Technical REPORT

Employer Self-Insurance Decisions and the Implications of the Patient Protection and Affordable Care Act as Modified by the Health Care and Education Reconciliation Act of 2010 (ACA)

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PREFACE

The Patient Protection and Affordable Care Act as amended by the Health Care and Education Reconciliation Act of 2010 (ACA) changes the regulatory environment within which health insurance policies on the small-group market are bought and sold. New regulations include rate bands that limit premium price variation, risk-adjustment policies that will transfer funds from low-actuarial-risk to high-actuarial-risk plans, and requirements that plans include "essential health benefits." While the new regulations will be applied to all non-grandfathered fully insured policies purchased by businesses with 100 or fewer workers, self-insured plans are exempt from these regulations. As a result, some firms may have a stronger incentive to offer self-insured plans after the ACA takes full effect. The study reported here uses literature review, data analyses, and qualitative methods to identify factors that will influence employers' decisions to self-insure. The RAND COMPARE microsimulation model is then adapted to estimate how the ACA will influence self-insurance decisions and to predict the share of firms that will self-insure. In addition, the consequences of self-insurance are analyzed, focusing on adverse selection in the non-self-insured small-group market and effects on consumers.

This analysis addresses questions raised in section 1254 of the ACA and will be of interest to policymakers, businesses, and researchers interested in employer response to the ACA. The study was funded by the U.S. Departments of Labor and Health and Human Services. However, the views, opinions, and findings presented here are those of the authors and should not be construed as official government positions unless so designated by other documents.

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OVERVIEW

The Patient Protection and Affordable Care Act as modified by the Health Care and Education Reconciliation Act of 2010, known as the Affordable Care Act (ACA), may create new incentives for small businesses to offer self-insured health care coverage. When a firm self-insures, it pays for enrollees' health expenditures out of general assets or through a trust and bears the risk for unexpectedly large claims. In contrast, fully insured firms pay a fixed premium per enrollee to a health insurance company, which then bears the risk for unusually high claims. While fully insured and self-insured plans serve the same purpose—providing health insurance to workers—they are subject to different regulations. In particular, self-insured plans are not subject to the small-group rating regulations, risk adjustment policies, and essential health benefits provisions newly imposed by the ACA. Because the new ACA regulations will influence premium prices, the option to self-insure to avoid regulation may be attractive to some small businesses. Self-insured firms are also exempt from many state insurance regulations, such as state-specific benefits mandates and state premium taxes. Although the risk associated with self-insurance may reduce firms' incentive to self-insure to avoid regulation, self-insured firms may purchase stop-loss insurance (a type of reinsurance) to mitigate the risk associated with unexpectedly large claims.

The small-group regulations stipulated in the ACA are intended to assure that health insurance benefits offered to small-group enrollees meet specific standards and to spread risk across people with a wide range of expected expenditures. These regulations may tend to increase prices for lower-risk groups (i.e., groups that tend to have lower claims costs), while reducing premiums for higher-risk groups. As a result, lower-risk groups may opt to avoid the regulations by self-

insuring. The differences in regulations applied to the fully insured and self-insured markets, as well as the potential for an increase in self-insurance following the full implementation of the ACA, raise many policy questions about the comparability of the two types of insurance. In addition, the option to self-insure to avoid regulation could lead to adverse selection in the health insurance exchanges, resulting in only firms with high-risk, potentially expensive workers choosing to enroll in exchange plans. In an extreme scenario, adverse selection could lead to "death-spiraling," where exchange premiums increase to the point at which the market becomes unstable.

This report examines the factors that motivate employers' decisions to self-insure and the ways incentives to self-insure might change after the ACA takes full effect. It also considers the consequences of self-insurance for enrollees in terms of benefit design, the probability of claims denial, financial risk, and recourse options in the event of denied claims. It investigates how self-insurance influences employer solvency and whether self-insurance could lead to conflicts of interest between employers and their workers. Finally, we use the COMPARE microsimulation model to predict changes in employer self-insurance rates after the ACA takes full effect and to estimate the degree to which adverse selection might occur due to new regulations in the small-group market. The analysis is based on a combination of methods, including primary data analysis, literature review, discussions with stakeholders, and simulation modeling. The report addresses the congressionally mandated research questions raised in section 1254 of the ACA.

KEY FINDINGS

Overall, we find little evidence that self-insured plans differ systematically from fully insured plans in terms of benefit generosity, price, or claims denial rates. However, while relatively good data on plan benefits are available from the Kaiser Family Foundation/Health Research and

Educational Trust (Kaiser/HRET) Annual Survey of Employer Benefits, data on claims denial
and premiums are potentially less reliable. Stakeholders we spoke to expressed very little
concern that claims denial is significantly different in self-insured and fully insured plans. While
self-funding is perceived to be less expensive for firms than purchasing a fully insured product,
employers that self-insure face higher financial risk. This risk can be mitigated by purchasing
stop-loss insurance policies, which are regulated differently from fully insured health insurance
products. There are no nationally representative data on the availability, prevalence, pricing, or
contracting terms of stop-loss insurance, but stakeholders indicated that it is relatively common
for self-insured small businesses to obtain stop-loss coverage. Sixteen states have regulations
that prohibit insurers from selling stop-loss policies with attachment points below specified
limits, which range from $5,000 to $25,000.

Stakeholders, including industry experts, consumer advocates, and regulators, remarked that
self-insurance may leave consumers less financially protected in the event that their employers
declare bankruptcy or face financial trouble. Financially strained firms might become unable to
pay health care claims (in the case of self-insurance) or premiums (in the case of full insurance),
leading to a loss of insurance in either case. However, failure to pay premiums would lead to a
prospective termination of benefits to which consumers could be alerted in advance. Failure to
pay claims, in contrast, could leave consumers financially responsible for claims that have
already been incurred. Firms can help protect enrollees against this risk by establishing and
paying claims through a trust, but there is no requirement to establish trusts, and few firms
choose to do so.

Although data are limited, we found no evidence that claims denial rates are higher for self-
insured firms. However, consumer recourse options in the event of a denied claim are generally

more limited for self-insured than for fully insured enrollees. Both fully insured and self-insured plans are regulated by the Employee Retirement and Income Security Act of 1974 (ERISA), which establishes a right to an internal review of denied claims. Many states have extended consumer protections for enrollees of fully insured plans beyond ERISA; for example, 44 states and the District of Columbia have added a right to an external review of claims denials. The ACA expands federal requirements for internal review for enrollees in both fully insured and self-insured plans and establishes a right to external review for self-insured enrollees. However, details of how the regulations will be applied have not been fully determined, and state protections will still differ for fully insured and self-insured enrollees. For example, the ACA does not preempt state internal and external review laws that offer stronger protections than the ACA provisions. Stakeholders argued that the different recourse options available to fully insured and self-insured enrollees are likely to be confusing and frustrating for consumers. Additionally, although the Health Insurance Portability and Accountability Act of 1996 (HIPAA) provides privacy protection for personal medical information, some stakeholders remarked that internal reviews conducted by self-insured firms could raise privacy concerns, especially since such reviews may include other employees at the firm, including human resources representatives and managers.

