Journal of Health Economics 50 (2016) 27–35

Contents lists available at ScienceDirect

Journal of Health Economics

journal homepage: www.elsevier.com/locate/econbase

# Including health insurance in poverty measurement: The impact of Massachusetts health reform on poverty

Sanders D. Korenman, Dahlia K. Remler *

*School of Public and International Affairs, Baruch College, City University of New York and CUNY Institute for Demographic Research, USA*

ARTICLE INFO

*Article history:*
Received 12 February 2016
Received in revised form 22 August 2016
Accepted 6 September 2016
Available online 8 September 2016

*JEL classification:*
I13
I32

*Keywords:*
Poverty measurement
Health insurance
Affordable Care Act
Health reform
Poverty

ABSTRACT

We develop and implement what we believe is the first conceptually valid health-inclusive poverty measure (HIPM) – a measure that includes health care or insurance in the poverty needs threshold and health insurance benefits in family resources – and we discuss its limitations. Building on the Census Bureau's Supplemental Poverty Measure, we construct a pilot HIPM for the under-65 population under ACA-like health reform in Massachusetts. This pilot demonstrates the practicality, face validity and value of a HIPM. Results suggest that public health insurance benefits and premium subsidies accounted for a substantial, one-third reduction in the health inclusive poverty rate.



## 1. Introduction

Although health care is widely perceived as a basic need (e.g., United Nations, 1948, Article 25), creating a valid measure of poverty that incorporates the need for health care has "bedeviled analysts since the 1970s" (NAS, 1995 p. 223; Ellwood and Summers, 1985; Ruggles, 1990; Moon, 1993). The National Academy of Sciences Panel on Poverty and Family Assistance: Concepts, Information Needs, and Measurement Methods ("the NAS panel") recommended many improvements to the US poverty measure, but despite considerable effort, could not find a valid and practical way to include health (NAS, 1995 pp. 223–37). The NAS panel therefore recommended a compromise measure that subtracts medical out-of-pocket expenditures from resources, treating them as nondiscretionary, like taxes. The result was a measure of "material poverty" that indicated the inability, after medical expenses, to meet non-health needs. The panel recognized that a material poverty measure "...does not explicitly acknowledge a basic necessity, namely, medical care that is just as important as food and housing...and devalues the benefits of having health insurance, except indirectly" (p. 236).

Although the panel's treatment of health was controversial (Bavier, 1998; Betson, 2000; Cogan, 1995), overall its recommendations gained broad support among poverty scholars (e.g., Corbett, 1999). A lengthy political process to revise the Official Poverty Measure (OPM) ensued (Blank, 2008; Ruggles, 2008), culminating in the Census Bureau's Supplemental Poverty Measure (SPM; e.g., Short, 2011).

While the panel's indirect treatment of health may have been the best option at the time, this is no longer the case. We demonstrate that health reforms like the Patient Protection and Affordable Care Act (ACA) make possible a valid Health Inclusive Poverty Measure (HIPM) – a measure that incorporates an explicit need for health care or insurance in the poverty threshold and that counts health insurance benefits as resources available to meet that need. Our purpose is to describe and demonstrate the practicality, value and face validity of a HIPM. We focus on the under-65 population, the primary beneficiaries of health reform. Specifically, we (1) explain why ACA-like reforms make the HIPM conceptually valid; (2) demonstrate its practicality by implementing a pilot HIPM under the Massachusetts health reform; (3) demonstrate its value by using the HIPM to assess the direct impact of health benefits on poverty rates and poverty gaps; and (4) discuss caveats and critiques of the HIPM.

Constructing a HIPM is not only conceptually possible but imperative, since available poverty measures could produce misleading estimates of the anti-poverty effects of the ACA and health insurance. The ACA has brought health insurance to millions of low-income Americans. Yet the OPM does not include health insurance

* Corresponding author. School of Public and International Affairs, Baruch College, City University of New York and CUNY Institute for Demographic Research, USA. Fax: 646-660-6871.
*E-mail address:* dahlia.remler@baruch.cuny.edu (D.K. Remler).

http://dx.doi.org/10.1016/j.jhealeco.2016.09.002
0167-6296/

or other in-kind benefits as resources available to meet basic needs. Although the SPM includes most in-kind benefits, it too excludes health insurance. Health reform and health insurance reduce SPM poverty only to the extent they reduce medical out-of-pocket expenditures (MOOP). Sommers and Oellerich's (2013) finding that over $400 billion in annual Medicaid spending reduces SPM poverty by only 0.7 percentage point illustrates SPM limitations. This estimate captures Medicaid's impact only through reducing MOOP.

But health insurance is valuable beyond reducing MOOP. First, it reduces *ex ante* risk, even if in a given year, *ex post*, care was not needed, as in the classic example of fire insurance that is valuable *ex ante* even when no fire occurs (Blinder, 1985). More importantly, the insured receive valuable medical care that the uninsured do not – the access value of insurance (IOM, 2002; Nyman, 2003, 2004; Sommers et al., 2014). And if the uninsured forego medical care, the SPM does not measure their unmet health needs. Thus, a complete assessment of Medicaid's anti-poverty effects would also capture its primary benefit of meeting health care needs.

The SPM could also distort estimates of the effects of ACA subsidies on poverty. The SPM subtracts from income out-of-pocket premium payments, often highly subsidized, but does not value the health insurance received. Therefore, the SPM could indicate that ACA's provision of subsidized premiums made low-income households poorer. Distortions produced by excluding health from poverty measures have likely grown as health care's share of government and individual expenditures has grown, most recently with the ACA (Martin et al., 2015). Since ACA-like reforms took effect in Massachusetts in 2008 (Gruber, 2011; Long and Masi, 2009), we were able to construct a pilot HIPM for Massachusetts, building directly on the SPM.

According to our pilot HIPM, the poverty rate for the under-65 in Massachusetts in 2010 was 12.2%, compared to 13.5% for the SPM. The HIPM rate was modestly lower than the SPM rate because most health insurance needs were met. However, the HIPM rate would likely be much higher than the SPM in states with substantial unmet health insurance needs. The HIPM showed that public health insurance programs reduced poverty by 3.9 percentage points. The "cash income" HIPM poverty gap (as a percent of HIPM needs) was 43.7%. When we added all in-kind benefits to income, the gap fell by 26.5 percentage points, of which employer-provided health insurance accounted for 3.6 points, and Medicaid and Medicare, 6.9 points. Although only illustrative, these estimates show that public health insurance programs and subsidies substantially reduce poverty, particularly poverty gaps. In future work, a HIPM could be used to measure the impact on poverty of other heath policies, such as states' expanding – or failing to expand – Medicaid eligibility.

