clustering of the SE by state. For the policy renewal period (Wave 8),

OLS was associated with decreased gaps for overall young adults of 5.2% significant at the <0.001 level for overall young adults for both the standard and robust standard error as well as robust clustering of the SE by state. The CYSHCN OLS results for Interxyshcn, which measures whether the impact on CYSHCN was different from impact on all youth, were not statistically significant.

In terms of Uninsured1, for the implementation period (Wave 7), OLS results of the sum of Interx + Interxyshcn, which measures the full impact of the ACA on CYSHCN youth, were associated with decreased gaps of 5.5% for CYSHCN significant at the <0.001 level for both the standard and robust standard error as well as robust clustering of the SE by state. For the policy renewal period (Wave 8), OLS results of the sum of Interx + Interxyshcn were associated with decreased gaps of 5.9% for CYSHCN, significant at the <0.001 level for both the standard and robust standard error as well as robust clustering of the SE by state. In terms of Uninsured2, for the implementation period (Wave 7), OLS results of the sum of Interx + Interxyshcn were associated with decreased gaps of 4.2% for CYSHCN, significant at the <0.001 level for both the standard and robust standard error as well as robust clustering of the SE by state. For the policy renewal period (Wave 8), OLS results of the sum of Interx + Interxyshcn were associated with decreased gaps for CYSHCN of 4.8% significant at the <0.001 level for the standard error, robust standard error as well as robust clustering of the SE by state.

In summary, the OLS estimates indicate that the ACA had a significant impact on both CYSHCN and non-CYSHCN but that the impact was the same for both groups. This finding is supported in the OLS estimates of the sum of Interx + Interxyshcn which are very similar to the estimates of Interx alone.

For both periods, FE models' results of overall youth (Interx) were not statistically

significant. However, the FE results for Interxyshcn, which measures whether the impact on CYSHCN was different from impact on all youth, were marginally significant.

In terms of Uninsured1, for the implementation period (Wave 7), the FE models were associated with decreased gaps for CYSHCN (Interxyshcn) of 2.3% significant at the 0.02 level for the standard error and marginally significant at the 0.09 level for robust standard error and marginally significant at the 0.06 level using robust clustering of the SE by state. In terms of Uninsured1, for the policy renewal period (Wave 8), the FE model was associated with decreased gaps of 2.3% for CYSHCN (Interxyshcn) significant at the 0.02 level for the standard error and marginally significant the 0.10 level for robust standard error as well as for robust clustering of the SE by state. In terms of Uninsured2, for the implementation period (Wave 7), the FE model was associated decreased gaps of 2.2% for CYSHCN (Interxyshcn) significant at the 0.04 level for the standard error and marginally significant at the 0.11 level for robust standard error and marginally significant at the 0.10 level using robust clustering of the SE by state. In terms of Uninsured2, for the policy renewal period (Wave 8), the FE model was associated with decreased gaps of 2.5% for CYSHCN (Interxyshcn) significant at the 0.02 level for the standard error and marginally significant at the 0.08 level for robust standard error and marginally significant at the 0.10 level using robust clustering of the SE by state.

In terms of Uninsured1, for the implementation period (Wave 7), FE results of the sum of Interx + Interxyshcn, which measures the full impact of the ACA on CYSHCN youth, were associated with decreased gaps of 2.3% for CYSHCN significant at the 0.006 level for the standard error, significant at the 0.04 level for robust standard error and significant at the 0.02 level utilizing robust clustering of the SE by state. For the policy renewal period (Wave 8), FE results of the sum of Interx + Interxyshcn were associated with decreased gaps of 2.8% for

CYSHCN significant at the 0.001 level for the standard error and significant at the 0.02 level for robust standard error and the robust clustering of the SE by state. In terms of Uninsured2, for the implementation period (Wave 7), FE results of the sum of Interx + Interxyshcn were associated with decreased gaps of 1.7% for CYSHCN were marginally significant at the 0.07 level for the standard error, but insignificant when utilizing robust standard error and robust clustering of the SE by state. For the policy renewal period (Wave 8), FE results of the sum of Interx + Interxyshcn were associated with decreased gaps of 2.2% for CYSHCN significant at the 0.02 level for the standard error but marginally significant at the 0.07 level for the robust standard error and marginally significant at the 0.11 level when utilizing the robust clustering of the SE by state.

In summary, the FE estimates indicate that the ACA had a marginally significant additional impact on CYSHCN but not on non-CYSHCN for both of the periods studied (Wave 7 and Wave 8) for both measures of Uninsured1 and Uninsured2.

For both periods, use of RE models yielded mixed results. In terms of Uninsured1, for the Antwi et al. period (Wave 7), the RE model found decreased gaps of 1.1% for overall young adults significant at the 0.02 level for the standard error and marginally significant at the 0.10 level for robust standard error but was not significant when using robust clustering of the SE by state. In terms of Uninsured1, for the policy renewal period (Wave 8), the RE model found decreased gaps of 1.6% for overall young adults significant at the 0.001 level for the standard error and significant at the 0.02 level for robust standard error and significant at the 0.04 level using robust clustering of the SE by state. In terms of Uninsured1, for the implementation period (Wave 7), use of a RE model resulted in decreased gaps of 2.2% for CYSHCN (Interxyshcn) significant at the 0.02 level for the standard error but marginally significant at the 0.09 level for

robust standard error but significant at the 0.04 level using robust clustering of the SE by state. In terms of Uninsured1, for the policy renewal period (Wave 8), use of a RE model led to decreased gaps of 2.1% for CYSHCN significant at the 0.03 level for the standard error but was marginally significant at the 0.11 level for robust standard error and marginally significant at the 0.09 level using robust clustering of the SE by state. In terms of Uninsured2, for the implementation period (Wave 7), a RE model found decreased gaps of 1.3% for overall young adults significant at the 0.01 level for the standard error and significant at the 0.05 level for robust standard error but the results were insignificant when using robust clustering of the SE by state. In terms of Uninsured2, for the policy renewal period (Wave 8), a RE model found decreased gaps of 1.6% for overall young adults significant at the 0.002 level for the standard error and significant at the 0.02 level for robust standard error and significant at the 0.05 level when using robust clustering of the SE by state. In terms of Uninsured2, for the policy renewal period (Wave 8), this model was associated with decreased gaps of 1.7% for CYSHCN marginally significant at the 0.10 level for the standard error but was insignificant for robust standard error and when using robust clustering of the SE by state.

RE results of the sum of Interx + Interxyshcn, assessing the full impact of the policy on CYSHCN, were all highly significant. In terms of Uninsured1, for the implementation period (Wave 7), RE results of the sum of Interx + Interxyshcn were associated with decreased gaps of 3.3% for CYSHCN significant at the <0.001 level for the standard error and utilizing robust clustering of the SE by state and significant at the 0.003 level for robust standard error. For the policy renewal period (Wave 8), RE results of the sum of Interx + Interxyshcn were associated with decreased gaps of 3.8% for CYSHCN significant at the <0.001 level for the standard error, robust standard error and the robust clustering of the SE by state. In terms of Uninsured2, for the

implementation period (Wave 7), RE results of the sum of Interx + Interxyshcn were associated with decreased gaps of 2.7% for CYSHCN were significant at the 0.002 level for the standard error, significant at the 0.01 level utilizing the robust standard error and significant at the 0.02 level using robust clustering of the SE by state. For the policy renewal period (Wave 8), RE results of the sum of Interx + Interxyshcn were associated with decreased gaps of 3.3% for CYSHCN significant at the <0.001 level for the standard error, significant at the 0.004 level for the robust standard error and marginally significant at the 0.009 level when utilizing the robust clustering of the SE by state.

In summary, RE estimates yielded varying results among the measures and were only significant for one of the periods (Wave 8). RE estimates of Uninsured1 for the policy renewal period yielded significant to marginally significant results for both Interx and Interxyshcn separately indicating that the regulation had a significant impact on non-CYSHCN youth as well as a significant impact on CYSHCN. But RE estimates of Uninsured2 for the policy renewal period yielded only significant results for Interx indicating that the ACA had an impact on both CYSHCN and non-CYSHCN but the impact was the same for both. The RE results are consistent in all models in that there is a significant impact of the policy on CYSHCN.

The following table displays the falsification results of the study. It is important to know that the previous associations identified in the main analysis are not spurious correlations. A falsification hypothesis is a claim that is unlikely to be causally related to the intervention in question (Frakt, 2014). In this study, two separate falsification tests were performed. Both falsification tests did not include Waves 7 and 8 which were the implementation periods of the ACA age 26 policy. Test 1 included Waves 1 to 3 in the pre period and included Waves 4 to 6 in the post period. Test 2 included Waves 9 to 12 in the pre period and included Waves 13 to 16 in

the post period. These time periods were selected so that the absence of the policy's effects could be captured. One should expect not to see decreased insurance gaps and or insignificant results between the treatment and comparison groups.

Table 5.4 lists the main difference in difference interaction term's coefficient for overall youth (Interx), CYSHCN (Interxyshcn) as well as for the sum of Interx and Interxyshcn (the full impact of the ACA on CYSHCN youth) for the two dependent variables employed in the study (uninsured1 and uninsured2) using the OLS, FE and RE estimators. Three types of standard errors pvalues are also displayed: the unadjusted SE pvalue, the robust SE pvalue and the robust clustering of the SE by state.

Table 5.6 Falsification Results: Difference in Difference Interaction Terms

Estimator	Test 1 DID coefficient	Test 2 DID coefficient
OLS uninsured1	Interx: -0.0070 SE pvalue: (0.396) Robust SE pvalue: (0.395) Robust Clustering SE by State pvalue: (0.429)	Interx: -0.0106 SE pvalue: (0.206) Robust SE pvalue: (0.210) Robust Clustering SE by State pvalue: (0.240)
	Interxyshcn: -0.0042 SE pvalue: (0.803) Robust SE pvalue: (0.798) Robust Clustering SE by State pvalue: (0.757)	Interxyshcn: +0.0118 SE pvalue: (0.495) Robust SE pvalue: (0.487) Robust Clustering SE by State pvalue: (0.457)
	Interx + Interxyshcn: -0.0112 SE pvalue: (0.441) Robust SE pvalue: (0.427) Robust Clustering SE by State pvalue: (0.340)	Interx + Interxyshcn: +0.0012 SE pvalue: (0.939) Robust SE pvalue: (0.938) Robust Clustering SE by State pvalue: (0.935)
OLS uninsured2	Interx: -0.0101 SE pvalue: (0.230) Robust SE pvalue: (0.228) Robust Clustering SE by State pvalue: (0.315)	Interx: -0.0111 SE pvalue: (0.192) Robust SE pvalue: (0.198) Robust Clustering SE by State pvalue: (0.283)
	Interxyshcn: +0.0031 SE pvalue: (0.854) Robust SE pvalue:(0.848) Robust Clustering SE by State pvalue: (0.835)	Interxyshcn: +0.0231 SE pvalue: (0.187) Robust SE pvalue: (0.175) Robust Clustering SE by State pvalue: (0.128)
	Interx + Interxyshcn: -0.007 SE pvalue: (0.637)	Interx + Interxyshcn: +0.012 SE pvalue: (0.434)

	Robust SE pvalue: (0.619) Robust Clustering SE by State pvalue: (0.563)	Robust SE pvalue: (0.414) Robust Clustering SE by State pvalue: (0.412)
Fixed Effects uninsured1	Interx: +0.0155 SE pvalue: (0.008)*** Robust SE pvalue: (0.022)** Robust Clustering SE by State pvalue: (0.022)**	Interx: +0.0126 SE pvalue: (0.031)** Robust SE pvalue: (0.101)* Robust Clustering SE by State pvalue: (0.085)*
	Interxyshcn: -0.0111 SE pvalue: (0.337) Robust SE pvalue:(0.399) Robust Clustering SE by State pvalue:(0.312)	Interxyshcn: -0.0060 SE pvalue: (0.613) Robust SE pvalue: (0.687) Robust Clustering SE by State pvalue: (0.637)
	Interx + Interxyshcn: +0.0044 SE pvalue: (0.656) Robust SE pvalue: (0.692) Robust Clustering SE by State pvalue: (0.624)	Interx + Interxyshcn: +0.0066 SE pvalue: (0.522) Robust SE pvalue: (0.606) Robust Clustering SE by State pvalue: (0.555)
Fixed Effects uninsured2	Interx: +0.0210 SE pvalue: (0.001)*** Robust SE pvalue: (0.003)*** Robust Clustering SE by State pvalue: (0.002)***	Interx: +0.0189 SE pvalue: (0.003)*** Robust SE pvalue: (0.024)** Robust Clustering SE by State pvalue: (0.023)**
	Interxyshcn: -0.0057 SE pvalue: (0.652) Robust SE pvalue: (0.687) Robust Clustering SE by State pvalue: (0.619)	Interxyshcn: +0.0072 SE pvalue: (0.583) Robust SE pvalue: (0.650) Robust Clustering SE by State pvalue: (0.576)
	Interx + Interxyshcn: +0.0153 SE pvalue: (0.160) Robust SE pvalue: (0.209) Robust Clustering SE by State pvalue: (0.136)	Interx + Interxyshcn: +0.0261 SE pvalue: (0.023)** Robust SE pvalue: (0.055)* Robust Clustering SE by State pvalue: (0.027)**
Random Effects uninsured1	Interx: +0.0121 SE pvalue: (0.034)** Robust SE pvalue: (0.064)* Robust Clustering SE by State pvalue: (0.073)*	Interx: +0.0093 SE pvalue: (0.106)* Robust SE pvalue: (0.212) Robust Clustering SE by State pvalue: (0.130)
	Interxyshcn: -0.0097 SE pvalue: (0.396) Robust SE pvalue: (0.450) Robust Clustering SE by State pvalue: (0.327)	Interxyshcn: -0.0012 SE pvalue: (0.919) Robust SE pvalue: (0.935) Robust Clustering SE by State pvalue: (0.923)
	Interx + Interxyshcn: +0.0024 SE pvalue: (0.804) Robust SE pvalue: (0.824) Robust Clustering SE by State pvalue: (0.770)	Interx + Interxyshcn: +0.0081 SE pvalue: (0.430) Robust SE pvalue: (0.517) Robust Clustering SE by State pvalue: (0.445)
Random Effects	Interx: +0.0121 SE pvalue: (0.049)**	Interx: +0.0097 SE pvalue: (0.121)

uninsured2	Robust SE pvalue: (0.079)* Robust Clustering SE by State pvalue: (0.080)*	Robust SE pvalue: (0.221) Robust Clustering SE by State pvalue: (0.183)
	Interxyshcn: -0.0027 SE pvalue: (0.827) Robust SE pvalue:(0.845) Robust Clustering SE by State pvalue:(0.799)	Interxyshcn: +0.0129 SE pvalue: (0.312) Robust SE pvalue: (0.401) Robust Clustering SE by State pvalue: (0.331)
	Interx + Interxyshcn: +0.0094 SE pvalue: (0.376) Robust SE pvalue: (0.425) Robust Clustering SE by State pvalue: (0.290)	Interx + Interxyshcn: +0.0226 SE pvalue: (0.043)** Robust SE pvalue: (0.086)* Robust Clustering SE by State pvalue: (0.053)*

*** significant at the 0.01 level
** significant at the 0.05 level
* significant at the 0.10 level

The falsification tests results were the expected results for CYSHCN and for overall youth. CYSHCN (Interxyshcn) estimates were consistently not significant among all the estimators. The estimates for overall youth (Interx) were not significant using OLS but were significant in the opposite direction (e.g. increased gaps) when using FE and RE models.