Stakeholders expressed significant concern about adverse selection in the health insurance exchanges due to regulatory exemptions for self-insured plans. However, the COMPARE microsimulation model predicts a sizable increase in self-insurance only if comprehensive stop-loss policies become widely available after the ACA takes full effect, and the expected cost of self-insuring with stop-loss is comparable to the cost of being fully insured in a market without rating regulations. For all other scenarios, the change in self-insurance predicted by the model is

small, and reflects that even with stop-loss coverage, self-insurance remains risky for small firms. In scenarios where comprehensive stop-loss coverage is assumed to be available, increases in self-insurance are associated with slightly higher premiums on the exchanges. For example, for firms with 100 or fewer workers, the option to self-insure with comprehensive stop-loss coverage would result in a 3.3 percent increase in platinum-plan premiums. However, limiting small employers' ability to self-insure is also associated with a decline in the total number of individuals enrolled in health insurance coverage. These results are consistent with evidence regarding the impacts of state small-group regulatory reforms that were implemented in the 1990s. In general, it appears that regulatory reforms increase prices for lower-risk enrollees while decreasing prices for higher-risk enrollees. Because low-risk enrollees tend to have more-elastic demand for health insurance than high-risk enrollees, the net effect is a small decline in coverage and a small decline in exchange premiums. Our model predicts that allowing self-insurance mitigates this effect, so that total enrollment is higher in scenarios where self-insurance is allowed.

SUMMARY

Our results do not point to major differences in benefit generosity between self-insured and fully insured plans or to a major threat of adverse selection in the small-group market after the ACA is fully implemented. Stakeholder interviews indicated that two significant concerns about self-insurance in the current market were the lack of financial protection for consumers in the event of employer bankruptcy or other financial problems at the firm and limited consumer recourse options in self-insured plans in the event of denied claims. The ACA partially addresses the second concern by creating a right to external review for self-insured enrollees, although

regulatory differences governing recourse options between self-insured and fully insured plans may still be confusing for consumers.

Stakeholders also expressed real concerns about the potential for adverse selection if a disproportionate share of small firms with lower-risk (healthier) employees opted to self-insure after the law takes full effect. The results from our model suggest that adverse selection is not likely to have a major influence on premium prices in the exchange. However, the model is an imperfect tool, and it cannot capture all the factors that influence firms' decisions. For example, the model cannot incorporate issues such as employers' idiosyncratic knowledge about employees' health status. The model is also constrained by data limitations, including lack of information on stop-loss policies and the absence of data linking employees, employers, and health expenditures.

Finally, our analysis pointed to two important data gaps that limit our ability to fully understand the market for self-insurance and the potential risk to consumers. First, no nationally representative data exist that enable a comparison of claims denials in self-insured and fully insured plans. Second, data are not available on the pricing, prevalence, availability, and contracting terms of stop-loss insurance policies. The availability of data on these issues could be important for crafting future policies. For example, it would be useful to better understand the terms of policies that are bought and sold in the current market before setting minimum standards for stop-loss insurance contracting terms.

ACKNOWLEDGMENTS

CHAPTER 1. INTRODUCTION AND BACKGROUND

THE PATIENT PROTECTION AND AFFORDABLE CARE ACT

On March 23, 2010, President Barack Obama signed into law the Patient Protection and

Affordable Care Act as amended by the Health Care and Education Reconciliation Act of 2010,

known as the Affordable Care Act (ACA), a sweeping set of health care policy changes intended

to expand insurance coverage in the United States. Among its many provisions, the ACA

includes a mandate requiring all individuals to either obtain health coverage or pay a fine,

potential penalties for employers that do not offer health coverage to their workers, an expansion

of eligibility for the Medicaid program, and major regulatory changes in the small-group and

individual health insurance markets. Under the ACA, premium prices for policies offered to

small businesses and individuals may vary only by the actuarial value of the plan, family size,

geographic location, age, and tobacco-use status. Of particular importance, rating based on

claims experience or health status is prohibited. Premium differences based on age and tobacco-

use status are further restricted to varying within bands, with price differentials of no more than 3

to 1 permitted for age and 1.5 to 1 permitted for tobacco use. In addition, the ACA extends

guaranteed issue requirements (that is, requirements that insurers offer plans to all comers,

regardless of preexisting risk factors) to all businesses with 100 or fewer workers. Guaranteed

issue for very small groups (fewer than 50 workers) has been in place since the Health Insurance

Portability and Accountability Act of 1996 (HIPAA) took effect. Other policy changes

introduced by the ACA are too numerous to list in full, but they include mandated medical loss

ratios for all fully insured plans, prohibitions on lifetime and restrictions on annual benefit

maximums, first-dollar coverage of preventive health services, and extensions of dependent

coverage to children and young adults below the age of 26.

Plans offered on the small-group market are further required to include a set of essential health benefits (EHB), which are to be defined by the Secretary of Health and Human Services. The EHB must include coverage for items and services within 10 general categories, including prescription drug coverage and mental health and substance-use-disorder services. Plans offered on the small-group market will also be subject to risk adjustment—transferring funds from plans with enrollees having lower than average costs to plans with enrollees having higher than average costs (adjusting for the actuarial values of plans). Finally, the ACA establishes state health insurance exchanges, through which health insurance plans available to individuals and small businesses may be bought and sold. Most regulations governing premium prices are the same both within and outside of the exchanges.

Many of the policies included in the ACA are intended to facilitate "risk pooling"—that is, they are designed to bring people with a range of expected health expenditures into a single pool for sharing risk and determining premium prices. Creating risk pools that include people of different ages and health statuses is essential for achieving a sustainable insurance market, since insurance works by spreading the cost of unpredictable and expensive medical care across a wide base of enrollees with predictable and lower expenditures. Health insurance for non-elderly people in the United States is typically provided by employers, and large employers tend to have enough workers to enable adequate risk pooling. Small employers, however, may not have a large enough pool of workers to create a functioning risk pool. Without regulation, insurance companies that sell policies to small firms might offer significantly higher premiums to those with older and sicker workers, making policies unaffordable for these workers.

By requiring all individuals to obtain insurance and limiting insurers' ability to charge different prices to firms with different types of workers, the ACA attempts to spread risk in the

small-group market across a range of individuals with varied health expenditures. However, such reforms may have the effect of increasing premiums for firms with the healthiest workers, potentially causing some of them to drop insurance coverage. With the exit of lower-cost firms, premiums for the remaining firms increase, and insurance may become unaffordable. In the 1990s, many states adopted rating rules for the small-group market that were intended to stabilize premiums and increase insurance access for high-risk firms. While the literature on these reforms is mixed, some studies have found that comprehensive small-group market reforms lead to premium increases and reduced health insurance take-up, particularly among low-risk workers [1–3].