## 2. When a health inclusive poverty measure is possible

Including health in poverty measures requires putting a dollar value on health needs and health resources such as health insurance provided by government or employers. Although the NAS panel (NAS, 1995) and Moon (1993) described many impediments to potential HIPM approaches, the key underlying barrier was an inability to determine what a particular family needed to pay for health insurance (Korenman and Remler, 2013). At the time, health insurance premiums depended on health status, employment and other factors. Indeed, due to preexisting conditions, health insurance might not have been available at any price.

Two conditions – one conceptual, the other institutional – break the link between health status and health needs and, therefore, provide the conceptual underpinning for the HIPM.[1] First, health insurance is considered a basic need, no matter an individual's health status. Second, the health system offers universal health insurance with premiums unrelated to health status (community rating) and caps on medical care out-of-pocket (MOOP) expenditures.

Regarding the conceptual condition: people may disagree on the philosophical and political question of whether health insurance is a need. Two pieces of evidence suggest that it is. First, all high-income countries other than the US have universal health insurance (or care). Second, the US has Medicaid, Medicare, and the ACA, including its insurance mandate and subsidies, that are intended to provide universal coverage. For example, the ACA states that, in combination with health insurance reforms, "The [individual responsibility] requirement achieves near-universal coverage." Thus, we rely on the political authority of the ACA to define a national health need standard (norm). Indeed, it is essentially impossible to define poverty or any need, especially a health care or insurance need, without reference to some social norm. Still, the lack of Medicaid expansion in many states indicates disagreement about that norm, a point we revisit in Section 5.

The logic and practicalities of poverty measurement further justify considering health insurance the basic health care need. Although any immediate need is for health care and care may be purchased without insurance, the resource typically needed to provide care to a heart attack victim, for example, is a health insurance policy that covers that care if needed. Further, the funds required to pay directly for health care vary tremendously by detailed health status, making it utterly impractical to determine the health *care* need for a poverty threshold.

To understand the institutional condition, consider a health care system that makes eligibility universal for basic insurance, the "Basic Plan." The Basic Plan covers all care deemed essential by society, so it is complete in the events, treatments and procedures covered. However, it does not fully pay for all essential care. First, people must pay part of the premium out-of-pocket (premium MOOP). But that premium is not risk-rated: it does not depend on health status. Second, the Basic Plan includes cost-sharing, such as deductibles and co-pays (nonpremium MOOP), although it caps cost-sharing payments. In such a system, all essential health needs can be met with premium MOOP equal to the Basic Plan premium and nonpremium MOOP less than or equal to the Basic Plan nonpremium MOOP cap. Any premium MOOP payments above the Basic Plan premium and any nonpremium MOOP payments above the Basic Plan cap are discretionary, as socially defined.

The combination of the ACA (or Massachusetts Health Reform) and Medicare Advantage Prescription Drug Plans meets the institutional conditions for all citizens and legal residents (e.g., Focus on Health Reform, 2011a, Gruber, 2011). However, undocumented immigrants cannot use the exchanges, and, therefore, should be excluded from HIPM calculations. The political process has made health insurance policies in which cost-sharing is expected universally accessible. Consequently, basic needs in such a system are: (1) material needs; (2) a Basic Plan with cost-sharing; and (3) sufficient income to pay out-of-pocket for cost-sharing under the Basic Plan, whatever one's health status.

## 3. Implementing a HIPM

Our HIPM builds on the SPM, by adding health insurance needs to the threshold, adding any health insurance benefits received to resources, and modifying the SPM's deduction of MOOP expenditures for care. Health insurance needs are the unsubsidized premium of the Basic Plan. Health insurance resources include any subsidies to, direct payments for, or direct provision of health insurance by government or employers. Critically, the value of insurance benefits must never exceed the value of health needs since health insurance benefits are nonfungible.

[1] Korenman and Remler (2013), section III provides a systematic analysis of barriers to a conceptually valid HIPM.

We used the public version of the data that Census uses to construct the OPM and SPM: the Current Population Survey (CPS) Annual Social and Economic Supplement (King et al., 2010, NBER, nd). The CPS includes MOOP questions essential for both the SPM and HIPM. We calculated a pilot HIPM for the under-65 population, the main beneficiaries of health reforms. We dropped SPM "resource units" (e.g., families, Short, 2013) that contain individuals over age 64, reducing our sample from 3,101 to 2,582, or by 16.7%. Since the CPS does not allow identification of undocumented individuals, we also dropped SPM units that include one or more non-citizens who is either uninsured or has individually-purchased insurance, further reducing the analysis sample to 2,504, for a total sample reduction of 19.3%. Although our sample size limits precision, it was adequate for our purposes: demonstrating the practicality and some important applications of the HIPM.

A family is poor if HIPM resources are insufficient to meet HIPM needs. Health insurance needs are the unsubsidized premium of the Basic Plan. However, determining which plan is the Basic Plan involves judgment. Since the ACA provides cost-sharing subsidies only for Silver plans (Claxton and Panchal, 2015), and determines premium subsidies by ensuring that the second cheapest Silver tobacco-free plan premiums are affordable, under the ACA we would designate this benchmark plan as the Basic Plan. For our pilot HIPM for Massachusetts in 2010, we designated the cheapest Bronze Low plan the Basic Plan since it was closest to today's ACA Silver. Premiums vary by rating area, ages and family composition. Appendix II Section 3 describes Massachusetts plan data and estimates.

Poverty is determined for SPM units, but a variety of sub-units hold health insurance plans. For example, an unmarried couple may form an SPM unit but cannot receive exchange health insurance together. Within each SPM unit, we assigned people covered by different health insurance to different health insurance units (HIUs) and determine health needs and resources for each HIU, as described in Appendix II Section 4. We aggregated health insurance needs (and resources) over the HIUs to determine the SPM unit's HIPM poverty status.

Health insurance resources are the net value of health insurance benefits or subsidies, if any. For those provided health insurance by the government or employers, health insurance resources are the Basic Plan premium minus premium MOOP payments required to obtain that coverage. We did not allow the premium MOOP deduction to exceed the premium for the Basic Plan; buying a more expensive plan cannot make a family poorer. What the family would have to pay for the Basic Plan depends on their potential eligibility for public and private insurance and subsidies. (See Appendix I Table A1 and Appendix II).

For those eligible for subsidies, both the individually insured and the uninsured, health insurance resources are premium subsidies. However, we conducted sensitivity analyses to this approach for the uninsured (see Section 4). Those without benefits or ineligible for subsidies have no health insurance resources. In states that have not expanded Medicaid eligibility, poor Medicaid-ineligible individuals are not eligible for subsidies (Rasmussen et al., 2013). Nonetheless, their HIPM thresholds are defined because they are permitted to purchase unsubsidized plans on the exchanges.

While health insurance is the primary health care need, some health care needs are met out-of-pocket, due to cost-sharing. Several approaches to cost-sharing in a HIPM are possible and none is without problems (Korenman and Remler 2013 pp. 23–25). Our treatment of cost-sharing currently hews closely to the SPM, but limits the deduction from resources of non-premium MOOP expenditures to the non-premium MOOP cap available with the Basic Plan.

