NBER WORKING PAPER SERIES

THE DISTRIBUTION OF PUBLIC SPENDING FOR HEALTH CARE IN THE UNITED STATES ON THE EVE OF HEALTH REFORM

Didem Bernard
Thomas Selden
Yuriy Pylypchuk

Working Paper 23150
http://www.nber.org/papers/w23150

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
February 2017

This paper was written while Yuriy Pylypchuk, currently at the Office of the National Coordinator for Health Information Technology, Department of Health and Human Services, worked at Social and Scientific Systems. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research, the Department of Health and Human Services, the Agency for Healthcare Research and Quality, the Office of the National Coordinator for Health Information Technology, or Social and Scientific Systems.

NBER working papers are circulated for discussion and comment purposes. They have not been peer-reviewed or been subject to the review by the NBER Board of Directors that accompanies official NBER publications.

© 2017 by Didem Bernard, Thomas Selden, and Yuriy Pylypchuk. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

The Distribution of Public Spending for Health Care in the United States on the Eve of Health Reform

Didem Bernard, Thomas Selden, and Yuriy Pylypchuk

NBER Working Paper No. 23150
February 2017
JEL No. I1,I18

ABSTRACT

U.S. health care spending in 2012 totaled $2.8 trillion or 17.2 percent of gross domestic product. Given the magnitude of health care spending, the large public sector role in health care, and the reforms being implemented under the Patient Protection and Affordable Care Act (ACA), we believe it useful to examine several basic questions: What was the public share of national spending on the eve of reform?How has the public share evolved over time? And how are the benefits of public spending on health care distributed within the population by age, poverty level, insurance coverage, health status, and ACA-relevant subgroups? The questions we pose, while basic, cannot be answered with commonly-available statistics due to the sheer complexity of health care financing in the U.S. The objective of this paper is to provide answers by combining aggregate measures from the National Health Expenditure Accounts with micro-data from the Medical Expenditure Panel Survey.

Didem Bernard
Agency for Healthcare Research and Quality
Center for Financing, Access, and Cost Trends
540 Gaither Road
Rockville, MD 20850
Didem.bernard@ahrq.hhs.gov

Yuriy Pylypchuk
Office of the National Coordinator
for Health Information Technology
330 C St SW
Washington, DC 20024
Yuriy.Pylypchuk@hhs.gov

Thomas Selden
Agency for Healthcare Research and Quality
540 Gaither Road
Rockville, MD 20850
Thomas.Selden@ahrq.hhs.gov

The Distribution of Public Spending for Health Care in the United States on the Eve of Health Reform

U.S. health care spending in 2012 was $2.8 trillion or 17.2 percent of U.S. gross domestic product (GDP) (Martin et al., 2014). Spending of this magnitude can place significant pressures on families striving to afford premiums and out-of-pocket payments for care, on employers providing insurance to current and retired employees, and on governments concerned with the fiscal implications of public spending on health care. Despite the recent slowdown in health care expenditure growth, these pressures are likely to increase, with growth in health care spending predicted to outpace growth in GDP over the next decade (Cuckler et al., 2013). As a result, the role of government in the financing of health care is likely to remain at the forefront of public policy debate for the foreseeable future.

In this paper we examine several basic questions: What is the overall percentage of health care paid for by the public sector? How has the public share changed over time? And what is the incidence of public spending across key subgroups of the population? These questions may be basic, but the complexity of health care finance in the U.S. makes it difficult to provide answers with commonly-available statistics. Measuring public spending entails tracking not only outlays from public insurance coverage (such as Medicaid and Medicare), but also implicit tax subsidies (such as those for employer-sponsored insurance), public grants to providers (such as Medicaid Disproportionate Share payments), and private premium payments for public coverage (such as Part B Medicare premiums). Because no single data source provides all of this information, in this paper we combine aggregate measures from the National Health Expenditure Accounts (NHEA) with micro-data from the Medical Expenditure Panel Survey (MEPS). The first section of the paper adjusts NHEA

estimates to provide an historical look at the public-private spending mix since 1960. The second section presents a "benefit incidence analysis" of public spending in 2010, by age, poverty level, insurance coverage, and health status, and across ACA-relevant subgroups on the eve of reform.

1. Aggregate Public Spending on Health Care

The NHEA, produced by the Centers for Medicare and Medicaid Services (CMS), combine data on provider revenues and administrative claims to produce aggregate estimates of U.S. health spending by service type and payment source (CMS, 2014a). We modify the NHEA estimates in two ways. First, we reclassify as private the portion of Medicare paid for by private premiums (these payments are voluntary and thus more akin to a "user fee" than to a tax).[1] Second, we shift to public spending the portion of private spending that is defrayed by tax expenditures.

Unfortunately, we are aware of no consistent and comprehensive time series for tax expenditures, and published tax expenditure estimates can be only imperfectly reconciled. For 1987, 1996, 2002, 2007, and 2010 the tax subsidy estimates are from calculations performed by one or more of this paper's authors, providing a reasonably consistent and comprehensive set of adjustments.[2] We describe the 2010 estimates in greater detail below, but our basic objective is to include: (a) federal income, state income, and payroll tax expenditures for employer-sponsored insurance (ESI) (subsidies for employer contributions and for tax-exempt employee contributions); (b) the excess medical care itemized deduction; (c) the tax preference for self-employment health insurance; (d) tax preferences for (health care) flexible spending accounts and health savings accounts; (e) the exemption of medical care from sales taxation; and (f) a range of smaller tax expenditures, such as those available to nonprofit providers. Tax expenditure estimates were constructed assuming that all preferences were removed

simultaneously (rather than, say, allowing the excess medical care deduction to grow in response to removal of the ESI and self-employment preferences).

