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DOI: 10.1377/hlthaff.2015.1540
HEALTH AFFAIRS 35,
NO. 7 (2016): 1176–1183
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Foundation, Inc.

Evidence Suggests That The ACA's Tobacco Surcharges Reduced Insurance Take-Up And Did Not Increase Smoking Cessation

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ABSTRACT To account for tobacco users' excess health care costs and encourage cessation, the Affordable Care Act (ACA) allowed insurers to impose a surcharge on tobacco users' premiums for plans offered on the health insurance exchanges, or Marketplaces. Low-income tax credits for Marketplace coverage were based on premiums for non-tobacco users, which means that these credits did not offset any surcharge costs. Thus, this policy greatly increased out-of-pocket premiums for many tobacco users. Using data for 2011–14 from the Behavioral Risk Factor Surveillance System, we examined the effect of tobacco surcharges on insurance status and smoking cessation in the first year of the exchanges' implementation, among adults most likely to purchase insurance from them. Relative to smokers who faced no surcharges, smokers facing medium or high surcharges had significantly reduced coverage (reductions of 4.3 percentage points and 11.6 percentage points, respectively), but no significant differences in smoking cessation. In contrast, those facing low surcharges showed significantly less smoking cessation. Taken together, these findings suggest that tobacco surcharges conflicted with a major goal of the ACA—increased financial protection—without increasing smoking cessation. States should consider these potential effects when deciding whether to limit surcharges to less than the federal maximum.

The Affordable Care Act (ACA) introduced several policies aimed at increasing smoking cessation as well as individual responsibility for the consequences of ongoing tobacco use. In particular, the law required plans in the health insurance exchanges, also known as Marketplaces, to cover screening for tobacco use and cessation treatment with no cost sharing. It also allowed tobacco premium rating—specifically, plans were allowed to charge tobacco users up to 50 percent more in premiums than non-users.¹ Other than age and geography, the only factor allowed to affect premiums in the exchanges is tobacco use.

For the purpose of these tobacco use surcharges, the definition of *tobacco use* is “the use of a tobacco product or products four or more times per week within no longer than the past 6 months.”¹ Several states prohibited such surcharges, while others capped the maximum penalty at a lower level (a 10–40 percent increase).¹ Where implemented, surcharges increased the out-of-pocket premiums substantially for many tobacco users, because ACA tax credits for Marketplace insurance plans are calculated based on premiums for non-tobacco users.

The net effect of these policies is unclear. Some tobacco users may have responded by forgoing insurance. Previous research on the population

expected to purchase insurance through the exchanges indicated that higher premiums would significantly reduce insurance take-up.² While the insurance penalty associated with the ACA's individual mandate—a fee required of many people who remain uninsured—is designed to encourage insurance take-up, individuals are exempt from this penalty if premiums are deemed “unaffordable” for them. Specifically, they do not have to pay the fee if the annual premium of their exchange's least expensive bronze-tier plan, including any tobacco surcharges, exceeds 8 percent of their household income. Applying this definition, Cameron Kaplan and coauthors found that plan options in more than 30 percent of states studied were unaffordable for a forty-five-year-old tobacco user with low to medium income.³ Thus, in combination with surcharges, this exemption from the individual mandate could further dampen tobacco users' enrollment rates, even as the penalty rises to its full level in 2016.

However, some studies have found that introducing coverage of tobacco cessation treatment significantly increases smoking cessation.⁴ This suggests that quit rates could rise among smokers who do take up insurance. Some studies have found that financial incentives for quitting also increase cessation, but these studies tend to focus on rewards for quitting, not penalties for continuing to smoke.⁵⁻⁷ Still, evidence from one recent study suggests that penalties may be more effective than straightforward rewards.⁸

Given this evidence, we hypothesized that tobacco surcharges would affect rates of both health insurance coverage and tobacco cessation, with larger surcharges reducing tobacco users' insurance enrollment but increasing their cessation rates. The available data provided a detailed history of smoking cessation but not cessation from the use of other tobacco products. Thus, we were able to consider the impact of tobacco surcharges on cigarette smokers but not on all tobacco users. Reassuringly, in our sample, 90.4 percent of tobacco users smoked cigarettes, and 94.2 percent of smokers used no other tobacco products. Thus, surcharges' effects on smokers reflect the impact on the vast majority of tobacco users in these data.

