This paper provides an analytical framework for evaluating the effects of individual health insurance mandates on coverage. That framework draws from three literatures — health economics, tax compliance, and behavioral economics — to identify the factors that affect people’s responses to health insurance mandates. The health economics literature explains how people value health insurance and how changes in its costs affect coverage. The tax compliance literature indicates that the probability of detection and people’s attitudes toward risk affect perceptions of those costs. The salience of the mandate and social norms — factors from the behavioral economics literature — also may affect coverage decisions.

Keywords: health economics, tax compliance, behavioral economics
JEL Codes: I18, H26, D03

I. INTRODUCTION

On January 1, 2014, nearly every resident of the United States will be required to have health insurance. Failure to comply may result in financial penalties, which — when fully implemented in 2016 — will range from $695 for a single person with low or moderate income to as much as $12,500 for a very high-income family. That individual mandate is an important component of the Patient Protection and Affordable Care Act (PPACA), which in combination with the Health Care and Education Reconciliation Act of 2010 (HCERA), seeks to expand health insurance coverage. In this paper, we provide an overview of the analytical framework used by the Congressional Budget...
Office (CBO) and the staff of the Joint Committee on Taxation (JCT) for modeling the effects of an individual mandate on health insurance coverage.

The mandate is only one component of PPACA and HCERA. Over the next decade, the acts also include an estimated $900 billion in new subsidies, including a substantial expansion of Medicaid and the creation of tax credits for low and middle-income families and small businesses. In each state, exchanges will be established to facilitate the purchase of coverage and the delivery of the new subsidies. Some companies whose workers receive subsidies for health insurance through the exchanges may be required to pay fees. Changes to the health insurance system — including provisions that guarantee that an individual will be offered an insurance policy if they apply for one — will also make it easier for people with health problems to obtain coverage (but will also tend to raise premiums for healthier applicants). CBO and JCT estimated these policies, in combination, will reduce the number of nonelderly residents in the United States without insurance by over 30 million — from 54 million to 23 million — by the end of the decade (CBO, 2010b).

Throughout (and after) the legislative debate on health reform, there have been widely disparate views regarding the impact of an individual mandate on coverage. Some analysts argue that a mandate would help encourage more U.S. residents — especially the young and the healthy — to enroll in insurance plans (Gruber, 2010). Others wonder if uninsured people — especially the young and the healthy — would obtain coverage in response to the mandate, particularly if they could spend less by paying the penalty rather than purchasing a health insurance policy (Kling, 2010; Cassidy, 2010). Another focus of debate is the enforceability of the mandate. Some claim that people would enroll out of fear of an expanded tax agency with new powers, while others suggest that many would not comply if the IRS does not have sufficient authority or resources to implement a mandate (Block, 2010; Cassidy, 2010).

Estimating the effect of legislative proposals to expand health insurance coverage is challenging, partly because there is little empirical evidence regarding the responsiveness of individuals to health insurance mandates. Since 2007, Massachusetts has required adults to have health insurance, but it may be too soon to draw conclusions from their experience, and that experience, itself, may be unique to the state. To gain alternative perspectives on the effect of the mandate on coverage, we turned to three different strands of the economics literature:

- The health economics literature provides the perspective on how people value health insurance and how changes in health insurance costs affect decisions to obtain coverage. Mandate penalties, like subsidies, affect that decision by making it cost more to be uninsured relative to the cost of being insured.
- The tax compliance literature suggests that the effectiveness of the mandate depends on people’s feelings towards risk and the probability of noncompliance being detected as well as the size of the penalty. However, that same literature also suggests that those factors do not fully explain the levels of compliance observed in the tax system.
The behavioral economics literature provides a framework for understanding why people do not always appear to act rationally or in their own self-interest. The salience of the mandate and social norms — factors identified in the literature of behavioral economics — are important factors in decisions about coverage.

Our analysis of individual mandates represents a synthesis of these three perspectives. In this paper, we describe how the three differing perspectives shaped our modeling of the impact of the mandate on individuals’ decisions to obtain coverage.

II. OVERVIEW OF PPACA AND HCERA

PPACA, in combination with HCERA, uses both incentives and penalties to meet the goal of increasing health insurance coverage. Detailed descriptions of those provisions have been presented by JCT (2010). Those incentives include:

- Within each state, exchanges are established to link people with insurance plans and to enroll eligible applicants in new subsidy programs. The exchanges also establish four standardized health plan levels in each area — ranging in generosity from lowest (the “bronze” plan) to highest (the “platinum” plan). Each plan will cover a specified set of benefits but will differ in the amount they would pay for beneficiaries’ medical claims. The bronze, silver, gold, and platinum plans would pay, respectively, 60, 70, 80, and 90 percent of beneficiary claims, on average.
- Medicaid is extended to most non-elderly legal residents of the United States whose income is below 138 percent of the federal poverty level. Legal non-citizens who have resided in the United States for less than five years are not eligible for Medicaid but may be eligible for refundable tax credits provided through the exchange. While PPACA by itself requires states to cover most individuals with modified adjusted gross income below 133 percent of the federal poverty level, HCERA adds an additional provision which instructs states to reduce the gross income of applicants by an amount equal to 5 percent of the federal poverty level, effectively raising the Medicaid income eligibility threshold to 138 percent of the federal poverty level.
- Depending on their circumstances, individuals and families whose income is between 138 and 400 percent of the federal poverty level may be eligible for the new premium assistance tax credit. (People with an offer of coverage from their employer are generally ineligible.) This refundable tax credit equals the difference between a “reference premium” and a specified percent of income — initially ranging from about 3 percent for those whose income is 138 percent of the poverty level to 9.5 percent for those at 400 percent of the poverty level. The reference premium is based on the second-lowest cost “silver” plan offered in the area. Lower-income individuals may also be eligible for subsidies to reduce cost-sharing requirements under their insurance plan.

1 Legal non-citizens who have resided in the United States for less than five years are not eligible for Medicaid but may be eligible for refundable tax credits provided through the exchange. While PPACA by itself requires states to cover most individuals with modified adjusted gross income below 133 percent of the federal poverty level, HCERA adds an additional provision which instructs states to reduce the gross income of applicants by an amount equal to 5 percent of the federal poverty level, effectively raising the Medicaid income eligibility threshold to 138 percent of the federal poverty level.
• Changes to the insurance market ensure that people will be offered coverage even if they have pre-existing medical conditions, and that insurers will be tightly regulated over the premiums they can charge.

• Some small businesses may receive tax credits to offset employer contributions for health insurance. To be eligible, the firm cannot employ more than 25 workers, and those workers must earn, on average, less than $50,000 in 2010. That earnings threshold is indexed to the consumer price index for urban workers (CPI-U) beginning in 2014.

The penalties apply to both employers and individuals. Employers with 50 or more full-time employees can be subject to penalties if they do not offer insurance. Penalties may also be imposed if the firm offers insurance but it is deemed unaffordable. In all cases, the penalty applies only if one or more of the firm’s employees receive a premium assistance credit or cost-sharing subsidy through the exchange. However, the requirement that has garnered more attention — and may ultimately affect more people — is the mandate that individuals obtain coverage or pay a penalty.

III. THE HEALTH INSURANCE MANDATE

Beginning in 2014, nearly every resident of the United States will be required to have health insurance coverage. To comply with the mandate, a person generally must be enrolled in a qualifying plan that provides minimum essential coverage.1 Subject to certain requirements, the Secretary of Health and Human Services will define those essential benefits, ensuring that the scope of that package is consistent with that currently offered by typical employers. Qualifying coverage includes government-sponsored programs, such as Medicare and Medicaid, eligible employer-sponsored plans, and individual plans offered in the state’s individual market. Failure to comply may result in penalties, payable through the income tax system.

A. Penalty Amounts

Noncompliant individuals must pay the greater of two amounts — a flat dollar amount or a percent of income:

• Flat dollar amount. The flat dollar amount per uninsured adult is initially set at $95 in 2014 but rises to $325 in 2015 and $695 in 2016. In subsequent years, the penalty is indexed to the CPI-U. For dependent children under age 18, the penalty is half those amounts. The flat-dollar penalty for the entire filing unit is capped at three times the amount for an adult ($2,085 in 2016).

1 Employer-sponsored and individually purchased plans are also eligible if they are similar to certain government plans or if they were grandfathered under the Acts.
• **Percentage of income.** The alternative method sets the penalty at a percentage of income in excess of the filing threshold — with the percentage set at 1 percent in 2014, 2 percent in 2015, and 2.5 percent in 2016 and subsequent years. Income is defined as the sum of the modified adjusted gross incomes of the taxpayer and any dependents who are required to file their own tax returns.³

The total penalty for the filing unit cannot be greater than the average national cost of a “bronze plan” offered through the exchange that year — estimated to be between $4,500 and $5,000 for a single plan and between $12,000 and $12,500 for a family plan in 2016 (CBO, 2010a).

Under certain circumstances, people can be exempt from the mandate itself; many others are subject to the mandate but are exempt from the penalty. Non-citizens who are residing in the United States illegally, members of certain religious groups, and prisoners are not required to have health insurance coverage. Those who are subject to the mandate but exempt from the penalty constitute a much larger group:

• **Low income.** Anyone in a filing unit with income below the income tax filing threshold is exempt from paying a penalty. The tax filing threshold equals the sum of the applicable standard deduction and the personal exemptions for the taxpayer and his or her spouse. The threshold amount does not include the exemptions for the taxpayer’s dependents, and so declines as a percent of the federal poverty level as the family size increases. The filing threshold is typically under the federal poverty level — except for married couples who have no dependents (Table 1).