The ACA requirement that all individuals obtain health coverage, coupled with penalties for firms that do not offer health coverage, will reduce firms' incentive to drop coverage due to small-group price regulations. However, small businesses can avoid the ACA's rating regulations, risk adjustment policies, and EHB provisions if they opt to self-insure—that is, if they pay for their workers' health care directly or through a trust and assume the risk associated with year-to-year variations in workers' health expenditures. Self-insured firms have different regulations from those for fully insured firms, which are generally subject to the Employee Retirement and Income Security Act of 1974 (ERISA), and they are not subject to state insurance law. According to data from the Kaiser Family Foundation/Health Research and Educational Trust (Kaiser/HRET), in 2010, 6 percent of all firms and 11 percent of firms offering an insurance policy offered at least one self-insured plan. However, self-insurance is currently much more common at large firms. For example, in 2010, only 4 percent of firms with 100 or fewer workers offered a self-insured plan, compared with 37 percent of firms with 101 or more

workers.[i] This report considers whether businesses with 100 or fewer workers, which are

currently very unlikely to offer self-insured plans, might begin to offer such plans in order to

avoid new ACA regulations that apply to fully insured health plans. It also considers the

potential consequences of self-insurance for businesses and their workers, such as benefit

differences between fully insured and self-insured health plans, employer financial solvency, and

recourse options in the event of denied claims. The analysis draws on data from the

Kaiser/HRET Employer Health Benefits Survey, administrative data from athenahealth, a

literature review, and qualitative discussions with experts. In addition, we use the COMPARE

microsimulation model to predict the degree to which firms might opt to self-insure once the

ACA takes full effect and the potential consequences for premium prices and insurance

coverage. The results of this study address the congressionally mandated research questions

raised in section 1254 of the ACA.

WHAT IS SELF-INSURANCE?

Self-insured firms pay for their workers' health care costs either by paying providers

directly or through reimbursement to the workers, and the firms bear the risk associated with

year-to-year fluctuations in workers' expenditure levels. Theoretically, small firms have a

disincentive to self-insure, because the per capita variability in expenditure is larger when the

pool of workers is smaller. As a result, in any given year, a small firm that self-insures is at

greater risk for experiencing a catastrophically high health expenditure that could lead to

financial problems or bankruptcy than a large firm that self-insures, as shown in Figure 1.1.[ii]

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[i] These rates (4 percent and 37 percent) pertain to all firms, regardless of whether they offer health insurance policies.
[ii] To generate this figure, we assigned workers in the Medical Expenditure Panel Survey, Household Component (MEPS-HC) to hypothetical firms of different sizes. We then constructed 5,000 hypothetical firms for each possible firm size x, where x ranged from 4 to 500 or more employees in multiples of four (4, 8, 12, ...). Individuals assigned to each firm were drawn with replacement from a pool of at least 2,000 observations in the MEPS-HC data. We then

Figure. 1.1. Probability That Actual Health Care Expenditures Exceed 125 Percent of Expected Expenditures, by Firm Size
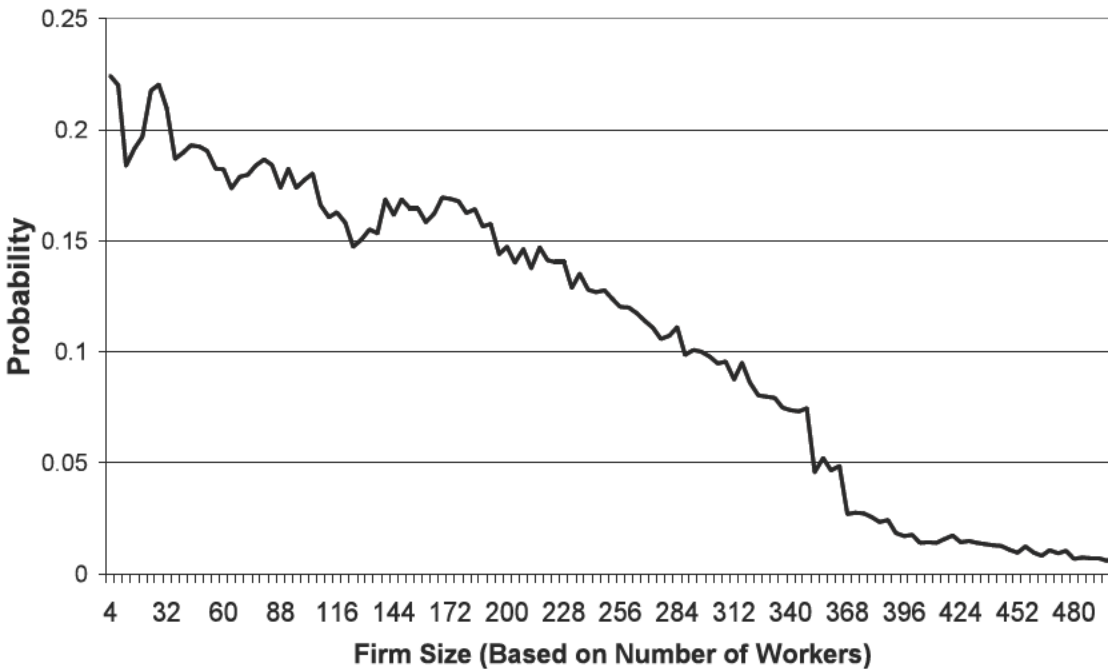
SOURCE: 2002–2003 MEPS-HC, with expenditures for high-cost cases calculated using data from the Society of Actuaries (SOA).

The figure shows the probability that actual health insurance expenditures for a firm of a given size exceed expected health expenditures for all firms of that size by a factor of 25 percent or more. Clearly, the risk is greater for smaller firms: The probability of exceeding the threshold is roughly 20 percent for firms with fewer than 50 workers and falls to less than 5 percent for firms with more than 350 workers.

The risk associated with self-insurance might limit the attractiveness of this option for small firms subject to new regulation under the ACA. However, it is possible for firms to purchase stop-loss insurance (insurance that protects an employer against claims above a certain threshold) to protect themselves against the risk of catastrophically high expenditures. Like full insurance, a

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computed average expenditure for each firm-size category and compared this to realized expenditure for each hypothetical firm. Typically, there were not enough workers with firm size exactly equal to x to allow for 2,000 observations, so we sampled from other MEPS-HC observations where firm size was reasonably close to x. A more complete description of this methodology is given in Appendix A.

stop-loss policy protects the employer against unpredictably high claims that could affect the firm's financial viability. A self-insured firm that purchases stop-loss coverage can still avoid small-group rating regulations that are specific to fully insured firms. Because nationally representative data on the availability, pricing, and take-up for stop-loss policies are not available, we conducted a series of discussions with experts (e.g., insurers, benefits consultants, and human resources personnel at firms that self-insure) to learn more about the market for stop-loss insurance. As discussed in more detail in Chapter 4, our discussions suggest that stop-loss purchase is common for firms with self-insured plans, and stop-loss policies are priced to be competitive with fully insured products. The possibility of purchasing stop-loss coverage to guard against the risk of self-insuring exacerbates the concern that small firms might opt to self-insure to avoid small-group regulations in the ACA, particularly if stop-loss policies are priced to compete with fully insured products.

