

Report on Health Reform Implementation
**The Impact of the ACA on Premiums:
Evidence from the Self-Employed**

Bradley T. Heim
Indiana University

Gillian Hunter
Ithai Z. Lurie

Shanthi P. Ramnath
US Department of the Treasury

Editor's Note: JHPPL has started an ACA Scholar-Practitioner Network (ASPEN). The ASPEN assembles people of different backgrounds (practitioners, stakeholders, and researchers) involved in state-level health reform implementation across the United States. The newly developed ASPEN website documents ACA implementation research projects to assist policy makers, researchers, and journalists in identifying and integrating scholarly work on state-level implementation of the ACA. If you would like your work included on the ASPEN website, please contact web coordinator Phillip Singer at pmsinger@umich.edu. You can visit the site at ssascholars.uchicago.edu/jhppl/.

JHPPL seeks to bring this important and timely work to the fore in Report on Health Reform Implementation, a recurring special section. Thanks to funding from the Robert Wood Johnson Foundation, all essays in the section are published open access.

—Colleen M. Grogan

Abstract This article examines the impact of the Affordable Care Act on premiums by studying a segment of the nongroup market, the self-employed. Because self-employed health insurance premiums are deductible, tax data contain comprehensive individual-level information on the premiums paid by this group prior to the establishment of health insurance exchanges. We compare these prior premiums to reference silver premiums available on the exchanges and find that exchange premiums are 4.2 percent higher on average among the entire sample but 42.3 percent lower on average after taxes and subsidies. We also examine which type of exchange coverage would cost less than the individual's prior health insurance premiums and find that almost 60 percent of families could purchase bronze plans for less than their prior premiums, though only

Journal of Health Politics, Policy and Law, Vol. 40, No. 5, October 2015
DOI 10.1215/03616878-3161248 Published by Duke University Press

about a quarter could purchase platinum plans. After taxes and subsidies, the fractions increase to over 85 percent for bronze plans and over half for platinum plans.

Keywords Affordable Care Act, premiums, self-employed

The Affordable Care Act (ACA), which was signed into law in 2010, made major changes to regulations in the private nongroup health insurance market aimed at providing better insurance protection, making insurance more affordable, expanding coverage, and increasing competition between insurers. These changes included the establishment of health insurance marketplaces (state health insurance “exchanges”), through which individuals may purchase health insurance policies; modified community rating regulations, which prevent insurance companies from charging different premiums based on health status; guaranteed issue regulations, which prevent insurers from excluding anyone because of preexisting conditions; subsidies for low- and moderate-income families to purchase health insurance; a mandate for individuals to purchase health insurance or incur a shared responsibility payment; and a bidding process involving both nonsubsidized and subsidized premiums.¹ There has been much conjecture on the impact of the interactive effects of these reforms on premiums, since premiums in the exchanges affect both affordability for nonsubsidized individuals and the cost of subsidies to the government. In this article, we examine how the premiums offered in the exchanges compare to the premiums of pre-ACA policies purchased prior to the establishment of the exchanges by an important segment of the nongroup health insurance market, the self-employed.

Prior to 2014, except for residents in community rating states, individuals with higher health risks purchasing coverage in the nongroup market paid higher premiums, received incomplete coverage through exclusions of preexisting conditions, had higher-than-average co-payments and deductibles, or were denied coverage altogether (Collins et al. 2011; Giovannelli, Lucia, and Corlette 2014). In addition, the market experienced a high degree of turnover and was subject to adverse selection (Lo Sasso and Lurie 2009; Lo Sasso 2011).²

1. The ACA also includes subsidies for small firms to provide health insurance for their employees, the option for states to merge nongroup and small group markets, the incentive for states to expand Medicaid to individuals with income below 138 percent of the federal poverty line (FPL), and mandates for employers with fifty or more full-time equivalents (FTEs) to offer health insurance.

2. Jessica Vistnes (2008) finds that 36 percent of those with individual market plans in 2006 were covered for fewer than twelve months.

Under the ACA, insurance policies offered on the health insurance exchanges, along with other regulations, are intended to protect high-risk individuals and those with preexisting conditions against high and rising premiums. Although plans were allowed to be grandfathered under certain circumstances, new requirements for minimum benefits increased the comprehensiveness of coverage.³ The introduction of progressive tax credits is intended to make health insurance affordable for low- and moderate-income individuals, reducing costs for some previously insured individuals and expanding coverage to those who would otherwise be uninsured. Finally, the new shared responsibility payment required of all nonexempt uninsured individuals provides an incentive for uninsured individuals not offered coverage through an employer to take up coverage in the exchanges.

Many of the provisions in the ACA are expected to affect premiums, though the direction of the change often differs across provisions. The implementation of guaranteed issue and community rating regulations, along with the ban on exclusions based on preexisting conditions, is likely to draw less-healthy individuals into the insurance pool in the absence of an individual mandate. This would likely result in an increase in gross premiums, particularly among those who are in good health, though premiums may decrease among those who are in poor health, since they no longer have to pay risk-rated premiums. The minimum benefits mandate would also be expected to increase gross premiums. However, the individual mandate to purchase health insurance may draw more healthy individuals into the insurance pool, which would tend to lower or moderate any increase in premiums. The low- and moderate-income subsidies lower the net cost of insurance for subsidy recipients. In addition, if the low- and moderate-income pre-ACA uninsured population tended to be healthier than those in the pre-ACA nongroup market, then these subsidies may also draw healthy individuals into the insurance pool and lower the gross cost of insurance, though gross premiums would increase if this group were less healthy. Finally, competition among plans on the exchange would be expected to lower premiums. Taken together, and because of their interactive effects, the impact of the ACA on gross premiums is ambiguous and depends on the relative size of each of these effects.

Though little is currently known about the impact of the ACA on insurance premiums, some existing studies have examined the impact of prior state-level health insurance reforms on premiums. Looking at New Jersey, Katherine Swartz and Deborah W. Garnick (2000) find that premiums stayed relatively stable following the passage of community rating and guaranteed issue

3. These also include requirements for deductibles, out-of-pocket limits, annual limits, and lifetime maximum benefits and maternity benefits and behavioral benefits.

regulations, while a later evaluation by Alan C. Monheit et al. (2004) found that premiums had increased by a factor of 2 or 3 compared to their initial levels, consistent with the expected effect of these regulations noted above.

The 2006 health care reform in Massachusetts contained many provisions that are similar to those in the ACA, and so the expected direction of its effect on premiums is similarly ambiguous. Amy M. Lischko and Kristin Manzolillo (2010) use America's Health Insurance Plans data from 2004, 2006–7, and 2009 and find that the average premiums in the Massachusetts nongroup market increased between 2004 and 2006–7 and then dropped between 2006–7 and 2009, bringing single coverage back to 2004 levels, with somewhat higher levels for families. During the same period, premiums nationwide increased, and so the 2004–9 average premium changes may suggest that Massachusetts experienced a relative decline in average premiums. However, John F. Cogan, R. Glenn Hubbard, and Daniel Kessler (2010) use data from the Medical Expenditure Panel Survey's Insurance Component and find that insurance premiums for firms with fewer than fifty employees in Massachusetts increased relative to other states. John A. Graves and Jonathan Gruber (2012) reexamine both sets of data and argue that there was no statistically significant change in group premiums, while nongroup premiums declined relative to the national average.