While some states capped their surcharge levels, insurers were empowered to set their specific plans' tobacco surcharges within the bounds of a given state's maximum. Thus, plan surcharges varied both between and within states. Enrollees were often able to choose among plans with different surcharge levels, and individual plans' premiums and surcharges could vary among enrollees based on their ages. We used this variation to test the effect of surcharge size on both insur-

ance coverage and smoking cessation. To estimate the association between surcharge level and health insurance enrollment, we compared smokers' and nonsmokers' coverage before and after the surcharges went into effect, across surcharge levels. Analogous regressions used similar variation to examine recent smoking cessation, limiting the analysis to respondents who had smoked at least once in the six months before their survey interview.

Study Data And Methods

RESPONDENT-LEVEL DATA Data on individuals came from the Behavioral Risk Factor Surveillance System (BRFSS) of the Centers for Disease Control and Prevention. The BRFSS is an annual survey of noninstitutionalized adults that provides a representative sample for each state and the District of Columbia.⁹ Our analyses examined data for the period 2011–14, which included three years before (2011–13) and one year after (2014) implementation of the exchanges.

We determined individual insurance status based on responses to the question, “Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare, or Indian Health Service?”¹⁰ *Current smokers* were defined as respondents who indicated either that they currently smoked every day or some days or that they had last smoked a cigarette within the past month. We included this latter group because of evidence that relapse rates are high in the first month after quitting.¹¹

When estimating the effects on smoking cessation, we restricted the sample to *recent smokers*, defined as people who had smoked within the past six months. As above, a respondent was considered to have quit if he or she reported both being a former smoker and having stopped smoking more than a month before being surveyed.

We used each respondent's reported income and marital status (as a proxy for household size among childless adults) to impute their income as a percentage of the federal poverty level, based on the 2013 state-specific standards for poverty by income and household size.

SAMPLE RESTRICTIONS To focus on adults who were likely to use the health insurance exchanges as their source of insurance, our analyses considered only those who were eligible for premium tax credits on the exchanges. This restriction limited our sample to respondents younger than age sixty-five (and thus not eligible for Medicare based on age) with incomes above 100 percent and below 400 percent of poverty, who were ineligible for Medicaid based on their state's

EXHIBIT 1

Characteristics of selected respondents to the Behavioral Risk Factor Surveillance System surveys, 2011–14

	Health insurance sample (N = 206,952)	Smoking cessation subsample (n = 48,942)
HEALTH AND HEALTH CARE		
Has insurance	80.4%	72.5%
Current smoker	24.7	93.3
SEX		
Male	52.5	59.2
AGE RANGE (YEARS)		
25–29	12.8	14.1
30–34	7.8	9.5
35–39	5.2	6.6
40–44	7.1	8.1
45–49	10.1	11.7
50–54	17.8	18.9
55–59	18.1	16.3
60–64	21.2	14.9
RACE/ETHNICITY		
White	69.8	73.5
Black	12.3	11.4
Hispanic	11.2	9.1
Other	6.7	5.9
EDUCATION		
Less than high school diploma	9.8	14.7
High school graduate	33.3	38.5
Some college	35.3	34.6
College graduate	21.7	12.3
INCOME (PERCENT OF FEDERAL POVERTY LEVEL)		
138 ≥ income > 200	24.6	29.9
200 ≥ income > 300	34.5	34.9
300 ≥ income > 400	40.9	35.3
TYPE OF PHONE USED FOR SURVEY		
Cellular phone respondent	37.4	43.9
ECONOMIC INDICATORS		
Unemployment rate	7.8	7.8
Cigarette tax	\$1.50	\$1.40