We fill gaps between 1987 and 2012 by interpolation and extrapolation, building on estimates of the ESI subsidy for current workers from: Miller and Selden (2013), Selden and Gray (2006), and Joint Committee on Taxation (available for 1967-present, but only covering the federal income tax portion of the ESI subsidy)(JCT, various years), as well as estimates in Sheils and Hogan (1999) and Sheils and Haught (2004). For earlier years, we construct estimates that are as consistent as possible from a variety of published sources dating back to 1967, filling any remaining gaps back to 1960 using Barro and Redlick's historical average tax rates (National Bureau of Economic Research, 2012) and NHEA estimates of private insurance premiums. Due to the variety of data sources used to construct our time series for tax expenditures, our results should be viewed as an approximation of how public spending has evolved over time.

Figure 1 clearly shows both the remarkable rise in real per capita spending and the rising public share. Combining public outlays with implicit public spending through tax expenditures, the public share of total health spending increased from 31.2 percent in 1960 to 46.8 percent in 1970 (following the implementation of Medicare and Medicaid). Subsequent changes were more gradual, but tended to increase the public share, which reached 53.6 percent in 1990, 57.2 percent in 2000, 58.7 percent in 2007, and 59.2 percent in 2012. Tax expenditures as a percentage of health care spending peaked in the 1979-81 period at an average of 15.5 percent of total health care spending, declining thereafter to approximately 13 percent at present. This decline is due primarily to lower marginal tax rates. Together with the fact that private spending itself is a declining share of total spending, declines in marginal rates more than offset the shift toward the use of Section 125 plans to exempt employee premium contributions from taxation.

In contrast, public outlays have quite steadily increased as a share of U.S. health care spending, even after the initial introduction of Medicare and Medicaid.

2. Benefit Incidence of Public Spending on Health Care

Given that the public sector accounts for well over half of all U.S. spending on health care, a natural next question concerns the incidence of benefits from this spending across key socioeconomic groups. To answer this, we move beyond aggregate NHEA estimates, updating and extending the "benefit incidence analysis" for 2002 in Selden and Sing (2008). Benefit incidence analysis is a "statutory" method of accounting in a simplified manner for the distribution of benefits from public spending (Selden and Wasylenko, 1992). Public programs are assumed to confer benefits in proportion to services or payments received. We do not attempt to measure the risk-reducing benefits associated with public insurance or the cash-equivalent valuation by recipients for benefits received, and we ignore shifting across generations and throughout the economy – our rationale being that we seek to provide a complete overview of a very complex sector.[3]

Our starting point is the MEPS household survey sponsored by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS). MEPS contains individual and household-level data on health expenditures and use, health insurance coverage, health status, and a wide range of demographic and socioeconomic characteristics for a nationally-representative sample of households in the civilian, non-institutionalized population (Cohen, 1997).

Although MEPS is an ideal starting point for analyzing the distribution of public spending, no household survey, by itself, can support a complete distributional analysis. First, household data suffer from underreporting, and high-cost cases may be underrepresented. Second, household respondents cannot be expected to report certain types of spending, such as

administrative costs or some hospital payments not tied to patient events. Third, although MEPS provides much of the data to compute tax expenditures, such subsidies are implicit by nature and thus not readily reportable by household respondents.

To remedy the first gap, we begin with 2007 NHEA benchmarks that have been aligned with the type of service and source of payment definitions in MEPS and adjusted to exclude spending for the institutionalized, active-duty military, and foreigners visiting the US - groups not included in MEPS (Bernard et al., 2012). We age these benchmarks forward to our analysis year, 2010, and then align MEPS by type of service and source of payment. Gaps are closed in part by upweighting high-cost cases and in part by scaling reported amounts (Bernard, Selden, and Pylypchuk, in process).

Next we allocate amounts in NHEA that were outside the scope of MEPS. Personal care services are allocated in proportion to home health care spending. Administrative costs are allocated in proportion to benefits received, with any premiums paid by households for public coverage netted out of public benefits received. Medicaid and Medicare Disproportionate Share payments and state and local funding for public hospitals are allocated using MEPS data on uncompensated care.[4] For completeness we also allocate: research spending in proportion to prescription drug spending; investment in structures and equipment in proportion to hospital use; and public health spending evenly across the population. Throughout the analysis, health insurance provided by public employers to their employees is considered private spending (a noncash form of compensation in lieu of higher cash wages), rather than public insurance.

Finally, we estimate a comprehensive array of tax expenditures. To simulate the tax subsidy from exclusion of employer-sponsored insurance premiums from federal income, state income, and Social Security and Medicare payroll taxation, we combine marginal tax rates

(simulated using the National Bureau of Economic Research TAXSIM model)[5] with MEPS HC data on employee premium contributions and employer premium contributions (imputed using regressions estimated with the MEPS Insurance Component survey of employers).[6] We also simulate the medical expense deduction and the exemption of health care spending from most, but not all, state and local sales taxation. Finally, we allocate to MEPS individuals national estimates of a variety of smaller tax subsidies, such as the tax exemption of non-profit hospitals (Bernard, Selden, and Pylypchuk, in process). All differences discussed in the text are statistically significant at the 5 percent level, and all standard errors and statistical tests reflect the complex design of MEPS.

