

## Health Insurance and Poverty Measurement

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### Abstract

This chapter provides an overview of attempts to incorporate health insurance benefits into poverty measures. Doing so matters most where benefits are not universal and require out-of-pocket payments for insurance or care. The chapter describes measurement difficulties, especially defining a health care/insurance need for the poverty threshold and capturing the limited fungibility of health benefits. Two prominent approaches—adding a fungible value of health insurance to resources and deducting medical out-of-pocket expenditures from resources—cannot estimate the full impact of health insurance benefits on poverty, particularly its access value. The chapter describes a health-inclusive poverty measure (HIPM) that includes health insurance needs and benefits, prevents health benefits from meeting non-health needs, and enables estimates of impacts of health benefits on poverty. The chapter also considers the potential value of the HIPM for international comparisons of poverty and welfare states.

**Key words:** poverty, health insurance, poverty measurement, fungibility, medical out-of-pocket expenditures

## 1. Why Health Insurance Matters to Poverty Measurement

The United States has especially unequal distributions of income and wealth relative to other well-off nations. Moreover, residents have no entitlement to health insurance, despite the 2010 Affordable Care Act (ACA). Yet neither official US poverty measures nor measures commonly used for international comparisons (e.g., Gornick and Jantti 2016) capture poverty that results from unmet needs for health care and insurance.

Poverty measures should incorporate health insurance if health care is part of a minimally adequate standard of living—a basic need—and if health insurance benefits help meet that need. Whether health care and insurance are considered needs is socially and politically determined. Evidence that most people in most countries view access to health care as a basic need includes: the 1948 Universal Declaration of Human Rights affirms health care as a right; higher-income countries other than the U.S. ensure universal health insurance or care; and in the U.S., the ACA explicitly aimed to achieve universal access to affordable health insurance.

If health care is a basic need, then ignoring health benefits distorts poverty measures. A low-income American with enough income to meet material (non-health) needs but ineligible for Medicaid is poor. A similarly low-income Briton is not poor due to the National Health System.

Researchers seeking to construct poverty measures that incorporate health care needs and health benefits face intrinsic difficulties. A background paper for a US National Academy of Sciences (NAS) panel report studied multiple approaches to incorporating health insurance benefits into poverty measures but found none valid and practical given the health care system of the time (Moon 1993; Citro and Michael 1995). The panel recommended excluding health insurance benefits from resources but described their approach as “not explicitly acknowledge[ing] a basic necessity, namely medical care, that is just as important as food or housing...devalu[ing] the benefits of having health insurance, except indirectly” (Citro and Michael 1995, p. 236).

Recently there has been renewed interest in incorporating health insurance benefits into US poverty measurement (e.g., Korenman and Remler 2016, Council of Economic Advisers 2019, Interagency Technical Working Group 2021). Yet no consensus method has emerged.

## **2. Health Insurance and Poverty Measurement: Conceptual Issues<sup>1</sup>**

### *2.1 Variability of Health Care Needs*

Everyone needs food and housing every day. In contrast, even in a calendar year, one person may need little health care, while another may need a great deal. These uneven needs are demonstrated by the concentration of expenditures on health care from all sources (including insurers): 5% of people account for half of expenditures (Mitchell 2016). Furthermore, a person's expenditures vary substantially over time, though are also correlated across time. Any summary measure of health care needs substantially over- (under-) estimates the needs of relatively healthy (unhealthy) people. Even adjusting for general health status leaves substantial errors, because costs depend on particular health conditions. Therefore, adding a health care need to the poverty threshold presents substantial difficulties.

The purpose of health insurance is to pay for needed care, whatever the health conditions. Therefore, treating health *insurance* as a need for the poverty threshold captures the variability of care needs. However, health insurance plans vary in the treatments covered, cost-containment approaches, provider availability, and patient cost-sharing (e.g., deductibles). Incorporating health insurance into poverty thresholds requires judgements about which insurance plan represents a minimally adequate living standard.