Both the ACA and the Massachusetts health reform cap nonpremium MOOP for all exchange plans. In 2010 Massachusetts, the maximum was $5000 and $10,000, for the individual and family, respectively. Both laws reduce nonpremium MOOP caps further for those with low income, according to a sliding scale, implemented through government subsidies additional to the premium subsidies (Focus on Health Reform, 2011a, 2011b). Massachusetts reduced caps for those below 300% of poverty. Appendix Table A1 fully describes health insurance resources and caps by health insurance coverage. Table 1 summarizes and compares the Official, Supplemental and Health-Inclusive Poverty Measures.

Three factors determine whether the likelihood of poverty is higher or lower under a HIPM relative to the SPM. First, all else the same, adding a health insurance need increases the poverty threshold and therefore increases the likelihood of HIPM poverty relative to SPM poverty. Second, adding health insurance benefits to resources can meet, fully or partially, the higher needs threshold. Together, those two adjustments – adding health insurance to needs and adding an equal or lesser health insurance benefit value to resources – can never reduce the HIPM poverty rate below the SPM rate. However, the HIPM limit on MOOP deductions, the third factor, can make HIPM poverty less likely than SPM poverty. Generally, when low-income families lack health insurance resources, the HIPM poverty rate should be higher than the SPM rate because health insurance resources do not meet the much higher HIPM needs. But when health insurance resources largely meet health insurance needs, the HIPM poverty rate should be lower than the SPM rate, due to HIPM's capping of MOOP deductions.

Table 2 illustrates with an example of two families that are identical except that Family A has no health insurance benefits while Family B has insurance fully provided by the government. The HIPM adds a health insurance need (the $10,000 Basic Plan), thus increasing the poverty threshold (relative to the SPM threshold) from $20,000 to $30,000. Neither family is poor according to the SPM because their material resources of $22,000 exceed the $20,000 SPM threshold. However, Family A is poor under the HIPM while Family B is not because Family A has no health insurance provided while Family B has insurance fully provided. (See Appendix II Sections 1 and 2 for details and further examples.)

As a measure of "material" poverty, the SPM is not intended to measure whether health insurance and care needs are met. But in deducting MOOP expenditures from resources, it implicitly treats all health insurance and care purchases as nondiscretionary. That approach is equivalent to adding all MOOP expenditures to the poverty threshold and determining if (pre-deduction) resources are greater than the expanded threshold (e.g., Burtless and Siegel, 2001). Therefore, we define a poverty measure's Implicit Threshold as its explicit needs threshold plus the measure's health deductions from resources. Unlike the SPM, the HIPM implicitly treats as nondiscretionary only basic health insurance and actual cost-sharing up to the Basic Plan cap.

Researchers often measure the intensity of poverty by the poverty gap – the amount by which the poor's resources fall below the poverty threshold (Ben-Shalom et al., 2012; Short, 2011; Ziliak, 2004). We used the HIPM to estimate poverty gaps incorporating health needs. For each individual, we calculated the proportional poverty gap – the difference between his family's needs and resources, as a proportion of needs (i.e., as a proportion of the HIPM Implicit Threshold). To calculate the mean poverty gap, we averaged individual gaps over all individuals in SPM units that have cash income below the HIPM needs threshold.

Census reports show how government transfer programs reduce the SPM poverty rate by recalculating the rate as each transfer is excluded from income (e.g., US Bureau of the Census, 2011; Short, 2013). We estimated the effects of health insurance benefits on the HIPM gap in a similar way. We began by including only pre-tax cash income in resources (OPM resources) – to calculate "cash only" poverty rates and gaps. We then added, in turn, non-health in-kind benefits plus net tax credits and various health insurance

**Table 1**
Poverty measure concepts: official, supplemental and health inclusive.

| | Official Poverty Measure | Supplemental Poverty Measure | Health Inclusive Poverty Measure |
|---|---|---|---|
| Measurement Units | Families or unrelated individuals | Families, including any coresident unrelated children who are cared for by the family and any cohabiters and their relatives, or unrelated, noncohabiting individuals | SPM Unit[a] |
| Non-Health Needs | Three times cost of minimum food diet in 1963[b] | The mean of expenditures on food, clothing, shelter, and utilities (FCSU) over all two-child consumer units in the 30th to 36th percentile expenditure range multiplied by 1.2 | Same as SPM measure of non-health needs |
| Adjustments to Non-health Needs | Vary by family size, composition, and age of householder | Geographic adjustments for differences in housing costs by tenure and a three-parameter equivalence scale for family size and composition | Same as SPM |
| Updating Non-health Needs | Consumer Price Index: all items | 5-year moving average of expenditures on FCSU | Same as SPM |
| Health Insurance Needs | None[b] | Explicit: None<br>Implicit: All out-of-pocket expenditures on insurance (premium MOOP) [because deducted from resources] | Explicit: Unsubsidized Premium of Basic Health Insurance Plan |
| Cost-sharing and Uncovered Health Care Needs | None[b] | Explicit: None<br>Implicit: All out-of-pocket expenditures on care (non-premium MOOP) [because deducted from resources] | Explicit: None<br>Implicit: Capped out-of-pocket expenditures on care (non-premium MOOP up to the cap available with Basic Plan). [because deducted from resources] |
| Non-Health Resources | Gross before-tax cash income | Sum of cash income, plus noncash benefits that families can use to meet their FCSU needs *minus* taxes (or plus tax credits), *minus* work expenses and child support paid to another household *minus* out-of-pocket medical care and insurance and over-the-counter expenses (MOOP) | SPM Resource Measure but without the MOOP subtraction |
| Health Insurance Resources | None | None | For those who get private or public health insurance benefits: Net Value of Health Insurance Benefits. Specifically, unsubsidized premium of Basic Plan minus actual premium MOOP (limited to premium MOOP necessary to obtain Basic Plan).<br>For those eligible for premium subsidies: subsidy value. |

Source: The OPM and SPM descriptions are partly based on Short (2013, p. 3).
[a] However, health insurance needs & resources are determined for Health Insurance Units, subunits of the SPM unit, then aggregated to SPM unit.
[b] A small amount of out of pocket expenditures for health insurance and care (the 1963 budget share of approximately 4% of median income) is captured by the OPM needs threshold (NAS, 1995, p. 226).

resources to calculate their poverty-reducing effects. We used the HIPM poverty gaps to show how health insurance benefits reduce poverty intensity and compared those effects to the combined effect of other transfer programs.