Before the passage of the ACA, a number of studies estimated the impact of the act's provisions on the premiums that individuals would face. Given the complex and interactive nature of the components of reform, it is perhaps not surprising that predictions varied widely. On the low end of estimates, the Congressional Budget Office (2009) estimated that premiums would decrease by 7–10 percent due to administrative cost savings and decrease by an additional 7–10 percent because of take-up by uninsured individuals who were assumed to be healthier than the pre-ACA nongroup market participants. However, they estimated that these decreases would be more than offset by the ACA minimum benefit requirements, resulting in a 10–13 percent increase in nongroup premiums overall. On the high end, Jason Grau and Kurt Giesa (2009) predicted an increase in premiums of 53 percent, at least partially driven by their assumption that the pre-ACA uninsured population was less healthy than those in the pre-ACA nongroup market, while PricewaterhouseCoopers (2009) predicted an increase of 49 percent, driven by the assumption of a weak individual mandate leaving healthy individuals outside the insurance pool. In addition to these studies, numerous analyses were done examining the impact of the ACA on premiums at the state level.⁴

4. America's Health Insurance Plans (2012) summarizes the results from many of these studies.

Since the establishment of the health insurance exchanges and offering of policies beginning in October 2013, numerous anecdotes have appeared in the popular press about changes in health insurance premiums, but little systematic analysis has been performed to examine whether these anecdotes are representative of the population as a whole. The US Department of Health and Human Services (HHS) found that premiums offered on the exchanges were 16 percent lower than expected (HHS/ASPE 2013), though Avik Roy (2013) estimates a 41 percent average increase in premiums, with higher increases for young adults. The paucity of studies is largely due to the fact that no publicly available panel data contain information on how premiums have changed for those who were previously buying nongroup insurance.

In this article, we use confidential tax data that for a particular subset of purchasers in the nongroup market—the self-employed—contain information on health insurance premiums from policies that were purchased prior to the implementation of the exchanges. Although the self-employed are a relatively small group, constituting about 10–11 percent of the non-agricultural workforce and about 12 percent of the purchasers in the nongroup health insurance market in 2012, the availability of preexchange premium data for this group makes it possible to infer how premiums available on the health insurance exchanges compare to premiums for policies that were actually purchased in the nongroup market prior to the establishment of the exchanges.⁵ Further, since the data contain sufficient information to calculate the subsidies for which the individual would qualify, we can compare both gross and net-of-tax and subsidy prices. As such, with appropriate caveats noted below, these data make it possible to shed some light on how premiums have changed for this group, as well as how premiums are likely to have changed for other health insurance purchasers in the nongroup market.⁶

We find that the second-lowest silver plan premiums available on the health insurance exchanges are higher than the prior premiums paid for around 60 percent of self-employed families, with the fraction of those with

5. The percentages are based on our tabulations using 2013 March Current Population Survey data.

6. One may also be interested in the change in premiums for the self-employed per se, for a growing literature suggests that the availability and affordability of health insurance has a significant impact on the decision of whether to be self-employed. On the impact of the deductibility of self-employed health insurance, see Heim and Lurie 2010 and Gumus and Regan 2015. On the impact of state reforms, see DeCicca 2010; Heim and Lurie 2014a, 2014b; Niu 2014. On the impact of the availability of employer-sponsored health insurance on self-employment, see Holtz-Eakin, Penrod, and Rosen 1996; Madrian and Lefgren 1998; Wellington 2001; Gumus and Regan 2015; Fairlie, Kapur, and Gates 2011.

higher premiums generally decreasing with income and age. The average change in gross premiums is an increase of 4.2 percent among the entire sample, though the average change is negative among single adults. Once taxes and subsidies are taken into account, the average change in premiums is a decrease of 42.3 percent. Around three-quarters of the sample faces lower premiums, with lower-income groups more likely to experience a decrease. Finally, for around 60 percent of families the premium for the lowest-priced bronze plan is lower than their prior gross premium amount, though this fraction falls to 26 percent for platinum plans. After taxes and subsidies, 86 percent of families would pay less for bronze plans and over half would pay less for the lowest-priced platinum plan than they paid for their previous plan.

We turn now to describing the methods used and presenting the findings in more detail and conclude by considering the implications of the findings.

Methods

We draw our sample of self-employed families from the population of tax returns filed in 2012. From Form 1040, we pull filing status, various components of total income (including income from wages/salaries and self-employment), various deductions (including the self-employed health insurance deduction), the number of children that are claimed as dependents, state, and zip code. We also pull the age of the primary filer, and the age of the secondary filer for married couples filing jointly, using matched Social Security records.⁷

We then cut the sample to include only those who reported a nonzero amount for the self-employed health insurance deduction on their 2012 tax return. Because the data are unedited, we remove returns that report implausibly large premium deductions in excess of \$100,000. To focus on individuals whose primary employment mode is self-employment, we exclude returns that report total self-employment income less than \$5,000. In addition, to reduce the likelihood that the household was offered employer-sponsored insurance, we exclude returns that report any wage income from either the primary or the secondary filer. Finally, to focus on individuals in the working-age population, we restrict primary and secondary filers to be between ages eighteen and sixty-four. We drop

7. Regarding the self-employed health insurance deduction, a taxpayer is allowed to deduct premiums for himself or herself, his or her spouse (if married), and any dependents. The insurance must be established under the taxpayer's sole proprietorship, partnership, or S corporation (if more than a 2 percent shareholder). Some of the premiums reported may have been for policies purchased in the small group market, as there is no requirement that the policies be purchased in the nongroup market.

dependent filers, and we also omit households that reside in Hawaii since premium data from that state were unavailable.⁸

After imposing these restrictions, we have roughly 1 million returns that correspond to about 2.1 million people. Of the sample, 43 percent are single childless adults (they will be referred to as single adults), 10 percent are single parents, 18 percent are married couples without children (they will be referred to as married adults), and 29 percent are married parents. The average age of primary filers in the sample is forty-nine years old. The median modified adjusted gross income (MAGI), which is defined as adjusted gross income plus tax-exempt Social Security, tax-exempt interest, and excluded foreign income, is approximately \$45,000, and the median ratio of MAGI to FPL is 3.⁹

Comparing the sample of self-employed health insurance purchasers to the full taxpaying population, the self-employed in our sample are more likely to have total income over \$100,000, and this is particularly true among single adults, though the married self-employed in our sample are more likely than the population as a whole to have income less than \$20,000. When we look at MAGI relative to FPL, the self-employed in our sample are more likely to have a MAGI above 400 percent of FPL in all groups except childless married couples, though the married self-employed in our sample (both with and without children) are more likely than the general population to have a ratio between 0 and 133 percent.