<table>
<thead>
<tr>
<th>Filing Status</th>
<th>Number of Dependents</th>
<th>Filing and Penalty Thresholds</th>
<th>Relative to Federal Poverty Level (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>0</td>
<td>$10,250</td>
<td>88</td>
</tr>
<tr>
<td>Head of Household</td>
<td>1</td>
<td>$13,150</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>$13,150</td>
<td>66</td>
</tr>
<tr>
<td>Married Filing Jointly</td>
<td>0</td>
<td>$18,400</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>$18,400</td>
<td>77</td>
</tr>
</tbody>
</table>

Note: The filing thresholds were calculated, assuming the expiration of the provisions in the Economic Growth and Tax Relief Reconciliation Act of 2001. Source: Authors’ calculations.

³ Modified adjusted gross income is defined as adjusted gross income increased by: (1) the amount (if any) normally excluded by section 911 of the Internal Revenue Code (the exclusion from gross income for citizens or residents living abroad) plus (2) any tax-exempt interest received or accrued during the tax year.
• **Insurance is deemed unaffordable.** People who have an employer offer of insurance will be eligible for an “affordability” exemption if their required contribution to an employment-based plan for a self-only policy (i.e., one that covers the worker but not his or her family) exceeds 8 percent of their income. People without an employer offer will be eligible for an affordability exemption if the cost (net of subsidies) of the least expensive bronze plan in the local exchange exceeds 8 percent of their income.

• **Hardship.** People who experience some hardship in obtaining coverage are eligible for an exemption. How a hardship is defined — or proven — is up to the Secretary of Health and Human Services to determine through regulations.

• **Members of Indian tribes.** All members of Indian tribes are exempt from the penalty.

• **Short coverage gaps.** Penalties are waived for one gap in coverage during a year, not to exceed three consecutive months.

CBO and JCT estimated that of the 21 million nonelderly who will be uninsured in 2016, at least 13 million to 14 million will be exempt from the mandate or its penalties because they are unauthorized immigrants, have low income, have an offer of coverage that is deemed unaffordable, or are members of Indian tribes. Other exemptions, such as those for hardship or religious beliefs, will further reduce the number of people subject to the penalties (CBO, 2010c).

The effects of those provisions can be illustrated for single individuals and for four-person families (Figure 1). A single childless person whose income is less than $10,250 in 2016 (or below roughly 90 percent of the projected federal poverty level for that year) is exempt from penalties because he or she does not earn enough to be required to file a tax return. Uninsured individuals who have income roughly between 90 and 300 percent of the federal poverty level would typically be subject to the flat dollar penalty of $695; they would also likely be eligible for Medicaid or tax credits in that income range. Those with higher income would pay a penalty equal to 2.5 percent of the family income. For individuals with income greater than about $200,000, penalties would be capped at the cost of the lowest-cost bronze plan for an individual (estimated to be between $4,500 and $5,000). A married couple with two children — if all four family members lacked insurance — would begin paying penalties when their income exceeds $18,500 in 2016 (or about 80 percent of the federal poverty level); for families with income above that threshold but below 400 percent of poverty, the combined penalty would equal $2,085. Above 400 percent of poverty, uninsured families would begin paying 2.5 percent of income until the maximum penalty, which equals the cost of the lowest-cost bronze plan for a family (estimated to be between $12,000 and $12,500, on average), is reached when income exceeds about $500,000.
Figure 1
Individual Mandate Penalty, by Income Relative to Projected Federal Poverty Level

Source: Authors’ calculations.
B. Administering the Mandate

The Internal Revenue Service (IRS) will be responsible for enforcing the mandate. The agency will receive enrollment information for each calendar year from both private insurers and public programs by January 31st of the following year; that information will include the name and social security number of every person covered by the plan and the dates that they were covered under the policy. Policyholders will also receive the same information from insurers. In addition, the exchanges are required to report to the IRS the name and taxpayer identification number of any individual who receives an affordability or hardship exemption.

The reporting requirements would provide the IRS with the tools to identify noncompliant individuals in the same manner as the IRS detects underreported income from W-2’s and other information reports. PPACA constrains somewhat how the IRS may respond to noncompliant individuals: neither liens nor levies can be used to collect penalties, nor can the IRS seek criminal penalties against those who do not comply with the mandate. Nonetheless, the Acts do not prevent the IRS from using more common enforcement tools, including data matching programs; deficiency procedures (typically, audits); offsets to tax refunds or other government payments; and civil penalties. As is typically the case with authorizing legislation, the Acts did not include appropriations for the discretionary costs that the IRS would incur from implementation of the mandates. Thus, it is not yet known how the IRS will actually implement enforcement of the mandate.