**Table 2**
Illustrative calculation of the SPM and HIPM for two hypothetical families.

| Line No. | | Family A | Family B |
|---|---|---|---|
| | **Needs** | | |
| (1) | Material needs (SPM threshold) | 20,000 | 20,000 |
| (2) | Health Insurance Needs (Basic Plan) | 10,000 | 10,000 |
| | **Resources** | | |
| (3) | Income (SPM resources) | 22,000 | 22,000 |
| (4) | Health insurance resources provided | None | Medicaid policy, no MOOP premium payment required. Value = Basic Plan (10,000). |
| | SPM Poverty Status (line 3 versus line 1) | Not poor | Not poor |
| (5) | HIPM Resources (line 3 + line 4) | 22,000 | 32,000 |
| (6) | HIPM Poverty Threshold (line 1 + line 2) | 30,000 | 30,000 |
| (7) | HIPM Poverty status: line (5) vs. line (6) | Poor | Not Poor |

Note: Neither family has any premium or nonpremium MOOP.

## 4. Results: HIPM poverty rates and gaps under the Massachusetts health reform

For the under-65 population in 2010 Massachusetts, the HIPM poverty rate was 12.2%, about 1.3 percentage points lower than the SPM rate (Table 3, column 1, rows 2 and 4). The HIPM poverty rate was modestly lower than the SPM rate for two reasons. First, in Massachusetts, the vast majority of those with incomes near the poverty line had their health insurance needs met. Second, the HIPM limits MOOP deductions, reducing poverty. As a result, the HIPM rate fell between the SPM rate (13.5% row 2) and the SPM rate before the MOOP subtraction from income (10.4%, row 3). The remaining columns of Table 3 show, similarly, that the HIPM poverty rates for children and various family types are bounded by the SPM and the pre-MOOP-deduction SPM. The HIPM-SPM differences were largest for groups with large MOOP expenditures, such as two-parent families, with a HIPM rate of 10.1% vs. an SPM rate of 12.8%.

To investigate the validity of the HIPM MOOP caps, we examined characteristics of the "capped out" – those classified poor by the SPM but, *due to the HIPM MOOP limits*, not-poor by the HIPM – compared to those classified poor by both measures. The "capped out" had fewer characteristics typically associated with poverty, being far less likely to receive public assistance such as Food Stamps/SNAP, to be uninsured, immigrants or to racially identify as black,

**Table 3**
Official, supplemental and health inclusive poverty rates, Massachusetts, 2010.
SPM units with all persons under age 65. Poverty rates (%) for persons, by family type.

| | | | Family Type | | | |
|---|---|---|---|---|---|---|
| Poverty Measure | All Persons | Children | Lone Adults SPMUs | Persons in One-Parent SPMUs | Persons in Two-Parent SPMUs | Persons in Two-Adult SPMUs |
| (1) OPM | 11.9 | 15.0 | 21.2 | 37.3 | 9.7 | 7.9 |
| (2) SPM | 13.5 | 14.9 | 23.4 | 27.0 | 12.8 | 7.1 |
| (3) SPM, no MOOP Deduction | 10.4 | 10.9 | 19.5 | 25.7 | 8.0 | 5.9 |
| (4) HIPM | 12.2 | 13.0 | 21.5 | 25.7 | 10.1 | 7.1 |
| Unweighted Sample Count | 2504 | 819 | 222 | 182 | 1183 | 292 |

Notes: Sample weighted using CPS March Supplement person weights. OPM: Official Poverty Measure. SPM: Supplemental Poverty Measure. MOOP: Medical Out of Pocket Expenses. HIPM: Health Inclusive Poverty Measure; SPMU: SPM unit.

**Table 4**
Effects of public and private transfers on health inclusive poverty rates, Massachusetts, 2010.
Individuals in SPM units with all persons under age 65, by family type and health insurance type.

| | | Family Type | | | | | Health Insurance Type[a] | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Children | Lone Adult SPMUs | Persons in One-Parent SPMUs | Persons in Two-Parent SPMUs | Persons in Two-Adult SPMUs | Employer[c] | Medicaid[d] | Individual Purchase |
| Resources[b] | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| "Cash" only (OPM resources) | 19.1 | 22.1 | 28.2 | 42.0 | 17.7 | 14.2 | 6.0 | 68.8 | 27.2 |
| Add: in-kind government transfers & tax credits, less taxes, etc.[e] (SPM resources, pre-MOOP deduction) | 19.2 | 19.5 | 30.2 | 33.3 | 15.0 | 13.0 | 8.5 | 54.6 | 36.6 |
| Add: employer health insurance | 16.1 | 16.2 | 28.5 | 30.5 | 13.1 | 11.2 | 4.8 | 54.0 | 36.6 |
| Add: government health insurance | 12.8 | 13.8 | 22.0 | 27.0 | 10.9 | 7.1 | 4.7 | 39.3 | 36.6 |
| Add: MA health insurance subsidies (HIPM) | 12.2 | 13.0 | 21.5 | 27.0 | 10.1 | 7.1 | 4.4 | 39.3 | 27.2 |
| Unweighted sample count | 2504 | 819 | 222 | 182 | 1183 | 292 | 1757 | 369 | 56 |

[a] The "all" column includes persons covered by types of insurance not shown separately: Medicare (<65), VA and other veterans programs, those covered by individuals outside households and uninsured individuals. Public health insurance benefits or subsidies to persons outside the household to the benefit of the sample member cannot be measured. Poverty is determined at the SPM-Unit level. SPM Units are divided into multiple health insurance units (HIUs) according to members' HI coverage. Our HI units differ from IPUMS HI units. See Appendix II Section 4 for details.
[b] The needs threshold used for this table is the HIPM Implicit Threshold. See text for details.
[c] For Employer Provided Insurance: the OPM rate is 2.0; the SPM rate is 5.5.
[d] For Medicaid: the OPM rate is 53, the SPM rate is 41.5.
[e] This also includes other SPM adjustments to resources such as deducting necessary childcare expenses.

and far more likely to be married, citizens or homeowners. (See Table A3 in Appendix III.)

Although the HIPM and SPM rates differed only modestly, only the HIPM can show the direct impact of health transfers on poverty. Table 4 shows how the different components of resources affect the poverty rate – the proportion who lack resources to meet their material, health insurance and cost-sharing needs (the HIPM Implicit Threshold). With only cash pre-tax income in resources (OPM resources), the overall HIPM poverty rate was 19.1%. It barely changed when we added non-health in-kind transfers and tax credits net of taxes paid and made (non-MOOP) SPM adjustments to resources, because the poverty-increasing effects of taxes and child-care expenses offset the poverty-reducing effects of in-kind transfers and tax credits. However, public and private health transfers together reduced poverty by over one third: 3.1 percentage points from private insurance, 3.3 from public insurance, and 0.6 from premium subsidies.[2]

Children's health-inclusive poverty (column 2) was reduced 2.6 percentage points by in-kind transfers and tax credits, 3.3 points by employer-provided health insurance, 2.4 points by public health insurance, and 0.8 point by premium subsidies. Public and private health benefits together accounted for a one-third reduction in the child poverty rate.[3]

Lone adults had relatively high poverty rates but got little net poverty reduction from in-kind benefits and tax credits, and only a modest reduction from employer-provided insurance. However, public health insurance lowered their poverty rate by 6.5 percentage points, and premium subsidies, another one-half point. One-parent families also had high poverty rates, but benefitted much more than lone adults from non-health in-kind transfers and net tax credits (Ben-Shalom et al., 2012; Bitler et al., 2014). In contrast, two parent-present families had low rates of poverty but nonetheless benefitted both from non-health in-kind benefits and tax credits and from all forms of health insurance benefits. Poverty of two-adult (no child present) families was reduced modestly by in-kind benefits, but more substantially by employer health insurance and, perhaps surprisingly, government health benefits (4.1 points).