1.1. Aggregate Results

The top row of Table 1 presents the incidence of benefits from public spending on health care in aggregate. Overall, public spending accounted for 57.6 percent of total spending on health care (a slightly lower percentage than in Figure 1, due to the exclusion of active-duty military and persons residing in institutions). We report expenditures in five subcategories: "Medicaid and CHIP" includes payments for patient care and administration costs, net of premiums paid by households, for Medicaid, the Children's Health Insurance Program (CHIP), and a small number of similar state-funded programs. "Medicare" is defined similarly. These two categories comprise 67.6 percent of all public outlays. "Other Public: General" includes the NHEA categories of public health, public investment in structures and equipment, Medicare Graduate Medical Education, and public research – amounts that tend to benefit broad groups of the population and may have public goods attributes. All remaining public outlays are grouped in "Other Public: Targeted." This includes other public third party programs, such as the Veterans Administration, Workers' Compensation, and the MEPS expenditure categories of

Other Federal and Other State and Local, all of which entail payments linked to specific beneficiaries (i.e., payments that can be measured in MEPS). The "Targeted" category also includes Medicaid and Medicare Disproportionate Share payments, which are payments to hospitals based on their caseloads of lower-income populations.[7] Finally, the "Tax Expenditures" category includes all of the tax preferences mentioned above, accounting for just over one quarter (26.6 percent) of all public expenditures on health care (within the civilian noninstitutionalized population).

1.2. Age Groups

Public spending in 2010 was strongly related to age, with children age 0-18 receiving $1,809 on average, versus $3,539 for adults age 19-64 and $9,678 for seniors (all amounts in 2010 dollars). In part these differences mirror the overall age gradient in health care spending. Despite the large differences in average public spending between children and seniors, the public share of total spending for seniors (65.2 percent) is very similar to that of children (63.9 percent). On a percentage basis, adults age 19-64 receive less than children or seniors (public spending is 52.8 percent of total spending for this group).

The lower public shares for adults age 19-64 is not surprising given that Medicare provides nearly universal coverage for seniors and given that public coverage expansions in recent years, prior to the ACA, have been disproportionately targeted at children (Medicaid and CHIP). Medicare and Medicaid/CHIP together comprise only 17.9 percent of total spending for adults under 65 (calculated from table as ($828+$371)/$6703), versus 30.2 percent for children and 47.8 percent for seniors.

1.3. Poverty Level

Table 1 also shows the incidence of public benefits by family income as a percentage of the Federal Poverty Line (FPL). Not surprisingly, Medicaid/CHIP spending was targeted at

lower income groups. In contrast, the remaining categories of public health care outlays were somewhat more evenly distributed, and tax subsidies strongly favored high-income families. Overall, public spending accounted for 79.9 percent of total health care among those under 100 percent of FPL. Perhaps more surprisingly, even among those at or above four times the poverty line the public share was 46.8 percent.

1.4. Health Status

The top panel of Table 2 shows the incidence of public benefits by self (or proxy) reported health status.[8] Our results highlight the extent to which the public sector targets those with the greatest health care needs. This is particularly true for public outlays on third party reimbursement for care (i.e., Medicaid, CHIP, Medicare, and Other Public: Targeted). It is not surprising that public outlays would be highest for those in fair or poor health; these groups also have the highest private expenditures. More noteworthy is that the public share rises as health status deteriorates, so that the public sector in the U.S. disproportionately cares for those with greatest health risks.[9]

1.5. Insurance Coverage

The bottom panel of Table 2 shows the incidence of public benefits by insurance coverage. Not surprisingly, public expenditures are largest on average ($19,291) for dual eligibles (persons ever covered by Medicare and Medicaid). Also not surprising is that the public share for persons ever covered by Medicaid/CHIP (but not Medicare or private) is very high (91.6 percent). More noteworthy is that the public share is just over 50 percent for the full-year uninsured (though the absolute amount, $1,124, is small relative to other insurance groups). Even for persons with private coverage during the year the public share is 42.6 percent, due to $1,678 in tax expenditures and $436 in Other Public: General (both per covered person).

1.6. ACA-Relevant Subgroups

Table 3 shows the incidence of public benefits for adults age 19-64 by ACA-relevant subgroups.[10] For simplicity we focus on U.S. citizens who are never enrolled in Medicare and who do not receive Supplemental Security Income (SSI).[11] We identify six groups. The first consists of persons enrolled at any point during the year in Medicaid (or, in a few cases, CHIP). Even after excluding "dual" Medicaid/Medicare enrollees and persons receiving SSI, this group currently benefits from extensive public expenditures ($4,480 on average), with a public share of 83.3 percent.

The second and third groups consist of persons with modified adjusted gross income (MAGI) under 138 percent of FPL. In group 2 are adults in expansion states who would be eligible for Medicaid as of January 1, 2014 (if not earlier).[12] Group 3 consists of adults in non-expansion states who will not in general be eligible for Medicaid.[13] Neither group receives a particularly high benefit from public spending on health care; average amounts for groups 2 and 3 are $1,536 and $1,566, respectively.

The fourth group consists of those gaining eligibility for subsidized Marketplace coverage. We define this group as adults who (a) would be ineligible for Medicaid using 2014 rules, (b) have MAGI between 100 and 400 percent of FPL, and (c) lack access to affordable ESI coverage (neither the person nor their spouse is offered ESI through current jobs).[14] From a benefit incidence perspective, this group looks quite similar to lower-income groups 2 and 3.