Falsification analysis is an imperfect tool. The absence of implausible falsification hypotheses does not imply that the primary association of interest is causal, nor does their presence guarantee that real relations do not exist. However, when many false relationships are present, caution is warranted in the interpretation of study findings (Frakt, 2014).

The falsification tests support the main results found in Table 5.3 (e.g. that the policy led to a reduction in insurance gaps) and are consistent in all specifications. The insignificant results of the falsification tests are evidence that the estimates found in the main results were not due to spurious correlation. In the few cases where the results of the falsification tests were significant but positive are also evidence that the main results were not due to spurious correlation.

Chapter 6: Summary, Discussion, Policy Implications and Study Limitations

I. Overview

The ramifications of the ACA are just beginning to be able to be studied. The ACA age 26 policy is the first of a series of ACA reforms that can and needs to be tested for its efficacy using available data. Effective September 23, 2010, private insurance policies were required to cover children under their parents' policies until age 26. This reform took effect along with other policies prohibiting private insurers from 1) denying or limiting coverage to children under age 19 due to a preexisting condition; 2) rescinding coverage after a costly episode by citing a mistake or omission on their initial application; and 3) imposing a lifetime benefit cap or annual benefit cap of less than $750,000. Despite the number of grandfathered plans in effect at this time, this early set of ACA reforms did appear to lessen the insurance gaps CYSHCN experienced as they transitioned into young adulthood.

II. Preliminary Review of Hypothesis and Findings

The research hypotheses are as follows:

1) the NULL hypothesis is that the ACA policy WILL NOT lessen insurance gaps as experienced by youth with special healthcare needs

2) the alternative hypothesis is that the ACA policy WILL lessen insurance gaps as experienced by youth with special healthcare needs

OLS, FE, RE models of the sum of Interx + Interxyshcn (full impact of ACA on CYSHCN) all support the alternative hypothesis as the results for youth with special health care needs were significant. OLS results of the sum of Interx + Interxyshcn were significant at the 0.01 level for

all error estimates predicting a reduction of insurance gaps of 4.2% to 5.5% for CYSHCN during the ACA implementation period (Wave 7) and a reduction of insurance gaps of 4.8% to 5.9% during the subsequent period when all insurance policies renew (Wave 8). FE results of the sum of Interx + Interxyshcn for uninsured1 were significant at the 0.01 level for the standard error, at the 0.05 level for robust SE and robust clustering of the error by state, predicting a reduction of insurance gaps of 2.3% for CYSHCN during the ACA implementation period (Wave 7) and a reduction of insurance gaps of 2.8% for CYSHCN during the subsequent period when insurance policies renew (Wave 8). FE results for uninsured2 were mostly insignificant during the ACA implementation period (Wave 7) but were marginally significant during the subsequent period when insurance policies renew (Wave 8) at the 0.05 level when using the standard error and at the 0.10 level for robust SE and robust clustering of the error by state, predicting a reduction of insurance gaps of 2.2% for CYSHCN. RE results for the sum of Interx + Interxyshcn for uninsured1 and uninsured2 were mostly significant at the 0.01 level for the standard error, robust SE and robust clustering of the error by state, predicting a reduction of insurance gaps of 2.7% to 3.3% for CYSHCN during the ACA implementation period (Wave 7) and a reduction of insurance gaps of 3.3% to 3.8% for CYSHCN during the subsequent period when insurance policies renew (Wave 8).

3) the NULL hypothesis is that the ACA policy WILL NOT lessen insurance gaps as experienced by overall youth

4) the alternative hypothesis is that the ACA policy WILL lessen insurance gaps as experienced by overall youth

OLS models of Interx, the impact on overall youth, support the alternative hypothesis. OLS estimates were significant at the 0.01 level for all error estimates predicting a reduction of insurance gaps of 4.8% to 4.9% for overall youth during the ACA implementation period (Wave 7) and a reduction of insurance gaps of 5.2% to 5.3% during the subsequent period when all insurance policies renew (Wave 8). FE model findings for overall youth were insignificant. RE only predicted a reduction of insurance gaps of 1.6% for overall youth for both uninsured1 and uninsured2 during the subsequent period when all insurance policies renew (Wave 8) significant at the 0.01 level for the standard error and significant 0.05 level using robust clustering of the error and robust clustering of the error by state. RE results for overall youth were insignificant during the ACA implementation period (Wave 7). Both the RE and FE results provide no strong evidence that the policy led to reduced insurance gaps for overall youth and or youth who are not special needs youth.

The universal mandate was not in effect for the study period for the waves available (2008-2013). Therefore, it is hypothesized that CYSHCN will take advantage of the ACA post 26 policy change whereas overall youth will not, e.g. the effect will be greater in youth with special healthcare needs than overall youth.

5) the NULL hypothesis is that the ACA policy's take-up (e.g. effect) WILL NOT be greater in youth with special healthcare needs than overall youth.

6) the alternative hypothesis is that the ACA policy the take-up (e.g. effect) WILL be greater in youth with special healthcare needs than overall youth.

The overall results suggest the alternative hypothesis. The coefficients and significance levels for CYSHCN (e.g. the sum of Interx + Interxyshcn) in all models are consistently stronger than

that of overall youth (Interx). FE estimates indicate that the ACA had a significant impact on CYSHCN but not on non-CYSHCN.

III. Final Discussion and Observations

The overall effect of the policy was greater in the policy renewal period (Wave 8) than the implementation period (Wave 7). The two dependent variables (uninsured1 and uninsured2) yielded approximately the same coefficients in the models. However, there were wide variations of the insurance gap rates obtained between the two measures of uninsured1 and uninsured2 as shown in Tables 5.4 and 5.5. Uninsured2's rates were consistently lower than Uninsured1, especially for CYSHCN. However both measures' obtained rates fall in the range of insurance gap rates found in the literature (Wang et al. 2010).

As discussed previously, OLS is imprecise and there are various issues with using OLS alone including omitted variable bias. FE models control for omitted variable bias and measures short term effects but may be too restrictive because the estimator only takes into account time invariant variables. FE estimates control for unobserved differences between individuals. While RE models do not control for omitted variable bias, RE estimates are still more efficient than OLS. RE and FE estimates are superior to OLS estimates and where RE and FE estimates differ from that of OLS, FE and RE estimates are preferable to OLS. FE is used for short run effects (Kennedy 2008) and FE should be given greater weight in policy analysis (Wooldridge 2009). FE capture short run effects while RE estimates a mixture of both short and long term effects (Kennedy 2008).

FE results of the full impact of the policy on CYSHCN for uninsured1 predicted a reduction of insurance gaps of 2.3% for CYSHCN during the ACA implementation period (Wave 7) reducing the insurance gap from 49.7% to 47.4% and a reduction of insurance gaps of 2.8% for

CYSHCN reducing the insurance gap from 49.5% to 46.7% during the subsequent period when insurance policies renew (Wave 8) significant at the 0.01 level for the standard error, at the 0.05 level for robust SE and robust clustering of the error by state. FE results of the full impact of the policy on CYSHCN for uninsured2 predicted a reduction of insurance gaps of 2.2% for CYSHCN reducing the insurance gap from 27.8% to 25.6% during the subsequent period when insurance policies renew (Wave 8) at the 0.05 level when using the standard error and marginally significant at the 0.10 level for robust SE and robust clustering of the error by state. In summary, the FE estimates indicate that the ACA provision had a significant impact on CYSHCN but not on non-CYSHCN in the short run.

RE results of the full impact of the policy on CYSHCN for uninsured1 and uninsured2 predicted a reduction of insurance gaps of 3.3% to 2.7% for CYSHCN reducing the insurance gap from 49.7% to 46.4% for Uninsured1 and from 27.9% to 25.2% for uninsured2 during the ACA implementation period (Wave 7) and a reduction of insurance gaps of 3.8% to 3.3% for CYSHCN reducing the insurance gap from 49.5% to 45.7% for Uninsured1 and from 27.8% to 24.5% for uninsured2 during the subsequent period when insurance policies renew (Wave 8) largely significant at the 0.01 level for the standard error, robust SE and robust clustering of the error by state. RE results are consistent in that in all models there is a significant impact of the policy on CYSHCN in both the long and short term.

The falsification tests all strengthen the conclusions reached. The insignificant results of the falsification tests are evidence that the estimates found in the main results were not due to spurious correlation. In the cases where the results of the falsification tests were significant but positive is also evidence that the main results were not due to spurious correlation.

IV. Strengths and Limitations

This study is a first in many respects. Previous research studying the ACA has focused on overall young adults, not CYSHCN. Also, the specifics of transition to adulthood and medical insurance often had weak methodology and small samples in the CYSHCN literature.

The main findings on Table 5.3 show that the ACA had an impact on young adults with special health care needs in almost all specifications and strengthens the basic conclusion that the ACA provision generally had a bigger impact on CYSHCN than non-CYSCHN. The strong results found in for CYSHCN in this study substantiates many of the themes found in the literature review. Policy changes are often associated with insurance discontinuity in public medical insurance for children and this present study shows that this reach has expanded to private insurance and into the realm of young adults. Medical insurance transition is also associated with key ages. Indeed, the dependent coverage regulation is a policy lever that played a critical role in influencing the number of insurance gaps experienced for the key ages of 19 and 26.

Another theme found in the literature review, the lack of a common definition of CYSHCN, was also tackled in this study. This study attempted to create an algorithm to subset CYSHCN out of the SIPP. The QuICCC was discovered to have been mapped to the MEPS dataset to study CYSHCN in the course of the literature review (Stein & Silver, 1999). However, the SIPP has never been mapped to the MCHB standardized screener. The SIPP was not designed with CYSHCN in mind. Therefore, the process of constructing a CYSHCN algorithm was extremely difficult. Mapping the CYSHCN screener onto the SIPP variables was imprecise as the CYSHCN screener is for children and the SIPP disability variables deal mainly with the adult definitions of disability.

The results found in this study echoes concepts in previous research studies. Not only does it demonstrate the complex multiple interactions between insurance type and disability status found in the Wang et al. (2010) study but the insurance gaps rates obtained are in the range of the Wang et al. (2010) study. This study's OLS results also replicate some of the key results of the Antwi et al. study. Using OLS, for non-birth hospital admissions, Antwi et al. determined that their treatment group with private insurance increased by 6% ($p<.01$) as a result of law's implementation compared to ~5% ($p<.01$) found in this current study.

Also, the study population of interest of this dissertation is emerging young adults and these individuals are in between full grown adults and children. The CYSHCN variable was found to be 17.3% of records in the final 2008-2013 SIPP dataset of young adults records aged 19 to 29, approximate with the percentage of CYSHCN 0 to 17 years old (19.2% to 19.8%) found in the general population of children from 2007 to 2011 (National Survey of Children's Health, n.d.), perhaps establishing external validity for the algorithm. However, weights were not used in this study and therefore this assessment might not be accurate for cross sectional estimates.

Weights were not employed in this analysis. As previously stated, the SIPP's stratified sampling leads to overly narrow standard errors. This was accounted for by using robust standard errors and robust clustering of the standard errors by state. SIPP weights only adjust for point estimates but do not adjust standard errors. SIPP workshop materials suggest using replicate weights to adjust both point estimates and standard errors and perhaps this could be done in a subsequent analysis. However, Solon, Haider, and Wooldridge (2013) espouse that one does not necessarily have to weight in a regression framework as the purpose of this study was not to obtain nationally representative estimates.

There are other limitations with this present study. This dissertation only evaluates the existence of insurance gaps but not the adequacy of private insurance for CYSHCN or their out of pocket costs or private insurance's specific coverage of specialized medical services or equipment needed by CYSHCN. Also, as discussed previously, the use of monthly gaps were not possible due to seam bias because the monthly observations are not independent. The 2014 SIPP redesign will greatly mitigate this issue in the future. There is also the issue of attrition in the SIPP 2008 dataset because it spans 5 years. Despite the SIPP's very extensive following rules, an inherent limitation of the SIPP is attrition, especially when it comes to the accuracy of modeling the longitudinal outcomes of disadvantaged respondents in the sample who disproportionately drop out over time due to residential instability (Westat & Mathematica Policy Research Inc., 2001; Shaefer, 2015). In addition, gender information was not used in analysis. Lastly, there is also the observed phenomenon of young adults dropping in and out of the dataset sample due to aging out and being transient in accordance with Emerging Adulthood theory. However, these observed phenomena are assumed to be random.

V. Policy Implications

The experiences of CYSHCN are a litmus test of how the healthcare delivery system and infrastructure is working in general with insurance coverage availability being an important policy lever. This Age 26 policy impacted a significant portion of CYSHCN as 57% of 12 to 17 year old CYSHCN had private insurance only around during this time period (NS-CSHCN 2009/10).

This study found that the ACA dependent coverage policy age extension significantly lessened gaps for transitioning young adults with special healthcare needs. Wooldridge (2009)

espouses that the results of FE estimates are the most convincing for policy analysis. The FE estimates obtained in this study indicate that the dependent coverage provision had a significant impact on CYSHCN but not on non-CYSHCN in the short term. The FE results of the full impact of the policy on CYSHCN predicted a reduction of insurance gaps of 2.3 percentage points for CYSHCN during the policy's implementation period reducing the insurance gap from 49.7% to 47.4% and a reduction of insurance gaps of 2.8 percentage points for CYSHCN, reducing the insurance gap from 49.5% to 46.7% during the policy renewal period. FE results of the full impact of the policy on CYSHCN for uninsured2 predicted a reduction of insurance gaps of 2.2 percentage points for CYSHCN reducing the insurance gap from 27.8% to 25.6% during the policy renewal period. While there were variations of the insurance gap rates obtained between the two dependent variables in this study with uninsured2's rates being consistently lower than uninsured1, both measures' rates fall within the range of insurance gap rates found in the literature. Wang et al. (2010) had previously found in the 2001 SIPP that 36% percent of insured youth without disabilities lost insurance compared to 43% of insured youth with non-severe disabilities and 41% of insured youth with severe disabilities.

It is important to note that insurance gaps of CYSHCN are relatively high and that a rate reduction of 2 to 3 percentage points in light of these rates might be considered relatively minor. But it is also equally important to note that these measures are of insurance gaps or lapses in insurance as opposed to point in time estimates of uninsurance. Therefore, some of these youth will have likely regained insurance after a spell of uninsurance (Wang et al., 2009). However, CYSHCN, especially due to their chronic medical needs, cannot afford to have gaps in health insurance coverage. It is likely that the implementation of the individual mandate in 2014 greatly mitigated this problem. Ultimately, these findings highlight the importance of major

elements of the ACA such as the individual mandate, guaranteed issue/renewal (e.g. elimination of the preexisting conditions clause), essential health benefits and the Medicaid expansion to complement and supplement the Age 26 dependent policy so that CYSHCN can be continuously and adequately covered.