Data on nongroup market premiums from federal exchanges (including the lowest-priced bronze, silver, and gold and second-lowest silver plans) come from the Office of the Assistant Secretary for Planning and Evaluation (ASPE), which is part of HHS.¹⁰ For nonfederal exchange states,

8. Those who are excluded by these steps claimed lower average amounts of self-employed health insurance premiums, which would be expected given that they are more likely to be claiming policies that covered only part of the family or part of the year. Among our analysis sample the average premium claimed is \$7,969, while among those who are cut for one of the reasons mentioned in the text, the average premium claimed is \$7,078. Including these observations in our analysis sample would lower our estimate of the prior self-employed health insurance premium, resulting in larger increases (smaller decreases) in premiums available on exchanges compared to prior premiums. In the full population there is about \$25.7 billion in self-employed health insurance deduction. Our sample accounts for \$6.8 billion, which is about 26 percent of the total.

9. Because there are several outliers in our data with high incomes, the average MAGI is \$163,220, and the average ratio of MAGI to FPL is 9.

10. Throughout this article, we use information from nongroup market exchanges, implicitly assuming that the self-employed would purchase insurance in this market. Although small businesses (those with fewer than fifty employees) were able to purchase health insurance from the Small Business Health Options Program (SHOP) marketplace in 2014, online enrollment was not available, and so enrollment through the SHOP marketplace was limited. Online enrollment started on November 15, 2014, for the 2015 plan year, and was extended to April 30, 2015. As such, more of the self-employed may seek coverage in the SHOP market, which may affect the premiums available for the self-employed.

we collect data on premiums through a third-party source, ValuePenguin.com.¹¹ ValuePenguin.com collects information on a number of consumer topics including, but not limited to, health insurance premiums and serves as a tool for disseminating that data in a centralized manner. We also use ValuePenguin.com to compile premiums for the lowest-priced platinum plan.

In many of the tabulations below, we use the second-lowest-priced silver plan. We do this for two reasons. First, as noted above, the price of this plan is used in the calculation of the ACA's health insurance subsidies for families with income below 400 percent of the FPL. Second, in 2014 about 65 percent of exchange enrollees signed up for silver plans (and 20 percent for bronze plans), and so the silver plan seems to be the modal coverage in the exchange (HHS/ASPE 2014).

The federal and state exchange premiums are merged to the tax data by zip code, though certain zip codes may span multiple rating areas. We calculate full family exchange premiums based on marital status, number of children, and the age of each family member. Because our tax data on self-employed health insurance premiums come from 2012, we inflate those values to 2014 levels using an annual inflation rate determined by the increase in self-employed health insurance premiums in tax data between 2011 and 2012, which is, on average, 5 percent.¹² We then use this inflation-adjusted data to compare prior self-employed health insurance premiums to exchange premiums.

Under the ACA, for families with a MAGI of up to 400 percent of the FPL, a subsidy is available for purchase of insurance on the exchange in the form of an advance premium tax credit.¹³ This subsidy is calculated by comparing the price of the second-lowest silver plan to the maximum a family is expected to pay for health insurance.¹⁴ If the former is greater

11. ValuePenguin.com also tabulates premium amounts for the federal exchange states. To verify the quality of the ValuePenguin.com data, we cross-checked the federal exchange premiums against those available from HHS and found that they matched.

12. In comparison, the Henry J. Kaiser Family Foundation and the Health Research and Education Trust (KFF/HRET 2013) Employer Health Benefits Survey finds an increase of 5 percent for single coverage and 4 percent for family coverage between 2012 and 2013.

13. In general, individuals with MAGI relative to poverty below 1 are not eligible for advance premium tax credits. However, because we are interested in the relative change in the price of coverage pre- and post-ACA, and because certain families with incomes below 100 percent of the FPL are eligible for tax credits, we calculate the subsidy and include those returns in our analysis.

14. This maximum is a fraction of the MAGI, where the fraction equals 2 percent for those with MAGI/FPL below 133 percent, increases from 3 percent to 4 percent for MAGI/FPL between 133 percent and 150 percent, increases from 4 percent to 6.3 percent for MAGI/FPL between 150 percent and 200 percent, increases from 6.3 percent to 8.05 percent for MAGI/FPL between 200 percent and 250 percent, increases from 8.05 percent to 9.5 percent for MAGI/FPL between 250 percent and 300 percent, and is 9.5 percent for MAGI between 300 percent and 400 percent.

than the latter, families below 400 percent of the FPL receive a subsidy for the difference, while those above 400 percent of the FPL must pay the full premium. To calculate the advance premium tax credit, we make some simplifying assumptions. We use information reported on the 2012 return to determine the return's MAGI in 2014.¹⁵ Using HHS federal poverty guidelines from January 2013, we then calculate each household's MAGI relative to FPL. The subsidy is calculated as the difference between the second-lowest silver plan and the maximum each family is expected to pay.¹⁶

To calculate the after-tax cost of self-employed health insurance, we must calculate the tax value of the self-employed health insurance deduction in 2014. To do so, we use the Office of Tax Analysis federal income tax calculator and calculate each return's amount of taxes owed under 2014 law, assuming that all income and deductions (other than the self-employed health insurance deduction) from 2012 remain the same in 2014.¹⁷ Next, we calculate the return's liability if the self-employed health insurance deduction had not been claimed. The difference in these two tax amounts is the tax value of the self-employed health insurance deduction, and dividing the tax value by the amount of the self-employed health insurance deduction gives us the effective tax rate on self-employed health insurance. Finally, we multiply both the prior premium and the premiums available on the exchange by 1 minus the effective tax rate to yield each self-employed family's after-tax premiums.

Limitations

Before turning to our analysis, there are a number of caveats to note when using tax data to measure self-employed insurance premiums. First, our tax data lack sufficient detail to determine the type of coverage that is being purchased. As such, some differences likely remain between the policies

15. For this calculation, we take adjusted gross income, subtract above-the-line deductions (including the self-employed health insurance deduction claimed in 2012), and add back tax-exempt Social Security, interest, and foreign income.

16. We do not attempt to capture changes in income between the enrollment period and the coverage period. Those changes in income would result in a net payment either to the family or from the family to the IRS, in what are known as net reconciliation payments. Because the reconciliation payments from the family to the IRS are capped for returns with a MAGI relative to poverty below 400 percent, there would be an additional benefit to families with large reported income gains that we are not capturing in this analysis. We also did not try to capture the changes in what families can claim as the self-employed health insurance deduction due to changes in MAGI.