The impacts of transfers on HIPM poverty gaps are shown in Table 5. Gaps are averages per person in families with pre-tax cash income below the HIPM Implicit Threshold. For all persons (column 1), counting only cash income, the average poverty gap was 43.7

[2] Due to very small sample sizes for low-income, individually insured persons, the estimated impact on the poverty rate from premium subsidies was sensitive to changes in the order in which we assigned health insurance types for those reported to have more than one type of coverage (i.e., changing the priority order described in Appendix Table A1). However, poverty gap results (Table 5) are robust to reordering.

[3] Of course, public policy and tax expenditures influence employer coverage. In fact, employer coverage was stimulated by Massachusetts health reform (Gruber, 2011; Long and Fogel, 2014).

**Table 5**
Effects of public and private transfers on health inclusive poverty gaps, Massachusetts, 2010.
Individuals in SPM units with all persons under age 65 by health insurance type[a,b].

| Resources[c] | All (1) | Employer (2) | Medicaid (3) | Individual Purchase (4) |
|---|---|---|---|---|
| Cash only (OPM resources) | 43.7 | 35.4 | 48.6 | 49.4 |
| Add: in-kind government transfers & tax credits, less taxes, etc.[d] (SPM resources, pre-MOOP deduction) | 29.4 | 29.1 | 27.2 | 51.8 |
| Add: employer health insurance | 25.8 | 16.5 | 27.1 | 51.8 |
| Add: government health insurance | 18.9 | 16.3 | 15.0 | 51.5 |
| Add: MA health insurance subsidies (HIPM) | 17.2 | 16.0 | 14.9 | 32.4 |
| Unweighted sample count | 489 | 114 | 251 | 14 |

[a] The "All" column includes persons covered by types of insurance not shown separately: Medicare (<65), VA and other veterans programs, those covered by individuals outside households and uninsured individuals. Public health insurance benefits or subsidies to persons outside the household to the benefit of the sample member cannot be measured.
[b] Poverty is determined at the SPM-Unit level. SPM Units are divided into multiple health insurance units (HIUs) according to members' HI coverage. Our HI units differ from CPS/IPUMS units. See Appendix II Section 4 for details.
[c] The needs threshold used for this table is the HIPM Implicit Threshold. See text for details.
[d] This also includes other SPM adjustments to resources such as deducting necessary child care expenses.

percent – nearly half the health-inclusive poverty line. All non-cash transfers including health insurance reduced the gap by nearly 2/3 (from 43.7% to 17.2%). This two-thirds reduction in the poverty gap considerably exceeds the one-third reduction in the poverty rate (Table 4), because many transfers move families toward but not over the poverty threshold. In-kind transfers and tax credits net of taxes paid reduced the gap by 14.3 points, employer health insurance benefits 3.5 points, public health insurance 6.9 points, and premium subsidies 1.7 percentage points. The greater effect on the poverty gap of public as compared to private health insurance contrasts with their roughly equal effects on the poverty rate (Table 4), reflecting the targeting of public insurance on the poorest persons.

Poor individuals covered by employer-provided insurance (Table 5 column 2), on average, had a relatively small "cash only" health-inclusive poverty gap (34.5%); for them, gap reduction came mainly from in-kind transfers and tax credits (5.5 points) and employer insurance (12.6 points). In contrast, Medicaid recipients (column 3) had a large initial HIPM poverty gap (48.6%), which transfers reduced by 34 percentage points (to 14.9%), of which public health benefits contributed 12 points. Although few people who buy individual insurance are cash-income poor, among cash-poor individual insurance purchasers, the poverty gap was large, 50%. While in-kind transfers and net tax credits raised the gap slightly, premium subsidies reduced their gap by nearly 20 percentage points (from 51.5% to 32.4%).

The results in Tables 4 and 5 show how the HIPM accounts for the direct impact of health transfers on poverty using a static approach common in poverty research. Thus, they are not estimates of the causal impact of transfer programs because they do not account for behavioral adjustments, as Sommers and Oellerich (2013) do for Medicaid, and Ben-Shalom et al. (2012) do for a variety of programs. However, a HIPM could be used for such estimates.

While HIPM resources for the uninsured include the full value of subsidies for which they are eligible, results were not very sensitive to alternative approaches. When we instead credited low-income uninsured persons with either no insurance subsidies or an implicit insurance value for free care,[4] the HIPM poverty rate rose by 0.36 point.

Two limitations likely lead our results to understate the impact of Massachusetts health reform on poverty. First, while we could identify household members covered by a policyholder outside the household, we could not determine if they benefitted from subsidies to the policyholder. More importantly, in contrast to our treatment of premium subsidies, we were unable to assess the impact on poverty of cost-sharing subsidies, including the income-related reductions in nonpremium MOOP caps.[5]

## 5. Caveats and critiques

### 5.1. The Basic Plan, take-up failures and poor decisions

Our HIPM is based on the idea that MOOP expenditures – premium and nonpremium – are discretionary if they result from choosing a plan other than the Basic Plan. This approach might seem unreasonable, because choosing health insurance is difficult, due to plan and system complexity and the need to consider health and financial circumstances. Nonetheless, for poverty measurement, if the Basic Plan is universally available and people have sufficient resources, how can we say they lack resources to meet their basic health insurance needs? Instead, we would advocate policies that directly address complexity, such as making the low MOOP-risk insurance option the default plan for lower-income persons.

Similarly, some may object to our counting as resources the premium subsidies for which families are eligible, even when they remain uninsured (though we conducted a sensitivity analysis to this assumption). Again, for poverty measurement, if the Basic Plan is universally available, there is a mandate to purchase insurance, and people have sufficient resources, how can we say that they lack adequate resources to meet their basic health insurance needs? This approach is similar to the Census Bureau's procedure for imputing taxes owed or credits received based on income, rather than using actual taxes paid and credits received, though research continues on this issue (Short et al., 2012).