This dissertation covers the period prior to many of the ACA provisions' effective date of 2014. These provisions were extremely beneficial for CYSHCN. Starting in 2014. transitioning CYSHCN individuals and their families were given tax breaks and subsidies to purchase private insurance plans on the federal and state health exchanges. This co-occurred with employer sponsored plans steadily losing their grandfathered status and becoming subject to lifetime coverage caps and other limits. Major ACA provisions in 2014 such as premium and cost sharing subsidies, limits on cost sharing, and guaranteed issue/renewal (e.g. elimination of the preexisting conditions clause) positively mitigated many of the cost and coverage issues experienced by CYSHCN in the private insurance market. Other robust components such as essential health benefits, the individual mandate, and the Medicaid expansion complement and supplement the Age 26 dependent policy to ensure that CYSHCN are continuously and adequately covered.

But just as the ACA was beginning to be the status quo, the ACA stands in imminent danger of being "repealed and replaced" by the incoming administration and the GOP majority House and Senate (Hulse, 2017). The Age 26 provision is unlikely to be repealed due to its popularity and the policy not being related to the federal budget reconciliation process, though the rest of the ACA remains highly negotiable (Aron-Dine, Park, & Leibenluft, 2017; Eilperin & DeBonis, 2017).

One major benefit of the individual mandate is that healthy young adults cannot leave the

insurance market just because they determine that they do not need medical insurance or feel that the premium is above their willingness to pay. Therefore, the phenomenon of adverse selection (healthy people leaving the market and sick people remaining on the market driving up premiums) is eliminated. Medical underwriting based on preexisting conditions, denials, and high premiums had previously kept sick consumers off the market. ACA prohibitions of these practices added more people with health problems to the insurance pool. Due to this situation, medical insurance reform under the ACA can be viewed as an income transfer from those who remain healthy to those who become ill (Folland, Goodman, & Stano, 2013). Therefore, keeping the dependent coverage provision while repealing the universal mandate would further exacerbate the effect of healthy young adults not retaining insurance as well as CYSHCNs having high rates of gaps in insurance. This predicament would not only make the private health insurance system unsustainable, it would also not be beneficial for CYSHCN. The proposed 130% penalty to regain insurance coverage after a lapse (American Health Care Act, 2017) would be an additional detrimental effect on this phenomenon.

Guaranteed issue eliminated the preexisting conditions exclusion allowing CYSHCN access to health insurance coverage and eliminated denials of covered services due to preexisting conditions. The present set of essential health benefits mandated by the ACA is a comprehensive benefit floor that encompasses maternity and newborn care, robust mental health services, a strong prevention component as well as rehabilitative and habilitative services (Lalli, 2013). Habilitative services are healthcare services that assist CYSHCN to keep, learn, or improve skills and functioning for daily living. Services include physical and occupational therapy, speech-language pathology, and other services for youth with disabilities in a variety of inpatient or outpatient settings (HealthCare.gov, n.d.). Under the ACA, habilitation services were widely and

consistently covered for the first time in private insurance plans. Starting in 2014, all individual and small group health policies sold outside the exchanges also were required cover habilitative services (Ollove, 2013). Therefore, keeping the dependent coverage provision while repealing essential health benefits or eliminating the preexisting conditions exclusion would not bode well for CYSHCN given their high need of specialized medical services and high prevalence of underlying medical conditions. Under this scenario, CYSHCN would technically have medical insurance but have extremely inadequate coverage.

Lastly, private insurance has been shown to be less adequate than public insurance in meeting the medical needs of CYSHCN (Ghandour et al., 2015). The Medicaid program's disability criteria are too strict for some CYSHCN to qualify. The 2014 Medicaid expansion provided an option for low income and non-working CYSHCN whom did not meet SSI criteria or whom did not have access to the dependent coverage extension. It also became a potential pathway for CYSHCN transitioning off their parents' private insurance policies post age 26.

Prior to the Medicaid expansion, Medicaid was only available to CYSHCN whom met SSI criteria. Most states also had an optional Medicaid Buy-In program for working adults with disabilities whom met SSI criteria. As of April 2014, all states had a Medicaid Buy-In Program except for Florida, Tennessee, Hawaii, Alabama and the District of Columbia (Centers for Workers with Disabilities/American Public Human Services Association, n.d.). The future of Medicaid remains in jeopardy due to the possible future block granting of Medicaid proposed by Republicans (Luthra, 2017). Any limitations as to the future funds allocated toward or restrictions imposed upon Medicaid would be extremely detrimental to CYSHCN.

VI. Future Research

This dissertation proposal's exploration of the ACA age 26 policy is only a first step in the process of studying insurance adequacy for transitioning CYSHCN. There are many additional interesting research questions to ask.

One immediate follow-up research task would be to explore what factors are driving the obtained decline in insurance gaps found in this study and to specifically determine whether it is private or public insurance. Are parents choosing to keep CYHSCN on their insurance policies while not keeping typical youth? If this is the case, it is additional evidence for keeping the individual mandate and shows how the individual mandate works in conjunction with the age 26 dependent coverage provision to eliminate insurance gaps and sustain the health insurance infrastructure.

It will also be interesting to compare the algorithm's subset of CYSHCN with the severe and nonsevere categories of the SIPP to see if the groups are any different in terms of descriptive statistics or in any other way.

The more robust reforms of the ACA took effect January 1, 2014 including the individual mandate. An important next step is to see if the increased gap effects hold when the individual mandate was enacted in this population but this exploration was discovered not to be possible using the SIPP. The 2008 SIPP panel ended December 2013 and the new redesigned 2014 SIPP panel did not commence until February 2014. Another data source, the Child Development Supplement (CDS) of the Panel Study of Income Dynamics (PSID) which provides a nationally representative longitudinal follow-up of children in waves as they break off from their families and transition into young adulthood will be explored to see if it is possible to replicate this present research as well as further study the individual mandate and subsequent health policy

changes.

In general, more extensive research needs to be done in the area of youth with special healthcare needs and their retention of insurance as they transition into adulthood. While this study did find some strong effects of the elimination of insurance gaps for them under the age 26 ACA provision, it is hoped that further research would shed more light on this phenomenon.

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Appendix 1: CYSHCN Screener

CSHCN Screener

- Need or use medicine prescribed by a doctor
- Need or use more medical care, mental health, or educational services than is usual for most children
- Limited or prevented in ability to do things
- Need or get special therapy
- Need or get treatment or counseling for an emotional, developmental, or behavioral problem

Screener Follow-Up Questions

- Is this due to a medical, behavioral, or other health condition?
- Is this a condition that has lasted or is expected to last 12 months or longer?

Source: http://mchb.hrsa.gov/mchirc/dataspeak/events/nov_07/materials/blumberg_files/textonly/slide4.html

Appendix 2: Questionnaire for Identifying Children with Chronic Conditions

The QuICCC- R – Individual Version
Questionnaire for Identifying Children with Chronic Conditions – Revised Short Version

1.	Does (name) take medicine or drugs prescribed by a doctor other than regular vitamins? ❒ No (Go to 2) ❒ Yes ➡ ❒ Don't Know (Go to 2)	**1a.**	Is this because of a medical, behavioral, or other health condition that (name) still has? ❒ No (Go to 2) ❒ Yes ➡ ❒ Don't Know (Go to 2)	**1b.**	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
2.	Does (name) have life-threatening allergic reactions? ❒ No (Go to 3) ❒ Yes ➡ ❒ Don't Know (Go to 3)	**2a.**	Is this because of a medical, behavioral, or other health condition that (name) still has? ❒ No (Go to 3) ❒ Yes ➡ ❒ Don't Know (Go to 3)	**2b.**	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
3.	Has a doctor told you that (name) needs to follow a special diet or avoid certain foods? ❒ No (Go to 4) ❒ Yes ➡ ❒ Don't Know (Go to 4)	**3a.**	Is this because of a medical, behavioral, or other health condition that (name) still has? ❒ No (Go to 4) ❒ Yes ➡ ❒ Don't Know (Go to 4)	**3b.**	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
4.	Does (name) go to a medical doctor or specialist on a regular basis? ❒ No (Go to 5) ❒ Yes ➡ ❒ Don't Know (Go to 5)	**4a.**	Is this because of a medical, behavioral, or other health condition that (name) still has? ❒ No (Go to 5) ❒ Yes ➡ ❒ Don't Know (Go to 5)	**4b.**	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know

5.	Does (name) go to a counselor, psychiatrist, psychologist, or social worker on a regular basis? ❒ No (Go to 6) ❒ Yes ➡ ❒ Don't Know (Go to 6)	5a.	Is this because of a medical, behavioral, or other health condition that (name) still has? ❒ No (Go to 6) ❒ Yes ➡ ❒ Don't Know (Go to 6)	5b.	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
6.	Does (name) now receive Services such as physical Therapy, occupational therapy, speech or language therapy, or orientation and mobility training On a regular basis? ❒ No (Go to 7) ❒ Yes ➡ ❒ Don't Know (Go to 7)	6a.	Is this because of a medical, behavioral, or other health condition that (name) still has? ❒ No (Go to 7) ❒ Yes ➡ ❒ Don't Know (Go to 7)	6b.	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
7.	Has (name) ever been hospitalized? ❒ No (Go to 8) ❒ Yes ➡ ❒ Don't Know (Go to 8)	7a.	Is this because of a medical, behavioral, or other health condition that (name) still has or gets from time to time? ❒ No (Go to 8) ❒ Yes ➡ ❒ Don't Know (Go to 8)	7b.	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
8.	Has (name) needed medical, health-related, or mental health services that he/she has been unable to get? ❒ No (Go to 9) ❒ Yes ➡ ❒ Don't Know (Go to 9)	8a.	Is this because of a medical, behavioral, or other health condition that (name) still has or gets from time to time? ❒ No (Go to 9) ❒ Yes ➡ ❒ Don't Know (Go to 9)	8b.	Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know

9.	Have you been told by a medical doctor or specialist that (name) has a serious delay in his/her physical growth or development?	➡	❒ No ❒ Yes* ❒ Don't Know
10.	Have you been told by a medical doctor or specialist that (name) has a serious delay in his/her mental or emotional growth or development?	➡	❒ No ❒ Yes* ❒ Don't Know
11.	Compared to other children or youth his/her age, does (name) have to reduce the amount of time or effort that he/she can exert in any activity? ❒ No (Go to 12) ❒ Yes ➡ ❒ Don't Know (Go to 12)	**11a.** Is this because of a medical, behavioral, or other health condition that (name) still has? ❒ No (Go to 12) ❒ Yes ➡ ❒ Don't Know (Go to 12)	**11b.** Has this condition been going or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
12.	Is (name) blind, nearly blind, or does he/she have difficulty seeing? ❒ No (Go to 13) ❒ Yes ➡ ❒ Don't Know (Go to 13)	**12a.** Do regular eye glasses or contact lenses completely correct the problem? ❒ Yes (Go to 13) ❒ No ➡ ❒ Don't Know (Go to 13)	**12b.** Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know
13.	Is (name) deaf, nearly deaf, or does he/she have difficulty hearing? ❒ No (Go to 14) ❒ Yes ❒ Don't Know (Go to 14)	➡	**13a.** Has this condition been going on or is it expected to go on for at least one year? ❒ No ❒ Yes* ❒ Don't Know

INSTRUCTIONS TO INTERVIEWER: IF CHILD IS IN SCHOOL OR DAY CARE, ASK QUESTIONS 14
IF NOT, SKIP TO THE INSTRUCTIONS PRECEDING QUESTION 15

14. I will read a list of special arrangements in school or day care. Please answer yes or no to each of the following types of special arrangements that (name) receives:

–modification of class schedule, curriculum, or gym classes?	❒	No	❒	Yes
	❒	Don't Know		
–making the classroom accessible for his/her use?	❒	No	❒	Yes
	❒	Don't Know		
–getting and using special equipment?	❒	No	❒	Yes
	❒	Don't Know		
–providing special lunches or snack?	❒	No	❒	Yes
	❒	Don't Know		
–providing special transportation?	❒	No	❒	Yes
	❒	Don't Know		
–tutoring by a teacher or other professional, or resource room?	❒	No	❒	Yes
	❒	Don't Know		

INSTRUCTION TO INTERVIEWER

IF ANY YES, GO TO 14a, OTHERWISE TO 15.

14a. Is this because of a medical, behavioral, or other health condition that (name) still has

❒ **No (Go to 15)** ❒ **Yes ➡**
❒ **Don't Know (Go to 15)**

14b. Has this condition been going on or is it expected to go on for at least one year?

❒ **No** ❒ **Yes***
❒ **Don't Know**

INSTRUCTIONS TO INTERVIEWER:	**IF >2 YEARS OLD, GO TO 15. IF ≤ 2 YEARS OLD, END INTERVIEW.**		
15.	Except for occasional words, does (name) have trouble understanding simple instructions?	→	❒ No ❒ Yes* ❒ Don't Know
INSTRUCTIONS TO INTERVIEWER:	**IF >3 YEARS OLD, GO TO 16. IF ≤ 3 YEARS OLD, END INTERVIEW.**		
16.	Except for occasional words, when (name) talks, do others outside the family have trouble understanding him/her?	→	❒ No ❒ Yes* ❒ Don't Know

THANK YOU FOR YOUR HELP IN COMPLETING THIS INTERVIEW

Source: https://tn.gov/assets/entities/health/attachments/QUiCCC_R.pdf

Appendix 3: Young Adults With Special Health Care Needs/Disabilities Possible Bridge Definition

The National Center for Health Statistics (NCHS) classifies someone as having a disability if he or she has any of the following:

> (1) a specific physical, functional, or mental or emotional disability or limiting condition;
> (2) significant limitations in performing daily self-maintenance activities;
> (3) need for the use of special equipment or devices, such as a wheelchair or breathing aid;
> (4) limitation in a major or other life activity because of physical, mental, or emotional problems;
> (5) income or insurance based on disability;
> (6) other indicators of disability, such as poor overall health status, use of specialized programs or services, or other behavioral indicators of disability or developmental delay;

Source: White, 2002

Appendix 4: Census data and SIPP: Severe and Nonsevere Disability

The SIPP is a longitudinal survey conducted over a period of 3 to 5 years. During each interview or "wave", supplemental questionnaires or "topical modules (TM)" touch on different topics. Three topical modules cover disability specifically:

- Work Disability History TM (2008 Panel, Wave 2 January 2009 - April 2009)
- Adult Functional Limitations TM (2008 Panel, wave 6 May 2010 - August 2010)
- Child Functional Limitations TM (2008 Panel, wave 6 May 2010 - August 2010)

In the 2008 SIPP, the six disability questions used in the ACS as well as use of prescription medications as an indicator were added to the Medical Expenses and Utilization of Health Care TM (Waves 4 September 2009 - December 2009, Wave 7 September 2010 - December 2010, and Wave 10 September 2011 - December 2011).

In the 2008 SIPP, wave 6 Adult and Child Functional Limitations topical modules, there now exists a variable – RDISAB and RKDISAB, respectively – that are recodes of the overall disability status used in the Americans with Disabilities Report. The code shown here replicates the logic used to generate these variables using the individual disability types collected in the SIPP.