Particularly in the US, health insurance alone does not guarantee receipt of needed care. Cost-sharing requires the insured to pay out-of-pocket, in addition to what the insurer pays. Cost-sharing partly undermines insurance, creating a cost-sharing need sensitive to health conditions. Poverty thresholds must also be adjusted to reflect the low household economies of scale in health insurance and care.

### *2.2 Health Insurance: Access and Financial Protection*

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<sup>1</sup> This section draws from Korenman et al. 2019 Section II and references therein.

Traditionally, health economists conceptualized health insurance as financial protection (e.g., Phelps 1992), because it reduces the impact of bad health on out-of-pocket expenditures. Moreover, health benefits (from government or employers) may reduce (or even eliminate) out-of-pocket spending on insurance.

In contrast, Nyman (2003) emphasized health insurance's access value: the extent to which health insurance makes possible health care and therefore improvements in health that would not occur without insurance. Health insurance transfers funds from healthy "states" to sick states, especially to sick states where health care can improve health substantially.

Until recently, US poverty measures have either ignored health care and insurance entirely or focused solely on out-of-pocket spending for care and/or insurance (see section 3). Those measures do not incorporate an access value of insurance.

### *2.3 Actuarial Value and Limited Fungibility*

The actuarial value of health insurance (actuarially fair premium) is the expected cost of medical care paid by the insurer for a defined pool of insured. For private insurance, the market value is the actuarial value plus loading (administrative costs and profits). The actuarial value makes up the bulk of market value. We use the term "full value of health insurance" to refer to both the market and actuarial values, emphasizing the contrast with substantially lower values discussed in section 3. For public insurance provided by government, the full value includes all government funding.

Prior to 2014, the health insurance premium could depend on an individual's health conditions. Insurers in the individual-purchase market used medical underwriting—detailed investigations into pre-existing medical conditions—to determine each individual's premium. Such risk rating makes it difficult to determine the insurance amount for a poverty threshold. However, when the ACA took effect in 2014, guaranteed issue required insurers to sell insurance to anyone irrespective of health status, and community rating required them not to use health status to determine insurance premiums.

Because everyone needs food and housing in every period, in-kind benefits such as food and housing assistance are mostly fungible: they free up income that would have been spent on food and housing in the absence of benefits. In contrast, health insurance benefits free up much less income that would have been spent on care or insurance. In the absence of insurance benefits, higher income people are the overwhelming majority of those who purchase health insurance out-of-pocket, and therefore health benefits are highly fungible mainly for them. Because most people in most periods use little health care, benefits free up little income that would have been spent out-of-pocket on care. Health benefits have especially low fungibility for very low-income households who, absent benefits, would be uninsured and have little cash to spend on health care, even when in poor health.

#### *2.4 Incorporating Health Benefits into Absolute and Relative Poverty Measures*

An absolute poverty threshold should be adjusted for overall price inflation but not changes in living standards. Significant technological changes have dramatically improved health care quality—how much care improves health. Consequently, a threshold health need that measures a constant quality of health care or insurance would be much cheaper today than in the past. In contrast, the cost of health benefits has increased greatly relative to general prices. Therefore, if insurance is included in resources, using a historical threshold health insurance need would exacerbate the fungibility problem of health insurance benefits (Remler and Korenman 2021).

Relative poverty measures do not automatically lose validity over time as technology changes and costs grow. However, fungibility poses problems for standard approaches to relative poverty, such as defining the threshold as 50% of median income, treating all resources and needs as undifferentiated. Ensuring that health benefits are not assumed to meet non-health needs requires separating the threshold into health insurance and material needs.

### **3. Early Approaches to Incorporating Health Insurance<sup>2</sup>**

#### *3.1 Adding Health Insurance Benefits to Resources Without a Consistent Threshold*

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<sup>2</sup> See Sections III to VII of Korenman et al. (2019).