17. Recall that we inflate the 2012 self-employed health insurance deduction to 2014 levels using a 5 percent inflation factor.

that were purchased prior to the exchanges and the exchange policies. For example, Jon R. Gabel et al. (2012) find that 51 percent of individual market policies in 2010 had actuarial values below the “bronze level” actuarial value of 60 percent.¹⁸

Second, the self-employed are not necessarily representative of the nongroup market as a whole. For example, our sample tends to have higher incomes than the population as a whole and so may have purchased policies prior to the implementation of the ACA that were more comprehensive than the average nongroup policy.

Third, we are unable to differentiate between partial and full family coverage or between full-year and part-year coverage. We attempt to minimize the concern that premiums may reflect part-year and/or part-family coverage by restricting our sample to nonwage earners where neither the primary nor the secondary filer reports wages. Thus we will proceed under the assumption that the coverage reported on Form 1040 is full-year coverage for the entire family. This assumption is likely to be most valid for single adults, and so we have the most confidence in this comparison, but we acknowledge that this assumption may not hold for all observations. To the extent that pre-ACA premiums covered only part of the family or part of the year, our results would tend to be biased toward finding a larger increase (or smaller decrease) in exchange premiums relative to prior premiums.

Fourth, the self-employed are more likely than the average consumer to have used the nongroup market as a steady source of insurance throughout the year, while for other groups, any differences in premiums found here may apply only to a part of the year in which they are in between other sources of insurance. In addition, amounts claimed on tax returns may include premiums for supplemental dental, vision, or additional long-term care policies. Both of these factors would tend to bias our results toward finding a smaller increase (or bigger decrease) in exchange premiums relative to prior premiums.

Fifth, the self-employed are able to deduct their health insurance premiums on their income tax returns. As a result, the after-tax cost of insurance, both before and after the implementation of the ACA, is lower for this group than for similarly situated individuals who are not self-employed.

18. They further find that one-third of plans would have qualified as bronze plans, 14 percent as silver plans, and 2 percent as gold plans, with no plans qualifying as platinum plans (Jon R. Gabel et al. 2012).

Despite these limitations, the self-employed represent an important subgroup of the pre-ACA nongroup market who are very likely to participate in the exchanges. In addition, any changes in premiums that the self-employed faced are likely to be informative about changes in premiums faced by other non-self-employed families who also purchase insurance in the nongroup market.

Findings

Comparison of ACA Second-Lowest Silver-Level Premiums to Pre-ACA Premiums

We begin by comparing the premiums of policies that self-employed families claimed on tax returns (inflated to 2014 levels) prior to the establishment of health insurance exchanges to the premiums of the second-lowest-priced silver plan available for these families on the exchanges.

Even within income or age groups there is substantial variation in both pre-ACA premiums and in premiums available on the exchange, and this variation exists in both gross premiums and after-tax and subsidy premiums. A number of factors are driving this variation, including differences in premiums across insurance rating areas, family size (within groups of parents), and health status (for pre-ACA premiums in areas that allowed underwriting of policies) and differences in state regulation prior to the ACA. Variation in the after-tax and subsidy premiums is additionally driven by differences in incomes and marginal tax rates across families. As this discussion illustrates, simple differences in average premiums can provide a misleading picture of the change in premiums, and so we present differences in dollars and percent changes, as well as measures of the distribution of each. Note, however, that these tabulations are conducted on the same group of families, and thus the variation is not driven by change in the analysis sample.

Across all of the self-employed, the premiums for the second-lowest silver plan average \$8,305, which compared to the \$7,969 average of pre-ACA premiums is an increase of \$336, or 4.2 percent (see table 1). There is substantial heterogeneity in the difference in premiums, however, with the 10th percentile difference being a decrease of 45.6 percent, while the 90th percentile difference is an increase of 238.1 percent. The results are somewhat similar when split by family type, as the single adults category is the only group for which the average second-lowest silver premium is lower than the average of prior premiums, with a decline in the average

premium of 1.3 percent. The average premium increased by 7.0 percent for single parents, by 12.4 percent for married adults, and 2.7 percent for married parents. Nevertheless, the key findings are that these premium increases are on the low end of premium changes that were forecast around the passage of the ACA and that there is considerable heterogeneity within the sample.

As one would expect, when tax deductions are taken into account, the after-tax premium is quite a bit lower.¹⁹ Because health insurance premiums are deductible from income taxes for the self-employed, the average pre-ACA after-tax premium for the entire sample is \$6,222, or about 22 percent less than the gross amount, and within family types, the after-tax premiums are about 20–25 percent lower than the gross amounts (see column 5, table 1). Subsidies for the second-lowest silver plan average \$3,452 across the entire group of self-employed, though they are higher on average for married adults and married parents and lower for single adults and single parents, generally reflecting differences in premiums (see column 6). Once subsidies and the self-employed health insurance deduction are accounted for, the after-tax and subsidy cost of the second-lowest silver plan drops to \$3,591 (see column 7), which is \$2,631 (or 42.3 percent) lower than the average pre-ACA after-tax premium (see columns 8 and 9). Again, there is substantial heterogeneity in the difference in after-tax and subsidy premiums, with the 10th percentile difference being a decrease of 96.1 percent, while the 90th percentile difference is an increase of 73.5 percent. When we look across family types, the percentage decline in the average after-tax and subsidy premium is larger for single adults and single parents (at 51.7 percent and 51.9 percent), though the declines for married adults and married parents are still substantial at 32.9 percent and 39.5 percent.

To provide additional detail on the magnitude of premium increases and decreases, both gross and after-taxes and subsidies, we calculate the distribution of dollar differences in premiums (see table 2). While 58 percent of the self-employed experienced an increase in their gross premiums, the remainder (42 percent) experienced a decrease (see column 1, table 2). Among those experiencing a decrease in premiums, the majority saw at

19. Recall that after-tax premiums are calculated by multiplying prior gross premiums (or gross second-lowest silver premiums net of subsidies) by 1 minus the family's effective tax rate. As a result, the differences between prior after-tax premiums and second-lowest silver premiums after taxes and subsidies are primarily driven by the difference in gross premiums and the size of the subsidy, while the tax deduction simply scales these amounts down by the factor of 1 minus the effective tax rate.