Group 5 consists of persons with MAGI over 138 percent of FPL who are offered coverage through their own job (or whose spouse is offered coverage) – the offers making them (in most cases) ineligible for subsidized Marketplace coverage even if their MAGIs are under 400 percent of FPL. As has been well-documented in prior studies regarding the regressive

incidence of the ESI tax subsidy, this group has access to affordable coverage (at least for single coverage), and it receives approximately double the public benefit on average ($2,905) compared to adults in groups 2, 3, 4 – who generally have lower incomes and whose public benefit ranges from $1,389 to $1,566.

Looking at these first five groups, benefit incidence analysis clarifies the extent to which the ACA, as designed, targeted Medicaid expansions and private coverage subsidies at groups in-between Medicaid enrollees and those with access to ESI. As designed, the ACA would help to level what was, pre-ACA, a U-shaped pattern of benefits across these groups (see, for instance, Rennane and Steuerle, 2011). The actual effects of the ACA on this distribution of public benefits will depend, for groups 2 and 4, on their take up of coverage and their resulting use of medical care. For group 3 the question is whether their states decide to adopt the ACA Medicaid expansions.

The final group consists of persons with MAGI over 400 percent of FPL who lack their own or spousal ESI offers. Compared to groups 2-4, this group currently receives approximately the same level of public outlays and nearly twice as much in tax expenditure (reflecting in part tax preferences for self-employment and retiree coverage). Because of this group's higher income, it was not targeted by the ACA – though members of this group may be affected by ACA provisions regarding guaranteed issue, community rating, and other reforms in the non-group market.

3. Limitations

There are several noteworthy limitations of our study. First, Figure 1 presents published NHEA estimates that we have modified using tax expenditure estimates drawn from a variety of published and unpublished sources. These tax expenditure estimates can be only imperfectly reconciled and interpolated, raising caveats regarding the consistency of the resulting time series.

Second, our incidence analysis focuses on average spending by subgroups, and we do not measure the risk-reducing benefits associated with public insurance or the cash-equivalent valuation by recipients for benefits received. Third, the ultimate beneficiaries of public spending may be different in some cases from those we identify. For instance, public spending on behalf of seniors may offset private transfers from (or increase bequests to) their children (Sloan, Zhang, and Wang, 2002). Fourth, tax expenditure estimates were constructed under the assumption that employers shift the burden of employer premium contributions to workers based on the plans they take up (rather than based on their ability to pay or their underlying health risks), and, while this likely has little effect on aggregate estimates (Miller and Selden, 2013), alternative assumptions might affect the measured incidence of ESI tax subsidies across workers (Selden and Bernard, 2004). Finally, persons in institutions (and active-duty military) are outside the scope of MEPS and thus were not included in our incidence analysis.

4. Discussion

The estimates presented in this paper provide basic background information on the overall public share of health care spending, its growth over time, and the distribution of public benefits across key population subgroups. Overall, the public share of U.S. spending on health care in 2012 totaled 59.2 percent when we include tax expenditures as a form of public spending (and when we treat household-paid premiums for public coverage as being akin to a user fee). Our historical analysis documents a long-term trend toward higher public shares in total spending, with growth in public outlays representing the primary driver over time (versus tax expenditures, which peaked as a percentage of health care spending in the years 1979-1981).

Our incidence results for 2010 show that the distribution of public spending across age, poverty, insurance and health status have not changed since 2002 (Selden and Sing, 2006).

Publicly-financed health care, both in magnitude and as a percentage of total spending, is largest for seniors, while benefits as a percentage of total spending are lowest for adults age 19-64. Moreover, even though it was public outlays, more than tax expenditures, that drove the rising public share of total health care spending from 1960 to present, our incidence estimates for 2010 show that all income groups (classified by poverty level) share in the benefits of public spending. Even among families with incomes above 400 percent of the poverty line, public spending accounted for nearly half of total spending.

This paper also presents benefit incidence estimates for ACA-relevant groups of non-senior adults. Our results highlight the relatively low level of pre-ACA public benefits flowing to adults under 400 percent of FPL who neither were enrolled in Medicaid nor had access to ESI – precisely those adults the ACA targets for expanded access to government-subsidized, affordable coverage.

In future work, "benefit incidence analysis" can provide a valuable tool to evaluate ACA-related changes in public spending. The Congressional Budget Office (2013) shows that ACA provisions to expand health insurance will increase the public share of total spending,[15] and an important question for public policy will be the extent to which the ACA evens the distribution of public benefits across adults. Furthermore, tracking the benefit incidence of public spending can provide a useful backdrop for the on-going debate over further steps the country might take on entitlements and tax policy to ensure long-term fiscal stability.

ENDNOTE

[1] Medicare premiums paid by households for 1987 to 2010 are from NHEA "sponsor" estimates (CMS, 2014b), supplemented with pre-1987 data on Medicare financing from Trustee Reports. Although we use NHEA sponsor estimates for Medicare premiums, note that our public/private estimates differ from NHEA sponsor estimates in several key respects. First, we exclude nonpatient revenue. Second, we count Medicare as public, whether it is funded by payroll taxes or general revenues (excluding only the portion paid by premiums). Third, we treat all employer-sponsored insurance as private, including that for government employees. Lastly, we account for tax expenditures. As a result, our estimates of the public share are substantially larger than those in the NHEA sponsor estimates.

[2] Estimates for 1996 are from Selden and Moeller (2000), which is also our source for unpublished 1987 estimates. For 2002, estimates are from Selden and Sing (2008) (see also Sheils and Haught, 2004). Note that tax expenditures that reduce health care spending (such as property tax exemptions or exemptions from ad valorem sales taxes) effectively increase the total amount of health care spending by a small percentage.

