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SHADAC's Health Insurance Unit

Authors

Giovann Alarcon, MPP
Research Assistant, SHADAC

Brett Fried, MS
Senior Research Fellow, SHADAC

Robert Hest, MPP
Research Fellow, SHADAC

Summary

In 2012, SHADAC created and released its "Health Insurance Unit," or "HIU," to aid researchers in reconciling the differences between the way that a "family" is defined in federal surveys (such as the U.S. Census Bureau's American Community Survey [ACS] or Current Population Survey [CPS]) with the way a "family" is defined by most private and public insurance programs, specifically for the purposes of analyzing health insurance coverage. Now, in response to recent changes to policy and program eligibility rules, SHADAC has updated the parameters used to construct and define the HIU.

INTRODUCTION

In 2012, SHADAC developed a Health Insurance Unit (HIU) to aid in analyzing health insurance coverage among members of a household who would be considered a "family," for the purposes of health insurance eligibility, in federal population surveys. SHADAC periodically revises the HIU in order to reflect relevant policy changes and to make improvements to the data parameters used to create the HIU. This issue brief describes an update that was developed this year (2020) to account for recent changes in public policy and improvements to HIU data inputs made available by the Minnesota Population Center (discussed below). The resulting 2020 revised HIU will be used to produce SHADAC's annual health insurance estimates using the U.S. Census Bureau's 2019 American Community Survey (ACS) slated for release in the fall of 2020. Specifically, this brief discusses the reasons for changes to the HIU and the effect they will have on health insurance estimates.

Importance of developing a Health Insurance Unit (HIU)

Researchers studying health insurance coverage often need to create a family definition in their analysis since access to health insurance coverage is often based on factors such as family relationships and family income. For example, family relationships determine who is eligible for employer-sponsored health insurance coverage and how income is calculated for public program eligibility. Since many studies related to health insurance rely on publically available federal surveys, such as the ACS, the definition of a family in this context is important for producing realistic eligibility estimates.

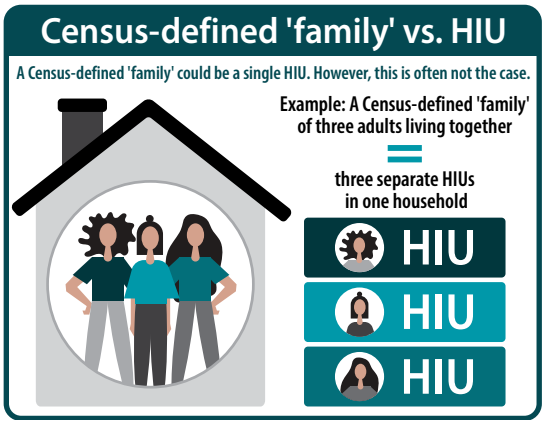
Notably, most federal surveys define a "family" differently from the way it is defined by most private and public insurance programs. To address this incongruity, researchers who use these surveys to study access to health insurance must consider alternative definitions of "family" that better align with the family definition common across health coverage programs. In order to assist this research, SHADAC in 2012 consequently developed and began using a Health Insurance Unit, or "HIU," to estimate the characteristics and number of individuals who have access to public and private health insurance. The HIU is an economic unit that consists of those members of a household who would likely be eligible as a group for family health insurance coverage, or whose resources (i.e., income) would be considered in determining eligibility for public coverage.

Defining a family unit in a survey

Eligibility for health insurance coverage, whether obtained through an employer or a received through a public program, is often based on family relationships. Individuals with access to coverage through their work can often extend this coverage to their legal dependents (e.g., spouses and children). Public programs often consider family ties and family income in determining who is eligible for coverage, especially for children. Many analysts and researchers have used an HIU when studying insurance coverage so as to focus on those individuals who would likely be considered a "family unit" in determining eligibility for either private or public coverage.