Researchers have long tried to estimate how the large and growing Medicare and Medicaid programs affect poverty (Smeeding 1977, p. 366). The earliest approach simply added the full value of health benefits to resources. Smeeding (1982) showed that including the full market value in resources implied that households could use Medicaid or Medicare to meet large portions of their non-health needs. Subsequently, researchers who took that approach acknowledged both the fungibility problem and the problem of ignoring health benefits (e.g., Ben-Shalom et al. 2012).

Early studies that added insurance benefits to resources used poverty measures with thresholds that did not include medical expenses paid by insurance (Citro and Michael 1995, p. 226). This inconsistency between resources and thresholds can bias poverty estimates. The NAS report therefore emphasized two principles for incorporating health benefits in poverty measures. First, ensure that thresholds and resources are consistent. Second, do not treat health insurance benefits as equivalent to cash, as fully fungible.

### *3.2 Fungible Value*

The Census Bureau calculated a fungible value for Medicare, Medicaid, and employer-provided health insurance from 1979 to 2014 (e.g., US Census 1988). The Bureau defined the fungible value of health benefits conceptually as, “the extent that having the insurance would free up resources that would have been spent on medical care” (US Census 2015, Footnote 2).

A low-income person in poor health with no health benefits does a combination of: going without needed health care, receiving free care (not paid by patient or insurer), and paying out-of-pocket. Conceptually, for such a person, the fungible value captures only the extent health benefits reduce out-of-pocket payments for care. The fungible value does not capture how health benefits improve access or quality of care. By definition, fungible values exclude the access value of health insurance benefits.

For low-income families, the fungible value of health benefits is especially small because they have little or no cash to free up. Yet health benefits provide them with health care services of value, reduction of risk (financial and health), and less anxiety. Consequently, scholars find the Census approach lacking (e.g., Kaestner and Lubotsky, 2016). Nonetheless, prominent

researchers have used Census' fungible values as a compromise between treating health insurance benefits as worthless and valuing benefits at their full market value (e.g., Hoynes et al. 2006).

### *3.3 Deducting Medical Out-of-Pocket Expenditures from Resources*

The 1995 NAS panel recommended a new approach to poverty measurement, implemented in 2011 as the Supplemental Poverty Measure (SPM) (Short 2011, Fox 2020). The SPM threshold measures a need for food, clothing, shelter and utilities, plus a bit: "material needs." The SPM resource measure includes cash income and in-kind benefits that meet these needs, but not health insurance benefits.

The SPM does capture how medical out-of-pocket expenditures (MOOP) reduce funds available for material needs. It subtracts from resources MOOP expenditures on insurance and care treating them as "non-discretionary," like taxes. This practice implies that whatever a family spends out-of-pocket on care and insurance *is* their health need, an implicit need, rather than an explicit need added to the threshold.

Consequently, although the SPM is used to estimate the impacts of other in-kind benefits on poverty (Fox 2020, Figure 8), it cannot estimate the direct impact of health insurance benefits. However, the SPM can be used to estimate the partial impacts of health benefits on material poverty, through their effects on out-of-pocket expenditures (e.g., Sommers and Oellerich 2013).

Moreover, because the SPM threshold does not include a health care or insurance need, it cannot detect unmet health needs. If a low-income uninsured household does not get needed care, the SPM does not register their unmet need nor classify them as poor as a result. Conversely, the SPM will classify as poorer, through the MOOP deduction, people who, all else the same, choose to get more or better health care or insurance (Cogan 1995). This feature may also distort estimates of the ACA's impact on poverty, because out-of-pocket premium payments can make families appear poorer while the highly subsidized insurance received is given no value (Remler et al. 2017).

### *3.4 Medical Out-of-pocket Expenditures in the Threshold*

Like the SPM, the “MOOP in the Threshold” approach conceptualizes poverty as material poverty, incorporating how MOOP reduces households’ ability to meet material needs. But rather than deducting realized MOOP from resources, the MOOP in the Threshold approach adds an expected need for MOOP to the threshold (e.g., Garner and Short 2010).