[3] For an analysis of how alternative assumptions regarding wage formation might affect the tax subsidy incidence, see Selden and Bernard (2004). For incidence analyses of Medicare's benefits net of payments, see McClellan and Skinner (2006) and Bhattacharya and Lakdawalla (2006). With respect to valuing in-kind benefits, see Wolfe and Moffitt (1991).

[4] MEPS uncompensated care was constructed by comparing event payments with charges that were adjusted for reasonable discounts.

[5] Feenberg and Coutts (1993). TAXSIM version 8 was used (accessed September 1, 2013 at http://www.nber.org/taxsim).

[6] Each family's ESI tax subsidies were allocated across policyholders and their covered dependents in proportion to spending paid for by private insurance (or pro rata across covered persons in families that had no care paid for by private insurance).

[7] For instance, Medicare DSH is tied to hospital caseloads of persons receiving Supplemental Security Income (SSI). Medicaid DSH payments are targeted at hospitals treating indigent populations.

[8] Persons with missing health status were excluded from the analysis.

[9] Our methodology generally follows that of Selden and Sing quite closely; however, one difference concerns the treatment of private spending in public share calculations. Selden and Sing measure the benefit of private insurance using premiums paid by households (or employers). In this paper, the benefit of private insurance is based on paid claims (plus an implied load). This is more symmetric with our use of claims paid by public insurers (plus net administrative costs) to value the benefit of public spending on coverage. This refinement has negligible effect on our public share computations based on age, income, insurance, or ACA-relevant groups. It does, however, improve our public share estimates across health risk, lowering the public share estimates for those with high health risks.

[10] Because income (and thus eligibility) can fluctuate during the year, this portion of our analysis focuses on income measured as of the first interview during 2010 (and we subset the full-year MEPS sample to those in MEPS as of that interview).

[11] ACA main coverage provisions do not apply to persons with Medicare or who receive SSI-related Medicaid coverage for disability. While some ACA coverage provisions apply to some noncitizens (those who are documented and who meet residency tests), immigration status is not

measured in MEPS and must be inferred probabilistically based on a number of observed characteristics. Including noncitizens would have very little effect on the estimates in Table 3.

[12] Some adults in these states were eligible for, but not enrolled in Medicaid under pre-ACA rules, and some lived in states that implemented ACA-related expansions prior to the start of 2014.

[13] Included in this group are some adults who were eligible for, but not enrolled in Medicaid under pre-reform rules. Note that in non-expansion states, persons with MAGI between 100 percent FPL and 138 percent FPL are eligible for subsidized exchange coverage (if they lack access to affordable ESI), so that this group is excluded from group 3. Note also that in non-expansion states the change from pre-ACA Medicaid income counting rules to MAGI and the elimination of asset tests may make some current enrollees ineligible, while conferring eligibility on some adults who would previously have been ineligible.

[14] ACA also specifies that such coverage must have an actuarial value of at least 60 percent and a single coverage premium under 9.5 percent of MAGI. Also, a spouse's offer would not affect a person's subsidy eligibility unless the person can be covered through the spouse's plan. MEPS does not provide data on actuarial value and only observes employee contributions and coverage of other family members for plans actually chosen. Given that most ESI plans meet these tests for most employees, we focus solely on own and spousal offers in defining group 4 for Table 3.

[15] See also CMS (2013a, 2013b).

REFERENCES

Bernard, Didem M., Cathy Cowan, Thomas M. Selden, Liming Cai, Aaron Catlin, and Steven Heffler. 2012. Reconciling Medical Expenditure Estimates from the MEPS and NHEA, 2007. *Medicare & Medicaid Research Review*, v. 2, n. 4: E1-E19 (accessed January 25, 2014 at http://www.cms.gov/mmrr/Downloads/MMRR2012_002_04_a09.pdf).

Bernard, Didem M., Thomas M. Selden and Yuriy Pylypchuk (in process) *Aligning the Medical Expenditure Panel Survey to Aggregate U.S. Benchmarks*, MEPS Working Paper, Agency for Healthcare Research and Quality: Rockville, MD.

Bhattacharya, Jay, and Darius Lakdawalla. 2006. Does Medicare Benefit the Poor? *Journal of Public Economics* 90, no.1-2; 277-292.

Centers for Medicare and Medicaid Services. 2013. *National Health Expenditure Projections 2012-2022* (accessed January 25, 2014 at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2012.pdf).

Centers for Medicare and Medicaid Services. 2013b. Analysis of Factors Leading to Changes in Projected 2019 National Health Expenditure Estimates: A Comparison of April 2010 Projections and September 2013 Projections. (accessed January 25, 2014 at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/ProjectionsRevisionAnalysis.pdf).

Centers for Medicare and Medicaid Services. 2014a. *National Health Expenditure by Service and Source of Funds, CY 1960-2012*. Baltimore MD (accessed January 25, 2014, from http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html).

Centers for Medicare and Medicaid Services. 2014b. *National Health Expenditures by Type of Sponsor: Business, Households, and Governments, 2012*. (accessed January 25, 2014 at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/sponsors.pdf**).**

Cohen, Steven B. 1997. *Sample Design of the 1996 Medical Expenditure Panel Survey Household Component*. MEPS Methodology Report No. 2. Pub. No. 97-0027. (Accessed December 1, 2012, at http://www.meps.ahrq.gov/mepsweb/data_files/publications/mr2/mr2.pdf).