IV. EXPERIENCE WITH MANDATES

There is little empirical evidence regarding the responsiveness of individuals to health insurance mandates. Two states (Hawaii and Massachusetts) require many employers to provide coverage for their employees or face penalties, but the responsiveness to a mandate requiring employers to offer insurance will likely be different than the reaction to a broader mandate requiring individuals to obtain coverage. While Massachusetts currently requires adults to have health insurance, that mandate has only been in effect since 2007. State and local governments mandate other types of behavior — from purchasing auto insurance to vaccinating school-age children — and the federal government and many states require individuals to pay income taxes and employers to pay workers a minimum wage, but the application of those cases to health insurance is debatable.

A. Massachusetts Experience

As a result of a law enacted in 2006, every Massachusetts resident age 18 or older is required to have health insurance. The state’s individual mandate was phased in over three years. By May 1, 2007, individuals had to have health insurance — but

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4 In 2009, the IRS Criminal Investigation Program initiated 3,368 investigations (excluding narcotics-related financial crimes) and referred 2,038 cases for prosecution. Less than a million federal tax liens were filed in 2009, and about 3.5 million notices of levies were served on third parties. In contrast, the IRS assessed over 26 million civil penalties related to individual income tax liabilities in 2009 (of which about three million were abated) (IRS, 2009).
they were not subject to any penalties so long as they had coverage by the last day of the year. In 2008, they had to have coverage each month. In 2009, they were required to have coverage under a health plan containing specified benefits. Penalty amounts were also phased in over the first three years — beginning at roughly $219 per adult in 2007 and currently ranging from $200 to $1,100 per adult per year. Massachusetts provides subsidies to help lower-income households purchase insurance, and changes were made to rules regarding the regulation of the insurance markets in an effort to ease access to coverage.

While similar to the new national mandate, the Massachusetts mandate is more limited in several key ways. First, the Massachusetts mandate applies only to adults. Second, penalties begin to be imposed at a somewhat higher income level (150 percent of the federal poverty level instead of at incomes that are often below the poverty level as under the national mandate), and the maximum penalty in Massachusetts is substantially lower than at the federal level. Finally, while the Massachusetts Department of Revenue is charged with enforcing the mandate, its ability to detect noncompliance is somewhat limited by incomplete information reporting from insurers; in particular, the social security numbers of the insured are missing from the information reports provided by the insurers. Without those social security numbers, it is difficult to match tax returns and reports from insurers and thus detect noncompliance.

The evidence from the Massachusetts mandate is not easy to interpret at this point, in large part because of the number of changes that occurred simultaneously. Among working-age adults, the uninsurance rate fell by 70 percent after the passage of the state’s health reform legislation — from 13 percent in the fall of 2006 to 4 percent two years later (Table 2). That drop, however, reflects all aspects of Massachusetts health reform initiatives — including a Medicaid expansion, creation of new subsidies, market reforms, and extensive outreach — and thus would be an overestimate of the impact of the mandate itself. Notably, the largest decline in insurance coverage occurred between the fall of 2006 and the fall of 2007 — after the requirement to obtain coverage and the subsidies had become effective but several months before the first penalties for noncompliance with the mandate were imposed. Still, while the most substantial increase in coverage occurred in that first year and among people who had income below 300 percent of the federal poverty level and were thus eligible for subsidies, coverage also expanded throughout the period among those with higher incomes.

B. Other Types of Mandates

Although the U.S. experience with enforcing health insurance mandates is limited, some lessons can be drawn from other types of mandates. For example, (1) both federal and many state governments require businesses to pay their workers minimum wages and impose income taxes on their residents; (2) many states have imposed mandates for drivers to have auto insurance and to wear seat belts; and (3) many localities require children to be immunized in order to attend public school. For those mandates, national compliance rates range from 63 percent to 85 percent, with compliance rates appearing to increase as enforcement efforts intensify (Ashenfelter and Smith, 1979; Insurance Research Council, 2006; U.S. Department of Transportation, 2008; Davis and Gaglia,
While the data from those various compliance studies provide some insight into overall compliance levels, those rates do not clearly identify the effect of the mandate itself because they include people who might have acted in the desired manner even if there were no legal requirements. Their actions could be attributable to the value of a mandated item (such as auto insurance), subsidies (such as free or low-cost vaccinations), or changes in attitudes (such as a pervasive view that passengers must put on their seat belts as soon as they sit in a car).

V. PERSPECTIVES FROM HEALTH, TAX, AND BEHAVIORAL ECONOMICS

While data from existing federal and state mandates provides some insight to overall levels of compliance, that data alone cannot explain why people comply at all or how different design features of a mandate might affect coverage. We reviewed three different strands of the economics literature — health, tax compliance, and behavioral economics — for their perspectives on how and why people would respond to a health insurance mandate.