ACA SECTION 1254

Section 1254 of the ACA anticipates the increased incentive to self-insure that may be created by new regulations in the small-group market. Although the section is titled "Large Group Market Study," the research questions raised in the text focus on employers' decisions to self-insure, the effect of the ACA on these decisions, and the potential consequences for consumers. Specifically, the law calls for

1. A comparison of the characteristics of fully insured and self-insured employers, including industry and size.

2. A comparison of health plan benefits offered by self-insured and fully insured employers.

3. A comparison of capital reserves, financial solvency, and the risk of becoming insolvent at self-insured and fully insured firms.

4. An analysis to determine whether the regulations in the ACA will induce some small and midsize firms to self-insure and whether this will lead to adverse selection in the fully insured market.

5. An assessment of whether self-insured firms offer less-expensive coverage than fully insured firms, and if they do, the reasons for the price difference.

6. An assessment of plan benefit fluctuations at fully insured and self-insured firms, including whether and how these benefits vary with economic conditions.

7. An assessment of the impact of self-insurance on consumers, including the effect on claims denials, recourse options in the event of denied claims, and potential conflicts of interest between the health needs of self-insured enrollees and employer financial performance.

Requirements 1, 3, and 4 relate to the employer's decision to self-insure, focusing on the demographic characteristics of employees, financial characteristics of firms, and regulatory changes that may influence this decision. Requirements 2, 5, 6, and 7 relate to the impact of self-insurance on consumers, including the effect of self-insurance on benefit generosity, premium price, claims denial, recourse options, and potential conflicts of interest. The question of adverse selection, raised in requirement 4, is also relevant for consumers, since it will influence premium prices and enrollment in self-insured and fully insured plans.

In this study, we address the research questions raised in Section 1254 of the ACA, using a combination of data analysis, literature review, qualitative information-gathering, and microsimulation modeling. Chapter 2 provides background information related to the reasons for firms opting to self-insure in the current (pre-ACA) insurance market, and Chapter 3 analyzes characteristics associated with the decision to self-insure, using data from the Kaiser/HRET

Annual Survey of Employer Benefits. Chapter 4 describes financial solvency issues that may influence a firm's decision to self-insure, including issues related to the availability of stop-loss coverage. Chapters 5, 6, and 7 focus on the impact of self-insurance on consumers, first considering whether benefit generosity differs between self-insured and fully insured plans and then discussing legal issues related to claims denial, consumer recourse options, and conflicts of interest. Chapter 8 reports results from a microsimulation analysis of the ACA that predicts employers' decisions to self-insure given the new regulations in the small-group market and estimates the degree of adverse selection that might result from an increase in self-insurance. Chapter 9 summarizes the study and presents conclusions.

CHAPTER 2. FACTORS INFLUENCING EMPLOYERS' DECISIONS TO SELF-INSURE

Employers with fully insured plans pay a set premium to a commercial insurer or health maintenance organization (HMO), and the insurer or HMO assumes full risk for all health insurance claims made by the firm's employees. Employers with self-insured plans bear some or all of the risk for the health insurance claims of their employees and typically pay a third-party administrator (TPA) to perform administrative functions (such as claims adjudication, utilization review, collection of premiums, and customer service). Some firms offer both fully insured and self-insured health plans to their employees. For example, in some areas, a firm with a self-insured preferred provider organization (PPO) health plan that wants to also offer an HMO option to its employees may have as its only purchase option a fully insured HMO plan.

A number of different factors are likely to influence a firm's decision to self-insure. These include differences in the way self-insured and fully insured employer health plans are regulated, the amount of financial risk associated with self-insurance versus full insurance, and the prices employers must pay for administrative services. We describe these differences below, drawing from both the existing literature and our discussions with stakeholders. (Appendix A describes the methodology used in our qualitative analyses.)

REGULATORY ENVIRONMENT

Two distinct regulatory environments—one that applies to firms that self-insure and one that applies to firms that fully insure—govern firms that choose to provide health insurance coverage to their workers. While both types of health plans are subject to federal regulation under ERISA

and HIPAA, only fully insured plans are subject to state laws governing the regulation of insurance (see also Ref. 4).[iii]

ERISA regulates fully insured and self-insured health plans in a number of ways. We describe several key aspects of ERISA for health plans below; the full scope of ERISA regulation is described elsewhere.[5] First, health plans must comply with fiduciary standards, i.e., the duties owed by fiduciaries[iv] to participants and beneficiaries of a plan, which include a duty of loyalty, a duty of prudence, and a duty to follow plan documents. Second, health plans face certain reporting and disclosure requirements under ERISA, such as summary plan descriptions (SPDs) that must be furnished to group health plan participants, annual reporting to the government (Form 5500), and summaries of plan modifications. Third, ERISA prescribes procedures for handling denied claims for benefits and employee recourse options and gives plan participants the right to sue in federal court to recover benefits to which they are entitled under the plan (see Chapter 6).

Further, the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) and HIPAA added new ERISA requirements for continuing health care coverage for plan participants and beneficiaries in certain situations, limiting exclusions from coverage for preexisting conditions and limiting premium differences for employees on the basis of health factors. Finally, other federal laws have amended ERISA to require employer-sponsored health plans (with some

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[iii] The provisions of HIPAA that apply to self insured plans are incorporated into ERISA, which was enacted in 1974 to protect the pension and welfare benefits that employers provide their workers. With the exception of government and church employees and some other miscellaneous categories of employees, ERISA covers all individuals who receive health and/or pension benefits through an employer-sponsored plan. ERISA regulates health and pension plans at the federal level and preempts state regulation of these plans so that companies operating in multiple states face a uniform set of requirements and are free from the burden of complying with different regulations in each state. ERISA specifically provides that a state law is preempted if it "relates to" an employee benefit plan and is not "saved" from preemption by falling within a traditional domain of state regulation, specifically, insurance, banking, or securities. For further description of the case law surrounding states' authority over insurance regulation, see Ref. 4. Also, ERISA section 514(d), provides that nothing in ERISA shall be construed to alter, amend, modify, invalidate, impair, or supersede any law of the United States or any rule or regulation under any such law.
[iv] Persons who are responsible for the management and operation of the health plan or who exercise authority or control over the disposition of plan assets (29 U.S.C. § 1002(21)).

exceptions) to cover certain benefits, such as hospital stays of a certain length after the birth of a child, reconstructive surgery following mastectomy, and mental health coverage that has the same annual and lifetime dollar limits as those for physical conditions (if mental health benefits are offered).