Adults:

RDISAB

(1=Severe disability, 2=Nonsevere disability, 3=No disability)

Children:

RKDISAB

(1=Severe disability, 2=Nonsevere disability, 3=No disability)

Source: https://www.census.gov/people/disability/methodology/sippprogramming.html

Appendix 5: CYSHCN Algorithm

PRESCRIPTIONS			
Variable	**Descriptor**	**Source**	**Notes**
EDALYDRG	**Report of daily prescription usage**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code Yes for YSHCN if: 1) any 2 of the 3 waves is positive for this criteria; OR 2) positive for at least one wave and (ELAST12M variable is positive or ENOWKYR (also asked three times in the three waves) is (1) a year or longer);**
EPRESDRG	**Prescription medication use in the last 12 months**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code Yes for YSHCN if: 1) positive for at least one wave and (ELAST12M variable is positive or ENOWKYR (also asked three times in the three waves) is (1) a year or longer);**
EPRSDRGS	**Children prescription medication use last 12 months**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code Yes for YSHCN if: 1) positive for at least one wave and (ELAST12M variable is positive or ENOWKYR (also asked three times in the three waves) is (1) a year or longer);**
EADHDMED	**Medication or receive treatment for ADHD**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable and ELAST12M is positive or ENOWKYR is 1 ; also in EBD tab**

MORE SERVICES			
Variable	**Descriptor**	**Source**	**Notes**
ESPECED	**Special education services, ever**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**Code Yes if positive for this variable and either 1) positive for relevant condition variables (EMNCOND, EMAIN1-2, ECOND1-3, ECONDPH1-3, ECONDW1-3, EALLCON1-9, EALCON10-30) or 2) frequency variables (ELAST12M, ENOWKYR)**
ESPEDNOW	**Special education services, current**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**Code Yes for YSHCN if positive for this variable**

FUNCTIONAL LIMITATIONS			
Variable	**Descriptor**	**Source**	**Notes**
EDIS1	**Hearing difficulty**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code for Yes for YSHCN if: 1) 2 of the 3 waves is positive for this criteria; 2) positive for this variable for at least 1 wave and ELAST12M is positive or if ENOWKYR is 1 (a year or more)**

EDIS2	**Vision difficulty**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code for Yes for YSHCN if: 1) 2 of the 3 waves is positive for this criteria; 2) positive for this variable for at least 1 wave and ELAST12M is positive or if ENOWKYR is 1 (a year or more)**
EDIS3	**Cognitive difficulty**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code for Yes for YSHCN if: 1) 2 of the 3 waves is positive for this criteria; 2) positive for this variable for at least 1 wave and ELAST12M is positive or if ENOWKYR is 1 (a year or more)**
EDIS4	**Ambulatory difficulty**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code for Yes for YSHCN if: 1) 2 of the 3 waves is positive for this criteria; 2) positive for this variable for at least 1 wave and ELAST12M is positive or if ENOWKYR is 1 (a year or more)**
EDIS5	**Self-care difficulty**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code for Yes for YSHCN if: 1) 2 of the 3 waves is positive for this criteria; 2) positive for this variable for at least 1 wave and ELAST12M is positive or if ENOWKYR is 1 (a year or more)**
EDIS6	**Independent living difficulty**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**The question is asked over a period that spans 3 years (9/09-12/09 to 9/10-12/10 to 9/11-12/11) so code for Yes for YSHCN if: 1) 2 of the 3 waves is positive for this criteria; 2) positive for this variable for at least 1 wave and ELAST12M is positive or if ENOWKYR is 1 (a year or more)**

EARMLEG	**long lasting condition arms/legs;**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EBATHDIF	**Difficulty taking a bath or shower**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EBATHH	**Need help taking a bath or shower**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EBEDDIF	**Difficulty getting in and out of bed or a chair**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

EBEDHELP	**Need help getting in and out of bed or a chair**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ECANE	**Use of cane, crutches, or walker**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ECANT10	**Ability to lift and carry 10 pounds at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ECANT25	**Ability to lift and carry a 25 pound bag at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

EDIF10	**Difficulty lifting and carrying 10 pounds**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EDIF25	**Difficulty lifting and carrying 25 pounds**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EDRESSD	**Difficulty dressing**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EDRESSH	**Need help dressing**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

EEATDIF	**Difficulty eating**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EEATHELP	**Need help eating**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EGRASPC	**Ability to use hands and fingers at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EGRASPD	**Difficulty using hands and fingers**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EHEARAID	**Use of a hearing aid**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EHEARDIF	**Difficulty hearing what is said in conversation**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EHEARNOT	**Ability to hear what is said at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EINDIF	**Difficulty getting around inside the home**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EINHELP	**Need help getting around inside the home**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKBATHDF	**Difficulty taking bath/shower**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKBATHH	**Need help taking bath or shower**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKBEDDIF	**Difficulty getting in/out of bed/chair**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EKBEDHLP	**Needs help getting in/out of bed/chair**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKCANE	**Physical aids used**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKDRESSD	**Difficulty putting on clothes**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKDRESSH	**Need help putting on clothes**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EKEATDIF	**Difficulty eating food**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKEATHLP	**Need help eating food**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKHEARAD	**Use of a hearing aid**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKHEARDF	**Difficulty hearing with aid**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EKHEARNT	**Hear normal conversation at all**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKINDIF	**Getting around inside home**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKINHELP	**Needs help getting around inside the home**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKSEEDIF	**Difficulty seeing words/letters**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EKSEENOT	**See ordinary newspaper at all**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKSPECHC	**Speech not understood**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKSPECHD	**Difficulty having speech understood**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKTOILTD	**Difficulty using/getting to toilet**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EKTOILTH	**Need help using/getting to toilet**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EKWCHAIR	**Physical aids used**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EMEALSD	**Difficulty preparing meal**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EMEALSH	**Need help preparing meals**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EMEDD	**Difficulty taking the right amount of medicine**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EMEDH	**Need help taking the right amount of medicine**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EOUTDIF	**Difficulty going outside the home**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EOUTHELP	**Need help going outside the home**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

EPUSHC	**Ability to push or pull large objects at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EPUSHD	**Difficulty pushing or pulling large objects**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
EREACHD	**Difficulty reaching over head**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
ESEEDIF	**Difficulty seeing words/letters in newspaper print**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**

ESEENOT	**Ability to see words and letters in print at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable**
ESTAIRSC	**Ability to walk up a flight of stairs at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ESTAIRSD	**Difficulty walking up a flight of stairs**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ESTANDD	**Difficulty standing or being on feet**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

ESTOOPD	**Difficulty stooping, crouching, or kneeling**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ETOILETD	**Difficulty using or getting to the toilet**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ETOILETH	**Need help using or getting to the toilet**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EWALK2D	**Difficulty walking**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

EWALK2H	**Need help walking**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EWCHAIR	**Use of wheelchair, elect scooter for getting around**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EDDELAY	**Physical and mental condition**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable; also in EBD tab**
EJOBDIF	**Long-lasting physical or mental condition**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in EBD tab**

ESKOOLWK	**Physical/learning/mental condition**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in EBD tab**
ESPEECHC	**Ability to understand speech at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in EBD tab**
ESPEECHD	**Difficulty having speech understood**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in EBD tab**
EHWORKD	**Difficulty doing light housework**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

EHWORKH	**Need help doing light housework**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EHWRKDIF	**Condition limiting the kind/amount of housework**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EHWRKNO	**Health/condition prevents doing any housework**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EJOBCANT	**Health or condition preventing working**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

EWALKC	**Ability to walk a quarter of a mile at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EWALKD	**Difficulty walking a quarter of a mile**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**

EMOTIONAL, BEHAVIORAL, DEVELOPMENTAL			
Variable	**Descriptor**	**Source**	**Notes**
EANXIOUS	**Frequently Depressed or Anxious**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EDEVDIS	**Developmental disability**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EADHD	**ADHD**	**SIPP Topical Module Functional Limitations**	**code Yes for YSHCN if positive for this variable**

		and Disability (Child) wave 6 – Asked once	
EKDEVDIS	**Developmental disability**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EKMR	**Mental Retardation**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ELDIS	**Learning Disability**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ELERNDIS	**Learning Disability like Dyslexia**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EMR	**Mental Retardation**	**SIPP Topical Module Functional Limitations and**	**code Yes for YSHCN if positive for this variable**

		Disability (Adult) wave 6 – Asked once	
EOTHERDC	**Other Developmental Condition**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EOTHERM	**Other mental or emotional condition**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ESOCIAL	**Trouble getting along with other people**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
ECOPE	**Trouble coping with stresses**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable**
EKSOCIAL	**Difficult to play/get along with other children**	**SIPP Topical Module Functional Limitations and Disability**	**code Yes for YSHCN if positive for this variable**

		(Child) wave 6 – Asked once	
EDDELAY	**Physical and mental condition**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in Functional Limitations Tab**
EADHDMED	**Medication or receive treatment for ADHD**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code Yes for YSHCN if positive for this variable and ELAST12M is positive or ENOWKYR is 1 ; also in Prescriptions tab**
EJOBDIF	**Long-lasting physical or mental condition**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in Functional Limitations Tab**
ESPEECHC	**Ability to understand speech at all**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in Functional Limitations Tab**
ESPEECHD	**Difficulty having speech understood**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave**	**code for Yes for YSHCN if positive for this variable; also in Functional Limitations Tab**

		6 – Asked once	
ESKOOLWK	**Physical/learning/mental condition**	**SIPP Topical Module Functional Limitations and Disability (Child) wave 6 – Asked once**	**code for Yes for YSHCN if positive for this variable; also in Functional Limitations Tab**

OTHER RELEVANT VARIABLES				
Variable	**Descriptor**	**Source**	**Notes**	**Additional Notes**
ELAST12M	**Condition expected to last 12+ months**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6**	**All persons 15+ at end of the reference period whose condition began in 2010; used in conjunction with Prescriptions tab**	**Frequency Variable**
ENOWKYR	**Length of time not worked due to health**	**SIPP Topical Modules Medical Expenses – Asked three times in waves 4,7,10**	**options are a year or longer (1) or less than a year (2)**	**Frequency Variable**
MEDICAL CONDITIONS VARIABLES				
EMNCOND	**Health condition responsible for work limitation**	**SIPP Topical Module Work Disability History Topical Module Variables wave 2**	**All persons 16 to 67 years old with a health condition that limits the kind or amount of work they can do**	**Condition Variable**

EMAIN1	**Main reason for difficulty**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6**	**All persons 15+ at end of the reference period who have two or more conditions that cause difficulties or health problems**	**Condition Variable**
EMAIN2	**Main reason for work limitation**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6**	**All persons 15+ at end of the reference period who have one condition or a main condition**	**Condition Variable**
ECOND1	**First condition causing difficulty**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 15+ at end of the reference period who have difficulty with certain activities**	**Condition Variable**
ECOND2	**Second condition causing difficulty**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 15+ at end of the reference period who have a first reported condition causing difficulty with certain activities**	**Condition Variable**
ECOND3	**Third condition causing difficulty**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 15+ at end of the reference period who have a second reported condition causing difficulty with certain activities**	**Condition Variable**

ECONDPH1	**First condition causing fair/poor health**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 15+ at end of the reference period who have fair or poor health but who have no activity limitation**	**Condition Variable**
ECONDPH2	**Second condition causing fair/poor health**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 15+ at end of the reference period who have a first reported condition causing fair or poor health**	**Condition Variable**
ECONDPH3	**Third condition causing fair/poor health**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 15+ at end of the reference period who have a second reported condition causing fair or poor health**	**Condition Variable**
ECONDW1	**First condition causing limitation in working**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 16+ at end of the reference period with a physical, mental, or other health condition that limits working around the house or remaining in or having employment**	**Condition Variable**
ECONDW2	**Second condition causing limitation in working**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 16+ at end of the reference period with a reported first condition that limits working around the house or remaining in or having employment**	**Condition Variable**

ECONDW3	**Third condition causing limitation in working**	**SIPP Topical Module Functional Limitations and Disability (Adult) wave 6 – Asked once**	**All persons 16+ at end of the reference period with a reported second condition that limits working around the house or remaining in or having employment.**	**Condition Variable**
EALLCON1-9	**Health condition responsible for work limitation**	**SIPP Topical Module Work Disability History Topical Module Variables wave 2**	**Specific Condition Variable**	**Condition Variable**
EALCON10-30	**Health condition responsible for work limitation**	**SIPP Topical Module Work Disability History Topical Module Variables wave 2**	**Specific Condition Variable**	**Condition Variable**

Appendix 6: Sample list of Conditions

Sample List of Medical Conditions in the SIPP

Alcohol or drug problem or disorder
AIDS or AIDS Related Condition (ARC)
Arthritis or rheumatism
Back or spine problems
Blindness or vision problems
Broken bone/fracture
Cancer
Carpal tunnel syndrome
Cerebral Palsy
Deafness or serious trouble hearing
Diabetes
Epilepsy or seizures
Head or spinal cord injury
Heart trouble (Heart attack/disease)
Hernia
High blood pressure
Kidney stones/kidney trouble
Learning disability
Lung or respiratory trouble
Mental or emotional conditions
Mental retardation
Missing limbs/foot/hand/finger
Multiple sclerosis (MS)
Paralysis of any kind
Stiff/deformed/foot/hand/finger
Stomach trouble
Stroke
Thyroid trouble or goiter
Tumor, cyst or growth
Other

* Denotes non "silver bullet" conditions

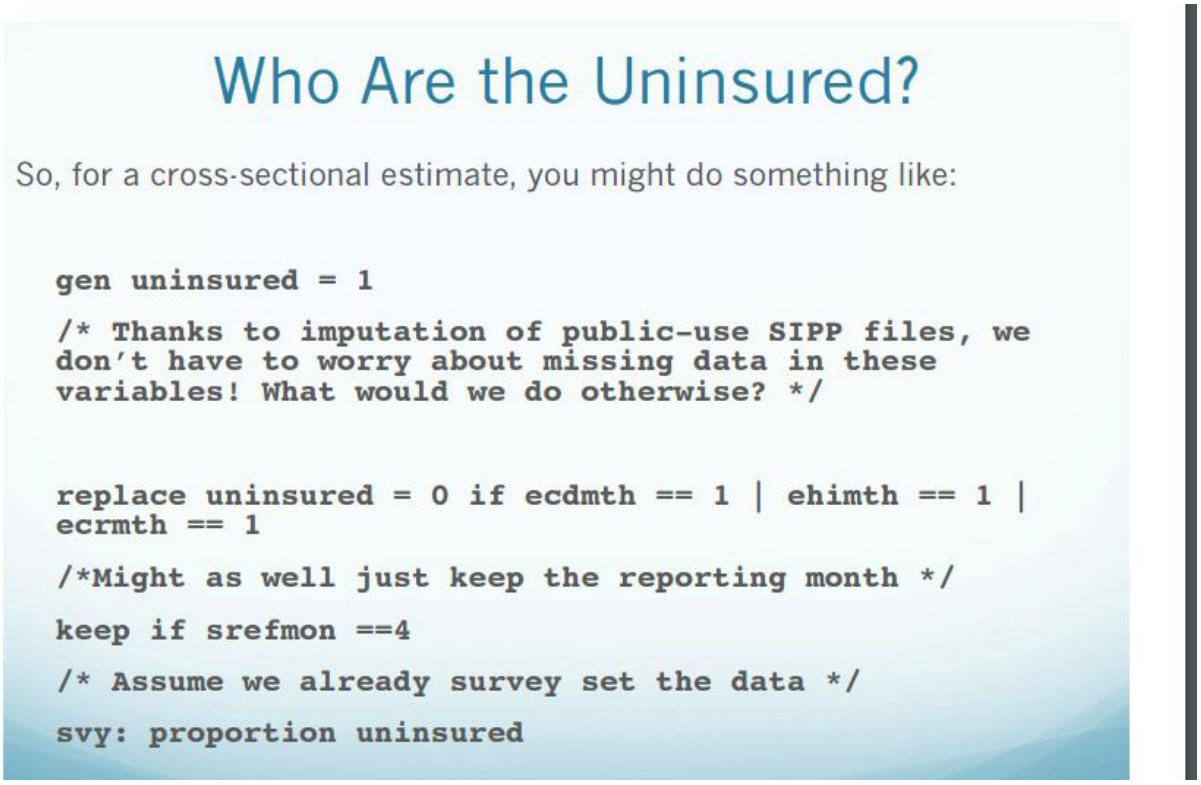
Appendix 7: Insurance Variables and How to Derive NPC Calculated Insurance Gaps

Example: Who Are the Uninsured?