The HIU is often defined quite differently from the family or household variable provided in federal surveys provided by the Census Bureau. For example, a Census "household unit"—as the name suggests—consists of all individuals currently residing in a sampled household, regardless of interrelationships among household members. The Census Bureau's definition of "family," on the other hand, includes all related members of a household regardless of the degree of the relationship. This would include parents and their children, of course, but also any other related individuals who are living with them such as grandparents, adult siblings, aunts/uncles, niece/nephews, cousins.

In developing the SHADAC HIU, we have defined the "family unit" specifically for the purposes of determining eligibility for health insurance. We therefore use a much narrower "family" definition that excludes nondependent relatives such as grandparents, adult siblings, aunts/uncles, etc. who may be household members, but are unlikely to be considered as part of the "family unit" as defined for the purposes of determining eligibility for health insurance. As a result, it is not uncommon to have multiple HIUs within a household or even within a Census-defined "family." Consider, for example, three adult siblings who are living together. Census would consider them to be a "family" due to their related status and cohabitation, whereas SHADAC's HIU definition would place each sibling in their own HIU since it is unlikely that one could extend their health insurance coverage to the other.



Constructing the original HIU

The aim of the SHADAC HIU is to capture the key components of both public and private eligibility criteria in a single measure, taking into account both how private coverage typically defines who could be covered under one insurance policy (e.g., the policyholder, policyholder's spouse) and how eligibility for Medicaid, CHIP, and subsidized individual market coverage is determined.

The original version of the HIU, therefore, applied the following assignment rules:

- single adults with no children of their own living with them are assigned to their own HIU;
- married couples, regardless of age, with no children of their own living with them are assigned to their own HIU;
- single or married parents, regardless of age, along with their eligible children (i.e., children 18 years of age or younger, who do not have a spouse in the household and have no children of their own) are assigned to an HIU;
- eligible children with no parent in their household, but who are related to the household reference person, are placed together in an HIU; and
- eligible children with no parent in the household and who are not related to the household reference person are placed in their own HIU.

As these assignment qualifications demonstrate, determining which individuals are part of an HIU requires specific information about an individual and their family members, including the level of familial relationship between each individual in a household, along with their age, marital status, and individual income. While it is possible to independently produce the needed variables for from multiple person records, it is time consuming and challenging. Fortunately, IPUMS, a web database that provides access to many integrated federal surveys at the Institute for Social Research and Data Innovation, creates and releases annual interrelationship variables as part of their IPUMS USA and IPUMS CPS data products. Leveraging these publicly available variables to construct the SHADAC HIU has made it easy to process and replicate across both of these data sources.

Additionally, though SHADAC's HIU was originally constructed with the intention to be broadly consistent with the family unit that is relevant for public and private insurance, it is able to be tailored to specific criteria used in individual states, for specific programs, or for specific types of analysis.

2020 revisions to the SHADAC HIU

Since the creation of the original SHADAC HIU in 2012, changes to eligibility for public and private insurance programs, as well as changes to how relationships are coded in the federal surveys, have prompted SHADAC to revise the HIU to adjust the "family" definition accordingly. We discuss the most recent updates below.

- The original version of the HIU considered the spouse to be eligible as a dependent only if they reported being married. In the 2020 revised version of the HIU, this eligibility consideration has been extended to couples who report being separated but still live together in the same household. Although this change does not affect a significant number of cases, a separated couple is still legally married and benefits can still be extended to spouses.
- In 2015, the U.S. Supreme Court ruled in Obergefell v. Hodges that the U.S. Constitution guarantees the right to marry to same-sex couples. A result of allowing same-sex couples to marry nationwide, of course, is that this decision also permitted these couples to extend their employer-sponsored health insurance to their spouse. It also meant that income from same-sex spouses would be considered as part of determining eligibility for Medicaid. Consequently, the HIU's rules for married couples and married parents were revised to apply regardless of age and sex.
- The original HIU assigned children of unmarried parents to the reference parent when both parents lived together. The revised HIU, however, assigns these children to the parent with the highest income. This change was made because Medicaid requires all applications to include the income information of the highest-income parent for the purposes of determining eligibility, and because it is also likely that the higher-income parent may have a better health insurance benefit offer from their employer.
- Since 2012, the SHADAC HIU excluded any married child (age 18 or younger) from being considered a dependent. However, not all married children live with their spouse. In the revised HIU, married children who live apart from their spouse but in the same household as one or more of their parents are now incorporated into the HIU of the parent(s).