Congressional Budget Office, *CBO's Estimate of the Net Budgetary Impact of the Affordable Care Act's Health Insurance Coverage Provisions Has Not Changed Much Over Time*, 14 May 2013 (available at http://www.cbo.gov/publication/44176).

Cuckler, Gigi A., Andrea M. Sisko, Sean P. Keehan, Sheila D. Smith, Andrew J. Madison, John A. Poisal, Christian J. Wolfe, Joseph M. Lizonitz and Devin A. Stone. 2013. National Health Expenditure Projections, 2012–22: Slow Growth Until Coverage Expands And Economy Improves. *Health Affairs*, v. 32, n. 10: 1820-1831 (accessed October 8, 2013 at http://content.healthaffairs.org/content/32/10/1820.full.pdf).

Feldstein, Martin and Elisabeth Allison. 1970. Tax Subsidies of Private Health Insurance, in Martin Feldstein, ed., *Hospital Costs and Health Insurance* (Cambridge, MA: Harvard University Press).

Daniel Feenberg and Elisabeth Coutts. 1993. An Introduction to the TAXSIM Model. *Journal of Policy Analysis and Management*, v. 12, no. 1: 189-194 (accessed January 25, 2014 at http://users.nber.org/~taxsim/feenberg-coutts.pdf).

Helms, Robert B. 2008. *Tax Policy and the History of the Health Insurance Industry*. Washington, DC: American Enterprise Institute.(accessed December 30, 2012, at http://www.aei.org/files/2008/02/29/healthconference-helms.pdf).

Joint Committee on Taxation (various years) *Estimates of Tax Expenditures* (accessed January 26, 2014 at https://www.jct.gov/publications.html?func=select&id=5).

Martin, Anne B., Micah Hartman, Lekha Whittle, and Aaron Catlin. 2014. National Health Spending In 2012: Rate Of Health Spending Growth Remained Low For The Fourth Consecutive Year. *Health Affairs*, v. 33, n. 1, pp. 67-77 (accessed 15 January 2014 at http://content.healthaffairs.org/content/33/1/67.abstract).

McClellan, Mark, and Jonathan Skinner. 2006. The Incidence of Medicare. *Journal of Public Economics* v. 90, no.1-2: 257-276.

Miller, G. Edward, and Thomas M. Selden. 2013. Tax Subsidies for Employer-Sponsored Health Insurance: Updated Microsimulation Estimates and Sensitivity to Alternative Incidence Assumptions. *Health Services Research*, v. 48, issue 2, part 2: 866-883.

National Bureau of Economic Research, *TAXSIM Model Output for Barro and Redlick, Macroeconomic Effects from Government Purchases and Taxes. NBER Working Paper 15369*. Retrieved December 30, 2012, from http://users.nber.org/~taxsim/barro-redlick/.

Rennane, Stephanie, and C. Eugene Steuerle. 2011. *Health Reform: A Four-Tranche System: Updated and Revised.* Washington, DC: The Urban Institute. (accessed January 28, 2014, at: http://www.urban.org/publications/901408.html).

Selden, Thomas M., and Didem M. Bernard. 2004. Tax Incidence and Net Benefits in the Market for Employment-Related Insurance: Sensitivity of Estimates to the Incidence of Employer Costs. *International Journal of Health Care Finance and Economics* 4: 167-192.

Selden, Thomas M., and Bradley M. Gray. 2006. Tax Subsidies for Employment-Related Health Insurance: Estimates for 2006. *Health Affairs* v. 25, no.6: 1568-1579.

Selden, Thomas M., and Merrile Sing M. 2008. The Distribution of Public Spending for Health Care in the United States, 2002. *Health Affairs*, 27, no.5: w349-w359. (accessed January 25, 2014 at http://content.healthaffairs.org/content/27/5/w349.abstract?sid=8f4a881f-2e57-4834-a16f-439e44e72f8c).

Selden, Thomas M., and John F. Moeller. 2000. Estimates of the Tax Subsidy for Employment-Related Health Insurance. *National Tax Journal,* v. 53, n. 4, pt 1: 877-888 (accessed January 25, 2014 at http://ntj.tax.org/wwtax%5Cntjrec.nsf/616D54664E20170485256AFC007F32E6/$FILE/v53n4p1877.pdf).

Selden, Thomas M., and Michael J. Wasylenko. 1992. Benefit Incidence Analysis in Developing Countries. *Policy Research Public Economics*. Working Paper no. WPS 1015 (Washington, DC: World Bank).

Sheils, John, and Randall Haught. 2004. The Cost of Tax-Exempt Health Benefits in 2004. *Health Affairs* v. 23: w106-w112 (accessed January 25, 2014 at http://content.healthaffairs.org/content/early/2004/02/25/hlthaff.w4.106.short).

Sheils, John, and Paul Hogan. 1999. The Cost of Tax-Exempt Health Benefits in 1998. *Health Affairs*, Mar/Apr: 176–181 (accessed on January 25, 2014 at http://content.healthaffairs.org/content/suppl/2004/02/25/hlthaff.w4.106v1.DC1).

Sloan, Frank A., Harold H. Zhang, and Jingshu Wang. 2002. Upstream Intergenerational Transfers. *Southern Economic Journal* v. 69, no. 2: 363–380.

Wolfe, Barbara, and Robert Moffitt. 1991. A New Index to Value In-Kind Benefits. *Review of Income and Wealth*. v. 37, no. 4: 387-408.