Table 1 Difference in Average Premiums between Premiums Available on Exchange and Pre-ACA Self-Employed Health Insurance Premiums

N	Prior Self-Employed Health Insurance Premium		Gross Difference	Gross % Difference	Prior Self-Employed Health Insurance Premium (After-Tax)		Second-Lowest Silver Premium Net of Subsidy (After-Tax)		After-Tax and Subsidy Difference	After-Tax and Subsidy % Difference
	(1)	(2)			(3)	(4)	(5)	(6)		
All	936,880	7,968.92 (6,594.26)	8,304.62 (4,347.83)	335.70 (5,721.58)	4.2 [-45.6, 238.1]	6,222.13 (4,696.73)	3,451.57 (2,434.47)	3,591.28 (3,424.77)	-2,630.85 (4,566.40)	-42.3 [-96.1, 73.5]
Single adults	404,218	4,940.34 (3,599.45)	4,875.75 (1,870.99)	-64.58 (3,414.15)	-1.3 [-46.6, 186.8]	4,037.40 (2,771.46)	2,340.47 (2,434.47)	1,949.43 (1,707.00)	-2,087.97 (3,000.54)	-51.7 [-97.1, 62.2]
Single parents	92,457	5,749.95 (4,771.27)	6,152.25 (1,958.87)	402.30 (4,664.57)	7.0 [-47.2, 351.4]	4,677.08 (3,528.48)	3,209.54 (2,434.47)	2,251.65 (2,039.35)	-2,425.42 (3,609.55)	-51.9 [-95.3, 68.9]
Married adults	167,647	10,479.69 (6,788.82)	11,775.99 (3,321.83)	1,296.30 (6,747.49)	12.4 [-40.1, 253.1]	8,311.66 (5,032.68)	4,449.95 (2,434.47)	5,574.30 (4,142.74)	-2,737.36 (6,033.43)	-32.9 [-95.3, 111.2]
Married parents	272,558	11,668.85 (7,832.37)	11,984.73 (3,425.62)	315.88 (7,684.30)	2.7 [-46.5, 273.5]	8,701.07 (5,283.31)	4,567.39 (2,434.47)	5,260.93 (3,770.35)	-3,440.15 (5,513.64)	-39.5 [-94.1, 69.5]

Source: Authors' tabulations using 2012 tax return data, matched with premiums available on exchanges

Notes: Standard deviations are in parentheses. Square brackets identify the range from the 10th percentile to the 90th percentile and were calculated based on the average percentage difference of the ten observations closest to each percentile.

least a \$2,000 reduction.²⁰ Across family types, single adults and single parents tended to have smaller changes than married adults and married parents. Among those experiencing an increase in premiums, the majority of married adults and parents saw an increase of \$2,000 or more. While single adults and single parents saw smaller increases, about one-third (31 percent) of single parents experienced premium increases of between \$2,000 and \$5,000.

When subsidies and taxes are taken into account, nearly three-quarters of the entire sample has a second-lowest silver plan premium that is lower than their pre-ACA self-employed health insurance premium, with over half the sample experiencing a decrease in excess of \$5,000 (see table 3). In contrast, only 2.8 percent experience an increase of over \$5,000.²¹ Again, single adults and single parents tended to have smaller changes than married adults and married parents.

When the sample is broken out by income group, the average second-lowest silver plan premium tends to be higher than the average of pre-ACA premiums for income groups up to 450 percent of the FPL, but it is lower among those with a MAGI above 450 percent of the FPL (see table 4).²² Once taxes and subsidies are taken into account, however, almost all

20. In separate tabulations (not presented here), we calculated the distribution of changes as a percentage of prior gross premiums. These found that, overall, for 16.4 percent of the sample, premiums decreased between 25 and 50 percent, 16.0 percent decreased between 50 and 75 percent, 11.0 percent decreased between 75 and 90 percent, and 19.1 percent decreased more than 90 percent, while 5.0 percent decreased between 25 and 50 percent, 3.3 percent decreased between 50 and 75 percent, 1.4 percent decreased between 75 and 90 percent, and 8.4 percent decreased more than 90 percent.

21. Analogous tabulations in percentage terms (not presented here) found that for 16.3 percent of the sample, premiums decreased between 25 and 50 percent, 15.9 percent decreased between 50 and 75 percent, 10.9 percent decreased between 75 and 90 percent, and 19.3 percent decreased more than 90 percent, while 4.9 percent decreased between 25 and 50 percent, 3.3 percent decreased between 50 and 75 percent, 1.4 percent decreased between 75 and 90 percent, and 8.4 percent decreased more than 90 percent.

22. In table 4, families are divided according to whether MAGI is negative, 0–133 percent of the FPL, 133–150 percent of the FPL, 150–200 percent of the FPL, 200–250 percent of the FPL, 250–300 percent of the FPL, 300–400 percent of the FPL, 400–450 percent of the FPL, or above 450 percent of the FPL. These cuts match the cut points in the subsidy schedule, with two exceptions. First, we separate those with negative income from the less than 133 percent of FPL group. Although it is possible for a family to have a negative MAGI if they have sufficiently low income combined with sufficiently high amounts of above-the-line deductions (including moving expenses, student loan interest, tuition and fees, and self-employed health insurance), a negative MAGI typically results from a family incurring business or investment losses, and so a negative MAGI does not necessarily reflect that the family has persistently low income. As a result, this group tends to be qualitatively different from other families with low MAGI. Second, we separate the 400–450 percent FPL group from the above 450 percent group to distinguish those who had income near the subsidy range (and whose income might fall into the subsidy range in some years) to those with income sufficiently high that they are unlikely to qualify for subsidies in subsequent years.

Table 2 Distribution of Differences in Premiums on Exchanges Compared to Pre-ACA Self-Employed Health Insurance Premiums

	Fraction with Decrease (Exchange Lower) (%)					Fraction with Increase (Exchange Higher) (%)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
All	41.5	7.1	5.9	12.3	6.9	9.2	11.3	11.0	20.4	9.2	6.6
Single adults	43.8	2.6	3.9	13.9	9.5	13.8	17.5	15.9	19.4	3.2	0.3
Single parents	36.0	5.3	4.9	11.0	6.4	8.5	10.8	12.7	30.9	8.1	1.4
Married adults	37.1	8.5	6.9	11.2	5.1	5.5	6.2	6.7	20.7	15.6	13.7
Married parents	42.6	13.6	8.4	11.2	4.4	5.0	5.5	5.9	18.3	14.3	13.4

Source: Authors' tabulations using 2012 tax return data, matched with premiums available on exchanges

Table 3 Distribution of Differences in After-Tax Net of Subsidy Premiums on Exchanges Compared to Pre-ACA After-Tax Self-Employed Health Insurance Premiums

	Fraction with Decrease (Exchange Lower) (%)					Fraction with Increase (Exchange Higher) (%)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Fraction with Net of Tax and Subsidy Decrease		More than \$8,000	\$5,000–\$8,000	\$2,000–\$5,000	\$1,000–\$2,000	\$0–\$1,000	\$0–\$1,000	\$1,000–\$2,000	\$2,000–\$5,000	\$5,000–\$8,000	More than \$8,000
All	74.3	10.5	13.1	26.8	11.9	12.1	9.6	6.1	7.2	2.0	0.8
Single adults	76.6	3.9	10.2	30.8	15.7	16.0	12.5	6.7	3.9	0.3	0.0
Single parents	76.9	6.9	11.7	29.9	14.1	14.4	10.2	6.3	6.1	0.4	0.0
Married adults	67.7	17.1	14.7	20.8	7.5	7.6	6.6	5.7	11.7	5.4	3.0
Married parents	74.0	17.5	16.7	23.5	8.1	8.2	6.9	5.4	9.7	3.0	1.0

Source: Authors' tabulations using 2012 tax return data, matched with premiums available on exchanges

income groups have average after-tax and subsidy second-lowest silver plan premiums that are lower than the prior after-tax self-employed health insurance premiums (see column 4, table 4). In addition, the fraction with a decrease in premiums generally decreases with income, reflecting the progressive structure of the subsidies (column 6, table 4).²³

When the sample is split according to the age of the primary filer, the youngest cohort has the largest increase in average gross second-lowest silver premiums relative to the average gross pre-ACA premiums, with an increase of 24.7 percent, and less than a third of this group experiences a decrease (see table 5).²⁴ Other groups experienced smaller changes, with either a smaller increase or a small decrease, on average. After we take taxes and subsidies into account, all age groups have second-lowest silver premiums that are, on average, around 40 percent lower than pre-ACA after-tax premiums (column 5, table 5).