SOURCE Authors' analysis of data from the following sources: respondent-level data for 2011–14 from the Behavioral Risk Factor Surveillance System (see Note 9 in text), cigarette tax rates for 2011–14 from the Federation of Tax Administrators (see Note 21 in text), and state unemployment rates for 2011–14 from the Bureau of Labor Statistics (see Note 22 in text). **NOTES** All statistics are weighted means. As explained in the text, both samples were restricted to people ages 25–64 who were not eligible for Medicaid, whose annual incomes were 138–400 percent of the federal poverty level, and who had no children in their household. Respondents from Massachusetts were also excluded, as were people surveyed in the last quarter of 2013 or the first quarter of 2014. The smoking cessation analysis sample was further restricted to those respondents who reported smoking within the six months before their interview.

2014 eligibility standards.^{12,13} To ensure reasonable comparison groups across states, we excluded people with incomes of less than 138 percent of poverty, as people in this income range were eligible for Medicaid in every state that had expanded eligibility as of 2014.

Respondents younger than age twenty-six had access to dependent coverage through the ACA beginning in late 2010, which meant that they

were more likely to have access to a high quality non-Marketplace plan, compared to those without access to dependent coverage.¹⁴ The BRFSS data include codes for age ranges but not for exact age, so we excluded people under age twenty-five but retained twenty-five-year-olds (who could not be omitted unless we also excluded people ages 26–29).

Several additional exclusions were made to prevent bias in our estimates. Specifically, we excluded Massachusetts residents because that state's exchange preceded those set up under the ACA. Respondents who completed the BRFSS survey during the exchanges' first open enrollment period (the last quarter of 2013 or the first quarter of 2014) were also excluded. Including respondents from the last quarter of 2013 could have biased our results toward the null if some respondents incorrectly reported insurance coverage at the point of enrollment, when their insurance had not yet gone into effect. The first quarter of 2014 was omitted because this was not a "treatment" period in the same sense as the remainder of that year: Open enrollment continued throughout this quarter, and many people did not enroll for 2014 coverage until March.¹⁵

Finally, because we could not identify the insurance relationship between respondents and other household members (and thus calculate family premiums), our analyses considered only people in households without children. This restriction has a notable benefit: It may have yielded effect sizes that better pinpoint the impact of the surcharge's financial incentive on the person who faced that incentive, since surcharge levels were based on individuals' premiums.

Of the sample of respondents with health insurance ($N = 206,952$), 80 percent had insurance, and 25 percent were current smokers (Exhibit 1). In the subsample of respondents who had smoked in the previous six months ($n = 48,942$), 73 percent had insurance and 7 percent reported having quit—that is, they identified themselves as former smokers and reported not having smoked for more than thirty days.

TOBACCO SURCHARGE DATA Our data on 2014 insurance premiums and tobacco surcharges for thirty-five states and the District of Columbia came from the Centers for Medicare and Medicaid Services' Health Insurance Marketplace Public Use Files.¹⁶ We abstracted data for New York State directly from its exchange website¹⁷ and obtained the remaining states' data via individual appeals, public records requests, and Freedom of Information Act filings with relevant state agencies. Only premiums and tobacco surcharges offered to individual beneficiaries were considered, because BRFSS data lack the infor-

mation on legal relationships between household members and their insurance characteristics needed to define the true insurance unit.

On average, forty-nine-year-old-smokers living in one of the forty-three states that allowed surcharges in 2014 faced a median tobacco surcharge of \$70 per month. We calculated the tobacco surcharge level as a percentage increase over the unsubsidized premium, since federal limits on surcharge size were written in these terms (for example, a plan's surcharge may not exceed 50 percent of its premium). Moreover, because premium size varied across states, defining surcharges in dollar terms would confound responses to high surcharges with responses to higher premiums or costs of living.