Figure 1: Per Capita Public and Private Spending on Health Care: 1960-2012

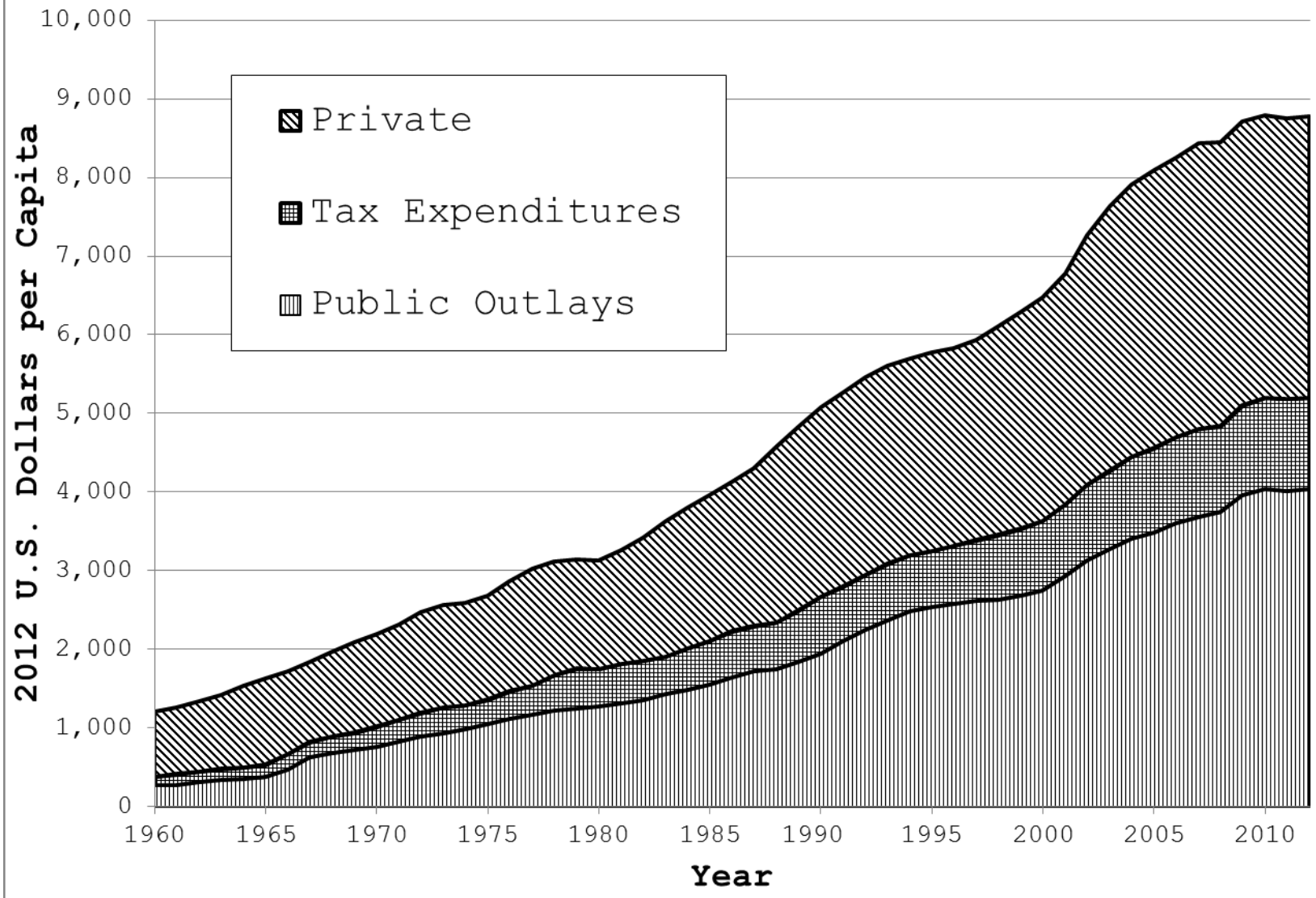

Table 1: Benefit Incidence of Public Spending on Health Care by Age and Poverty Level, Civilian Noninstitutionalized Population, 2010

	Population (millions)	Public Outlays				Tax Expenditures	Total Public Expenditures	Public as Percentage of Total Expenditures
		Medicaid/ SCHIP	Medicare	Other Public Targeted[a]	Other Public General[b]			
All	308.6	852 (57)	1045 (65)	435 (34)	474 (5)	1,039 (16)	3,913 (112)	57.6 (0.9)
Age groups								
0-18	79.3	831 (73)	24 (18)	133 (29)	318 (6)	491 (13)	1,809 (94)	63.9 (1.8)
19-64	188.1	828 (74)	371 (50)	406 (37)	475 (7)	1374 (20)	3,539 (105)	52.8 (1.1)
65+	41.2	1,008 (144)	6,094 (374)	1,153 (192)	770 (15)	566 (22)	9,678 (504)	65.2 (1.6)
Poverty level								
<100%FPL	46.8	3,239 (280)	1148 (160)	1,010 (165)	470 (16)	120 (14)	6,070 (437)	79.9 (1.9)
100-199% FPL	57.1	1,033 (86)	1,542 (164)	544 (91)	486 (12)	492 (21)	4,196 (230)	67 (1.7)
200-399% FPL	93.0	441 (69)	964 (96)	331 (52)	455 (8)	1,003 (18)	3,262 (136)	53.2 (1.4)
400%+FPL	111.7	102 (23)	814 (102)	226 (36)	484 (8)	1,734 (24)	3,406 (129)	46.8 (1.2)

SOURCE: Authors' calculations using 2010 Medical Expenditure Panel Survey (MEPS) data aligned with 2010 National Health Expenditure Accounts (NHEA) data and other national benchmarks. Sample contains 32,846 positively-weighted observations. Standard errors (in parentheses) are adjusted for the complex design of the MEPS sample, but do not reflect the uncertainties regarding the adjustments to align the MEPS with national benchmarks.