SIPP estimates of the uninsured are based on questions about insurance type, three variables in particular:

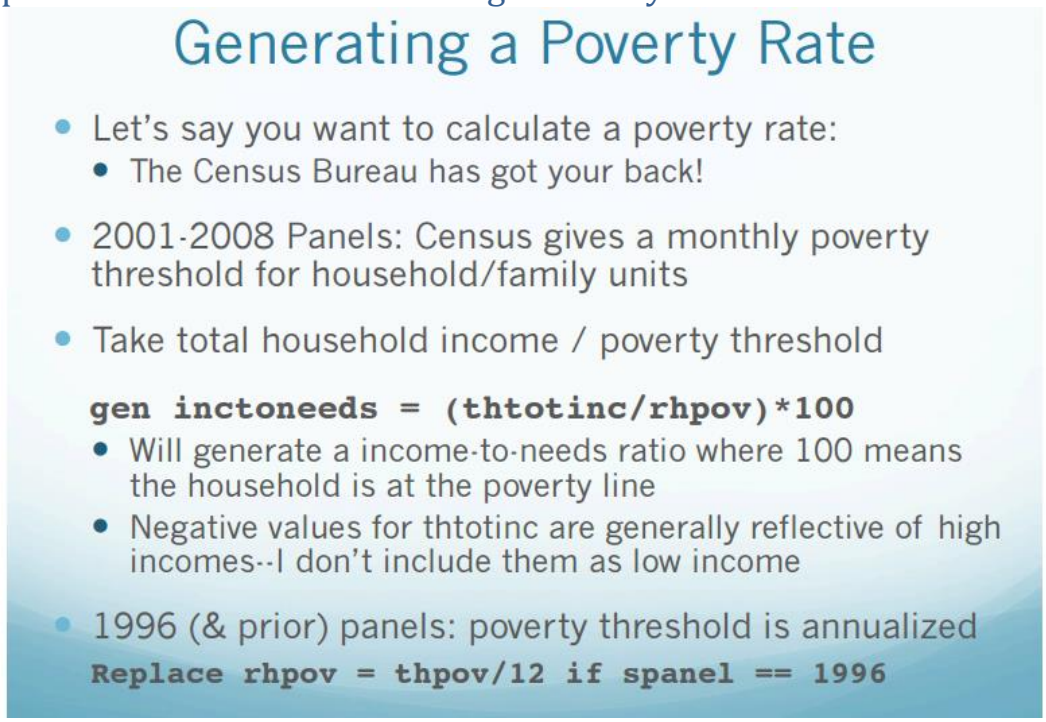
Variable	Description
ecdmth	Medicaid coverage (includes CHIP) 1 = yes 2 = no
ecrmth	Medicare coverage 1 = yes 2 = no
ehimth	All other coverage 1 = yes 2 = no
emcocov	Type of public coverage

Source: The Census Bureau in partnership with the University of Michigan Sponsored SIPP Data Workshop May 15, 2015



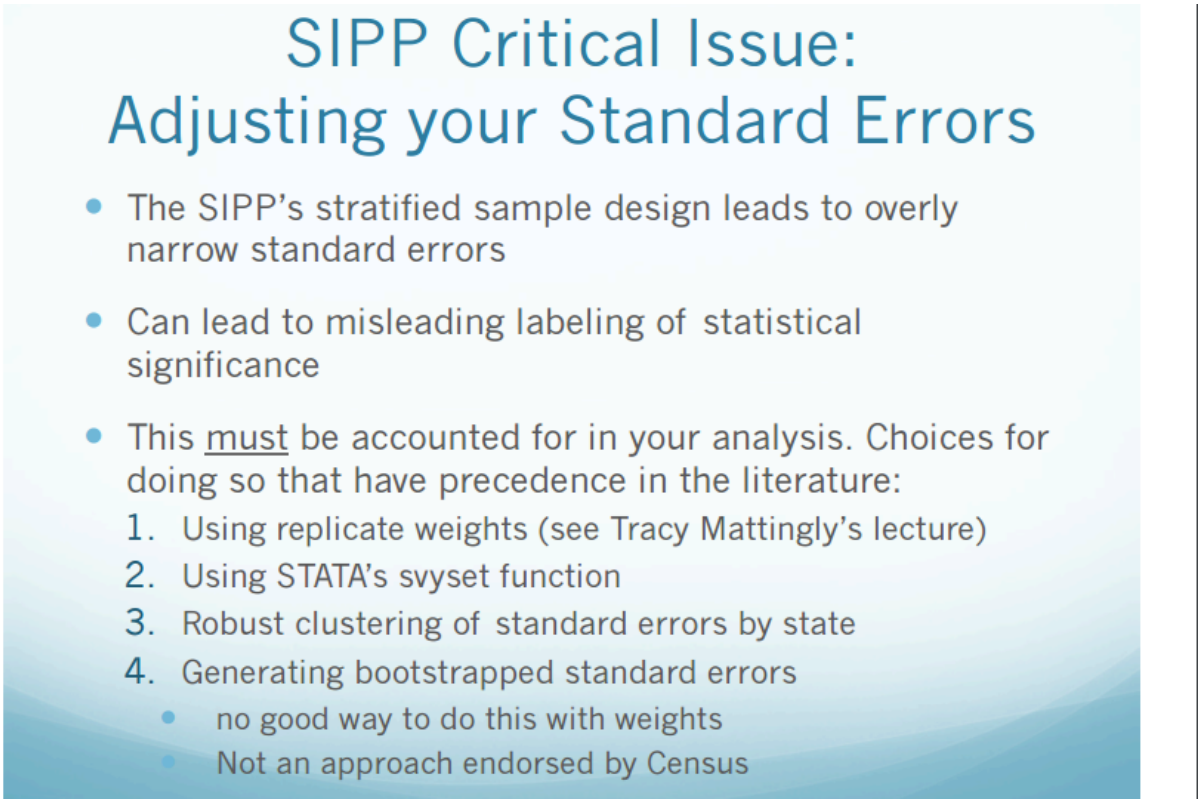
Source: The Census Bureau in partnership with the University of Michigan Sponsored SIPP Data Workshop May 15, 2015

Appendix 8: SIPP 2008 Generating a Poverty Rate

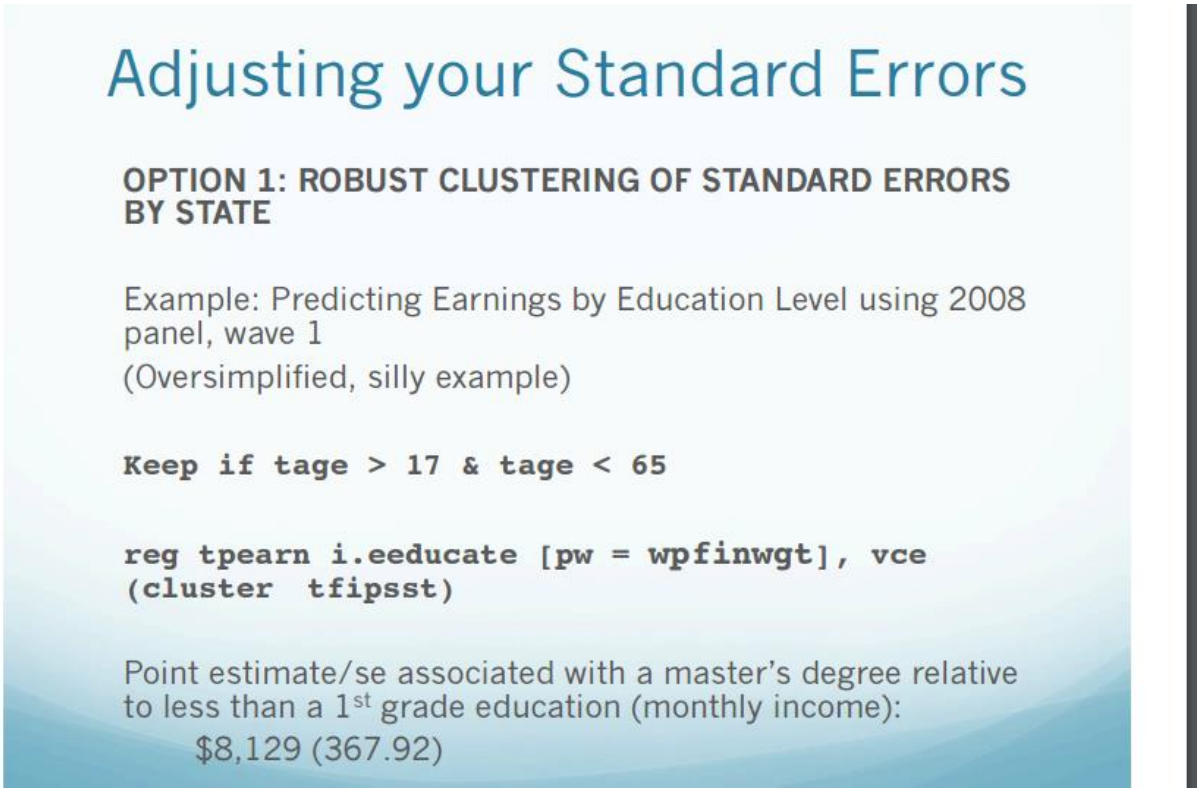


Source: The Census Bureau in partnership with the University of Michigan Sponsored SIPP Data Workshop May 15, 2015

Appendix 9: Adjusting Standard Errors

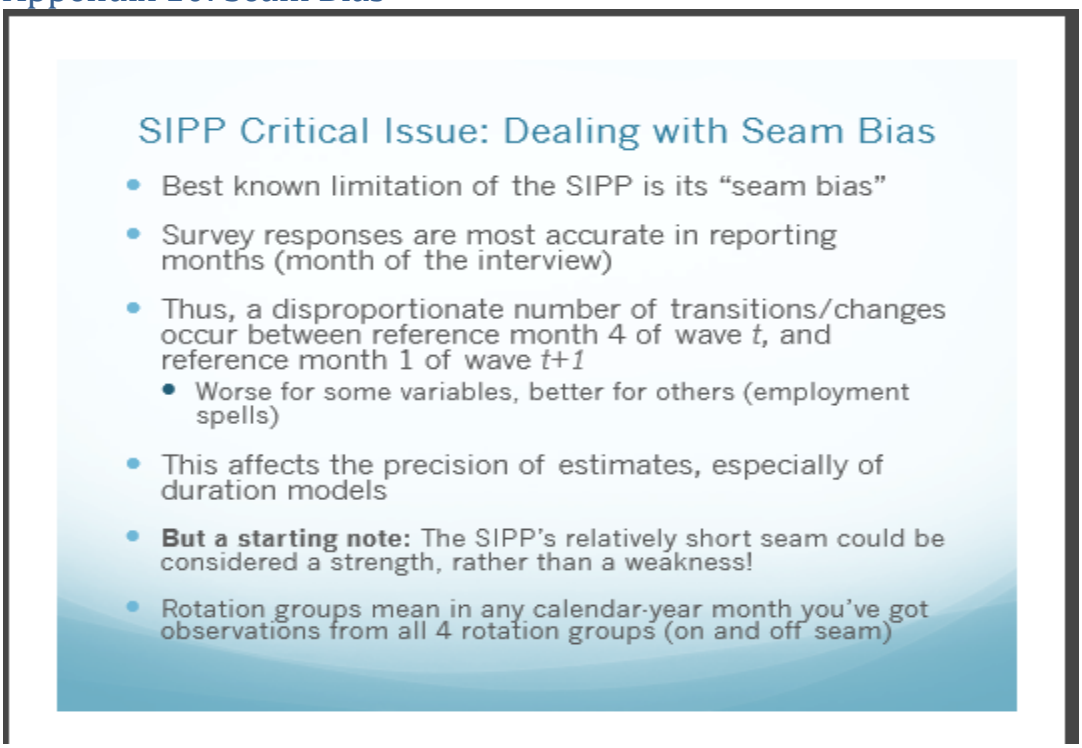


Source: The Census Bureau in partnership with the University of Michigan Sponsored SIPP Data Workshop May 15, 2015



Source: The Census Bureau in partnership with the University of Michigan Sponsored SIPP Data Workshop May 15, 2015

Appendix 10: Seam Bias



Source: The Census Bureau in partnership with the University of Michigan Sponsored SIPP Data Workshop May 15, 2015

Appendix 11: Full Regression Results

Implementation Period					
OLS	uninsured1	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	Tfipsst	-0.00007	0.4150	0.4230	0.8660
	Erace	0.01406	0.0000	0.0000	0.0050
	Ecitizen	0.08855	0.0000	0.0000	0.0000
	ecitizen_href	0.11173	0.0000	0.0000	0.0000
	Eorigin	-0.06369	0.0000	0.0000	0.0000
	eorigin_href	-0.07877	0.0000	0.0000	0.0000
	Thtotinc	-0.00001	0.0000	0.0000	0.0000
	Inctoneeds	-0.00019	0.0000	0.0000	0.0000
	Rhpov	0.00010	0.0000	0.0000	0.0000
	rmesr1_href	0.02363	0.0000	0.0000	0.0000
	rmesr1	0.05725	0.0000	0.0000	0.0000
	Ems	0.00788	0.0000	0.0000	0.0010
	ems_href	0.02490	0.0000	0.0000	0.0000
	Rfnkids	-0.02726	0.0000	0.0000	0.0000
	rfnkids_href	0.03962	0.0000	0.0000	0.0000
	healthstatus	0.05896	0.0000	0.0000	0.0000
	Tage	0.00736	0.0000	0.0000	0.0000
	Medexp	-0.02823	0.0000	0.0000	0.0240
	Ur	0.01029	0.0000	0.0000	0.0010
	SinglePrem	-0.00003	0.0040	0.0040	0.5050
	FamPrem	0.00001	0.0000	0.0000	0.2970
	Ssi	0.16820	0.0000	0.0000	0.0000
	pubins_href	0.23233	0.0000	0.0000	0.0000
	yshcn_flag	-0.01817	0.0040	0.0040	0.0610
	Treatment	0.05314	0.0000	0.0000	0.0000
	post_policy	0.01103	0.0210	0.0210	0.2550
	Interx	-0.04788	0.0000	0.0000	0.0000
	Interxyshcn	-0.00657	0.5570	0.5490	0.6190
	yshcnpost	0.00773	0.3730	0.3600	0.5060
	yshcntreatment	-0.00208	0.8000	0.7990	0.8820
	_cons	-0.30234	0.0000	0.0000	0.0010
	interx+interxyshcn	-0.05446	0.0000	0.0000	0.0004