State insurance regulations apply directly only to fully insured health plans. These regulations vary across states but commonly include regulations related to consumers' recourse options (see Chapter 7); restrictions on insurers' ability to change the premium rates charged to employers each year; requirements about the level of reserves that health insurers must maintain; restrictions on the ways in which health insurers may invest non-reserve funds; and mandates that health insurers cover certain services (e.g., substance-abuse services, chiropractic services, autism-related services). In addition, state insurance regulators levy taxes on the premiums collected by health insurers, as well as other assessments for contributions to state high-risk pools and to guarantee funds. Further, some states have regulations specific to insurers' offerings to small employers. Small-group reforms include regulations related to guaranteed issue and renewal, as well as regulations restricting variability in premium rates.[v]

States' insurance regulations provide added protection for consumers but impose additional costs on health insurers that may be passed along to employers in the form of higher premiums. For example, reserve requirements, while designed to ensure that insurers have sufficient funds to pay out claims when they occur, increase insurers' cost of doing business, because of the opportunity costs associated with not investing the money elsewhere. In addition, health insurers may have to pay costs associated with states' regulatory reviews. Benefit mandates increase the value of health insurance packages that are available for employers to purchase and increase premiums accordingly.

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[v] HIPAA provided more uniform protection around guaranteed issue and renewal in all states when it was enacted.

Consequently, some employers may choose to self-insure to avoid costs associated with states' regulation of fully insured health insurance products. State regulations are a particular issue for employers that operate in multiple states and thus may face different regulations regarding the insurance products they can purchase in each state.

A number of studies have examined specific aspects of states' regulations to analyze their effect on the decision to self-insure. In particular, most studies have looked at the effects of state mandates regarding benefits that must be covered, the level of premium taxes, and small-group reforms.

Evidence about the effects of state mandates on firms' decisions to self-insure is mixed, and study findings appear sensitive, in particular, to how the state regulatory burden is specified. For example, Jensen et al. (1995)[6] find that, contrary to theory, alcohol-treatment coverage mandates were negatively associated with the decision to self-insure. However, Garfinkel et al. (1995)[7] find a positive association between alcohol-treatment coverage mandates and the decision to self-insure but a negative association between mental health mandates and the likelihood of self-insuring. Further, Park (2000)[8] finds no effect of an index summarizing benefit mandates on the decision to self-insure.

Evidence on the effects of premium taxes on the decision to self-insure has also been mixed. Jensen et al. (1995)[6] estimate that, jointly, mandates and premium taxes explained 69 percent of new self-insurance between 1981 and 1985. Park (2000),[8] however, finds no association between premium tax rates and the likelihood of self-insurance. Some evidence suggests that the effects of mandates and premium taxes may vary over time. Jensen et al. (1995)[6] suggest that firms that were early adopters of self-insurance may have been sensitive to regulatory burden, but later firms' decisions (by the late 1980s) may have been otherwise motivated. Park (2000)[8] finds that

small-group reforms were associated with an increased likelihood of self-insuring, although Marquis and Long (1999)[9] find no evidence of such an effect.

During our interviews with industry experts and employers, we discussed factors motivating employers' decisions to self-insure . Many acknowledged that price was a key motivation. Employers felt they could offer self-insurance more inexpensively than full insurance, and at least some of that price difference reflected savings from premium taxes (passed through by health insurers). Perceptions about the importance of insurance mandates varied. Some self-insured employers acknowledged that they did not cover certain benefits mandated in fully insured plans but remarked that their self-funded plans were no less generous overall; rather, they chose more-generous benefits in other areas that best met the needs of their particular employee populations. By contrast, other stakeholders remarked that firms switching between fully insured and self- insured plans usually asked for the same benefit package and did not ask for the removal of any mandated benefits. Still other stakeholders felt that only particularly expensive mandates, such as that for autism services, influenced firms to self-insure and that other mandates had a negligible effect on firms' decisions.

FINANCIAL RISK

A key distinction between self-insured and fully insured health plans is the amount of risk an employer bears for the health claims of its employees. Employers with fully insured health plans bear no risk for claims and have complete certainty about the cost of the plan for their employees. These employers pay a fixed premium to their health insurer, making their costs completely predictable, which may help with cash flow and budgeting. By comparison, self-insuring employers bear some or all of the risk of their covered employees' health care claims

and face uncertainty about their plans' ultimate cost.[vi] The smaller the firm, the greater the uncertainty. In addition, claims are likely to occur unevenly throughout the year, so self-insuring firms must be able to manage cash flow in order to pay claims in a timely manner.

By bearing the risk for health care claims instead of shifting that risk to insurers, employers avoid paying markups on premiums above the costs of providing insurance (i.e., markups that translate into profit margins for insurers). In addition, self-funding employers may mitigate the risk they face by purchasing stop-loss insurance.[vii] The amount of risk a self-funding employer bears depends on the level of stop-loss insurance coverage the firm purchases. Stop-loss insurance can be either for an individual employee (specific stop-loss) or for health claims across all employees (aggregate stop-loss). The threshold over which the stop-loss insurer bears risk for claims is known as an *attachment point*, which may be for an individual or for claims in aggregate across all employees, and an employer may choose one or both types of attachment points. In some circumstances, stop-loss insurers may limit the amount of risk they are willing to bear by including a maximum claims level beyond which risk reverts to the employer (sometimes called a *stop-loss cap*). In addition, stop-loss insurers sometimes offer to advance money to firms to pay for claims incurred.

PRICES FOR ADMINISTRATIVE SERVICES IN SELF-INSURED AND FULLY INSURED PLANS

Employers that self-insure typically purchase a set of administrative services from a TPA. Such services may include access to a provider network, utilization review, claims adjudication, appeals management, customer service, and premium collection. Health insurers often offer fully insured products as well as administrative services for employers who self-insure. According to

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[vi] While self-insured firms bear immediate risk for high claims, large firms that are fully experience-rated and experience high claims are likely to face higher premiums in subsequent years.
[vii] Stop-loss insurance is sometimes referred to as *reinsurance*, although the term is usually applied to insurance purchased by insurers to mitigate risk.

stakeholders, insurance companies do not typically offer the same level of provider discounts to self-insured employers that they offer to fully insured employers; that is, fully insured employers receive additional provider discounts. More generally, economies of scale may mean that self-funding companies face higher prices when they choose only one or several administrative services to purchase, compared with fully insured plans that purchase a full suite of services.

OTHER FACTORS INFLUENCING EMPLOYERS' DECISIONS TO SELF-INSURE OR FULLY INSURE

Stakeholders we interviewed identified several other factors that influence employers' decisions to self-insure. Four factors were identified as advantages to self-funding and two as disadvantages.