Comparison of Premiums in Each Metal Tier on Exchanges to Pre-ACA Premiums

To get a more complete picture of how the array of insurance options available on the exchanges compare to pre-ACA self-employed premiums, we now compare the lowest-priced plan in each “metal” tier—bronze, silver, gold, and platinum—to pre-ACA premiums paid by the self-employed (see table 6). The ACA categorizes health insurance plans into one of these tiers, with bronze plans having an actuarial value of 60 percent (i.e., such plans are expected to pay 60 percent of health costs for their beneficiaries) and silver, gold, and platinum plans having actuarial values of 70 percent, 80 percent, and 90 percent, respectively. Since plans with higher actuarial values are expected to pay a greater share of health costs, platinum plans tend to be the most expensive in a given area, gold plans tend to be less expensive than platinum, and so on. If the pre-ACA self-employed health insurance premiums are above the lowest-priced plan in a particular tier, we denote that tier as costing less than the family’s pre-ACA premium. We then calculate the fraction of families (overall and within an income group) for whom the lowest-priced plan in each tier costs less than their

23. We found similar results when the sample was further split by family type. Those tabulations are available on request from the authors.

24. For these tabulations, the sample was divided according to whether the primary filer was age 18–34, 35–44, 45–54, or 55–64. Small sample sizes precluded us from subdividing these groups further.

Table 4 Comparison of Second-Lowest Silver Premiums and Pre-ACA Self-Employed Health Insurance Premiums by MAGI as a Percentage of FPL

Income Group	Fraction of Subgroup (%)	Gross Difference (Second-Lowest Silver—Pre-ACA)	Gross % Difference	Fraction with Decrease (%)	After-Tax and Subsidy Difference	After-Tax and Subsidy % Difference	Fraction with Decrease (%)
		(1)	(2)	(3)	(4)	(5)	(6)
Negative	2.1	341.06 (5,404.17)	4.4 [-45.9, 188.1]	43.1	-7,064.04 (5,233.03)	-100.0 [-100.0, -100.0]	100.0
0%–133% FPL	21.8	2,013.30 (4,336.80)	39.1 [-32.3, 472.8]	27.9	-4,670.16 (4,000.81)	-95.1 [-98.6, -74.9]	98.0
133%–150% FPL	3.5	2,216.03 (4,490.20)	41.0 [-31.5, 450.0]	26.9	-4,132.83 (3,842.22)	-85.2 [-92.9, -32.7]	93.5
150%–200% FPL	9.1	1,973.85 (4,528.08)	34.1 [-32.9, 360.1]	29.2	-3,835.17 (3,945.00)	-75.2 [-88.3, -0.2]	90.0
200%–250% FPL	7.6	1,586.82 (4,631.60)	25.1 [-36.0, 282.2]	32.5	-3,242.78 (4,000.12)	-59.5 [-79.6, 46.1]	82.4
250%–300% FPL	6.3	1,320.31 (4,725.25)	19.6 [-37.7, 241.4]	34.9	-2,478.52 (4,052.72)	-43.4 [-70.6, 88.7]	72.1
300%–400% FPL	9.6	934.55 (4,846.66)	13.0 [-40.6, 205.4]	38.2	-1,784.01 (4,025.65)	-30.0 [-62.5, 113.3]	63.1
400%–450% FPL	3.7	621.91 (5,001.86)	8.1 [-42.2, 180.1]	41.2	572.10 (4,064.75)	9.5 [-42.7, 183.9]	41.2
Above 450% FPL	36.3	-1,881.67 (6,689.11)	-16.7 [-54.3, 113.7]	57.8	-1,161.29 (4,591.24)	-15.1 [-54.4, 114.4]	57.8

Source: Authors' tabulations using 2012 tax return data, matched with premiums available on exchanges

Notes: Standard deviations are in parentheses. Square brackets identify the range from the 10th percentile to the 90th percentile and were calculated based on the average percentage difference of the ten observations closest to each percentile.

Table 5 Comparison of Second-Lowest Silver Premiums and Pre-ACA Self-Employed Health Insurance Premiums by Age

Age of Primary Filer	Fraction of Subgroup (%)	Gross Difference (Second-Lowest Silver—Pre-ACA)	Gross % Difference	Fraction with Decrease (%)	After-Tax and Subsidy Difference	After-Tax and Subsidy % Difference	Fraction with Decrease (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
18–34	10.6	908.38 (3,215.03)	24.7 [–36.6, 316.8]	30.9	–1,288.39 (2,699.25)	–41.9 [–94.6, 103.6]	68.7
35–44	19.9	–59.21 (5,376.24)	–0.8 [–49.5, 244.0]	44.2	–2,409.16 (3,853.30)	–44.5 [–94.8, 66.7]	75.1
45–54	32.5	–118.07 (5,762.05)	–1.4 [–48.0, 207.8]	45.1	–2,884.23 (4,357.47)	–45.2 [–96.3, 57.8]	77.0
55–64	37.0	783.07 (6,341.78)	8.3 [–42.5, 237.7]	39.8	–2,910.52 (5,376.91)	–39.3 [–96.9, 83.4]	73.0

Source: Authors' tabulations using 2012 tax return data, matched with premiums available on exchanges.

Notes: Standard deviations are in parentheses. Square brackets identify the range from the 10th percentile to the 90th percentile and were calculated based on the average percentage difference of the ten observations closest to each percentile.

Table 6 Fraction for Whom Lowest-Priced Premium in Each Metal Tier Costs Less Than Pre-ACA Self-Employed Health Insurance Premiums

	Bronze (1)	Silver (2)	Gold (3)	Platinum ^a (4)
Gross premiums (%)	58.7	45.2	35.0	26.2
After-tax and subsidy premiums (%)	86.0	77.5	66.8	53.8

Source: Authors' tabulations using 2012 tax return data from 2012 Compliance Data Warehouse extraction on April 23, 2014, matched with premiums available on exchanges

^a Among residents of rating areas that offer platinum-tier plans

pre-ACA premiums, both for gross premiums and for premiums after taxes and subsidies.