Implementation Period					
OLS	uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00021	0.0120	0.0130	0.6630
	erace	0.01183	0.0000	0.0000	0.0150
	ecitizen	0.11238	0.0000	0.0000	0.0000
	ecitizen_href	0.09786	0.0000	0.0000	0.0000
	eorigin	-0.06996	0.0000	0.0000	0.0000
	eorigin_href	-0.06890	0.0000	0.0000	0.0000
	thtotinc	-0.00001	0.0000	0.0000	0.0040
	inctoneeds	-0.00018	0.0000	0.0000	0.0000
	rhpov	0.00010	0.0000	0.0000	0.0000
	rmesr1_href	0.04739	0.0000	0.0000	0.0000
	rmesr1	0.01884	0.0000	0.0000	0.0000
	ems	0.01183	0.0000	0.0000	0.0000
	ems_href	0.01115	0.0000	0.0000	0.0000
	rfnkids	-0.03848	0.0000	0.0000	0.0000
	rfnkids_href	0.01235	0.0010	0.0030	0.3380
	healthstatus	0.04288	0.0000	0.0000	0.0000
	tage	0.00922	0.0000	0.0000	0.0000
	medexp	-0.06328	0.0000	0.0000	0.0000
	ur	0.00839	0.0000	0.0000	0.0110
	SinglePrem	-0.00012	0.0000	0.0000	0.0410
	FamPrem	0.00002	0.0000	0.0000	0.1700
	ssi	-0.31032	0.0000	0.0000	0.0000
	pubins_href	-0.12533	0.0000	0.0000	0.0000
	yshcn_flag	-0.07041	0.0000	0.0000	0.0000
	treatment	0.05684	0.0000	0.0000	0.0000
	post_policy	0.01743	0.0000	0.0000	0.1210
	interx	-0.04851	0.0000	0.0000	0.0000
	interxyshcn	0.00657	0.5630	0.5490	0.6540
	yshcnpost	0.00529	0.5480	0.5280	0.6190
	yshcntreatment	0.00736	0.3780	0.3680	0.6030
	_cons	-0.19333	0.0000	0.0000	0.0510
	interx+interxyshcn	-0.04193	0.0000	0.0000	0.0035

Implementation Period					
FE	**uninsured1**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	rfnkids	-0.00329	0.5450	0.6470	0.6380
	rfnkids_href	0.00244	0.6570	0.7360	0.7360
	ems	0.00819	0.0000	0.0000	0.0010
	ems_href	0.00731	0.0000	0.0000	0.0010
	medexp	0.04427	0.0000	0.0060	0.0010
	ur	0.00631	0.0000	0.0000	0.0000
	SinglePrem	-0.00004	0.0010	0.0140	0.0470
	FamPrem	0.00000	0.1660	0.2760	0.3310
	rmesr1_href	0.01337	0.0000	0.0000	0.0000
	rmesr1	0.03586	0.0000	0.0000	0.0000
	healthstatus	0.00260	0.1090	0.2880	0.2570
	tage	0.00033	0.7950	0.8380	0.8630
	ssi	0.03697	0.0010	0.0090	0.0080
	pubins_href	0.07117	0.0000	0.0000	0.0000
	treatment	-0.01291	0.0160	0.0890	0.1240
	post_policy	-0.00705	0.1230	0.2410	0.2610
	interx	-0.00017	0.9740	0.9810	0.9840
	interxyshcn	-0.02290	0.0190	0.0890	0.0620
	yshcnpost	0.02030	0.0110	0.0570	0.0360
	yshcntreatment	-0.01236	0.2150	0.3860	0.2650
	_cons	0.20997	0.0000	0.0000	0.0000
	interx+interxyshcn	-0.02306	0.0062	0.0442	0.0172

Implementation Period					
FE	**uninsured2**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	rfnkids	-0.01837	0.0020	0.0810	0.1100
	rfnkids_href	0.00943	0.1140	0.3760	0.3680
	ems	0.01139	0.0000	0.0000	0.0000
	ems_href	0.00007	0.9570	0.9720	0.9770
	medexp	0.03885	0.0000	0.0140	0.0020
	ur	0.00391	0.0000	0.0010	0.0210
	SinglePrem	-0.00002	0.0780	0.1610	0.2460
	FamPrem	0.00000	0.5690	0.6380	0.6440
	rmesr1_href	0.02202	0.0000	0.0000	0.0000
	rmesr1	0.02079	0.0000	0.0000	0.0000
	healthstatus	0.00183	0.3010	0.4800	0.4930
	tage	0.00356	0.0090	0.0360	0.0980
	ssi	-0.18060	0.0000	0.0000	0.0000
	pubins_href	-0.28163	0.0000	0.0000	0.0000
	treatment	-0.00819	0.1620	0.3000	0.3690
	post_policy	-0.01228	0.0140	0.0500	0.0700
	interx	0.00479	0.3820	0.5160	0.6260
	interxyshcn	-0.02171	0.0420	0.1140	0.1000
	yshcnpost	0.01565	0.0710	0.1370	0.1270
	yshcntreatment	-0.00276	0.8000	0.8480	0.8260
	_cons	0.11986	0.0000	0.0040	0.0070
	interx+interxyshcn	-0.01692	0.0654	0.1430	0.1953

Implementation Period					
RE	**uninsured1**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	tfipsst	-0.00022	0.1300	0.2190	
	erace	0.02481	0.0000	0.0000	0.0000
	ecitizen	0.11043	0.0000	0.0000	0.0000
	ecitizen_href	0.08784	0.0000	0.0000	0.0000
	eorigin	-0.14727	0.0000	0.0000	0.0000
	eorigin_href	-0.03486	0.0080	0.0630	0.1260
	thtotinc	-0.00001	0.0000	0.0000	0.0000
	inctoneeds	-0.00005	0.0010	0.0140	0.0190
	rhpov	0.00005	0.0000	0.0000	0.0000
	rmesr1_href	0.01997	0.0000	0.0000	0.0000
	rmesr1	0.03836	0.0000	0.0000	0.0000
	ems	0.00592	0.0000	0.0000	0.0060
	ems_href	0.01844	0.0000	0.0000	0.0000
	rfnkids	-0.01642	0.0000	0.0030	0.0100
	rfnkids_href	0.02696	0.0000	0.0000	0.0000
	healthstatus	0.02241	0.0000	0.0000	0.0000
	tage	0.00101	0.1750	0.2830	0.2950
	medexp	-0.02167	0.0000	0.0000	0.2280
	ur	0.00790	0.0000	0.0000	0.0000
	SinglePrem	-0.00004	0.0000	0.0030	0.1050
	FamPrem	0.00000	0.1800	0.2720	0.3690
	ssi	0.10430	0.0000	0.0000	0.0000
	pubins_href	0.12692	0.0000	0.0000	0.0000
	yshcn_flag	0.03441	0.0000	0.0010	0.0000
	treatment	0.00120	0.8110	0.8600	0.8630
	post_policy	-0.00130	0.7530	0.8110	0.8130
	interx	-0.01077	0.0240	0.1000	0.1420
	interxyshcn	-0.02175	0.0210	0.0870	0.0410
	yshcnpost	0.01813	0.0150	0.0660	0.0420
	yshcntreatment	-0.00875	0.3120	0.4500	0.3050
	_cons	0.16825	0.0000	0.0000	0.0010
	interx+interxyshcn	-0.03251	0.0001	0.0027	0.0002

Implementation Period					
RE	uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00037	0.0130	0.0340	
	erace	0.01636	0.0000	0.0000	0.0020
	ecitizen	0.13018	0.0000	0.0000	0.0000
	ecitizen_href	0.07873	0.0000	0.0000	0.0000
	eorigin	-0.14572	0.0000	0.0000	0.0000
	eorigin_href	-0.01787	0.1850	0.3590	0.3930
	thtotinc	0.00000	0.0000	0.0000	0.0010
	inctoneeds	-0.00005	0.0000	0.0030	0.0060
	rhpov	0.00005	0.0000	0.0000	0.0000
	rmesr1_href	0.03287	0.0000	0.0000	0.0000
	rmesr1	0.01809	0.0000	0.0000	0.0000
	ems	0.01048	0.0000	0.0000	0.0000
	ems_href	0.00784	0.0000	0.0000	0.0010
	rfnkids	-0.03096	0.0000	0.0000	0.0000
	rfnkids_href	0.01923	0.0000	0.0110	0.0450
	healthstatus	0.01832	0.0000	0.0000	0.0000
	tage	0.00465	0.0000	0.0000	0.0010
	medexp	-0.05313	0.0000	0.0000	0.0040
	ur	0.00657	0.0000	0.0000	0.0000
	SinglePrem	-0.00006	0.0000	0.0000	0.0490
	FamPrem	0.00001	0.0330	0.0710	0.2170
	ssi	-0.19773	0.0000	0.0000	0.0000
	pubins_href	-0.22332	0.0000	0.0000	0.0000
	yshcn_flag	-0.04142	0.0000	0.0000	0.0000
	treatment	0.01016	0.0570	0.1450	0.2280
	post_policy	-0.00038	0.9320	0.9460	0.9350
	interx	-0.01302	0.0110	0.0540	0.1310
	interxyshcn	-0.01399	0.1670	0.2780	0.2300
	yshcnpost	0.01339	0.0910	0.1690	0.1340
	yshcntreatment	0.00154	0.8660	0.8920	0.8730
	_cons	0.10071	0.0020	0.0140	0.1670
	interx+interxyshcn	-0.02701	0.0021	0.0135	0.0229

Policy Renewal Period					
OLS	**Uninsured1**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	tfipsst	-0.00006	0.4460	0.4540	0.8730
	erace	0.01412	0.0000	0.0000	0.0040
	ecitizen	0.08788	0.0000	0.0000	0.0000
	ecitizen_href	0.11174	0.0000	0.0000	0.0000
	eorigin	-0.06366	0.0000	0.0000	0.0000
	eorigin_href	-0.07865	0.0000	0.0000	0.0000
	thtotinc	-0.00001	0.0000	0.0000	0.0000
	inctoneeds	-0.00019	0.0000	0.0000	0.0000
	rhpov	0.00010	0.0000	0.0000	0.0000
	rmesr1_href	0.02358	0.0000	0.0000	0.0000
	rmesr1	0.05734	0.0000	0.0000	0.0000
	ems	0.00790	0.0000	0.0000	0.0010
	ems_href	0.02488	0.0000	0.0000	0.0000
	rfnkids	-0.02702	0.0000	0.0000	0.0000
	rfnkids_href	0.03895	0.0000	0.0000	0.0000
	healthstatus	0.05897	0.0000	0.0000	0.0000
	tage	0.00738	0.0000	0.0000	0.0000
	medexp	-0.02607	0.0000	0.0000	0.0340
	ur	0.00967	0.0000	0.0000	0.0020
	SinglePrem	-0.00002	0.0260	0.0260	0.6000
	FamPrem	0.00002	0.0000	0.0000	0.1670
	ssi	0.16826	0.0000	0.0000	0.0000
	pubins_href	0.23220	0.0000	0.0000	0.0000
	yshcn_flag	-0.01916	0.0010	0.0010	0.0520
	treatment	0.05207	0.0000	0.0000	0.0000
	post_policy	0.00436	0.3660	0.3660	0.7110
	interx	-0.05311	0.0000	0.0000	0.0000
	interxyshcn	-0.00598	0.5930	0.5840	0.6670
	yshcnpost	0.01109	0.2020	0.1890	0.3790
	yshcntreatment	0.00767	-0.0179	0.7020	0.8320
	_cons	-0.31942	0.0000	0.0000	0.0010
	interx+interxyshcn	-0.05909	0.0000	0.0000	0.0003

Policy Renewal Period					
OLS	Uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00021	0.0140	0.0160	0.6690
	erace	0.01188	0.0000	0.0000	0.0140
	ecitizen	0.11179	0.0000	0.0000	0.0000
	ecitizen_href	0.09786	0.0000	0.0000	0.0000
	eorigin	-0.06994	0.0000	0.0000	0.0000
	eorigin_href	-0.06880	0.0000	0.0000	0.0000
	thtotinc	-0.00001	0.0000	0.0000	0.0040
	inctoneeds	-0.00018	0.0000	0.0000	0.0000
	rhpov	0.00010	0.0000	0.0000	0.0000
	rmesr1_href	0.04733	0.0000	0.0000	0.0000
	rmesr1	0.01892	0.0000	0.0000	0.0000
	ems	0.01184	0.0000	0.0000	0.0000
	ems_href	0.01114	0.0000	0.0000	0.0000
	rfnkids	-0.03828	0.0000	0.0000	0.0000
	rfnkids_href	0.01180	0.0020	0.0050	0.3620
	healthstatus	0.04289	0.0000	0.0000	0.0000
	tage	0.00923	0.0000	0.0000	0.0000
	medexp	-0.06148	0.0000	0.0000	0.0000
	ur	0.00793	0.0000	0.0000	0.0200
	SinglePrem	-0.00011	0.0000	0.0000	0.0520
	FamPrem	0.00002	0.0000	0.0000	0.1160
	ssi	-0.31033	0.0000	0.0000	0.0000
	pubins_href	-0.12542	0.0000	0.0000	0.0000
	yshcn_flag	-0.07320	0.0000	0.0000	0.0000
	treatment	0.05473	0.0000	0.0000	0.0000
	post_policy	0.01041	0.0330	0.0330	0.4200
	interx	-0.05159	0.0000	0.0000	0.0000
	interxyshcn	0.00316	0.7810	0.7720	0.8340
	yshcnpost	0.01221	0.1660	0.1460	0.2890
	yshcntreatment	0.00930	0.2310	0.2200	0.5240
	_cons	-0.20706	0.0000	0.0000	0.0410
	interx+interxyshcn	-0.04844	0.0000	0.0000	0.0012