A. Health Economics

Some analysts have wondered why uninsured people would respond to the mandate (Kling, 2010; Cassidy, 2010). After all, many people would pay less (at least in the very short-term) if they paid the penalty rather than purchase a health insurance policy. However, health insurance mandates differ from many other requirements, such as the payment of taxes, because individuals receive a tangible item — health insurance — that has some value in exchange for their compliance.

Health economics provides a framework for considering how changes in the price of health insurance affect coverage. People compare the price of health insurance with

<table>
<thead>
<tr>
<th>Family Income</th>
<th>Fall 2006 (%)</th>
<th>Fall 2007 (%)</th>
<th>Fall 2008 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 300 percent of Federal Poverty Level</td>
<td>23.8</td>
<td>12.8</td>
<td>7.6</td>
</tr>
<tr>
<td>More than 300 percent of Federal Poverty Level</td>
<td>5.3</td>
<td>2.9</td>
<td>1.4</td>
</tr>
<tr>
<td>Total</td>
<td>13.0</td>
<td>7.1</td>
<td>4.0</td>
</tr>
</tbody>
</table>


More information regarding how CBO estimates the effects of changes in the price of insurance on coverage can be found in CBO (2008).
their perception of its value. Those who are currently insured have decided that the value of coverage is greater than its cost (including the costs to them of finding and enrolling in a plan). For people who are currently uninsured, a reduction in the price of health insurance would cause them to obtain coverage if the new price is less than or equal to their value of health care coverage. Given the tremendous variation in such individual “valuations” of health insurance and in the prices people face, some individuals are likely to be near the cusp of the “buy/don’t buy” decision and relatively moderate changes in price could induce them to purchase coverage. Empirical studies support this notion, suggesting that a new 25 percent subsidy for individually purchased coverage would cause 2–6 percent of the uninsured population to buy that coverage (Marquis and Long, 1995; Auerbach and Ohri, 2006).

Because of the central role played by employment-based insurance, the effects of any proposal that changes the opportunity cost of insurance depend not only on how individuals directly respond to those provisions, but also on how firms respond in their decisions about offering coverage to their employees and about contributing toward the cost of that coverage. In general, businesses compete for workers by offering wage and benefit packages that will attract and retain employees. Employers offer health insurance as part of their compensation packages if they believe their employees prefer such coverage to cash wages. Consequently, an employer’s response to a change in government policy will be a function of how that policy affects the attractiveness of health insurance to its workforce, on average (Monheit and Vistnes, 1999).

As with employers’ decisions to offer health insurance, workers’ choices to enroll in a plan will depend on the price of employment-based health insurance and alternative coverage options available to them or their spouses. From the employees’ point of view, the relevant price is the portion of the premium that employees themselves pay, not the total cost to the employer and employee combined (Cutler, 2003; Jacobs, 2009). Generally, empirical studies have considered the impact of subsidies on health insurance coverage. But mandates to obtain health insurance often include monetary penalties for noncompliance — and thus a mandate with a penalty also affects the relative price of health insurance by making it costlier to be uninsured. In this respect, the health economics literature is an obvious starting point from which to draw inferences about the possible effects of mandates on coverage choices. When viewed as analogous to subsidies, mandate penalties can be straightforwardly integrated into models of individual and firm behavior regarding health benefit choices. For example, a model of firms’ decisions to offer health insurance in response to subsidies can be modified to reflect the average penalty a firm’s workforce would face if those workers became uninsured. Such

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6 Some people with significant health problems may not be able to obtain insurance coverage at any price unless they are guaranteed an offer of coverage through their employer or the individual market in their state.

7 Even though workers, in the aggregate, ultimately “pay” for employers’ contributions toward their health insurance primarily through reduced wages, studies have found that employees’ decisions about enrollment are not as sensitive to the amount the employer pays.
penalties may cause firms to offer health coverage if they do not already do so. Likewise, models designed to capture the effects of subsidies on individual insurance choices can be altered to incorporate the effects of mandate penalties on coverage choices.

In our analytical framework, then, we model the individual’s decision to obtain insurance in response to a mandate as follows:

\[
E_i = \Pr(V_i \geq (P_i - M_i)),
\]

where
- \(i\) indexes individuals,
- \(E_i\) indicates the likelihood of enrollment in health insurance,
- \(\Pr(\cdot)\) is the probability of enrolling,
- \(V_i\) = valuation of health insurance,
- \(P_i\) = premium (net of subsidies), and
- \(M_i\) = mandate effect.

Thus, the probability of enrolling in a health insurance plan depends on the individual’s valuation of health insurance, the premium (net of subsidies), and the effect of the mandate. In this context, the mandate effect could simply be modeled as the statutory penalty amount.

While health economics provides a useful starting point for such analyses of coverage, the ultimate effect of a coverage mandate is not easily reduced to, and in fact may differ from, the predicted effect of treating penalty amounts as dollar-for-dollar equivalents to subsidies. People may respond differently to penalties than to subsidies, in ways not considered in standard health economics models. As a result, modeling structures originally designed to estimate how people’s coverage choices may change when subsidies are offered may be insufficient when considering mandates alone or in combination with other coverage-related policies.