Measuring the effect of these revisions

To assess the effect of the revised HIU definition, we ran an analysis producing estimates of the population distribution across the different income groups using both the original and 2020 revised SHADAC HIU. The analysis estimated income based on the Federal Poverty Guidelines (FPG) at the state and national level using the 2018 ACS from IPUMS USA.

The analysis found few differences between the 2020 revised and the original HIU (see Exhibit 1). Using the revised HIU, we estimated that 28.1% of individuals have incomes of 0-138% FPG—just a 0.24 percentage-point difference from the same estimate (28.3%) produced using the original HIU. These differences get even smaller and lose their statistical significance as we consider higher poverty level categories, and at 401%+ FPG there is no difference.

Exhibit 1: Differences in Income Distribution between HIU versions

Income category	2018 HIU	Updated HIU	Difference
0–138% FPG	28.3%	28.1%	-0.24 pp *
139–250% FPG	18.4%	18.5%	0.17 pp *
251–400% FPG	18.5%	18.6%	0.07 pp
401+% FPG	34.8%	34.8%	0.00 pp
Total	**100.0%**	**100.0%**	**0.00 pp**

Source: 2018 American Community Survey.
* Denotes a statistically significant difference (p<0.05) between the 2018 HIU and the updated version.

Exhibit 2 shows that estimate differences between the original and 2020 revised HIU are almost exclusively driven by differences among children. Estimates of the percent of children in lower-income health insurance units produced using the 2020 revised version of the HIU are 1.05 percentage points below the estimates produced by the original version. Other age groups show no differences or very small differences that are not statistically significant.

Exhibit 2: Differences in Income Distribution between HIU versions, by age

Age group	0–138% FPG	139–250% FPG	251–400% FPG	401+% FPG
0–18	-1.05 pp *	0.50 pp *	0.32 pp *	0.23 pp
19–25	0.00 pp	0.07 pp	-0.05 pp	-0.02 pp
26–34	0.03 pp	0.19 pp	-0.06 pp	-0.16 pp
35–54	0.02 pp	0.07 pp	0.02 pp	-0.12 pp
55–64	0.00 pp	0.01 pp	0.00 pp	-0.01 pp
65+	0.00 pp	0.00 pp	0.00 pp	0.00 pp
Total	**-0.24 pp ***	**0.17 pp ***	**0.07 pp**	**0.00 pp**

Source: 2018 American Community Survey.
* Denotes a statistically significant difference (p<0.05) between the 2018 HIU and the updated version.

Exhibit 3 shows that there are no statistically significant differences in estimates of the population's income distribution at the state level when using the 2020 revised versus original HIU. The estimates are most different in North Dakota, where there is a 0.54 percentage-point difference (a reduction in the estimate of individuals with an HIU household income of 0-138% FPG) and lowest in the District of Columbia (D.C.) where the difference is 0.04 percentage points. Neither is statistically significant.