Policy Renewal Period					
FE	**uninsured1**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	rfnkids	-0.00324	0.5520	0.6530	0.6470
	rfnkids_href	0.00222	0.6850	0.7590	0.7600
	ems	0.00811	0.0000	0.0000	0.0010
	ems_href	0.00739	0.0000	0.0000	0.0010
	medexp	0.04578	0.0000	0.0040	0.0010
	ur	0.00508	0.0000	0.0000	0.0020
	SinglePrem	-0.00003	0.0150	0.0670	0.0790
	FamPrem	0.00001	0.0510	0.1250	0.1540
	rmesr1_href	0.01343	0.0000	0.0000	0.0000
	rmesr1	0.03577	0.0000	0.0000	0.0000
	healthstatus	0.00295	0.0690	0.2270	0.1980
	tage	0.00389	0.0020	0.0130	0.0270
	ssi	0.03714	0.0010	0.0090	0.0080
	pubins_href	0.07116	0.0000	0.0000	0.0000
	treatment	-0.01020	0.0500	0.1660	0.2100
	post_policy	-0.02260	0.0000	0.0000	0.0020
	interx	-0.00524	0.3020	0.4770	0.5370
	interxyshcn	-0.02285	0.0210	0.1020	0.1010
	yshcnpost	0.02379	0.0030	0.0310	0.0280
	yshcntreatment	-0.01161	0.2310	0.3990	0.2480
	_cons	0.12203	0.0000	0.0020	0.0010
	interx+interxyshcn	-0.02809	0.0010	0.0180	0.0159

Policy Renewal Period					
FE	uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	rfnkids	-0.01831	0.0020	0.0820	0.1120
	rfnkids_href	0.00925	0.1210	0.3870	0.3770
	ems	0.01133	0.0000	0.0000	0.0000
	ems_href	0.00012	0.9220	0.9500	0.9580
	medexp	0.04014	0.0000	0.0110	0.0020
	ur	0.00274	0.0020	0.0230	0.1010
	SinglePrem	-0.00002	0.2640	0.3770	0.3920
	FamPrem	0.00000	0.2870	0.3790	0.3620
	rmesr1_href	0.02206	0.0000	0.0000	0.0000
	rmesr1	0.02072	0.0000	0.0000	0.0000
	healthstatus	0.00213	0.2280	0.4110	0.4210
	tage	0.00636	0.0000	0.0000	0.0030
	ssi	-0.18061	0.0000	0.0000	0.0000
	pubins_href	-0.28167	0.0000	0.0000	0.0000
	treatment	-0.00732	0.1970	0.3420	0.3630
	post_policy	-0.02697	0.0000	0.0000	0.0010
	interx	0.00265	0.6330	0.7320	0.7790
	interxyshcn	-0.02464	0.0220	0.0840	0.0990
	yshcnpost	0.02271	0.0090	0.0380	0.0350
	yshcntreatment	0.00098	0.9260	0.9440	0.9370
	_cons	0.05067	0.1150	0.2230	0.2320
	interx+interxyshcn	-0.02200	0.0177	0.0663	0.1082

Policy Renewal Period					
RE	uninsured1	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00023	0.1230	0.2110	
	erace	0.02499	0.0000	0.0000	0.0000
	ecitizen	0.10843	0.0000	0.0000	0.0000
	ecitizen_href	0.08782	0.0000	0.0000	0.0000
	eorigin	-0.14804	0.0000	0.0000	0.0000
	eorigin_href	-0.03465	0.0080	0.0650	0.1280
	thtotinc	-0.00001	0.0000	0.0000	0.0000
	inctoneeds	-0.00005	0.0010	0.0120	0.0170
	rhpov	0.00006	0.0000	0.0000	0.0000
	rmesr1_href	0.01996	0.0000	0.0000	0.0000
	rmesr1	0.03835	0.0000	0.0000	0.0000
	ems	0.00605	0.0000	0.0000	0.0050
	ems_href	0.01845	0.0000	0.0000	0.0000
	rfnkids	-0.01603	0.0000	0.0040	0.0120
	rfnkids_href	0.02560	0.0000	0.0000	0.0000
	healthstatus	0.02254	0.0000	0.0000	0.0000
	tage	0.00194	0.0100	0.0390	0.0390
	medexp	-0.01914	0.0000	0.0020	0.2990
	ur	0.00680	0.0000	0.0000	0.0000
	SinglePrem	-0.00003	0.0130	0.0460	0.2200
	FamPrem	0.00001	0.0040	0.0180	0.0470
	ssi	0.10450	0.0000	0.0000	0.0000
	pubins_href	0.12701	0.0000	0.0000	0.0000
	yshcn_flag	0.03278	0.0000	0.0010	0.0010
	treatment	0.00352	0.4680	0.5920	0.6020
	post_policy	-0.01203	0.0050	0.0350	0.0730
	interx	-0.01636	0.0010	0.0160	0.0390
	interxyshcn	-0.02132	0.0250	0.1070	0.0890
	yshcnpost	0.02173	0.0040	0.0340	0.0340
	yshcntreatment	-0.00858	0.3040	0.4400	0.2860
	_cons	0.12467	0.0000	0.0020	0.0220
	interx+interxyshcn	-0.03767	0.0000	0.0008	0.0004

Policy Renewal Period					
RE	**uninsured2**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	tfipsst	-0.00037	0.0120	0.0320	
	erace	0.01649	0.0000	0.0000	0.0020
	ecitizen	0.12863	0.0000	0.0000	0.0000
	ecitizen_href	0.07871	0.0000	0.0000	0.0000
	eorigin	-0.14637	0.0000	0.0000	0.0000
	eorigin_href	-0.01762	0.1910	0.3670	0.4000
	thtotinc	0.00000	0.0000	0.0000	0.0010
	inctoneeds	-0.00005	0.0000	0.0030	0.0050
	rhpov	0.00005	0.0000	0.0000	0.0000
	rmesr1_href	0.03285	0.0000	0.0000	0.0000
	rmesr1	0.01808	0.0000	0.0000	0.0000
	ems	0.01058	0.0000	0.0000	0.0000
	ems_href	0.00785	0.0000	0.0000	0.0010
	rfnkids	-0.03064	0.0000	0.0000	0.0000
	rfnkids_href	0.01812	0.0000	0.0160	0.0610
	healthstatus	0.01843	0.0000	0.0000	0.0000
	tage	0.00529	0.0000	0.0000	0.0000
	medexp	-0.05099	0.0000	0.0000	0.0060
	ur	0.00564	0.0000	0.0000	0.0030
	SinglePrem	-0.00005	0.0000	0.0000	0.0910
	FamPrem	0.00001	0.0010	0.0050	0.0560
	ssi	-0.19768	0.0000	0.0000	0.0000
	pubins_href	-0.22327	0.0000	0.0000	0.0000
	yshcn_flag	-0.04505	0.0000	0.0000	0.0000
	treatment	0.01064	0.0400	0.1170	0.1500
	post_policy	-0.01050	0.0210	0.0780	0.1580
	interx	-0.01593	0.0020	0.0230	0.0530
	interxyshcn	-0.01675	0.1010	0.2110	0.2180
	yshcnpost	0.02039	0.0110	0.0450	0.0430
	yshcntreatment	0.00438	0.6180	0.6890	0.6820
	_cons	0.06855	0.0360	0.0950	0.4130
	interx+interxyshcn	-0.03268	0.0002	0.0040	0.0092

Falsification Test 1					
OLS	**uninsured1**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	tfipsst	-0.00018	0.1610	0.1680	0.6610
	erace	0.01086	0.0000	0.0000	0.0580
	ecitizen	0.07992	0.0000	0.0000	0.0000
	ecitizen_href	0.08686	0.0000	0.0000	0.0000
	eorigin	-0.05024	0.0000	0.0000	0.0110
	eorigin_href	-0.09175	0.0000	0.0000	0.0000
	thtotinc	-0.00001	0.0000	0.0000	0.0010
	inctoneeds	-0.00014	0.0000	0.0000	0.0060
	rhpov	0.00014	0.0000	0.0000	0.0000
	rmesr1_href	0.01541	0.0000	0.0000	0.0060
	rmesr1	0.06712	0.0000	0.0000	0.0000
	ems	0.01209	0.0000	0.0000	0.0000
	ems_href	0.02083	0.0000	0.0000	0.0000
	rfnkids	-0.02766	0.0000	0.0000	0.0000
	rfnkids_href	0.02827	0.0000	0.0000	0.0010
	healthstatus	0.06068	0.0000	0.0000	0.0000
	tage	0.01038	0.0000	0.0000	0.0000
	medexp	-0.02644	0.0000	0.0000	0.0320
	ur	0.00845	0.0000	0.0000	0.0100
	SinglePrem	0.00001	0.3140	0.3190	0.7510
	FamPrem	0.00001	0.0080	0.0080	0.2800
	ssi	0.15651	0.0000	0.0000	0.0000
	pubins_href	0.22351	0.0000	0.0000	0.0000
	yshcn_flag	-0.01549	0.0870	0.0730	0.2110
	treatment	0.05934	0.0000	0.0000	0.0000
	post_policy	0.01069	0.1210	0.1160	0.2340
	interx	-0.00702	0.3960	0.3950	0.4290
	interxyshcn	-0.00417	0.8030	0.7980	0.7570
	yshcnpost	-0.01181	0.3550	0.3360	0.3990
	yshcntreatment	0.00205	0.8620	0.8580	0.8990
	_cons	-0.41833	0.0000	0.0000	0.0000
	interx + interxyshcn	-0.01119	0.4409	0.4269	0.3400

Falsification Test 1

OLS	uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00013	0.2940	0.3000	0.7880
	erace	0.00934	0.0000	0.0000	0.0940
	ecitizen	0.11067	0.0000	0.0000	0.0000
	ecitizen_href	0.07509	0.0000	0.0000	0.0000
	eorigin	-0.05539	0.0000	0.0000	0.0110
	eorigin_href	-0.08111	0.0000	0.0000	0.0000
	thtotinc	-0.00001	0.0000	0.0000	0.0040
	inctoneeds	-0.00013	0.0000	0.0000	0.0060
	rhpov	0.00013	0.0000	0.0000	0.0000
	rmesr1_href	0.04051	0.0000	0.0000	0.0000
	rmesr1	0.02466	0.0000	0.0000	0.0000
	ems	0.01444	0.0000	0.0000	0.0000
	ems_href	0.00769	0.0000	0.0000	0.0040
	rfnkids	-0.03876	0.0000	0.0000	0.0000
	rfnkids_href	0.00200	0.7110	0.7340	0.8680
	healthstatus	0.04483	0.0000	0.0000	0.0000
	tage	0.01119	0.0000	0.0000	0.0000
	medexp	-0.05552	0.0000	0.0000	0.0010
	ur	0.00712	0.0000	0.0000	0.0530
	SinglePrem	-0.00006	0.0000	0.0000	0.3370
	FamPrem	0.00002	0.0000	0.0000	0.1330
	ssi	-0.29511	0.0000	0.0000	0.0000
	pubins_href	-0.15664	0.0000	0.0000	0.0000
	yshcn_flag	-0.06269	0.0000	0.0000	0.0000
	treatment	0.06359	0.0000	0.0000	0.0000
	post_policy	0.01580	0.0240	0.0210	0.1770
	interx	-0.01006	0.2300	0.2280	0.3150
	interxyshcn	0.00312	0.8540	0.8480	0.8350
	yshcnpost	-0.01810	0.1620	0.1350	0.2170
	yshcntreatment	0.00645	0.5880	0.5700	0.6840
	_cons	-0.32041	0.0000	0.0000	0.0060
	interx + interxyshcn	-0.00694	0.6367	0.6194	0.5633

Falsification Test 1					
FE	**uninsured1**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	rfnkids	-0.00969	0.2990	0.3870	0.3900
	rfnkids_href	0.00677	0.4730	0.5510	0.5840
	ems	-0.00093	0.7060	0.7920	0.7720
	ems_href	0.01208	0.0000	0.0000	0.0010
	medexp	0.02879	0.1100	0.2290	0.1760
	ur	0.00491	0.0000	0.0010	0.0140
	SinglePrem	-0.00005	0.0220	0.0520	0.0910
	FamPrem	0.00001	0.1100	0.1730	0.2170
	rmesr1_href	0.00857	0.0020	0.0140	0.0110
	rmesr1	0.03720	0.0000	0.0000	0.0000
	healthstatus	-0.00344	0.2050	0.3090	0.3310
	tage	0.00317	0.2980	0.3120	0.3480
	ssi	0.06174	0.0010	0.0050	0.0080
	pubins_href	0.05367	0.0000	0.0000	0.0000
	treatment	-0.00838	0.3370	0.4240	0.4740
	post_policy	-0.00165	0.7550	0.7640	0.7840
	interx	0.01551	0.0080	0.0220	0.0220
	interxyshcn	-0.01107	0.3370	0.3990	0.3120
	yshcnpost	0.00274	0.7580	0.7790	0.7880
	yshcntreatment	-0.00752	0.6560	0.6980	0.6880
	_cons	0.20210	0.0050	0.0080	0.0160
	interx + interxyshcn	0.00445	0.6558	0.6922	0.6235

Falsification Test 1					
FE	**uninsured2**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	rfnkids	-0.00739	0.4690	0.6160	0.5490
	rfnkids_href	-0.00179	0.8620	0.9040	0.8980
	ems	0.00803	0.0030	0.0300	0.0270
	ems_href	0.00045	0.8400	0.8790	0.9050
	medexp	0.01313	0.5050	0.6070	0.4840
	ur	0.00341	0.0220	0.0370	0.1070
	SinglePrem	-0.00002	0.3550	0.4200	0.4760
	FamPrem	0.00001	0.3160	0.3650	0.3710
	rmesr1_href	0.01911	0.0000	0.0000	0.0000
	rmesr1	0.02315	0.0000	0.0000	0.0000
	healthstatus	0.00094	0.7510	0.7970	0.8030
	tage	0.00607	0.0690	0.0860	0.1340
	ssi	-0.11884	0.0000	0.0000	0.0000
	pubins_href	-0.32174	0.0000	0.0000	0.0000
	treatment	-0.01001	0.2940	0.3620	0.4530
	post_policy	-0.00535	0.3560	0.3630	0.4680
	interx	0.02101	0.0010	0.0030	0.0020
	interxyshcn	-0.00569	0.6520	0.6870	0.6190
	yshcnpost	-0.00657	0.4990	0.5170	0.5680
	yshcntreatment	0.00626	0.7350	0.7600	0.7990
	_cons	0.08586	0.2750	0.3080	0.3720
	interx + interxyshcn	0.01532	0.1601	0.2091	0.1364