We assigned respondents to the median tobacco surcharge for their age across all bronze-level plans that were offered to adults on the exchange for their state's largest-population rating area.¹⁸ Respondents were categorized as facing one of the following four median surcharge levels: zero (no surcharge), low (more than zero and less than 10 percent), medium (at least 10 percent and less than 30 percent), and high (30 percent or more). For a map illustrating state-level variation in tobacco surcharge categories for a forty-nine-year-old, see online Appendix Exhibit A1.¹⁹

DATA ANALYSIS We used a triple-difference approach to estimate the association between surcharge level and health insurance enrollment, comparing coverage status before and after the surcharges went into effect, for current smokers versus nonsmokers, across groups that would face different levels of tobacco surcharges in 2014 (given their state and age). For the smoking cessation outcome, an analogous difference-in-differences design focused on recent smokers—that is, individuals who either were smokers at the time of their interview or had quit within six months before the interview. This analysis compared cessation before and after the exchange plans went into effect across groups that would face different 2014 tobacco surcharges.

Age-stratified analyses evaluated our models separately for individuals younger than age forty and those ages forty and older. Robustness checks reestimated the main specifications via multiple imputation to verify that our findings were unchanged by the inclusion of respondents with missing household size data.

To ease the interpretation of our regression results, we used the resulting coefficients to estimate the insurance and smoking cessation responses to different surcharge levels in each year, for a representative smoker and a representative nonsmoker (that is, individuals with the characteristics of the average smoker or nonsmoker in 2011 in our sample). By holding other

characteristics constant, these estimates capture the changes in insurance and smoking cessation that can be attributed specifically to the different surcharge levels. For brevity, only estimates for 2013 and 2014 are presented here.

All regressions were sample-weighted linear probability models, with standard errors clustered at the state level. Controls included age in five-year ranges; income (138 percent of poverty or more but less than 200 percent, 200 percent or more but less than 300 percent, or 300 percent or more but less than 400 percent); sex; education (less than a high school diploma, high school graduate, some college, or college graduate); race/ethnicity (white, black, Hispanic, or other); whether the survey was conducted via cellular versus landline phone; state cigarette taxes and unemployment rates; and state, year, and quarter fixed effects.^{20,21} The insurance and smoking cessation specifications passed the requisite common trends tests. For further details on the methods, see the Appendix.¹⁹

Yale University's Institutional Review Board deemed this study exempt from review.

LIMITATIONS This study had several important limitations. First, because of a lack of data on respondents' plan preferences, exact geographic location, and key income and household information needed to calculate premium subsidies, the surcharge assignment mechanism was inexact. Given this limitation, respondents were matched to the median surcharge for their age group among bronze plans in their state's largest-population rating area—an approach similar to that of Kaplan and coauthors.³ These median surcharges were highly correlated with the weighted average of median surcharges across all other rating areas within the same state ($\rho = 0.95$).

Second, the percentage of poverty level that we imputed for each respondent was determined imperfectly because of missing data on household size and the BRFSS's use of grouped income levels. Consequently, some individuals' Medicaid eligibility may be misclassified. To be conservative, our poverty calculations used the lowest income in the reported income band and took marital status as a proxy for household size when the latter was unreported. Robustness checks reclassified individuals using the highest income in the reported income band and applied multiple imputation methods to address missing household sizes. The main specification and robustness check regressions found similar results (for further details, see the Appendix).¹⁹