Exhibit 3: Differences in Income Distribution between HIU versions, by state

State	0–138% FPG	139–250% FPG	251–400% FPG	401+% FPG
Alabama	-0.14 pp	0.20 pp	-0.03 pp	-0.03 pp
Alaska	-0.20 pp	0.09 pp	0.06 pp	0.05 pp
Arizona	-0.28 pp	0.15 pp	0.12 pp	0.00 pp
Arkansas	-0.26 pp	0.26 pp	0.01 pp	-0.01 pp
California	-0.23 pp	0.15 pp	0.06 pp	0.03 pp
Colorado	-0.30 pp	0.23 pp	0.08 pp	-0.01 pp
Connecticut	-0.27 pp	0.19 pp	0.08 pp	0.00 pp
Delaware	-0.39 pp	0.39 pp	-0.03 pp	0.03 pp
District of Columbia	0.04 pp	-0.03 pp	-0.06 pp	0.06 pp
Florida	-0.24 pp	0.17 pp	0.06 pp	0.01 pp
Georgia	-0.25 pp	0.19 pp	0.08 pp	-0.03 pp
Hawaii	-0.23 pp	0.14 pp	0.11 pp	-0.02 pp
Idaho	-0.18 pp	0.18 pp	0.07 pp	-0.06 pp
Illinois	-0.24 pp	0.15 pp	0.06 pp	0.04 pp
Indiana	-0.24 pp	0.21 pp	0.08 pp	-0.05 pp
Iowa	-0.33 pp	0.37 pp	0.05 pp	-0.08 pp
Kansas	-0.30 pp	0.28 pp	0.08 pp	-0.06 pp
Kentucky	-0.19 pp	0.06 pp	0.17 pp	-0.03 pp
Louisiana	-0.25 pp	0.25 pp	0.03 pp	-0.03 pp
Maine	-0.19 pp	-0.10 pp	0.39 pp	-0.11 pp
Maryland	-0.29 pp	0.20 pp	0.02 pp	0.08 pp
Massachusetts	-0.26 pp	0.18 pp	0.10 pp	-0.01 pp
Michigan	-0.24 pp	0.18 pp	0.10 pp	-0.04 pp
Minnesota	-0.33 pp	0.25 pp	0.11 pp	-0.04 pp
Mississippi	-0.20 pp	0.18 pp	0.02 pp	0.00 pp
Missouri	-0.26 pp	0.25 pp	0.00 pp	0.01 pp
Montana	-0.17 pp	0.07 pp	0.00 pp	0.10 pp
Nebraska	-0.32 pp	0.26 pp	0.15 pp	-0.09 pp
Nevada	-0.25 pp	0.12 pp	0.10 pp	0.04 pp
New Hampshire	-0.17 pp	0.06 pp	0.08 pp	0.03 pp

State	0–138% FPG	139–250% FPG	251–400% FPG	401+% FPG
New Jersey	-0.19 pp	0.12 pp	0.07 pp	0.00 pp
New Mexico	-0.33 pp	0.25 pp	0.14 pp	-0.07 pp
New York	-0.20 pp	0.08 pp	0.07 pp	0.06 pp
North Carolina	-0.14 pp	0.10 pp	0.05 pp	-0.01 pp
North Dakota	-0.54 pp	0.34 pp	0.04 pp	0.15 pp
Ohio	-0.27 pp	0.19 pp	0.10 pp	-0.02 pp
Oklahoma	-0.18 pp	0.18 pp	0.01 pp	-0.02 pp
Oregon	-0.38 pp	0.33 pp	0.06 pp	-0.02 pp
Pennsylvania	-0.22 pp	0.15 pp	0.05 pp	0.03 pp
Rhode Island	-0.26 pp	0.19 pp	0.02 pp	0.05 pp
South Carolina	-0.35 pp	0.28 pp	0.11 pp	-0.04 pp
South Dakota	-0.19 pp	0.10 pp	0.11 pp	-0.01 pp
Tennessee	-0.17 pp	0.16 pp	0.02 pp	-0.01 pp
Texas	-0.24 pp	0.19 pp	0.05 pp	0.00 pp
Utah	-0.26 pp	0.25 pp	-0.01 pp	0.01 pp
Vermont	-0.06 pp	-0.01 pp	-0.01 pp	0.08 pp
Virginia	-0.18 pp	0.10 pp	0.10 pp	-0.01 pp
Washington	-0.28 pp	0.08 pp	0.19 pp	0.00 pp
West Virginia	-0.19 pp	0.15 pp	0.06 pp	-0.02 pp
Wisconsin	-0.33 pp	0.18 pp	0.16 pp	-0.02 pp
Wyoming	-0.23 pp	0.04 pp	0.17 pp	0.02 pp
Total	**-0.24 pp ***	**0.17 pp ***	**0.07 pp**	**0.00 pp**

Source: 2018 American Community Survey.
* Denotes a statistically significant difference (p<0.05) between the 2018 HIU and the updated version.