Falsification Test 1					
RE	uninsured1	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00005	0.8020	0.8180	
	erace	0.02080	0.0000	0.0000	0.0010
	ecitizen	0.11270	0.0000	0.0000	0.0000
	ecitizen_href	0.06881	0.0000	0.0000	0.0000
	eorigin	-0.10760	0.0000	0.0000	0.0000
	eorigin_href	-0.07048	0.0000	0.0010	0.0040
	thtotinc	-0.00001	0.0000	0.0000	0.0010
	inctoneeds	-0.00003	0.1230	0.2810	0.3860
	rhpov	0.00008	0.0000	0.0000	0.0000
	rmesr1_href	0.01871	0.0000	0.0000	0.0000
	rmesr1	0.04598	0.0000	0.0000	0.0000
	ems	0.00581	0.0000	0.0030	0.0190
	ems_href	0.02204	0.0000	0.0000	0.0000
	rfnkids	-0.02324	0.0000	0.0010	0.0010
	rfnkids_href	0.03563	0.0000	0.0000	0.0000
	healthstatus	0.02997	0.0000	0.0000	0.0000
	tage	0.00171	0.1570	0.1990	0.3120
	medexp	-0.02627	0.0000	0.0000	0.1020
	ur	0.00688	0.0000	0.0000	0.0020
	SinglePrem	-0.00002	0.2900	0.3430	0.5930
	FamPrem	0.00001	0.1080	0.1470	0.2700
	ssi	0.14990	0.0000	0.0000	0.0000
	pubins_href	0.13224	0.0000	0.0000	0.0000
	yshcn_flag	0.02477	0.0250	0.0330	0.0610
	treatment	0.01213	0.1110	0.1640	0.2020
	post_policy	0.00260	0.5920	0.6120	0.6290
	interx	0.01217	0.0340	0.0640	0.0730
	interxyshcn	-0.00971	0.3960	0.4500	0.3270
	yshcnpost	-0.00443	0.6110	0.6410	0.6630
	yshcntreatment	-0.00380	0.7620	0.7800	0.7730
	_cons	0.05544	0.2370	0.2930	0.4790
	interx + interxyshcn	0.00246	0.8038	0.8236	0.7700

Falsification Test 1					
RE	**uninsured2**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	tfipsst	-0.0000477	0.8060	0.8160	
	erace	0.0153079	0.0000	0.0000	0.0100
	ecitizen	0.1458687	0.0000	0.0000	0.0000
	ecitizen_href	0.0496432	0.0000	0.0030	0.0040
	eorigin	-0.0993873	0.0000	0.0000	0.0000
	eorigin_href	-0.0640436	0.0000	0.0040	0.0030
	thtotinc	-7.19E-06	0.0000	0.0000	0.0010
	inctoneeds	-0.0000362	0.0950	0.1990	0.2770
	rhpov	0.0000747	0.0000	0.0000	0.0000
	rmesr1_href	0.0352393	0.0000	0.0000	0.0000
	rmesr1	0.0218233	0.0000	0.0000	0.0000
	ems	0.0114764	0.0000	0.0000	0.0000
	ems_href	0.0088524	0.0000	0.0000	0.0010
	rfnkids	-0.0293546	0.0000	0.0000	0.0000
	rfnkids_href	0.0138587	0.0460	0.1020	0.1990
	healthstatus	0.0262692	0.0000	0.0000	0.0000
	tage	0.0048913	0.0000	0.0000	0.0010
	medexp	-0.0554161	0.0000	0.0000	0.0020
	ur	0.006599	0.0000	0.0000	0.0090
	SinglePrem	-0.0000471	0.0060	0.0100	0.2880
	FamPrem	0.0000128	0.0100	0.0160	0.1420
	ssi	-0.1779969	0.0000	0.0000	0.0000
	pubins_href	-0.2381243	0.0000	0.0000	0.0000
	yshcn_flag	-0.0455715	0.0000	0.0000	0.0000
	treatment	0.0185042	0.0220	0.0400	0.1000
	post_policy	0.002434	0.6410	0.6520	0.7210
	interx	0.0121703	0.0490	0.0790	0.0800
	interxyshcn	-0.0026935	0.8270	0.8450	0.7990
	yshcnpost	-0.0126388	0.1780	0.2000	0.2400
	yshcntreatment	0.0021404	0.8700	0.8760	0.8810
	_cons	0.0008564	0.9860	0.9870	0.9840
	interx + interxyshcn	0.0094768	0.3759	0.4246	0.2899

Falsification Test 2

OLS	uninsured1	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00016	0.2350	0.2420	0.7310
	erace	0.01730	0.0000	0.0000	0.0120
	ecitizen	0.10250	0.0000	0.0000	0.0000
	ecitizen_href	0.13275	0.0000	0.0000	0.0000
	eorigin	-0.08169	0.0000	0.0000	0.0010
	eorigin_href	-0.06369	0.0000	0.0000	0.0230
	thtotinc	-0.00001	0.0000	0.0000	0.0150
	inctoneeds	-0.00023	0.0000	0.0000	0.0000
	rhpov	0.00007	0.0000	0.0000	0.0000
	rmesr1_href	0.02872	0.0000	0.0000	0.0000
	rmesr1	0.05084	0.0000	0.0000	0.0000
	ems	0.00289	0.0180	0.0210	0.3520
	ems_href	0.02969	0.0000	0.0000	0.0000
	rfnkids	-0.02445	0.0000	0.0000	0.0060
	rfnkids_href	0.04810	0.0000	0.0000	0.0000
	healthstatus	0.05626	0.0000	0.0000	0.0000
	tage	0.00430	0.0000	0.0000	0.0150
	medexp	-0.02325	0.0000	0.0000	0.1800
	ur	0.00800	0.0000	0.0000	0.0660
	SinglePrem	-0.00007	0.0000	0.0000	0.0880
	FamPrem	0.00003	0.0000	0.0000	0.1180
	ssi	0.17141	0.0000	0.0000	0.0000
	pubins_href	0.24699	0.0000	0.0000	0.0000
	yshcn_flag	0.00036	0.9680	0.9680	0.9800
	treatment	0.00183	0.8190	0.8220	0.8660
	post_policy	-0.00084	0.9060	0.9070	0.9340
	interx	-0.01065	0.2060	0.2100	0.2400
	interxyshcn	0.01180	0.4950	0.4870	0.4570
	yshcnpost	-0.00387	0.7780	0.7760	0.8040
	yshcntreatment	-0.01858	0.1030	0.0960	0.1740
	_cons	-0.19646	0.0000	0.0000	0.1010
	interx + interxyshcn	0.00115	0.9391	0.9375	0.9350

Falsification Test 2

OLS	uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	Tfipsst	-0.00061	0.0000	0.0000	0.2710
	Erace	0.01328	0.0000	0.0000	0.0480
	Ecitizen	0.12225	0.0000	0.0000	0.0000
	ecitizen_href	0.11824	0.0000	0.0000	0.0000
	Eorigin	-0.09155	0.0000	0.0000	0.0000
	eorigin_href	-0.04917	0.0000	0.0000	0.0450
	Thtotinc	0.00000	0.0010	0.0010	0.1590
	Inctoneeds	-0.00022	0.0000	0.0000	0.0000
	Rhpov	0.00007	0.0000	0.0000	0.0010
	rmesr1_href	0.04939	0.0000	0.0000	0.0000
	rmesr1	0.01615	0.0000	0.0000	0.0000
	Ems	0.00824	0.0000	0.0000	0.0110
	ems_href	0.01548	0.0000	0.0000	0.0000
	Rfnkids	-0.03881	0.0000	0.0000	0.0040
	rfnkids_href	0.02349	0.0000	0.0010	0.2250
	Healthstatus	0.04019	0.0000	0.0000	0.0000
	Tage	0.00697	0.0000	0.0000	0.0040
	Medexp	-0.06323	0.0000	0.0000	0.0020
	Ur	0.00425	0.0030	0.0030	0.4080
	SinglePrem	-0.00018	0.0000	0.0000	0.0010
	FamPrem	0.00003	0.0000	0.0000	0.1820
	Ssi	-0.33179	0.0000	0.0000	0.0000
	pubins_href	-0.08117	0.0000	0.0000	0.0000
	yshcn_flag	-0.06183	0.0000	0.0000	0.0000
	Treatment	0.00574	0.4790	0.4870	0.6390
	post_policy	-0.00273	0.7060	0.7090	0.7980
	Interx	-0.01113	0.1920	0.1980	0.2830
	Interxyshcn	0.02312	0.1870	0.1750	0.1280
	Yshcnpost	0.01157	0.4050	0.3980	0.4220
	yshcntreatment	0.00158	0.8910	0.8870	0.9210
	_cons	-0.02663	0.5570	0.5630	0.8490
	interx + interxyshcn	0.01198	0.4337	0.4142	0.4118

Falsification Test 2					
FE	**uninsured1**	**Coefficient**	**Standard Error pvalue**	**Robust Standard Error pvalue**	**Robust Standard Error Stratified by State pvalue**
	Rfnkids	-0.00347	0.7350	0.8050	0.8250
	rfnkids_href	-0.00050	0.9610	0.9710	0.9720
	Ems	0.00433	0.0690	0.2310	0.2080
	ems_href	0.01139	0.0000	0.0000	0.0000
	Medexp	0.00806	0.6230	0.7630	0.7080
	ur	0.00484	0.0620	0.1630	0.0720
	SinglePrem	-0.00001	0.5800	0.6780	0.6840
	FamPrem	-0.00001	0.1360	0.2380	0.2400
	rmesr1_href	0.01483	0.0000	0.0000	0.0000
	rmesr1	0.02649	0.0000	0.0000	0.0000
	tage	0.00366	0.1960	0.2420	0.1950
	ssi	0.01739	0.3450	0.4170	0.4110
	pubins_href	0.06388	0.0000	0.0000	0.0000
	treatment	-0.04457	0.0000	0.0000	0.0010
	post_policy	-0.01326	0.0170	0.0470	0.0240
	interx	0.01262	0.0310	0.1010	0.0850
	interxyshcn	-0.00600	0.6130	0.6870	0.6370
	yshcnpost	0.00377	0.6930	0.7490	0.7250
	yshcntreatment	-0.01771	0.2560	0.3870	0.2390
	_cons	0.22299	0.0060	0.0240	0.0040
	interx + interxyshcn	0.00662	0.5222	0.6059	0.5554

Falsification Test 2

FE	uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	rfnkids	-0.02987	0.0080	0.1180	0.1380
	rfnkids_href	0.02323	0.0410	0.2310	0.2030
	ems	0.00817	0.0020	0.0240	0.0040
	ems_href	0.00262	0.2260	0.3940	0.2630
	medexp	0.01486	0.4120	0.5770	0.3600
	ur	-0.00106	0.7130	0.7770	0.7340
	SinglePrem	-0.00001	0.5210	0.5940	0.6110
	FamPrem	-0.00001	0.2300	0.3280	0.3170
	rmesr1_href	0.02362	0.0000	0.0000	0.0000
	rmesr1	0.01413	0.0000	0.0000	0.0000
	tage	0.00619	0.0480	0.0630	0.0440
	ssi	-0.21861	0.0000	0.0000	0.0000
	pubins_href	-0.26260	0.0000	0.0000	0.0000
	treatment	-0.03547	0.0000	0.0030	0.0050
	post_policy	-0.02013	0.0010	0.0050	0.0040
	interx	0.01887	0.0030	0.0240	0.0230
	interxyshcn	0.00720	0.5830	0.6500	0.5760
	yshcnpost	0.00863	0.4140	0.4870	0.3850
	yshcntreatment	-0.02376	0.1680	0.2470	0.1670
	_cons	0.16220	0.0680	0.1240	0.0410
	interx + interxyshcn	0.02607	0.0225	0.0553	0.0274

Falsification Test 2

RE	uninsured1	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00054	0.0130	0.0330	
	erace	0.02688	0.0000	0.0000	0.0000
	ecitizen	0.11166	0.0000	0.0000	0.0000
	ecitizen_href	0.12266	0.0000	0.0000	0.0000
	eorigin	-0.12107	0.0000	0.0000	0.0000
	eorigin_href	-0.06086	0.0030	0.0250	0.0300
	thtotinc	-0.00001	0.0000	0.0000	0.0000
	inctoneeds	-0.00004	0.0440	0.1080	0.1310
	rhpov	0.00005	0.0000	0.0000	0.0000
	rmesr1_href	0.02628	0.0000	0.0000	0.0000
	rmesr1	0.03073	0.0000	0.0000	0.0000
	ems	0.00147	0.3890	0.5000	0.5300
	ems_href	0.02568	0.0000	0.0000	0.0000
	rfnkids	-0.01548	0.0480	0.1210	0.1850
	rfnkids_href	0.03581	0.0000	0.0010	0.0010
	healthstatus	0.07795	0.0000	0.0000	0.0000
	tage	-0.00218	0.0670	0.1200	0.0530
	medexp	-0.03418	0.0000	0.0000	0.0900
	ur	0.00524	0.0040	0.0150	0.0540
	SinglePrem	-0.00004	0.0130	0.0420	0.1050
	FamPrem	0.00000	0.4050	0.4890	0.4130
	ssi	0.11387	0.0000	0.0000	0.0000
	pubins_href	0.14049	0.0000	0.0000	0.0000
	yshcn_flag	0.02346	0.0440	0.0720	0.0460
	treatment	-0.03479	0.0000	0.0000	0.0000
	post_policy	-0.00424	0.3990	0.5030	0.5380
	interx	0.00926	0.1060	0.2120	0.1300
	interxyshcn	-0.00119	0.9190	0.9350	0.9230
	yshcnpost	0.00092	0.9210	0.9360	0.9330
	yshcntreatment	-0.01774	0.1490	0.2300	0.1410
	_cons	0.15216	0.0050	0.0200	0.1460
	interx + interxyshcn	0.00807	0.4302	0.5170	0.4445

Falsification Test 2					
RE	uninsured2	Coefficient	Standard Error pvalue	Robust Standard Error pvalue	Robust Standard Error Stratified by State pvalue
	tfipsst	-0.00073	0.0010	0.0040	
	erace	0.01779	0.0000	0.0000	0.0020
	ecitizen	0.12937	0.0000	0.0000	0.0000
	ecitizen_href	0.10684	0.0000	0.0000	0.0000
	eorigin	-0.13039	0.0000	0.0000	0.0000
	eorigin_href	-0.03647	0.0810	0.1470	0.1330
	thtotinc	-0.00001	0.0000	0.0000	0.0020
	inctoneeds	-0.00005	0.0430	0.0720	0.0700
	rhpov	0.00005	0.0000	0.0000	0.0000
	rmesr1_href	0.04015	0.0000	0.0000	0.0000
	rmesr1	0.01228	0.0000	0.0000	0.0000
	ems	0.00773	0.0000	0.0000	0.0010
	ems_href	0.01291	0.0000	0.0000	0.0000
	rfnkids	-0.04035	0.0000	0.0010	0.0010
	rfnkids_href	0.03587	0.0000	0.0030	0.0040
	healthstatus	0.05395	0.0000	0.0000	0.0000
	tage	0.00302	0.0150	0.0320	0.0890
	medexp	-0.06589	0.0000	0.0000	0.0020
	ur	0.00233	0.2230	0.2880	0.2500
	SinglePrem	-0.00009	0.0000	0.0000	0.0090
	FamPrem	0.00001	0.1510	0.2240	0.2660
	ssi	-0.24336	0.0000	0.0000	0.0000
	pubins_href	-0.18282	0.0000	0.0000	0.0000
	yshcn_flag	-0.04411	0.0000	0.0010	0.0000
	treatment	-0.02349	0.0020	0.0180	0.0190
	post_policy	-0.00772	0.1570	0.2520	0.3520
	interx	0.00972	0.1210	0.2210	0.1830
	interxyshcn	0.01292	0.3120	0.4010	0.3310
	yshcnpost	0.00873	0.3880	0.4680	0.4220
	yshcntreatment	-0.00863	0.5040	0.5490	0.5220
	_cons	0.13260	0.0190	0.0430	0.4100
	interx + interxyshcn	0.02264	0.0428	0.0864	0.0527