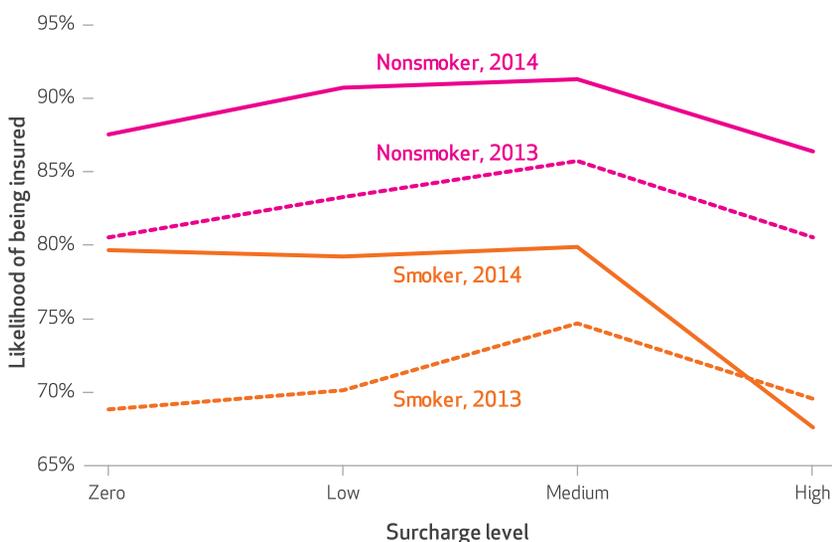
Third, in the context of these surcharges, the definition of *tobacco use*, as explained above, is “the use of a tobacco product or products four or more times per week within no longer than the

past 6 months.²¹ While states had discretion to further restrict this definition, none of them did so.²² Because of data limitations, however, our analyses considered only cigarette use and did not measure the frequency of that use.

Fourth, if the surcharges were not salient (that is, not sufficiently conspicuous to induce attention to their existence and size), their effect on smoking cessation may have been muted. This seems plausible since, when asking potential enrollees about their smoking status, exchange websites did not clearly note that smokers might be charged a higher premium, nor did they present tobacco user and nonuser premiums side by side. Typically, potential enrollees could view their plan options only after indicating their smoking status, with the listed premiums accounting for any tobacco surcharges. Because the interfaces were consistent in this presentation across states, we could not empirically test for salience effects. However, a lack of salience might attenuate the fifth limitation: potentially dishonest reporting of one's smoking status.

EXHIBIT 2

Predicted likelihood of having health insurance for representative smokers and nonsmokers, by tobacco surcharge level, 2013 and 2014



SOURCE Authors' analysis of data for 2011–14 from the Behavioral Risk Factor Surveillance System (see Note 9 in text). **NOTES** Respondents were assigned to surcharge levels based on their age group and state, using newly collected information on 2014 tobacco surcharges in their state's health insurance exchange. The sample was restricted, as explained in the Notes to Exhibit 1. The exhibit shows the predicted likelihood of having insurance for a representative smoker and nonsmoker (that is, holding other characteristics constant), based on a triple-difference analysis that compared coverage status before and after the tobacco surcharges went into effect, for current smokers versus nonsmokers, across groups with different levels of 2014 surcharges (given their state and age). The underlying regression controlled for respondents' age, sex, race/ethnicity, education, income, and having been interviewed via cellular instead of landline phone; state cigarette taxes and unemployment rates; and state, year, and quarter fixed effects. Surcharges were calculated as percentage increases over the premium for a person of the same age who did not use tobacco, based on median surcharges in the largest-population rating area of the respondent's state, for the respondent's age group. Surcharge levels are defined as follows: zero (no surcharge), low (more than zero and less than 10 percent), medium (at least 10 percent and less than 30 percent), and high (30 percent or more).

Currently, tobacco use is self-reported and not verified in any way. The only allowed consequence for misrepresenting one's smoking status is retroactive payment of owed surcharges. Thus, the possibility of dishonest reporting presents a true concern for this policy's efficacy, assuming tobacco users are aware that honest reporting may increase their premiums.²³ Critically, this would not bias the results presented here unless the policy led smokers to dishonestly report their smoking status in their BRFSS interview, a context unrelated to insurance enrollment.

Sixth, this study identified relationships during the first year of Marketplace implementation. Enrollment patterns may change as the penalty for remaining uninsured rises to its full level in 2016 and consumers become more familiar with the exchanges, surcharges, and relatively low consequences of misreporting one's smoking status.