[4] Garthwaite et al. (2015) find that each additional uninsured person increases hospital uncompensated care costs by $900. We credit each uninsured HIU with free care (implicit insurance) resources of $900, adjusting for age and family size with the equivalence formula we used to adjust Basic Plan insurance needs (see Appendix II, section 3).

[5] Cost-sharing subsidies work by increasing the actuarial value of the insurance plan, allowing insurers to reduce cost-sharing, such as co-pays and deductibles, flexibly. We do not know what cost-sharing terms low-income enrollees would have faced and, in turn, what their expenditures would have been, without the cost-sharing subsidies. Because the HIPM treats cost-sharing needs, unlike insurance needs, as a deduction from resources of actual (*ex post*) expenditures, we cannot perform a budget accounting to measure their value.

### 5.2. Overvaluation of health insurance

Crediting resources with the full cost of health insurance might over-value health insurance. First, low-income individuals may value health insurance at less than its cost (NAS, 1995). Second, the US health care system may be inefficient, raising costs without raising benefits commensurately (e.g., Cutler and Ly, 2011). Even so, if low-income individuals need insurance and do not have the resources to meet that need, they have unmet needs and are poor.

Although issues of valuation complicate the incorporation of health insurance benefits into income inequality measures (Burkhauser et al., 2012, 2013; CBO, 2012; Aaron and Burtless, 2014; see also Meyer and Sullivan, 2012a; Ruggles, 1990), they raise fewer difficulties for poverty measures. Overvaluing health insurance cannot affect the HIPM poverty rate because health insurance resources are never valued above health insurance needs. Overvaluing health insurance would, however, inflate HIPM poverty gaps and overstate the anti-poverty impact of health insurance benefits.

### 5.3. Risk-segmentation and Basic Plan premiums

The HIPM's health insurance need is the price of the Basic Plan available for purchase on the exchange in the rating area – the price that any marginal (unsubsidized) customer would pay. That price reflects the risk pool of those covered by exchange plans.[6] If everyone in an area, including those with Medicaid or employer-provided insurance, purchased insurance on the exchange, then the risk pool would change and so would the Basic Plan premium. Nonetheless, we use the current Basic Plan price as the "need" for everyone, irrespective of their actual insurance coverage or risk profile. We do so for three reasons. First, the premium data exist and do not require imputation. Second, these premiums reflect what is available for purchase by anyone lacking similar or better health insurance (except the undocumented). Third, taking a different approach to pricing the Basic Plan would not affect the HIPM poverty rate, because the same value for basic insurance goes into needs and resources. However, poverty gap calculations (Table 5) and accounting exercises (Table 4) would change somewhat.

### 5.4. The insured get unnecessary care, do not get needed care and have uncovered needed care

Whether or not nonpremium MOOP spending is discretionary depends partly on the "discretionarity" of the *care* purchased. In citing as examples of discretionary care "elective cosmetic surgery. . .extra laboratory tests or ineffective drugs," the NAS panel (pp.232–6) implied that nearly all care is nondiscretionary. At the other extreme, Cogan (1995) described "health as an economic good, responsive to both income and price changes." To the extent that care is discretionary, we would not want to deduct the resulting cost-sharing expenditures, even when that spending is less than the Basic Plan nonpremium MOOP cap.

On the other hand, cost-sharing dissuades some people with the Basic Plan from receiving needed care. The HIPM would not measure this unmet need. However, the HIPM will measure more unmet health need than the SPM because the SPM is not designed to measure health needs.

The discretionarity of non-premium MOOP also depends partly on coverage terms, such as networks, because families may also spend out-of-pocket on uncovered care, including out-of-network care. We define needed care as that covered by the Basic Plan and therefore we would ideally not deduct expenditures on uncovered care. However, the CPS does not currently distinguish cost-sharing expenditures from spending on uncovered care and therefore we deducted all non-premium MOOP up to the cap. Conversely, people with the Basic Plan may spend on out-of-network care "involuntarily," implying that, ideally, it would not be capped. (An example is when in-network hospitals use out-of-network providers exclusively and without informing patients (Kyanko et al., 2012)).

A sensitivity analysis illustrates the effect on the HIPM poverty rate of capping nonpremium MOOP deductions for the under-65 in 2010 Massachusetts. Even when we made the extreme assumption that all nonpremium MOOP expenditures are nondiscretionary (i.e., did not cap non-premium MOOP deductions), the HIPM poverty rate rose by only 0.4 percentage point (from 12.1% to 12. 5%) or by less than 30% of the difference between the HIPM and SPM rates.

All these issues relate to defining and implementing the need for health *care* expenditures, especially cost-sharing, when the Basic Plan is available. Additional research could shed light on the merits of alternative approaches. Nonetheless, the political process determines the Basic Plan, the means-tested cost-sharing subsidies and enforcement of access. Critics may feel the political process erred, resulting in plans with excessive cost-sharing, insufficient cost-sharing subsidies, inadequate coverage of certain forms of care or inadequate networks. But it is not clear that for poverty measurement there is a valid alternative definition of needed care; it has no generally accepted conceptual definition and would be impossible to measure directly in social surveys such as the CPS.

### 5.5. The poor need more than the Basic Plan (Medicaid) – or less (free care)

Many of the poorest individuals are eligible for Medicaid, with little or no cost-sharing, suggesting that the political process has deemed their health need to be a richer Medicaid plan, not the Silver plan. However, there are intertwined political, conceptual, and practical difficulties with that approach. It is unclear how to determine whose need should be a Medicaid plan. In non-expansion states, eligibility for Medicaid is categorical, based on more than just income. Making Medicaid the health need of those below 133% of FPL would mean defining a need that in fact could not be purchased by some poor persons even if they were given a sufficient transfer of cash.

Moreover, our approach works well for those eligible for Medicaid, because Medicaid is simply a different resource that fully meets health needs, defined as a Silver plan plus the income to meet the resulting cost-sharing, whatever one's health status. Someone who has Medicaid has their insurance need fully met and their cost-sharing needs are met by reducing or eliminating required cost-sharing. (We cap their actual non-premium MOOP deduction at the Medicaid cap.) Unfortunately, our approach to cost-sharing needs does not work perfectly for uninsured or underinsured poor people who are not eligible for either Medicaid or exchange plans with cost-sharing subsidies. Specifically, like the SPM and as described previously, if such individuals do not spend out of pocket because they are deterred by cost-sharing from seeking needed care, we will not observe what their needed non-premium MOOP would have been under the Silver plan and our empirical approach will not fully capture their (conceptual) cost-sharing needs.

The greatest practical problem in making Medicaid the need for everyone below a certain income lies in how to treat non-premium MOOP for those (non-healthy) who are uninsured and not eligible for Medicaid or who have employer-provided insurance. If we deduct their non-premium MOOP from resources, we are double counting their cost-sharing needs – they need a plan rich enough to eliminate cost-sharing and income to meet cost-sharing or uncovered care needs. If we do not deduct the non-premium MOOP on

[6] Premiums also depend on government regulations, such as community rating rules.

the grounds that they would have been covered if their Medicaid need had been met, then healthy and sick families are given the same poverty status when, in fact, the sick family is genuinely poorer – less able to meet health and material needs.