These tabulations suggest that the gross premium for the lowest-priced bronze plan is lower than prior gross premiums for almost 60 percent of families, though this fraction falls to 45 percent for the lowest-priced silver plan and around 35 percent for the lowest-priced gold plan. Among families who lived in areas that offered platinum plans, the lowest-priced platinum plan is lower than pre-ACA premiums for only about a quarter of the sample.²⁵ In separate tabulations (not shown here), the share of families with premiums in a particular tier that are lower than pre-ACA premiums tends to increase with income, possibly because higher-income families may have purchased more comprehensive coverage prior to the establishment of the exchanges.²⁶ When taxes and subsidies are accounted for, the shares of families with lower premiums in the exchanges increase substantially, so that the lowest-priced bronze plan after taxes and subsidies costs less than the prior after-tax premium for 86 percent of families. Further, the lowest-priced platinum plan (the most expensive tier) still costs less than prior premiums for more than half of the sample after taxes and subsidies are taken into account.

Conclusion

This article uses tax return data to provide new evidence on the impact of the ACA on premiums among the self-employed, by comparing premiums

25. Platinum plans are not offered in all areas. However, among the subset of areas that offer platinum plans, the fraction of families for whom the gold plan was less than prior premiums was similar to the fractions reported in column 3 (table 6), suggesting that premiums in these areas are not systematically different from premiums in areas that do not offer platinum plans.

26. These tabulations are available on request from the authors. We also tabulated these figures separately by family group, and we found similar results.

available on exchanges to pre-ACA self-employed health insurance premiums. Although we are able to make such comparisons only for the self-employed, most of these self-employed families purchased insurance in the same nongroup market as wage and salary employees who were not offered employer-sponsored insurance. As such, we think that they are informative on how premiums are likely to have changed both for the self-employed and for other health insurance purchasers in the nongroup market.

We find that, before taking into account taxes and subsidies, the second-lowest silver plan premiums are higher for around 60 percent of families, though the fraction with higher premiums generally decreases with income and age. The second-lowest silver plan is 4.2 percent higher on average than pre-ACA premiums among the entire sample, though this difference is negative among single adults. Once taxes and subsidies are taken into account, the second-lowest silver plan is 42.3 percent lower than pre-ACA costs, and around three-quarters of the sample faces lower premiums, with lower-income groups more likely to experience a decrease. Thus the low- and moderate-income subsidies appear to have lowered net insurance costs more for those with less ability to pay, as was intended. Finally, the lowest-priced bronze plan costs less than prior gross premiums for nearly 60 percent of families, though this fraction falls to less than 30 percent for platinum plans. After taxes and subsidies, 86 percent of each family type would pay less for bronze plans and over half would pay less for the lowest-priced platinum plan than they paid for their previous plan.

An important goal of the ACA was not only to expand coverage to the uninsured but also to make coverage more affordable in general, including for those who were already covered. Prior to the ACA, unless otherwise regulated, insurers charged higher premiums to individuals with larger expected medical bills. Hence less-healthy individuals paid higher premiums, had limits on benefits due to preexisting conditions, or were even denied coverage altogether. Premiums were higher for older individuals, reflecting higher average medical expenditures by older individuals. As a corollary, premiums for younger, healthier individuals tended to be lower. Further, income and family need were not factors used to determine premiums.

The ACA subsidies were designed to have families contribute toward coverage based on their ability to pay and hence the increase in the fraction of MAGI required to be paid as income increases. Further, the FPL is used

in this formula to equalize treatment between varying family sizes; larger families have large needs with some, albeit imprecise, adjustment for economies of scale. Although exchange premiums vary by age and rating area, for those in the subsidy-eligible income range it is the required contribution that individuals must (on net) pay. Thus, though the subsidies vary with age and area of the country, the required contribution is independent of these factors.

Our results, then, suggest that among the self-employed who were already covered by insurance, the gross prices available on the ACA exchanges (which capture the full burden of health insurance premiums to both the individual and the federal budget) are, on average, slightly higher, but still comparable, to what families paid prior to the implementation of the exchanges, with these higher premiums potentially associated with changes in benefits. Further, the increases found here are lower than those predicted by the Congressional Budget Office (2009), which in turn were on the low end of increases that were predicted prior to the implementation of the ACA. In addition, once taxes and subsidies are accounted for, premiums appear to be generally lower than prior premiums. Thus these purchasers, on average, face lower costs of health insurance on net after the ACA's implementation.

Since these findings are based on tabulations from the first year of implementation of health insurance exchanges, future research will be needed to continue to assess whether the findings in this study hold over the long term. Finally, since the existing literature generally finds that decreases in the cost of health insurance for the self-employed tend to increase the level of self-employment, the results also suggest that such a reduction in health insurance costs may lead to an increase in entrepreneurship postreform.

■ ■ ■

Bradley T. Heim is associate professor in the School of Public and Environmental Affairs at Indiana University. His research interests include income tax policy, health policy, and income dynamics, and his work has been published in *Health Economics*, the *Journal of Health Economics*, the *National Tax Journal*, the *Journal of Public Economics*, and *Journal of Human Resources*. He holds a PhD in economics from Northwestern University.

Gillian Hunter is a financial economist in the Office of Tax Analysis at the US Department of the Treasury. She holds a PhD in economics from the University of Wisconsin and an MPP from the Goldman School of Public Policy at the University of California, Berkeley. Her work has focused on health reform over the past two decades. She has participated in designing reforms for the Obama, G. W. Bush, Clinton, and G. H. W. Bush administrations. She is particularly interested in reform designs that provide incentives to maximize insurance coverage while minimizing costs. Her analysis includes behavioral responses by employers, employees, and other individuals.

Ithai Z. Lurie is a financial economist at the Office of Tax Analysis of the US Department of the Treasury. He received his PhD from Northwestern in 2006. His current research focuses on the effects of public intervention through taxes or regulation on consumers' behavior. His work has been published in numerous economics and health care journals.

Shanthi P. Ramnath is a financial economist at the Office of Tax Analysis of the US Department of the Treasury. She holds a PhD in economics from the University of Michigan. Her research broadly focuses on behavioral responses to social policies administered through the tax code. Her work has been published in *Brookings Papers on Economic Activity*, the *Journal of Public Economics*, and the *National Tax Journal*.

References

- America's Health Insurance Plans. 2012. "Research Findings: Independent Studies Estimate the Cost and Coverage Impact of the Affordable Care Act in Selected States." Washington, DC: America's Health Insurance Plans. www.ahip.org/Issues/Documents/2012/Research-Findings—Independent-Studies-Estimate-the-Cost-and-Coverage-Impact-of-the-Affordable-Care-Act-in-Selected-States.aspx.
- Cogan, John F., R. Glenn Hubbard, and Daniel Kessler. 2010. "The Effect of Massachusetts' Health Reform on Employer-Sponsored Insurance Premiums." *Forum for Health Economic and Policy* 13, no. 2: article 5. [dx.doi.org/10.2202/1558-9544.1204](https://doi.org/10.2202/1558-9544.1204).
- Collins, Sara R., Michelle M. Doty, Ruth Robertson, and Tracy Garber. 2011. "Help on the Horizon: How the Recession Has Left Millions of Workers without Health Insurance, and How Health Reform Will Bring Relief—Findings from the Commonwealth Fund Biennial Health Insurance Survey of 2010." New York: Commonwealth Fund. www.commonwealthfund.org/publications/fund-reports/2011/mar/help-on-the-horizon.
- Congressional Budget Office. 2009. "An Analysis of Health Insurance Premiums under the Patient Protection and Affordable Care Act." Washington, DC: Congressional Budget Office. www.cbo.gov/sites/default/files/cbofiles/ftpdocs/107xx/doc10781/11-30-premiums.pdf.