Study Results

The main specifications' results matched those of our robustness checks. Thus, for simplicity, only the former are discussed below. Full results for every analysis are in the Appendix.¹⁹

INSURANCE Based on the regression estimates, predicted insurance coverage in 2013 and 2014 was plotted by surcharge size for a representative smoker and nonsmoker (Exhibit 2). While predicted coverage rates vary by surcharge in 2013 and for nonsmokers, these observations are neither surprising nor a threat to the analysis. Both the likelihood of being insured and the surcharge level differed by age within states, so a general association between these variables is expected. This relationship does not bias our estimates because the results are based on how key outcomes changed over time, not the associations that were stable over time.

As expected, nonsmokers exhibited an increase in their likelihood of having insurance after Marketplace implementation that did not differ by the size of the tobacco surcharge (8.1 percentage points; $p < 0.01$) (Appendix Exhibit A2).¹⁹ For smokers, however, larger tobacco surcharges dampened the increase in insurance coverage associated with the exchanges' implementation. Indeed, Exhibit 2 shows no increase in coverage for a representative smoker at the "high" surcharge level.

The results in Exhibit 3 under model 1 are from the regressions used to generate Exhibit 2. These results represent the differential impact of surcharge size on smokers' 2014 insurance coverage, relative to the effect on smokers in the zero-surcharge group. Regardless of age group, low

surcharges yielded a statistically insignificant drop in smokers' health insurance take-up in 2014, relative to the zero-surcharge group. These effects grew and became statistically significant as surcharge levels rose, reaching -11.6 percentage points in the group with a high surcharge. At every surcharge level, effects were even larger in the subsample younger than age forty.

Thus, it appears that higher surcharges reduced smokers' gains in health insurance during the first year of the exchanges' implementation.

SMOKING CESSATION For a representative smoker, the predicted likelihood of quitting in 2013 varied somewhat by surcharge level (Exhibit 4). As above, this is not a threat to the analysis, since we were examining changes in outcomes over time. Respondents in states with no surcharges showed a statistically insignificant increase in their likelihood of quitting from 2013 to 2014 (2.0 percentage points; 95%CI: -4.1, 8.0) (Appendix Exhibit A3),¹⁹ consistent with the hypothesis that greater insurance coverage increases cessation.

Concurrently, the likelihood of quitting smoking fell markedly and significantly (by 5.6 percentage points) in the group with a low surcharge, compared to the group with no surcharge (model 2 in Exhibit 3). Thus, low surcharges may have had the unintended consequence of reducing smoking cessation. The concurrent finding that responses to medium and high surcharges were statistically insignificant and much smaller than responses to low surcharges may be consistent with the hypothesis that sufficiently high surcharges do more than low surcharges to incentivize quitting.

Discussion

INSURANCE We found that medium and high tobacco surcharges dampened the increases in smokers' insurance coverage during the first year of the exchanges' implementation. Our analysis of the full sample found that smokers facing the highest surcharges exhibited a 12-percentage-point reduction in coverage relative to the group with no surcharge, while an analysis of the sample younger than age forty showed a 20-percentage-point reduction. Comparing smokers' and nonsmokers' responses to variation in tobacco surcharges as exchange plans went into effect makes these results particularly compelling, as the estimated effect for nonsmokers controlled for outside factors that might have influenced insurance enrollment in state-age groups with higher surcharges.

While reduced insurance take-up is not a surprising response to higher surcharges, it is concerning. Smokers were 7.3 percentage points less likely than nonsmokers to have coverage (Appendix Exhibit A2),¹⁹ so smokers' enrollment is critical to achieving universal coverage. Moreover, as younger adults' enrollment in exchange plans is important for risk pooling, the large effects found among smokers younger than age forty may have broad implications for the long-term stability of Marketplaces in states with high surcharge levels.