This approach cannot show the direct impact of health insurance benefits on poverty. Consider Medicaid recipients whose health care is covered with essentially no out-of-pocket payments. If the MOOP threshold is specific to insurance type, then Medicaid recipients should have no MOOP need. Consequently, Medicaid can have no direct impact on poverty by meeting their MOOP need, because that need is zero. A variation would make the MOOP threshold component the average out-of-pocket spending of the *uninsured*. Medicaid might then show an impact by meeting the uninsured’s MOOP need. To the extent that the uninsured go without needed care, however, this approach understates the impact of health benefits.

### *3.5 Two-index Approaches*

Analysts regularly present cross-tabulations of material poverty and an indicator of having health insurance, including insurance purchased out-of-pocket (e.g., Keisler-Starkey and Bunch 2020, Figure 6, Table A-2). This cross-tabulation can be, though most often is not, interpreted as a two-index approach to poverty measurement incorporating health insurance (Blank 2008 p.248). Moreover, tabulations of health insurance status with the official US poverty measure fail to capture tradeoffs between health and material needs. For example, those purchasing insurance out-of-pocket appear unambiguously better off with no indication of how the reduction in disposable income reduces their ability to meet material needs. Also, this approach, even implemented with the SPM, cannot show how health benefits directly reduce poverty.

The 1995 NAS report recommended development of a medical care economic risk (MCER) to supplement their recommended material poverty measure (the eventual SPM). An MCER could show the population share with (expected) unmet MOOP and material needs, provided a level of MOOP risk is specified. It can also show how health benefits reduce such

joint unmet needs. However, because MCER calculations require substantial modelling (Meier and Wolfe 2012; Abramowitz et al. 2017), an MCER, while valuable, cannot play the same role in policy discussions as poverty indicator (Korenman et al. 2019).

#### **4. Recent Approaches to Incorporating Health Insurance into Poverty Measurement**

##### *4.1 Health-Inclusive Poverty Measure*

To validly add the full value of health insurance benefits to resources requires putting a need for health insurance (or health care paid by insurance) in the threshold. It makes sense to include an *insurance* need in the threshold because insurance is meant to cover needed care, whatever beneficiaries' health conditions (Section 2.1).

Korenman and Remler (2016) developed the health-inclusive poverty measure (HIPM), which puts health insurance needs in the threshold and the full value of health insurance benefits in resources. It enables estimates of how health benefits reduce poverty by meeting health care needs—the access value of health insurance. It also captures tradeoffs between material and health needs. The HIPM ensures that health benefits are not assumed to meet non-health needs. To date, the HIPM has been implemented as a modification of the SPM (e.g., Remler et al. 2017). However, we focus on the general approach, which can modify many income-based measures of material poverty in any country.

Imagine that a basic health insurance plan covers socially determined essential care. The premium to purchase the basic plan does not depend on health status, though it can depend on age. The basic plan may require patient cost-sharing, but for exposition, we first presume no cost-sharing and then describe how to incorporate it in section 4.1.4.

##### *4.1.1 HIPM Construction*

To construct a HIPM, add the full price (or actuarial value) of health insurance to the threshold of the existing material (non-health) poverty measure. (To avoid double-counting, the threshold should not already include health insurance or care paid by insurance.) For a partly non-market system (such as Medicare in the US) or an entirely non-market system (such as the

National Health Service in the UK), the full price added to the threshold includes payments from all funders, including the government.

For those without government- or employer-provided health benefits, add nothing to resources. Such households will be designated poor if they do not have enough resources to purchase both health insurance and material needs. Add to resources the value of any subsidies available to purchase health insurance (up to the plan value in the threshold).

For those with health benefits (from government or employers) that require no out-of-pocket premium contributions, such as Medicaid, add to resources an amount that equals the health insurance need. Making the insurance resources and needs equal ensures that health insurance benefits do not meet non-health needs.