Several employers mentioned that self-funding allowed them better (timelier and more complete) access to their data on health claims, and that this information helped them make better and more informed decisions about the design of their health plan. Employers also pointed to the autonomy associated with self-funding. One employer mentioned a situation in which an employee was denied coverage for services received. At the time, the employer had a fully insured health plan. The employer advocated on behalf of its employee and spent a substantial amount of time and resources to get the wrongful denial reversed. The employer chose to self-insure after the incident, and a strong appeal of self-insuring was the autonomy to make decisions over health claims. A third factor that employers mentioned was flexibility in plan design. Some self-insuring employers indicated that they chose not to offer mandated benefits in order to be able to provide benefits that better met the needs of their particular employees, such as more generous coverage for specialty care. In addition, some small employers said that they preferred not to have to choose from a set menu of plan packages offered by a health insurer, but rather to design their package any way they chose. Further, multistate employers could offer the

same benefit package to all employees. One self-insuring employer mentioned the ability to easily change its contract with their TPA or stop-loss insurer without affecting the health plan card the employees carried or the providers they could see. If the employer were fully insured, changing health insurers would entail major changes for employees, such as new cards and new provider networks. Thus, self-insuring was appealing because the employers felt they could more easily change the vendors with whom they contracted and engage in a competitive process for the services purchased.

Nevertheless, stakeholders also noted the substantial internal (employer) costs associated with self-insuring. One employer estimated that self-insuring required about one full-time equivalent staff person to administer the plan to cover duties such as monitoring the TPA and ensuring cash flow to pay claims. Several employers also noted that regulatory compliance was far easier with a fully insured plan. Finally, differences in external recourse options for employees in self-insured versus fully insured plans (see Chapter 7) were not perceived to impact firms' decisions to self-insure.

CHAPTER 3. PREVALENCE OF SELF-INSURANCE AND CHARACTERISTICS OF SELF-INSURED

FIRMS

PREVALENCE OF SELF-INSURANCE

To obtain information about the prevalence of self-insurance, we analyzed Kaiser/HRET data

from 2006 to 2010. Appendix A provides details of the analysis. Table 3.1 presents estimates

over time of the percentage of firms offering health insurance that had at least one self-insured

health plan and the proportion of workers enrolled in self-insured plans.

Table 3.1. Percentage of Firms Offering a Self-Insured Health Plan and Share of Enrollment in Self-Insured Plans

	2006	2007	2008	2009	2010
Percentage of firms offering at least one self-insured plan[a]	8.4 (1.2)	9.3 (2.6)	10.8 (3.0)	10.7 (2.2)	10.9 (2.2)
Enrollment in self-insured plans (percentage of total health plan enrollment[b]	52.6 (1.6)	53.2 (1.7)	52.7 (1.8)	55.1 (1.7)	58.0 (1.8)

NOTE: Authors' analyses of Kaiser/HRET data. Standard deviations shown in parentheses.
[a]Among firms offering at least one health plan.
[b]Number of enrollees in self-insured employer-sponsored group health plans divided by the total number of enrollees in employer-sponsored group health plans.

The proportion of firms offering a self-insured plan increased from 8.4 percent in 2006 to 10.9

percent in 2010, while the share of enrollment in self-insured plans rose from 52.6 percent to

58.0 percent over the same time period.

Table 3.2 presents estimates of the percentage of firms offering a self-insured plan in 2010, by

firm size, along with a breakdown of firms that offer only a self-insured plan (column 2) and

firms that offer a mix of self-insured and fully insured plans (column 3). Summing the

percentages in columns 2 and 3 provides the total percentage of firms that have self-insured

plans.

Table 3.2. Percentage of Firms Offering a Self-Insured Health Plan in 2010, by Firm Size

Firm Size (number of employees)	Offer Only Self-Insured Plans	Offer Mix of Self-Insured and Fully Insured Plans	Offer Only Fully Insured Plans
3–49	5.90 (1.76)	2.0 (1.79)	92.1 (2.47)
50–199	19.4 (3.16)	0.9 (0.61)	79.7 (3.19)
200–999	45.3 (3.13)	2.7 (0.74)	52.1 (3.13)
1000+	61.7 (2.39)	18.7 (2.01)	19.6 (1.90)

NOTE: Rates among firms offering at least one health plan, calculated by authors' analyses of Kaiser/HRET data. Standard deviations shown in parentheses.

Larger firms are much more likely to self-insure than smaller or medium-sized firms. As shown in Table 3.2, the majority of firms with 1,000 or more employees offer at least one self-insured plan. In 2010, for example, just over 80 percent of such firms offered at least one self-insured plan, and the majority (62 percent) offered only self-insured plans. Nearly half of firms with 200–999 employees (48 percent) offered at least one self-insured plan in 2010, compared with only 20 percent of firms with 50–199 employees and approximately 8 percent of firms with 3–49 employees.

Figure 3.1 shows the percentage of firms that offered at least one self-insured plan between 2006 and 2010 among those offering at least one plan. The percentage increased among firms of all sizes. Between 2006 and 2010, self-insurance among the smallest firms increased just over 2 percentage points, from 5.5 to 7.9 percent. Among firms with 50–199 employees, self-insurance increased by 6 percentage points, from 14.3 to 20.3 percent; among firms with 200–999 employees, it increased by 4 percentage points, from 43.9 to 47.9 percent; and among firms with more than 1000 employees, it increased by 5.3 percentage points, from 75.2 to 80.4 percent.

Figure 3.1. Percentage of Firms Offering a Self-Insured Health Plan, by Firm Size (2006–2010)
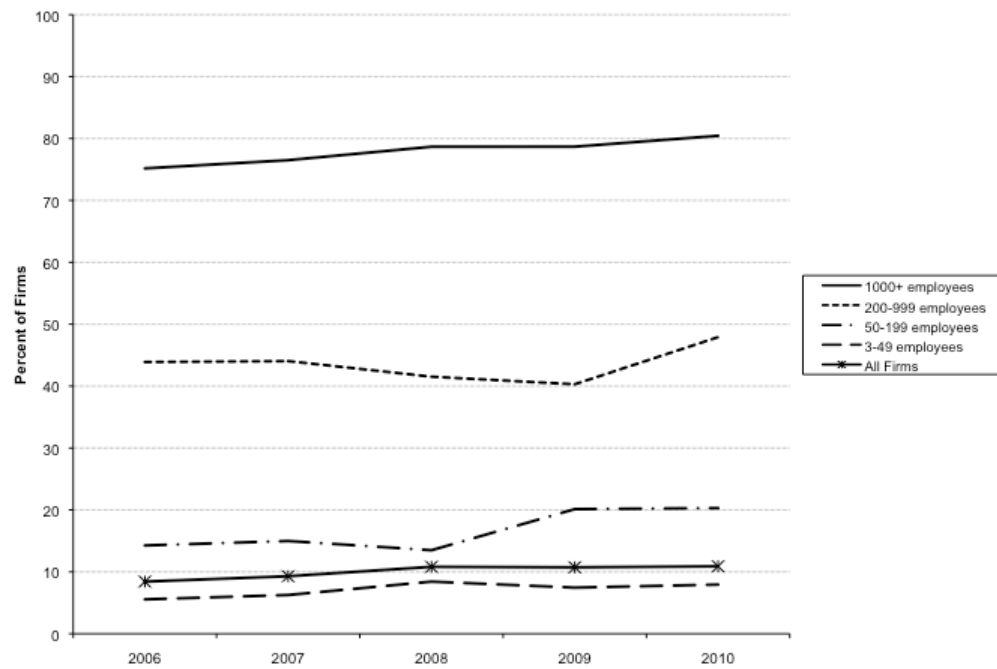
Figure 3.2 tracks the share of enrollment in self-insured health plans, by firm size. The patterns over time are similar when we examine the share of enrollment in self-insured plans, which has generally been rising over time across firms of all sizes, although it declined modestly between 2009 and 2010 in firms with 50–199 employees.