SMOKING CESSATION Among the groups with zero, medium, or high surcharges, the exchange implementation's effects on smoking cessation were neither substantive nor statistically different from each other. However, relative to members of every other surcharge group, those facing

EXHIBIT 3

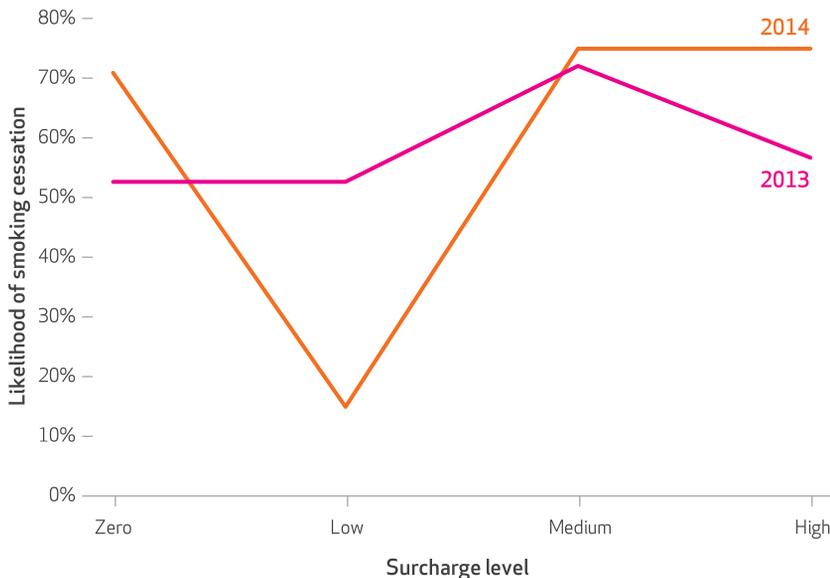
Tobacco surcharge effects on health insurance coverage and smoking cessation

	Low surcharge		Medium surcharge		High surcharge	
	Change	95% CI	Change	95% CI	Change	95% CI
MODEL 1: INSURANCE COVERAGE						
Full sample	-2.2	(-10.1, 5.7)	-4.3*	(-9.4, 0.8)	-11.6**	(-21.0, -2.3)
Younger than 40	-7.4	(-21.5, 6.7)	-11.9***	(-19.3, -4.5)	-19.9***	(-28.4, -11.3)
40 or older	-0.1	(-6.8, 6.6)	-0.7	(-5.1, 3.6)	-8.2	(-18.4, 2.1)
MODEL 2: SMOKING CESSATION						
Full sample	-5.6**	(-10.9, -0.3)	-1.6	(-6.8, 3.7)	0.0	(-6.8, 6.8)
Younger than 40	-5.4	(-16.7, 5.9)	0.2	(-10.6, 11.0)	-1.2	(-12.2, 9.8)
40 or older	-5.2***	(-8.1, -2.4)	-2.6*	(-5.5, 0.4)	-0.2	(-6.5, 6.0)

SOURCE Authors' analysis of data for 2011-14 from the Behavioral Risk Factor Surveillance System (see Note 9 in text). **NOTES** Respondents were assigned to surcharge levels based on their age group and state, using newly collected information on 2014 tobacco surcharges in their state's health insurance exchange. The analyses are sample-weighted linear probability models based on the triple-difference analysis explained in the Notes to Exhibit 2, with additional controls for the variables listed there. "Changes" are the differential percentage-point increases in health insurance coverage (model 1) and smoking cessation (model 2) exhibited by smokers facing each of the surcharge levels, compared to the increases for smokers in the zero-surcharge group. Surcharges were calculated as explained in the Notes to Exhibit 2, where the surcharge levels are defined. Both samples were restricted as explained in the Notes to Exhibit 1. Outputs from the full models are available in Appendix Exhibits A2 and A3 (see Note 19 in text). CI is confidence interval. * $p < 0.10$ ** $p < 0.05$ *** $p < 0.01$

EXHIBIT 4

Predicted likelihood of smoking cessation for representative smokers, by tobacco surcharge level, 2013 and 2014



