Evaluating 2012-2014 Trends in Health Insurance Coverage for All U.S. Counties

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Abstract

In 2014, provisions of the Affordable Care Act (ACA) went into effect aiming to increase the availability of health insurance coverage, particularly among the low and middle-income population. Small Area Health Insurance Estimates (SAHIE) from the U.S. Census Bureau are vital for studying the effects of the ACA at local levels because they are the only source for single-year estimates of health insurance coverage for all U.S. counties. SAHIE are available annually for five age groups, six income groups, and by sex. SAHIE are an enhanced version of the Census Bureau’s American Community Survey (ACS) data, filling in data for the approximately 74 percent of U.S. counties lacking single-year ACS estimates. This paper examines SAHIE 2012-2013 and 2013-2014 trends in health insurance coverage by age, sex, and income group. We compare these trends by metro status, and by states that expanded Medicaid eligibility and those that did not.
Introduction

In 2014, two major provisions of the Affordable Care Act (ACA) went into effect, aiming to increase the availability of health insurance, particularly among the middle and low-income populations. The first provision was the creation of Federal and State Health Insurance Exchanges. The federal government provides subsidies to purchase insurance through the Exchanges if individual or family income is between 138 percent and 400 percent of the Federal Poverty Level (FPL)\(^1\) (H.R. 3590, 2010). The second provision was the option for states to choose to expand their Medicaid programs to make Medicaid available to all individuals under age 65 living at or below 138 percent of the FPL. Currently 28 states and the District of Columbia (D.C.) have chosen to do so (Centers for Medicare and Medicaid Services 2014). With the introduction of these two provisions, we expect to see a decrease in the U.S. uninsured rate between 2013 and 2014, with larger decreases for states that opted to expand Medicaid. These decreases should be larger for the middle and low-income populations. We also expect to see differences by age and sex, since prior to ACA implementation, working-age adults were more likely than children to be uninsured and males were more likely to be uninsured than females.

The American Community Survey (ACS) reports that the uninsured rate for the U.S. population under age 65 significantly decreased from 16.8 percent in 2013 to 13.5 percent in 2014, a decrease of 3.3 percentage points. This trend is evident among the middle and low-income populations impacted by the implementation of ACA. For individuals under age 65 living between 138 percent and 400 percent of the FPL, the uninsured rate significantly decreased from 19.3 percent in 2013 to 15.7 percent in 2014, a decrease of 3.6 percentage points. The uninsured rate for individuals under age 65 and living at or below 138 percent of the FPL significantly decreased from 28.4 percent to 23.2 percent, or a decrease of 5.2 percentage points.

From 2013 to 2014, the ACS reports that all states including D.C. had a significant decrease in their uninsured rate for the population under age 65. Kentucky had the largest significant decrease with the uninsured rate decreasing from 16.7 percent to 9.9 percent, a decrease of 6.8 percentage points. The smallest change occurred in Massachusetts where the uninsured rate significantly decreased from 4.3 percent to 3.8 percent, a decrease of 0.5 percentage points.

The ACS publishes single-year estimates for populations at or above 65,000. For 2014, this represents 817 counties (26 percent of all U.S. counties). To fill this void of single-year health insurance coverage data for smaller counties and to improve the precision of estimates for larger counties, the U.S. Census Bureau created the Small Area Health Insurance Estimates (SAHIE) program. The program uses small area estimation models to combine survey data with auxiliary data sources, such as administrative records. SAHIE publishes single-year health insurance coverage estimates for all U.S. counties for five age groups, six income groups, and by sex. The SAHIE income groups include 0-138 percent and 138-400 percent of the FPL, making SAHIE a vital source for evaluating health insurance coverage trends related to the ACA, including the Medicaid expansion and the Health Insurance Exchanges.

This paper uses SAHIE to examine county-level changes in health insurance coverage by income, age and sex from 2012-2013 and 2013-2014. We compare these trends by metro status, and by states that chose to expand Medicaid programs, the income eligibility requirement to receive subsidies is between 100 and 400% FPL.
expand Medicaid and those that did not. We chose SAHIE as opposed to the ACS or Current Population Survey (CPS), because it allows us to decompose metro and non-metro areas to evaluate county-level differences in coverage rates.