- DeCicca, Philip. 2010. "Health Insurance Availability and Entrepreneurship." Upjohn Institute Working Paper No. 10–167. Kalamazoo, MI: W. E. Upjohn Institute for Employment Research.
- Fairlie, Robert W., Kanika Kapur, and Susan Gates. 2011. "Is Employer-Based Health Insurance a Barrier to Entrepreneurship?" *Journal of Health Economics* 30, no. 1: 146–62.
- Gabel, Jon R., Ryan Lore, Roland D. McDevitt, Jeremy D. Pickreign, Heidi Whitmore, Michael Slover, and Ethan Levy-Forsythe. 2012. "More Than Half of Individual Health Plans Offer Coverage That Falls Short of What Can Be Sold through Exchanges as of 2014." *Health Affairs* 31, no. 6: 1339–48.
- Giovannelli, Justin, Kevin W. Lucia, and Sabrina Corlette. 2014. "Implementing the Affordable Care Act: State Action to Reform the Individual Health Insurance Market." New York: Commonwealth Fund. www.commonwealthfund.org/~/media/files/publications/issue-brief/2014/jul/1758_giovannelli_implementing_aca_state_reform_individual_market_rb.pdf.
- Grau, Jason, and Kurt Giesa. 2009. "Impact of the Patient Protection and Affordable Care Act on Costs in the Individual and Small-Employer Health Insurance Markets." New York: Oliver Wyman. www.oliverwyman.com/content/dam/oliver-wyman/global/en/files/archive/2009/YBS009-11-28_PPACA120309.pdf.
- Graves, John A., and Jonathan Gruber. 2012. "How Did Health Care Reform in Massachusetts Impact Insurance Premiums?" *American Economic Review* 102, no. 3: 508–13.
- Gumus, Gulcin, and Tracy L. Regan. 2015. "Self-Employment and the Role of Health Insurance in the U.S." *Journal of Business Venturing* 30, no. 3: 357–74.
- Heim, Bradley T., and Ithai Z. Lurie. 2010. "The Effect of Self-Employed Health Insurance Subsidies on Self-Employment." *Journal of Public Economics* 94, nos. 11–12: 995–1007.
- Heim, Bradley T., and Ithai Z. Lurie. 2014a. "Did Reform of the Non-group Health Insurance Market Affect the Decision to Be Self-Employed? Evidence from State Reforms in the 1990s." *Health Economics* 23, no. 7: 841–60.
- Heim, Bradley T., and Ithai Z. Lurie. 2014b. "Does Health Reform Affect Self-Employment? Evidence from Massachusetts." *Small Business Economics* 43, no. 3: 917–30.
- HHS/ASPE (US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation). 2013. "Health Insurance Marketplace Premiums for 2014." ASPE Issue Brief. Washington, DC: HHS/ASPE.
- HHS/ASPE (US Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation). 2014. "Health Insurance Marketplace: Summary Enrollment Report for the Initial Annual Open Enrollment Period." ASPE Issue Brief. Washington, DC: HHS/ASPE. aspe.hhs.gov/health/reports/2014/MarketPlaceEnrollment/Apr2014/ib_2014Apr_enrollment.pdf.
- Holtz-Eakin, Douglas, John R. Penrod, and Harvey S. Rosen. 1996. "Health Insurance and the Supply of Entrepreneurs." *Journal of Public Economics* 62, nos. 1–2: 209–35.

- KFF/HRET (Henry J. Kaiser Family Foundation and Health Research and Education Trust). 2013. "2013 Employer Health Benefits Survey." Washington, DC: KFF/HRET. kff.org/report-section/2013-summary-of-findings.
- Lischko, Amy M., and Kristin Manzolillo. 2010. "An Interim Report Card on Massachusetts Health Care Reform Part 2: Equitable and Sustainable Financing." Pioneer Institute White Paper No. 51. Boston: Pioneer Institute for Public Policy Research.
- Lo Sasso, Anthony T. 2011. "Community Rating and Guaranteed Issue in the Individual Health Insurance Market." Washington, DC: National Institute for Health Care Management Foundation. www.nihcm.org/pdf/EV-LoSassoFINAL.pdf.
- Lo Sasso, Anthony T., and Ithai Z. Lurie. 2009. "Community Rating and the Market for Private Non-group Health Insurance." *Journal of Public Economics* 93, nos. 1–2: 264–79.
- Madrian, Brigitte C., and Lars J. Lefgren. 1998. "The Effect of Health Insurance on Transitions to Self-Employment." Mimeograph. Chicago: University of Chicago Population Research Center.
- Monheit, Alan C., Joel C. Cantor, Margaret Koller, and Kimberley S. Fox. 2004. "Community Rating and Sustainable Individual Health Insurance Markets in New Jersey." *Health Affairs* 23, no. 4: 167–75.
- Niu, Xiaotong. 2014. "Health Insurance and Self-Employment: Evidence from Massachusetts." *Industrial and Labor Relations Review* 67, no 4: 1235–73.
- PricewaterhouseCoopers. 2009. "Potential Impact of Health Reform on the Cost of Private Health Insurance Coverage." Study performed for the Heartland Institute, Chicago. heartland.org/sites/all/modules/custom/heartland_migration/files/pdfs/26193.pdf.
- Roy, Avik. 2013. "Forty-Nine-State Analysis: Obamacare to Increase Individual-Market Premiums by Average of 41%." *Forbes*, November 4. www.forbes.com/sites/theapothecary/2013/11/04/49-state-analysis-obamacare-to-increase-individual-market-premiums-by-avg-of-41-subsidies-flow-to-elderly.
- Swartz, Katherine, and Deborah W. Garnick. 2000. "Lessons from New Jersey." *Journal of Health Politics, Policy and Law* 25, no. 1: 45–70.
- Vistnes, Jessica. 2008. "Length of Coverage in the Individual Health Insurance Market for the Non-elderly U.S. Population, 2006." Statistical Brief No. 227. Rockville, MD: Agency for Healthcare Research and Quality. meps.ahrq.gov/mepsweb/data_files/publications/st227/stat227.pdf.
- Wellington, Alison J. 2001. "Health Insurance Coverage and Entrepreneurship." *Contemporary Economic Policy* 19, no. 4: 465–78.