SOURCE Authors' analysis of data for 2011–14 from the Behavioral Risk Factor Surveillance System (see Note 9 in text). **NOTES** Respondents were assigned to surcharge levels based on their age group and state, using newly collected information on 2014 tobacco surcharges in their state's health insurance exchange. The sample was restricted as explained in the Notes to Exhibit 1. The exhibit shows the predicted likelihood of quitting smoking for a representative smoker (that is, holding other characteristics constant), based on a difference-in-differences analysis that compared smoking cessation before and after the exchange plans went into effect across groups with different levels of 2014 tobacco surcharges (given their state and age). The underlying regression controlled for the variables listed in the Notes to Exhibit 2. Surcharges were calculated as explained in the Notes to Exhibit 2, where the surcharge levels are defined.

low (but nonzero) surcharges were significantly less likely to quit smoking. Among the nonzero-surcharge groups, the fact that those with higher surcharges showed a greater likelihood of quitting than the those in the group with low surcharges, despite having no gains in coverage, suggests a direct response to surcharge size (that is, a tendency to respond to a high smoking penalty by quitting, conditional on the imposition of a nonzero penalty). As the low-surcharge group showed greater coverage increases than groups with higher surcharges, this pattern of cessation responses is not explained by an insurance effect (that is, a benefit from enhanced access to providers and cessation treatment through insurance). Indeed, some tobacco users may not have taken up coverage in 2014 but quit during that year in anticipation of wanting to purchase insurance for 2015 (perhaps to avoid the rising individual penalty for being uninsured).

However, neither of these competing mechanisms explains why people with low surcharges exhibited a decline in smoking cessation relative to those with no surcharge, when both groups showed similar increases in insurance coverage (Exhibit 3). One possible explanation is that

putting a price on bad behaviors can alleviate the guilt of engaging in them, which has an unexpected effect: The behaviors increase. In one famous illustration, instituting a fee for late pick-up at an Israeli day care center resulted in more, not fewer, tardy caregivers.²⁴ Similarly, low surcharges might dampen smoking cessation if some smokers feel that the surcharge compensates society for their behavior, and if the fine is not high enough to incentivize quitting. Unfortunately, this hypothesis is not testable with the survey data used in this study.

One purpose of the surcharges is to have tobacco users pay for the excess health costs associated with their smoking. Yet Kaplan and co-authors found that surcharges were often significantly greater than smoking's added health care costs.³ As people with psychological distress or depression have much higher smoking rates than those without mental health conditions (34 percent versus 17 percent), some insurers could be using the tobacco surcharges to discourage enrollment by patients with high-cost conditions.²⁵ If the risk-adjustment mechanism in a state's exchange does not adequately compensate plans for these disease states, insurers may profit by encouraging such adverse selection.²⁶

Thus, an unintended consequence of tobacco surcharges may be reduced coverage (or unfairly high premiums) for some individuals with persistently high health care costs unrelated to their tobacco use. Such individuals might have benefited greatly from gaining coverage. When considering the effects of tobacco surcharges, policy makers should account for such costs.

Our findings may inform the evolution of state-level policy on tobacco premium ratings. Results indicate that if insurance coverage and tobacco cessation are the most important goals, having no surcharge is preferable to having a low, medium, or high surcharge, as having no surcharge yields the highest or equivalent rates of both coverage and cessation. Low surcharges may actually work against cessation, while high surcharges appear to impede enrollment.

Conclusion

Compared to smokers facing low or no tobacco surcharges, those who faced medium or high surcharges were less likely to gain coverage after implementation of the health insurance exchanges. Yet smokers who faced a surcharge were no more likely to quit than those who did not, and were less likely to quit when the surcharge was low. This suggests that tobacco surcharges increased neither smoking cessation nor financial protection from high health care costs—the primary goal of the Affordable Care Act. ■

This research was supported by a grant from the Robert Wood Johnson Foundation (Grant No. 72673). William Schpero received support from an Agency for Healthcare Research and Quality Ruth L. Kirschstein Institutional

National Research Service Award (No. T32 HS017589). The sponsors played no role in the design or conduct of the study; in the collection, management, analysis, or interpretation of the data; or in the preparation,

review, or approval of the manuscript. The authors acknowledge the excellent research assistance of Laurence Brown, a medical student at Meharry Medical College, in Nashville, Tennessee.

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