Conversely, one might argue that insurance is not a need for the poor, because uninsured poor people receive free care, through hospital uncompensated care and free clinics. But free care does not fully substitute for insurance (e.g., Dillman et al., 2014). Thus, viewing health insurance as unnecessary is equivalent to adopting a standard lower than the national standard of health care need embodied in the ACA. We recognize that free care provides implicit (inferior) insurance and therefore conducted sensitivity analyses incorporating that resource, although in our primary approach, basic insurance is the need standard.

### 5.6. Over-the-counter medications

The SPM includes over-the-counter (OTC) medications in the MOOP deduction (Short, 2013). However, the barriers to including care in the threshold – particularly long expenditure tails – do not apply to OTC. A better approach would be to expand the SPM material threshold beyond food, clothing, shelter and utilities to include OTC. Sensitivity analysis shows that HIPM poverty estimates are not sensitive to including them; the HIPM increased by only 0.3 points when we deducted OTC expenses.

### 5.7. Single vs. multiple measures

The NAS panel recommended development of a separate measure of "health care economic risk" to complements its recommended material poverty measure (NAS, 1995, p. 237). Compared to the single-measure HIPM, separate measures could more completely describe different dimensions of need (Blank, 2008; Meier and Wolfe, 2012). But multiple-index poverty measures present challenges for use in policy and would require poverty statistics be presented as joint distributions, a cumbersome outcome. As Bernheim (1998) argues:

> *To the extent that economists wish to affect the policy process, it may be necessary to cater to the demand for oversimplification; thus. . .if politicians insist on using a single number, we should make sure that it is the best number possible.*

## 6. Conclusions

The NAS panel considered a HIPM desirable but unattainable and instead recommended excluding health care and insurance from the revised poverty measure's threshold and resources. Yet, the NAS panel anticipated that, ". . .as changes are made to the US system of health care, it will be important to reevaluate the treatment of medical care expenses in the definition of family resources. . ." (NAS, 1995, p. 69). That day is here for the US and arrived in Massachusetts several years ago.

A Health Inclusive Poverty Measure, despite some shortcomings, has several advantages. Unlike the SPM, the HIPM directly measures unmet health insurance needs – and thus unmet needs for care and risk reduction. Although the SPM can measure the impact of health insurance on poverty through reductions in MOOP, it cannot measure reduced risk among the healthy (with little MOOP) or improved access to health care provided by health insurance. Poverty measures that ignore health, or that separate material deprivation and health care/insurance deprivation, are ill suited to understanding the implications for poverty of today's US health care system. A HIPM more fully captures tradeoffs families face between material well-being and health care. Although the SPM can show how meeting health care needs compromises material well-being, it cannot show how meeting material needs compromises health care. Even worse, the SPM can distort estimates of the effects of policies such as ACA subsidies because it subtracts premiums from resources but assigns no value to the highly subsidized insurance received in return.

Though based on small samples and several approximations, our pilot HIPM suggests that public health insurance benefits accounted for a 2.9 percentage point reduction in the poverty rate for the under-65 in Massachusetts, and a 3.2 percentage point reduction in the child poverty rate. Given large expenditures on low-income persons through these programs, a substantial anti-poverty impact should not be surprising. Nonetheless, the result is novel because other poverty measures do not value health insurance in resources and needs.

A HIPM can provide a more accurate assessment of the direct impact of Medicaid, the ACA, and employer-provided insurance on poverty than currently available measures. It can also show the anti-poverty impacts of policy differences, such as differences between states that expand Medicaid eligibility and those that do not.

## Acknowledgements

We thank Rob Patrizzo for excellent research assistance, supported by a Baruch College School of Public Affairs Graduate Assistantship. We thank Jonathan Gruber, Michael Norton of the Massachusetts Health Connector and Keith Ericson for assistance obtaining the Massachusetts health plan data used in this paper. We thank Rebecca Blank, Richard Burkhauser, Irv Garfinkel, Thesia Garner, Diane Gibson, David Johnson, Sherry Glied, Mark Levitan, Brendan Saloner, and many reviewers and seminar participants for comments and useful discussions. All errors are our own.

## Appendices I–III: Supplementary Materials

Supplementary materials for this article can be found online at doi:10.1016/j.jhealeco.2016.09.002.

## References

Aaron, H., Burtless, G. 2014. Potential effects of the Affordable Care Act on income inequality. Brookings. <https://www.brookings.edu/research/potential-effects-of-the-affordable-care-act-on-income-inequality/> (accessed 12.09.16.).

Bavier, R. 1998. Medical needs and the poverty thresholds. March. <http://www.census.gov/hhes/povmeas/publications/medical/bavier4.html> (accessed 12.09.16.).

Ben-Shalom, Y., Moffitt, R., Scholz, J.K., 2012. An assessment of the effectiveness of antipoverty programs in the United States. In: Jefferson, P.N. (Ed.), The Oxford Handbook of the Economics of Poverty. Oxford University Press, New York.

Bernheim, B.D., 1998. Comment on Deaton and Paxson's "Measuring poverty among the elderly". In: Wise, D.A. (Ed.), Inquiries in the Economics of Aging. NBER/University of Chicago Press, Chicago, IL.

Betson, D.M. 2000. Response to Bavier's critique of the NRC panel's recommendations. November. <http://www.census.gov/hhes/povmeas/publications/medical/comonbavier.pdf> (accessed 12.09.16.).

Bitler, M., Hoynes, H., Kuka, E. 2014. Do in-work tax credits serve as a safety net? NBER Working Paper No. 19785. January.

Blank, R.M., 2008. Presidential address: how to improve poverty measurement in the United States. Journal of Policy Analysis and Management 27 (2), 233–254.

Blinder, A., 1985. Commentary on Ellwood and Summers. In: U.S. Department of Commerce, Bureau of the Census, Proceedings of the Conference on the Measurement of Noncash Benefits, vol. I. Williamsburg, VA, pp. 28–31. December 12–14.

Burkhauser, R.V., Larrimore, J., Simon, K.I., 2012. A "second opinion" on the economic health of the American middle class. National Tax Journal 65, 7–32.

Burkhauser, R.V., Larrimore, J., Simon, K., 2013. Measuring the impact of valuing health insurance on levels and trends in inequality and how the Affordable Care Act of 2010 could affect them. Contemporary Economic Policy 31 (4), 779–794.

Burtless, G., Siegel, S., 2001. Medical spending, health insurance, and the measurement of American poverty. Focus (San Francisco, Calif.) 21 (3), 17–22.