B. Tax Compliance

Tax compliance researchers begin with the perspective that people compare the marginal benefit of noncompliance (e.g., reduced tax payments) with its expected marginal cost. Those expected costs account for both the severity of the punishment and the likelihood that the punishment will be imposed. That perspective provides a way of evaluating the effective penalty that the uninsured may anticipate under an individual health mandate.

Allingham and Sandmo (1972) first analyzed tax compliance under the assumption that taxpayers are risk averse and that the policymaker has three policy tools: the marginal tax rate, the probability of audit, and the penalty for misreporting of income. Changes in marginal tax rates can induce both offsetting substitution and income effects (the former because the return to cheating increases as income goes up and the latter because people become more risk averse as after-tax income falls), and the evidence is mixed
regarding which effect dominates (Andreoni, Erard, and Feinstein, 1998). Many of the early compliance models assumed that audits were expensive but that penalties could be imposed at low cost to the enforcing agency once an error had been detected. Not surprisingly, these models typically found that, subject to a fixed budget constraint, combining high penalties with low audit rates was socially optimal (McCubbins, 2004).

These results are sensitive to several underlying assumptions. First, feelings toward risk may vary among the population; the young, for example, may be less risk-averse than those who are older. Second, penalties are not costless to impose. If penalties are increased, administering agencies may devote more resources to ensure that their determinations are correct, and individuals may be more vigorous in defending themselves against the charge of noncompliance so that they can avoid the penalty (McCubbins, 2004). Administrators may, in fact, be unwilling to impose penalties that are thought to be overly severe (Slemrod and Yitzhaki, 1987). Third, both taxpayers and tax authorities may shape their behavior in response to their best guesses regarding each other’s likely actions: taxpayers may anticipate enforcement actions by the tax authorities and respond accordingly, while the tax authorities may try to keep taxpayers guessing regarding who they will audit given limited resources (Andreoni, Erard, and Feinstein, 1998).

Evidence from the individual income tax system illustrates how compliance can vary with the likelihood of detection and enforcement. Taxpayers are generally subject to the same penalties for misreported income and deductions, regardless of the source of the error. In 2001, about 84 percent of federal taxes were voluntarily paid on time. However, compliance rates vary substantially across sources of income, reflecting differences in the IRS’s ability to detect reporting errors. Tax compliance is relatively high when the agency can match information in reports from third parties (such as employers and financial institutions) to income tax returns and send notices to taxpayers when discrepancies are found. The net misreporting rate for income subject to third-party reporting is less than 5 percent. In contrast, the IRS in many cases cannot verify individuals’ reports of their self-employment income (including net income from both nonfarm proprietors and farms) on tax returns because third-party data are not independently reported to the IRS and resources for audits are limited. Largely as a consequence, the net misreporting rate for self-employment income and other forms of income that are not subject to third-party reporting exceeds 50 percent (IRS, 2007).

These findings suggest that penalties matter — but so do the enforcement mechanisms. Increasing the likelihood that penalties will be imposed and collected increases the incentive to comply. The new health insurance mandate, by combining penalties with information-reporting requirements and matching programs, would yield higher rates of compliance than penalties of equal amount with a weaker enforcement mechanism.

Still, models of tax compliance that consider only the policymakers’ and administrators’ tools do not appear to fully explain the relatively high levels of voluntary compli-

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8 For individual income tax returns, the audit rate is about one percent, with audit rates somewhat higher for returns reporting business income.
ance observed in the United States. Tax compliance researchers have addressed this question by considering various factors that tend to fall outside conventional models; that research suggests the level of compliance is affected by (1) taxpayers’ feelings of honesty and their desire to comply with the law (Erard and Feinstein, 1994a), (2) the feelings of guilt and shame that would result if they do not comply (Erard and Feinstein, 1994b), (3) their perceptions of the fairness of the tax system and the way that it is administered (Spicer and Becker, 1980; Sheffrin and Triest, 1992), and (4) their overall satisfaction with government (Alm, Jackson, and McKee, 1992). How to quantify each of these pieces is not obvious, and understanding how they fit together in explaining people’s behavior is still not fully understood in the compliance literature.

The findings from the tax compliance literature provide insights on how to refine the modeling of the mandate effect ($M_i$ in (1)). The mandate effect can be divided into two terms: the effective penalty ($effpen$) and a vector of other factors that affect compliance:

$$ M_i = M_{i,effpen} + M_{i,other} $$

The effective penalty is a function of the statutory penalty and the probability that it will be imposed and collected by the administering agency:

$$ M_{i,effpen} = f(S_i, D), $$

where

- $S_i =$ the statutory penalty that applies to individual $i$, and
- $D =$ the probability that the statutory penalty will be imposed and collected.$^9$

The mandate effect includes other factors affecting compliance:

$$ M_{i,other} = f(R_i, C_i), $$

where

- $R_i =$ the individual’s attitude toward risk, and
- $C_i =$ the individual’s willingness to voluntarily comply with the mandate.