Figure 3.2. Share of Enrollment in Self-Insured Health Plans, by Firm Size (2006–2010)
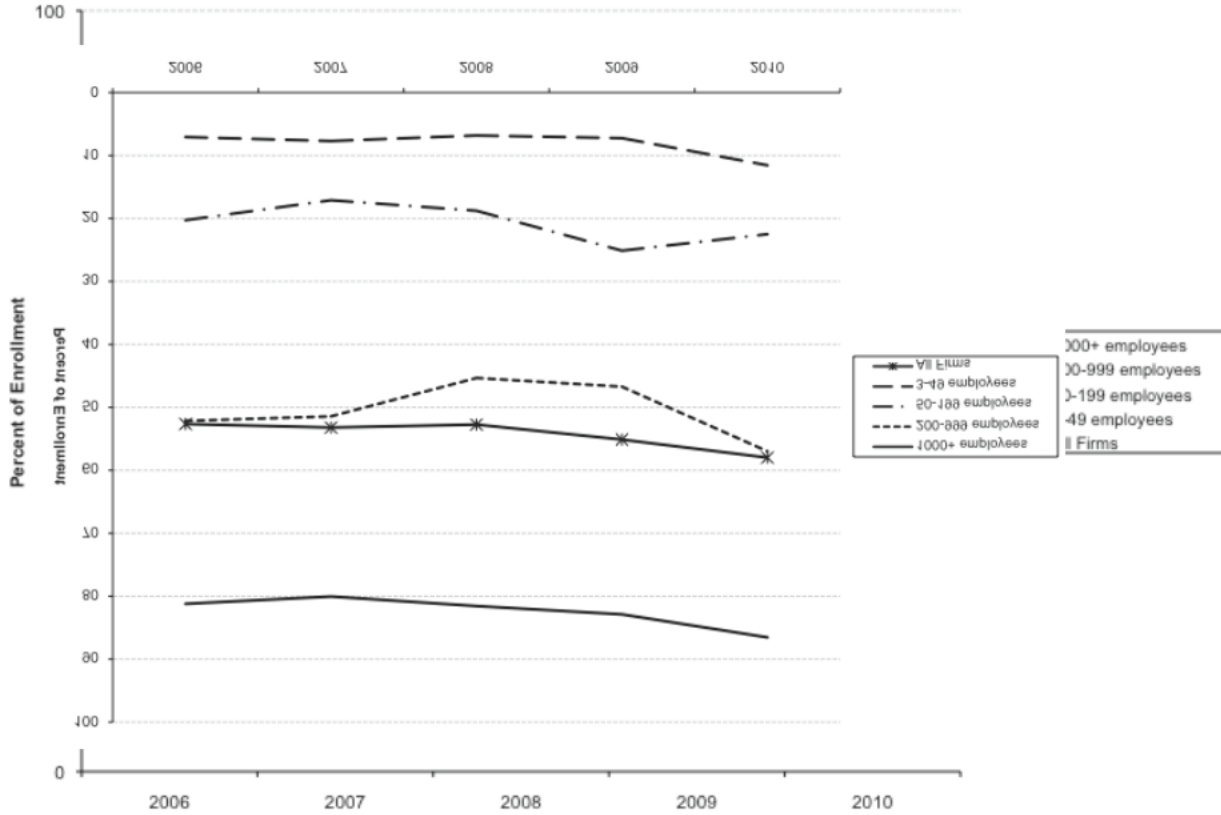
Table 3.3 shows the percentages of firms, among those that offered any plan, with at least one self-insured health plan, by region and industry in 2006–2010.

Table 3.3. Self-Funding Among Firms, by Region and Industry (2006–2010)

	Percentage of Firms Offering a Self-Insured Plan (Among Those Offering at Least One Plan)
Region	
Northeast	8.8 (2.28)
Midwest	13.4 (2.19)
South	6.9 (0.93)
West	12.4 (2.90)
Industry	
Agriculture/mining/construction	3.7 (0.93)
Manufacturing	13.4 (2.58)
Transportation/utilities/communication	14.0 (3.31)
Wholesale	8.4 (1.82)
Retail	5.1 (1.79)
Financial	9.1 (2.85)
Service	10.9 (2.07)
State/local government	16.3 (4.06)
Health care	16.9 (5.50)
All firms	10.1 (1.05)

NOTE: Authors' analysis of Kaiser/HRET data.

Rates of self-insurance are higher in the Midwest and West; among firms in the health care, manufacturing, transportation/utilities/communication industries; and among state/local governments. However, these rates are not adjusted for other characteristics that may influence self-insuring, such as firm size. We present regression-adjusted analysis in the next section.

CHARACTERISTICS OF FIRMS THAT SELF-INSURE

Previous research has examined the characteristics of firms that offer self-insurance. Garfinkel et al. (1995)[7] show that the prevalence of self-insurance increases dramatically with firm size (e.g., 93 percent of firms with more than 25,000 employees are self-insured, compared with 2 percent of firms with 1–19 employees). Other firm characteristics associated with an increased probability of self-insuring include the proportion of retired employees, the presence of union

members in the plan, and the industry in which the firm operates.[7] Park (2000)[8] finds that the

variation in the prevalence of self-insurance is largely explained by firm size and that other

factors contribute very little to explaining differences in self-insurance across firms. Nonetheless,

this study finds that a small firm (1–50 employees) is more likely to self-insure if it is a

nonprofit, if it has existed for more than 25 years, if at least some workers belong to a union, and

if the firm is not in the transportation/communication/utilities industry. Among large firms, self-

insurance is more likely if the firm is in manufacturing, transportation/communication/utilities,

or wholesale trade, if it has existed for more than 25 years, if it is a multistate firm, if more than

50 percent of its employees work full time, if it is not participating in pooled purchasing, and if it

is operating in a region with HMO penetration of less than 10 percent.