Claxton, G., Panchal, N. 2015. Cost-sharing subsidies in federal marketplace plans. <http://kff.org/health-costs/issue-brief/cost-sharing-subsidies-in-federal-marketplace-plans/> (accessed 12.09.16.).

Cogan, J.F., 1995. Dissent. Appendix A. In: Citro, C., Michael, R.T. (Eds.), Measuring Poverty: A New Approach. National Research Council of the National Academy of Sciences. National Academy Press.
Congressional Budget Office (CBO), 2012. The distribution of household income and federal taxes, 2008 and 2009. <http://www.cbo.gov/sites/default/files/cbofiles/attachments/43373-06-11-HouseholdIncomeandFedTaxes.pdf> (accessed 12.09.16.).
Corbett, T., 1999. Poverty: improving the measure after 30 years. Focus (San Francisco, Calif.) 20 (2), 51–55.
Cutler, D.M., Ly, D.P., 2011. The (paper) work of medicine: understanding international medical costs. Journal of Economics Perspectives 25 (2), 3–25.
Dillman, J., Mancas, B., Jacoby, M., Ruth-Sahd, L., 2014. A review of the literature: differences in outcomes for uninsured versus insured critically ill patients: opportunities and challenges for critical care nurses as the Patient Protection and Affordable Care Act begins open enrollment for all Americans. Dimensions of Critical Care Nursing 33 (1), 8–14.
Ellwood, D.T., Summers, L.H., 1985. "Measuring income: what kind should be in? " in U.S. Department of Commerce, Bureau of the Census. In: Proceedings of the Conference on the Measurement of Noncash Benefits, vol. 1. Williamsburg, VA, pp. 8–27. December 12–14.
Focus on Health Reform, 2011a. Summary of New Health Reform Law. Last modified April 15, 2011.
Focus on Health Reform, 2011b. What the actuarial values in the Affordable Care Act mean. April 2011.
Garthwaite, C., Gross, T., Notowidigdo, M.J. 2015. Hospitals as insurers of last resort. National Bureau of Economic Research working paper no. 21290.
Gruber, J., 2011. Massachusetts points the way to successful health care reform. Journal of Policy Analysis and Management 30 (1), 184–192. Winter.
Institute of Medicine (IOM), 2002. Care Without Coverage: Too Little, Too Late. The National Academies Press, Washington, DC.
King, M., Ruggles, S., Alexander, J.T., Flood, S., Genadek, K., Schroeder, M.B., Trampe, B., Vick, R., 2010. Integrated Public Use Microdata Series, Current Population Survey: Version 3.0. [Machine-Readable Database]. University of Minnesota, Minneapolis, MN.
Korenman, S.D., Remler, D.K. 2013. Rethinking Elderly Poverty: Time for a Health-Inclusive Poverty Measure? National Bureau of Economic Research working paper no. 18900. March.
Kyanko, K.A., Curry, L.A., Busch, S.H., 2012. Out-of-network physicians: how prevalent are involuntary use and price transparency? Health Services Research 48 (3), 1154–1172.
Long, S.K., Fogel, A. 2014. Health insurance coverage and health care access, use, and affordability in Massachusetts: An update as of Fall 2012. Report to the Blue Cross Blue Shield of MA Foundation. March.
Long, S.K., Masi, P.B., 2009. Access and affordability: an update on health reform in Massachusetts, Fall 2008. Health Affairs 28 (4), w578–w587.
Martin, A.B., Hartman, M., Benson, J., Catlin, A., The National Health Expenditure Accounts Team, 2015. National health spending in 2014: faster growth driven by coverage expansion and prescription drug spending. Health Affairs 35, 150–160. December: published online prior to print publication.
Meier, S., Wolfe, B., 2012. Conceptual framework for measuring medical care economic risk. In: Panel on Measuring Medical Care Risk in Conjunction with the New Supplemental Income Poverty Measure, O'Grady, M.J., Wunderlich, G.S. (Eds.), Medical Care Economic Risk: Measuring Financial Vulnerability from Spending on Medical Care. Committee on National Statistics, Division of Behavioral and Social Sciences and Education, and Board on Health Care Services, Institute of Medicine. The National Academies Press, Washington, DC, pp. 225–266.
Meyer, B.D., Sullivan, J.X., 2012a. Winning the war on poverty from the great society to the great depression. Brookings Papers on Economic Activity Fall, 133–183.
Moon, M. 1993. Incorporating health issues in the measurement of poverty. Urban Institute.
National Academy of Sciences (NAS), 1995. In: Citro, C., Michael, R.T. (Eds.), Measuring Poverty: A New Approach. National Research Council of the National Academy of Sciences. National Academy Press, Washington, DC.
NBER, nd. National Bureau of Economic Research CPS supplements. <www.nber.org/data/current-population-survey-data.html> (accessed 12.09.16.).
Nyman, J., 2004. Is moral hazard inefficient? Health Affairs 23 (5), 194–199.
Nyman, J.A., 2003. The Theory of Demand for Health Insurance. Stanford University Press, Stanford, CA.
Rasmussen, P.W., Collins, S.R., Doty, M.M., Garber, T., 2013. In States' hands: how the decision to expand Medicaid will affect the most financially vulnerable Americans. September. The Commonwealth Fund 23, 1702.
Ruggles, P., 1990. Drawing the Line: Alternative Poverty Measures and Their Implications for Public Policy. The Urban Institute Press, Washington, DC.
Ruggles, P., 2008. Poverty measurement and politics: why is it so hard to change the way we measure poverty? Review of Agricultural Economics 30 (3), 591–599.
Short, K., Donahue, D., Lynch, G. 2012. EITC estimates in the CPS ASEC simulations of after-tax income Hispanic population. SEHSD Working Paper # 2012–19. August.
Short, K.S. 2011. The Supplemental Poverty Measure: examining the incidence and depth of poverty in the U.S. taking account of taxes and transfers. US Census Bureau SEHSD working paper # 2011–20 June 3.
Short, K.S. 2013. The Research Supplemental Poverty Measure: 2012. Current Population Reports P60-247, U.S. Census Bureau. November.
Sommers, B.D., Oellerich, D., 2013. The poverty-reducing effect of Medicaid. Journal of Health Economics 32, 816–832.
Sommers, B.D., Long, S.K., Baicker, K., 2014. Changes in mortality after Massachusetts health care reform: a quasi-experimental Study. Annals of Internal Medicine 160 (9), 585–593.
United Nations, 1948. The universal declaration of human rights. <www.un.org/en/universal-declaration-human-rights/> (accessed 12.09.16.).
US Bureau of the Census, 2011. Income, poverty and health insurance coverage in the United States: 2010. Current Population Reports. P60-239. September.
Ziliak, J.P. 2004. Filling the poverty gap, then and now. Discussion Paper. University of Kentucky Center for Poverty Research. Revised January 2004.