For those with health benefits that require out-of-pocket premium payments, add to resources a net health insurance value: the value of the insurance need minus required out-of-pocket premiums. This approach incorporates how payments to obtain insurance reduce resources for material needs, while still ensuring that health benefits are not assumed to meet material needs.

#### *4.1.2 HIPM and Fungibility*

With the HIPM, material resources can meet health and material needs, but health insurance resources can meet only health needs. This approach avoids inaccurate fungibility assumptions. However, because the HIPM explicitly includes health insurance in the threshold, it captures how health insurance benefits free up income for those who, without benefits, would have purchased insurance out-of-pocket or who would have been uninsured and consequently spent (more) out-of-pocket on care.

#### *4.1.3 Benefit-Need Offset*

Making the poverty measure health-inclusive affects poverty rates mostly through those who are uninsured or who purchase their insurance out-of-pocket. For those with health insurance benefits that fully meet the threshold need, poverty status is essentially unaffected by the choice of the insurance need, because the same value will be added to the threshold and

to resources. We refer to this as the benefit-need offset property (Korenman et al. 2021). However, deducting out-of-pocket premiums can affect poverty rates.

Consequently, in a population that mostly has health benefits, poverty rates are quite insensitive to errors in the health insurance need or choice of a different plan as the basic need. Changes to the health insurance threshold component of 25% in either direction change poverty rates of US children by about 1 percentage point or less than 6% (Korenman et al., 2019, Table 4). The estimated impact of Medicaid, however, changes by over 20%. Thus, impact estimates (and poverty gap estimates) are more sensitive than poverty rates to the value of the threshold health need.

#### 4.1.4 Cost-sharing

If the basic plan requires cost-sharing, the HIPM must incorporate cost-sharing. One could add an *ex ante*, predicted, cost-sharing need to the threshold. The true *ex ante* cost-sharing need depends on health conditions. If such details are unavailable in data sets used to measure poverty, this threshold component could have large errors.

An *ex post* approach instead deducts actual cost-sharing expenses from resources. This will understate poverty if cost sharing discourages people from getting needed care. And it will overstate poverty to the extent people pay for unnecessary care. This latter error can be reduced, but not eliminated, by capping the cost-sharing deductions, if the basic plan limits cost-sharing spending. As currently implemented, the HIPM modifies the SPM and takes an *ex post* approach, though unlike the SPM, it caps deductions.

Empirically, making the SPM health-inclusive can substantially change comparisons such as demographic differences in poverty rates. Among those under age 65, the HIPM is 4.5 percentage points higher than the SPM rate among Hispanics but only 0.3 points higher among Non-Hispanic Whites (Remler et al. 2017, Exhibit 1). However, among those age 65 and over, the HIPM rate is *lower* than the SPM rate by 1.8 percentage points (Korenman et al. 2021).

The HIPM also makes possible impact estimates. Among those aged 65 and under, Medicaid reduced health-inclusive poverty by 3.8 points, more than the effects of refundable federal tax credits or all other means-tested benefits combined (Remler et al. 2017, Exhibit 2).

#### 4.1.5 Details and Extensions

Implementing a HIPM requires incorporating important aspects of the health insurance system, which can differ from the simplified description above. For example, poverty is determined for resource-sharing units, such as households, but people in the same household may have different insurance coverage. Therefore, the health threshold and resource calculations must first be carried out for household sub-units with the same insurance, and then aggregated to the household level for poverty determination. (See Remler et al. 2017, Korenman et al. 2019 and their appendixes.)

Since low-income households have substantial access to free care (Finkelstein et al. 2019), one might argue against putting the full value of health insurance in the threshold. The HIPM framework can address this by adding an estimated implicit insurance value of free care to the resources of the uninsured (e.g., Korenman et al. 2019).