The individual’s age is a proxy for the individual’s attitude toward risk, with risk aversion assumed to increase with age. $C_i$ captures other factors (largely unobservable) associated with voluntary compliance by the individual and that account for the gap between compliance levels predicted by conventional models and those actually observed.

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$^9$ That probability, itself, may be partly a function of the size of the statutory penalty. It is likely that the administering agency may weigh the monetary costs of enforcement actions against the likely monetary gains to the government (in this case, the penalty) before taking action. Other factors affecting the probability of detection are the amounts of third-party information and resources available to the administering agency for enforcement.
C. Behavioral Economics

Behavioral economics offers additional insights into why people do not always respond in the way that conventional health economics and compliance models would suggest. Behavioral economics can provide additional avenues to understanding a broader range of factors that influence decisions; in this case, decisions to obtain health insurance. (For an overview of that literature, see Liebman and Zeckhauser, 2008.) Behavioral economics considers that the usual assumptions of rationality and self-interest are overstated in conventional economics studies. Instead, rationality is bounded by constraints — decisions are affected by people’s limited cognitive skills, by their limited access to information, and by the limited amount of time they have to process that information. Moreover, people sometimes make choices guided by their connections to others rather than solely on the basis of their self-interest.

From the perspective of behavioral economics, rationality is bounded by asymmetrical preferences. Consider, for example, status quo bias. Samuelson and Zeckhauser (1988) found that when Harvard offered new health insurance plans to their employees, newly hired faculty and other personnel were more likely to enroll in those plans than people already on the university’s payroll, who generally stayed with their old insurance carrier. The appeal of the status quo may be explained, in part, by the concept of loss aversion. People appear to make decisions relative to a reference point — often, the status quo. When judging choices relative to that status quo, people may weigh losses more heavily than gains. For the uninsured deciding to obtain coverage, that choice may be seen as between a certain loss (the cost of health insurance premiums) and the status quo (which entails the risk of some loss if they need medical assistance some day). Loss aversion suggests that they may act to avoid the certain loss — and remain uninsured (Schoemaker and Kunreuther, 1979).

Incomplete or incorrect information about the mandate may also influence behavior in ways that are not commonly understood under the typical assumptions of rationality. Studies show that people are more responsive the more salient is the true price (or other important attribute) of an item. At the grocery store, a tax that is incorporated into the price of an item (and displayed accordingly on the store’s shelves) appears to have a greater impact on a decision to purchase that item than sales taxes tacked on to the total bill at the cashier (Chetty, Looney, and Kroft, 2009). Tolls that require cars to stop and pay cash seem to result in fewer drivers on tollways than electronic e-z passes (Finkelstein, 2009). Finally, posting calories on food items at Starbucks in New York City may have contributed to a drop in food consumption per transaction at those locations (Bollinger, Leslie, Sorensen, 2010).

Some researchers have examined how people respond to social norms — particularly to the behavior of those people who they are most likely to compare themselves to (another “reference point”). A study of energy consumption in California found that people who received messages telling them about their neighbors’ utility utilization reduced energy consumption by more, on average, than those who were sent messages appealing to self-interest, concerns about the environment, or social responsibility
(Cialdini and Schultz, 2004). Indeed, a second study found not only reductions in usage among those who overconsumed relative to the community average but also increases in usage among those whose consumption had been below average (Schultz et al., 2007).

Much of the research on behavioral economics is relatively new. Some of the findings are derived from one-time experiments, and it is not clear if all of the results could be duplicated in other settings or with other types of consumers or products. There is also an identification problem inherent in many of these studies; plausible, alternative explanations could explain some of their results. Those caveats suggest that the findings of the emerging behavioral economics literature (and the extrapolations from those findings) should be viewed cautiously.

Still, the behavioral economics literature augments the literatures on health economics and tax compliance by providing a perspective that helps explain how people’s decisions to obtain health insurance coverage could be affected by factors other than their valuation of health insurance, their feelings toward risk, or the expected size of the penalty. For example, the literature on loss aversion suggests that a penalty has a larger effect on demand for insurance than a subsidy of equal value; mandates may effectively change the status quo, by increasing the certain costs associated with being uninsured (via the penalty). Extrapolating from the salience studies would suggest that the strength of people’s awareness of the mandate or the effective penalty could affect their compliance. And the emerging studies of social norms imply that the existence of a mandate — independent of the penalty or the enforcement mechanism — could change attitudes toward the purchase of health insurance, if people perceived the mandate as an expression of strongly-held views within society.