Finally, our analysis found no statistically significant differences in uninsured rates by income category when using the 2020 revised versus original SHADAC HIU, even when restricting the analysis to children. Though some differences in percentage-point estimates are apparent, these differences are not statistically significant.

Exhibit 4: Differences in Uninsurance between HIU versions, by income catgeory

Income category	2018 HIU	Updated HIU	Difference
0–138% FPG	15.5%	15.6%	0.13 pp
139–250% FPG	12.2%	12.2%	-0.03 pp
251–400% FPG	7.8%	7.8%	-0.05 pp
401+% FPG	3.0%	3.0%	-0.03 pp
Total	**9.1%**	**9.1%**	**0.00 pp**

Source: 2018 American Community Survey.
* Denotes a statistically significant difference (p<0.05) between the 2018 HIU and the updated version.

Exhibit 5: Differences in Uninsurance between HIU versions among Children (0-18), by income catgeory

Income category	2018 HIU	Updated HIU	Difference
0–138% FPG	15.5%	15.6%	0.13 pp
139–250% FPG	12.2%	12.2%	-0.03 pp
251–400% FPG	7.8%	7.8%	-0.05 pp
401+% FPG	3.0%	3.0%	-0.03 pp
Total	**9.1%**	**9.1%**	**0.00 pp**

Source: 2018 American Community Survey.
* Denotes a statistically significant difference (p<0.05) between the 2018 HIU and the updated version.

DISCUSSION

An HIU can be an important analytic consideration when using survey data to conduct research on health insurance, leading SHADAC in 2012 to develop our original HIU to support this kind of research, specifically where health insurance eligibility is important. To maximize its effectiveness, we have recently revised the SHADAC HIU in order to comport with relevant policy changes, as well as changes in available data. The analysis produced in this brief shows that the 2020 revision to the HIU produces a small decrease in the estimated share of people with low incomes, mainly due to a decrease in the share of children in this group, as shown in Exhibit 2. These differences are only observable at the national level, however, as state-level differences were not shown to be statistically significant—nor were the small differences in the uninsured rate.

The differences produced by the 2020 revised HIU are small and statistically insignificant and are only observed when using a survey such as the ACS, with strong power of predictability due to its large sample size. As a result, we do not believe that this revision represents a break in series for most analyses. Even among children, the 2020 revised HIU shows no significant differences relative to the original HIU in the uninsured rates by family income.

The changes to the HIU assignment rules for children in households with two unmarried parents were the largest contributor to the few relatively small but statistically significant differences in estimates that we observed in our analysis. The revised HIU assigns these children to the highest-earning parent, resulting in fewer children in the lowest-income group. Aside from this specific change that was introduced to follow recent practices in the determination of health insurance eligibility, other updates have not had a significant effect on estimates produced by the 2020 revision of the HIU.

SHADAC HIU research applications and considerations

The SHADAC HIU is intended to produce a general definition of family that researchers can use in studies where health insurance eligibility is important. However, researchers may want to modify the HIU to align with state-specific criteria, certain programs, or for a specific research question. For example, in a study focused on employer-based insurance and the Affordable Care Act's young adults provision, researchers could extend the definition of dependent children to include individuals up to 26 years old.

While the general rules used here to create both the original and revised SHADAC HIU are fairly straightforward, they can nevertheless result in specific cases that could reasonably be grouped differently, so researchers who are using the HIU to focus on small subpopulations should proceed with caution. For example, if using data years that proceed the legalization of same-sex marriage, researchers should consider how same-sex couples are defined within the HIU.

The SHADAC HIU can be a helpful tool for researchers when looking at federal survey data. In this brief, we have outlined the parameters used in constructing the original HIU in 2012 as well as the 2020 revised version, so that researchers can understand both how the HIU functions and also which version of the SHADAC HIU might be best suited to use in addressing specific research questions.