[a]Includes Medicaid and Medicare Disproportionate Share, Department of Veterans Affairs, workers' compensation, Medicare retroactive and capital pass-through payments, administrative costs of public coverage.

[b]Includes Medicare General Medical Education, other federal, state and local, public health, public research, investment in structures and equipment.

Table 2: Benefit Incidence of Public Spending on Health Care by Health and Insurance Status, Civilian Noninstitutionalized Population, 2010

	Population	Public Outlays				Tax	Total	Public as Percentage of Total
	(millions)	Medicaid/ SCHIP	Medicare	Other Public Targeted[a]	Other Public General[b]	Expenditures	Public Expenditures	Expenditures
Health status								
Excellent	105.6	287 (26)	152 (37)	87 (13)	330 (4)	938 (19)	1,819 (52)	55.5 (1.8)
Very good	92.5	410 (59)	532 (74)	233 (35)	417 (8)	1,182 (20)	2,814 (115)	52.9 (1.4)
Good	73.9	980 (127)	1273 9157)	491 (61)	534 (12)	1,077 (28)	4,428 (249)	55.6 (1.7)
Fair	26.9	2,092 (235)	3,308 (318)	1,496 (279)	787 (23)	923 (37)	8,865 (510)	62.1 (2.0)
Poor	9.0	7,301 (873)	7,825 (967)	2,752 (589)	1,305 (66)	845 (80)	20,265 (1,432)	66.0 (2.9)
Insurance status								
Private	173.5	80 (16)	39 (7)	204 (26)	436 (6)	1,678 (18)	2,490 (40)	42.6 (0.8)
Medicaid	47.5	3,802 (281)	140 (42)	379 (64)	395 (12)	25 (4)	4,740 (315)	91.6 (0.9)
Medicaid & Medicare	8.6	7,951 (794)	8,612 (789)	1,705 (264)	878 (51)	145 (15)	19,291 (1,453)	89.6 (1.2)
Medicare	38.5	0	6,091 (409)	1,147 (206)	806 (17)	631 (24)	8,783 (487)	60.1 (1.7)
Uninsured	40.4	0	0	546 (121)	326 (7)	68 (9)	1,124 (136)	51.6 (3.7)

SOURCE: Authors' calculations using 2010 Medical Expenditure Panel Survey (MEPS) data aligned with 2010 National Health Expenditure Accounts (NHEA) data and other national benchmarks. Sample contains 32,846 positively-weighted observations. Standard errors (in parentheses) are adjusted for the complex design of the MEPS sample, but do not reflect the uncertainties regarding the adjustments to align the MEPS with national benchmarks.

[a]Includes Medicaid and Medicare Disproportionate Share, Department of Veterans Affairs, workers' compensation, Medicare retroactive and capital pass-through payments, administrative costs of public coverage.

[b]Includes Medicare General Medical Education, other federal, state and local, public health, public research, investment in structures and equipment.

Table 3: Benefit Incidence of Public Spending on Health Care by Affordable Care Act Subgroups, among Adults Age 19-64 in the Civilian Noninstitutionalized Population, 2010 ($ amounts are per capita)

	Population (millions)	Public Outlays ($)				Tax Expenditures ($)	Total Public Expenditures ($)	Total Expenditures ($)	Public as Percentage of Total Expenditures
		Medicaid/ CHIP	Medicare	Other Public Targeted[a]	Other Public General[b]				
ACA eligibility									
Enrolled in Medicaid	12.0	3,887 (461)	0	336 (68)	394 (13)	163 (20)	4,780 (497)	5,741 (504)	83.3 (2.7)
Income<138% FPL & ineligible for subsidized Marketplace coverage									
Living in expansion states	11.8	0	0	717 (205)	368 (11)	452 (35)	1,536 (211)	3,462 (341)	44.4 (4.2)
Living in non-expansion states	9.2	0	0	638 (139)	426 (33)	502 (55)	1,566 (161)	4,581 (873)	34.2 (5.3)
Eligible for subsidized Marketplace coverage	19.0	0	0	613 (164)	378 (12)	398 (22)	1,389 (173)	3,485 (306)	39.9 (3.1)
Income>138% FPL & offered ESI (own or spouse)	91.8	0	0	268 (33)	461 (9)	2,177 (20)	2,905 (41)	6,457 (198)	45.0 (1.1)
Income>400% FPL & no offer	9.6	0	0	508 (265)	414 (19)	894 (53)	1,816 (275)	4,784 (452)	38.0 (4.3)

SOURCE: Authors' calculations using 2010 Medical Expenditure Panel Survey (MEPS) data aligned with 2010 National Health Expenditure Accounts (NHEA) data and other national benchmarks. Sample contains 32,846 positively-weighted observations. Standard errors (in parentheses) are adjusted for the complex design of the MEPS sample, but do not reflect uncertainties regarding the adjustments to align the MEPS with national benchmarks.
These results are for persons aged 19-64 who are citizens due to the cross-state variation in eligibility rules for non-citizens.
[a]Includes Medicaid and Medicare Disproportionate Share, Department of Veterans Affairs, workers' compensation, Medicare retroactive and capital pass-through payments, and administrative costs of public coverage.
[b]Includes Medicare General Medical Education, other federal, state and local, public health, public research, and investment in structures and equipment.