Those perspectives are reflected in the modeling framework by refinements to the measures of both the effective penalty and the factors affecting voluntary compliance. First, the equation for the effective penalty is expanded to take into account the effects of salience.

\[ M_{i,\text{effpen}} = f(S_i, D_i, A_{i,\text{pen}}, A_{i,\text{enf}}), \]

where

- \( A_{i,\text{pen}} \) = the individual’s awareness of the statutory penalty, and
- \( A_{i,\text{enf}} \) = the individual’s awareness of the likelihood that a penalty will be imposed.

The framework allows the salience of the mandate — as well as the salience of the enforcement mechanisms — to separately affect people’s perceptions of the effective penalties. The effective penalty increases as awareness of the mandate rises among

10 Salience can be affected by actions of the mandate administrators. Massachusetts conducted an extensive outreach campaign about its state mandate (from sending people notices to playing TV ads during Red Sox games). Among those who would be aware of the mandate, the gaps in enforcement may not be salient — and indeed, tax authorities may try to keep taxpayers from knowing those gaps. One study finds that the IRS issues more press releases regarding successful tax enforcement actions during the filing season — and that those releases increase dramatically as April 15 approaches. The timing of those releases does not coincide with the peaks and troughs of IRS enforcement activities. Instead, IRS officials explain the timing of those releases as a deterrence strategy (Blank and Levin, 2010). That study, however, does not consider the effects of press releases on compliance.
the population; it declines as the vulnerabilities in the enforcement mechanisms become more visible to people who are subject to the mandate.

Next, social norms are explicitly introduced into the variable representing the factors associated with voluntary compliance:

\[
C_i = F(X_i, X, Z_i),
\]

where

- \(X_i\) is an indicator for whether individual \(i\) is exempt from the penalty,
- \(X\) is the share of the reference group that is exempt from the penalty, and
- \(Z\) is a vector of the remaining other factors associated with voluntary compliance.

The identification of social norms as a factor affecting voluntary compliance provides a way to link certain features of the mandate to compliance — so that changes in those features may cause changes in coverage. One way that social norms may affect compliance behavior is through the scope of the mandate. In particular, the treatment of certain populations may have spillover effects. For example, people whose income falls below the filing threshold will not be penalized for failing to comply with the mandate. While we might expect people who were exempt from penalties to ignore the mandate, some may comply because they are affected by the prevailing social norm to obtain health insurance (possibly pressured to enroll by their health care providers). In contrast, those who are subject to the penalties might be less willing to comply if they observe people who are like them but yet are able to avoid the penalties through affordability or hardship exemptions. Thus, the extent to which other people are exempt from the mandate may diminish acceptance of a new social norm about health insurance, causing compliance with the mandate to fall.

VI. CONCLUSIONS

In this paper, we have presented an overview of a modeling framework that builds on the health, tax, and behavioral economics literature — and that incorporates factors suggested by all three literatures that could affect the level of compliance with the mandate.

The health economics perspective provides the starting point — by recognizing that a penalty raises the costs of being uninsured. That perspective, alone, implies that a penalty and subsidy of equal dollar amount would have similar effects on coverage. The tax compliance literature provides the perspective that the effective penalty will differ from the statutory penalty — and generally will be lower due to gaps in enforcement. But that literature also opens the possibility that many people will voluntarily comply

\[ \text{Other factors might also contribute to compliance among people who are exempt from the mandate. Consider people whose income falls just below the filing threshold. Typically, decisions about obtaining coverage would have to be made before the year began but the exemption is based on total income throughout the year. Due to uncertainty regarding their annual income, some people may comply because they think that there is a reasonable possibility that they will earn above the threshold that year and thus be subject to the penalty.} \]
with the mandate. The behavioral economics perspective further refines that analysis, indicating that the size of the effective penalty is affected by the salience of the mandate and the lack of salience regarding IRS enforcement, while voluntary compliance is affected by social norms.

To return to the question posed in the title of this paper, our response is “yes, mandates would increase coverage.” The argument that most people would prefer to pay a penalty rather than get insurance if the penalty was less costly than the premium they face ignores key considerations. First, most people get something in return when they purchase a health insurance policy. Paying a penalty yields no tangible benefit. Second, people respond to laws because it is costly not to; the statutory penalty is only one determination of that cost, although the expected penalty may be less than the statutory penalty due to gaps in enforcement. The size of those gaps will depend on the amount of information and resources provided to the IRS. Finally, people’s response may be affected by other factors — such as social norms and awareness of the mandate — which, while more difficult to measure, cannot be ignored in any analysis of a mandate requiring health insurance.

Thus, coverage will increase with the amount of penalties, awareness of the mandate, the strength of the enforcement mechanism (or at least people’s perception of its strength), and the scope of the targeted population. In combination, those factors would probably increase health insurance coverage significantly from a policy that includes a mandate relative to an otherwise comparable policy that does not.

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