Data and Methods

Data

To analyze trends in health insurance coverage across all U.S. counties, we use the 2012, 2013, and 2014 Small Area Health Insurance Estimates (SAHIE). SAHIE are produced using statistical models that combine survey data from the ACS with administrative records, such as Internal Revenue Service (IRS) 1040 tax returns and the Centers for Medicare and Medicaid Services’ (CMS) Medicaid enrollment data. The models are "area-level" models because we use data at certain levels of aggregation, rather than individual survey and administrative records. Our modeling approach is similar to that of common models developed for small area estimation, but with some additional complexities. We formulate the model in a Bayesian framework and estimate posterior means and variances using Markov Chain Monte Carlo methods. SAHIE provides county-level estimates for five age groups, six income groups, and by sex. For this research, we focus on the following key demographic and income groups related to the ACA:

- Age: 0-18, 18-64, and 0-64 year-olds
  - ACA provides more health insurance options for working-age adults (18-64)
- Sex: female, male, and both sexes
  - ACA has special provisions for single people without children (who are more often male)
- Income: All Incomes, 0-138, and 138-400 percent FPL
  - ACA has special provisions for those with middle and low-incomes

Analysis

For the first part of our analysis, we calculate aggregate uninsured rates for each year and within each state. The numerator of the uninsured rate for a given state is the sum of the county uninsured population for the given age, sex, and income group by metro status. The denominator of the uninsured rate is the population in the given age, sex, and income group by metro status. Standard errors for these aggregates are calculated using a Taylor series approximation assuming zero correlation between counties. t-tests at the 0.10 significance-level are used to identify statistically significant annual trends in uninsured rates. We test if the changes in uninsured rates are significantly different for metro versus non-metro areas within states. We then evaluate if these results differ when looking at states that expanded Medicaid and those that did not.

For the second part of our analysis, we discuss the number of counties that had statistically significant annual changes in uninsured rate by region, metro status, and Medicaid expansion status. We use T-tests at the 0.10 significance-level to identify statistically significant trends. We also display maps of the change in uninsured rates between 2012-2013 and 2013-2014 SAHIE by age, sex, and income groups.

Expected Results

For the first part of our analysis (evaluating differences in health insurance coverage trends between metro and non-metro areas), we expect uninsured rates to decrease across both categories in line with the
national trend of declining uninsured rates. Prior research using SAHIE found that low-income uninsured rates were higher in metro areas (Bowers and Holmes 2013). Because the ACA provisions of Medicaid expansion and Health Insurance Exchanges were targeted towards the middle- and low-income populations, and because of our prior SAHIE research, we expect the decreases in uninsured rates across years to be more prominent in metro areas than in non-metro areas. We also expect decreases to be largest in expansion states’ metro areas. A study projecting Medicaid take-up rates found that states with a smaller share of the population enrolled in Medicaid/CHIP and a higher proportion of individuals with incomes below 138 percent FPL at the baseline ultimately had a larger projected increase in their Medicaid populations (Kenny et al. 2013). We provide tables showing the year-to-year changes in uninsured rates between metro and non-metro areas across all states. We highlight how these differences compare between the group of states that expanded Medicaid and the group of states that did not.

For the second part of our analysis (assessing spatial variation in change in uninsured rates between 2012-2013 and 2013-2014), we expect to find that most counties had a decrease in their uninsured rate. We expect to see substantial variation in the magnitude of these county-level decreases depending on whether or not a state expanded its Medicaid program as well as the relative size of a state’s middle- and low-income groups. We also expect the majority of counties with decreasing rates to be located in metro areas. To display our results we provide maps displaying single-year changes in uninsured rates by age, sex, and income groups. We also provide tables showing the number of counties with significant changes by expansion status and metro status. The tables and maps will look similar to the following:

<table>
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<tr>
<th>State</th>
<th>Number of Counties</th>
<th>2013 Uninsured Rate</th>
<th>2014 Uninsured Rate</th>
<th>2013-2014 Change in Uninsured Rate (Percentage Point)</th>
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2013 county-level uninsured by metro and non-metro areas, population under age 65
References