The HIPM has been implemented only in the U.S. but could be implemented in other countries. Whatever minimal or safety net health coverage is ensured for everyone would be an appropriate need. In the United Kingdom, one could simply add *per capita* National Health System (NHS) expenditures to the threshold and to resources. This approach would have no impact on poverty rates, but it would enable estimates of how the NHS reduces poverty. Further, the UK poverty rate could be validly compared to the US HIPM rate. For countries with more complex systems and/or out-of-pocket payments, such as Switzerland or Australia, making a poverty measure health inclusive would affect the poverty rate.

#### 4.2 Full-Income Poverty Measure

Burkhauser et al. (2020) developed the full-income poverty measure (FPM), which includes the full market value of health benefits in resources, along with cash income, net of taxes and tax-credits, plus other in-kind benefits. The FPM threshold is the amount of full income in the 1963 distribution such that 19.5% of individuals fall below it, the official poverty rate of that year. The FPM threshold was updated each year up to 2017 using the PCE-Index, a price deflator for personal consumption expenditures, including health care paid by insurers.

The framework is an outgrowth of analyses of the role of transfer flows in the distribution of income (e.g., Burkhauser et al. 2013).

The 2019 *Economic Report of the President* (Council of Economic Advisers 2019) used the FPM to determine how much the War on Poverty reduced absolute poverty according to a 1963 threshold. The growth of employer-provided health insurance and of Medicaid and Medicare (created in 1965) increases by 30% the reduction in FPM poverty between 1963 and 2017.

In adding the full value of health insurance benefits to resources, the FPM treats health insurance benefits as equivalent to cash, despite long-standing validity concerns described earlier. This full fungibility assumption implies, for example, an elderly couple in 2017 could escape FPM poverty with their Medicare benefits alone and no other income (Remler and Korenman 2021). In effect, the FPM appears intended more to provide a series calculated on a consistent basis over time than a measure of household deprivation in each year, especially at the end of their study period.

## **5. Conclusions**

The development of poverty measures that incorporate health insurance benefits and health care needs long eluded US poverty scholars. Prominent earlier approaches include: (1) incorporating only a fungible value of health insurance in resources; or (2) treating the health need as a need for out-of-pocket expenditures only (not care paid by insurance), implemented as either a deduction from resources or by putting a MOOP need in the threshold. These measures exclude the access value of health insurance benefits—the extent they enable care. They also cannot show the direct and full impacts of health benefits on poverty analogously to the impacts of other cash and in-kind benefits, and tax-credits.

The health-inclusive poverty measure (HIPM) can estimate such impacts and addresses longstanding concerns: The limited fungibility of health insurance benefits for low-income households; the great variability in health care needs; and the consistency between resources and threshold. The HIPM addresses these concerns by: (1) Making health insurance the basic need in the threshold. (2) Using ACA regulations and data to determine how much it would cost

someone without insurance benefits to purchase health insurance out-of-pocket. (3) Making health insurance resources (prior to an out-of-pocket premium subtraction) equal to health insurance needs, for those with health insurance benefits. (4) Allowing material resources to meet health needs, but not allowing health resources to directly meet material needs. Although the HIPM as implemented to date accounts for the impact of cost sharing on poverty through a subtraction from resources, some challenges to implementing cost-sharing needs remain, due to their sensitivity to health conditions.

In contrast, the full-income poverty measure (FPM) assumes full fungibility of health benefits and focuses on consistency over time. However, it may not make sense for individual households in any given year, particularly because it was implemented as an absolute poverty measure over long periods.

Ignoring health insurance in poverty measurement is problematic to the extent that people have unmet health needs or pay out-of-pocket for care or insurance, reducing their ability to meet material needs. Therefore, incorporating health benefits in poverty measures in the US could improve analyses of domestic policies and increase the validity of poverty comparisons to countries with universal health insurance programs. Even in those countries, incorporating health insurance into poverty measures would make possible estimates of the impacts on poverty of expensive health programs. Implementing health-inclusive poverty measures internationally would require research to account for the institutional features of health systems, but could bring substantial benefits for both domestic and comparative policy analysis.

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