We conducted regression analyses using Kaiser/HRET employer survey data to understand

how firm characteristics such as industry, region, and whether the firm is single- or

multiestablishment and characteristics of the workforce influence the decision to self-insure.[viii]

A key contribution of this analysis is the use of recent data. The dependent variable is a

dichotomous indicator, equal to one if the firm self-insures at least one plan and equal to zero if

the firm has no self-insured plan. We stratified firms by size and conducted logistic regressions

within each stratum. Thus, our analyses provide information about the characteristics of firms of

various sizes that are related to the decision to self-insure. We considered only firms that offer at

least one health insurance plan. Table 3.4 provides odds ratios and 95 percent confidence

intervals for each independent variable.

[viii] We limited our analyses to the time frame of 2007–2010 because several key variables were missing in the Kaiser/HRET data for 2006. We were not able to analyze the effects of state-level regulatory or economic characteristics because the Kaiser/HRET data do not contain a state identifier.

Table 3.4. Odds Ratios for Firm Characteristics and Self-Funding, by Firm Size: Results from Multivariate Logistic Regression Analyses

	Firm Size		
	0–199 Employees	200–999 Employees	1000+ Employees
Industry=agriculture/mining/ construction	0.21 (0.10–0.46)*	1.43 (0.88–2.32)	1.40 (0.76–2.59)
Industry=manufacturing	0.95 (0.56–1.63)	2.14 (1.51–3.03)*	2.74 (1.90–3.94)*
Industry=transportation/utilities/ communications	0.83 (0.38–1.80)	2.14 (1.42–3.24)*	1.64 (1.17–2.31)*
Industry=wholesale	0.51 (0.25–1.05)	1.28 (0.85–1.95)	2.57 (1.71–3.88)*
Industry=retail	0.33 (0.16–0.68)*	0.73 (0.47–1.13)	2.22 (1.47–3.35)*
Industry=financial	0.81 (0.44–1.48)	1.38 (0.92–2.08)	3.18 (1.98–5.10)*
Industry=state/local gov't	1.61 (0.60–4.30)	1.34 (0.83–2.17)	0.92 (0.62–1.37)
Industry=health care	1.20 (0.70–2.04)	2.85 (1.97–4.13)*	2.16 (1.54–3.02)*
Region=Northeast	2.01 (1.21–3.34)*	0.66 (0.50–0.88)*	0.58 (0.45–0.75)*
Region=Midwest	3.35 (2.07–5.40)*	1.75 (1.31–2.32)*	1.11 (0.84–1.47)
Region=West	3.15 (1.96–5.06)*	0.71 (0.52–0.97)*	0.54 (0.42–0.71)*
Firm in urban area	1.33 (0.82–2.14)	0.85 (0.63–1.14)	0.98 (0.65–1.49)
Multi–establishment firm	1.06 (0.65–1.73)	1.36 (1.09–1.71)*	1.09 (0.85–1.38)
Year = 2008	1.10 (0.70–1.74)	1.04 (0.77–1.40)	1.23 (0.93–1.64)
Year = 2009	1.17 (0.74–1.85)	0.96 (0.71–1.28)	1.21 (0.92–1.59)
Year = 2010	1.46 (0.94–2.26)	1.29 (0.96–1.73)	1.20 (0.91–1.58)
Firm has unionized workers	2.32 (1.27–4.26)*	0.88 (0.68–1.13)	0.95 (0.78–1.17)
>=35% of employees earn $23,000 or less	0.77 (0.47–1.25)	0.75 (0.56–0.99)*	0.48 (0.38–0.61)*
>=35% of employees work part–time	0.81 (0.53–1.23)	0.48 (0.35–0.68)*	0.59 (0.46–0.77)*
>=35% of employees age 26 or less	3.95 (2.61–6.00)*	0.90 (0.64–1.25)	0.78 (0.59–1.02)
Offer HMO plan	0.21 (0.03–1.55)	0.52 (0.31–0.85)*	1.15 (0.81–1.62)
Offer PPO plan	0.17 (0.02–1.22)	2.51 (1.44–4.37)*	3.06 (2.12–4.43)*
Offer POS plan	0.25 (0.03–1.84)	0.73 (0.43–1.23)	0.66 (0.47–0.92)*
Offer high–deductible plan	0.34 (0.05–2.47)	0.84 (0.51–1.37)	2.08 (1.51–2.86)*
Offer more than one plan	6.58 (0.83–51.81)	0.79 (0.44–1.39)	0.65 (0.44–0.97)*

NOTES: Odds ratios and 95 percent confidence intervals shown. Omitted categories are industry = service; region = South; year = 2007. Number of firms used in analyses:2392, 1798, and 3086 for small, medium, and large firms, respectively. Only firms that offer at least one health plan are included.
* = $p < 0.05$.

Across firms of all sizes that offer a plan, differences in self-insuring are associated with the firm's industry and region, whether the firm is single- or multiestablishment, employee characteristics (age, wage, unionization, part-time status), and the types of health plans offered. We find no statistically significant differences in self-insuring over time (between 2007 and 2010) after we control for other characteristics.

Among firms with fewer than 200 employees, we find a lower probability of self-insuring in the agriculture, mining, construction, and retail industries. We find higher probabilities of self-insuring in the Northeast, Midwest, and West compared to the South; we also find a higher probability of self-insuring among firms with a large portion of younger workers (more than 35 percent of workers are under the age of 26).[ix] Among firms with fewer than 200 employees, having unionized workers is associated with a higher probability of self-insuring.

Among firms with 200-999 employees, firms in the manufacturing, health care, and transportation/utilities/communications industries have the highest probabilities of self-insuring. Medium sized firms in the Midwest have a higher probability of self-insuring than similarly-sized firms in the South, but a lower probability of self-insuring than similarly-sized firms in the Northeast and West. Multiestablishment firms are more likely to self-insure, and offering a PPO plan (compared to not offering such a plan) is associated with a higher probability of self-insuring. Firms with relatively high percentages of low-wage workers or part time workers are less likely to self-insure. Finally offering an HMO plan (compared to not offering any HMO plan) is associated with a lower probability of self-insuring.

Among large employers (firms with more than 1000 workers), firms in the manufacturing, healthcare, transportation/utilities/communication, wholesale, retail and financial sectors are all more likely to self-insure compared to firms in the services sector. Firms in the Northeast and West are less likely to self-insure compared to those in the South. Firms with a large share of low-income or part-time workers are less likely to self-insure, as are firms that offer more than one health plan. Firms offering a PPO plan or high-deductible plan are more

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[ix] The variables used in the analysis to characterize the ages, wages, and part-time versus full-time status of workers are those available in the Kaiser/HRET data.

likely to self-insure, and firms offering a point-of-service (POS) plan are less likely to self-insure, than those that offer no such plan.

For both medium-sized and large firms, self-insuring is more prevalent in the manufacturing, transportation/utilities/communications, and health care industries; for large firms, self-insuring is also relatively more common in the financial industry. Medium-sized and large firms are more likely to self-insure in the Midwest and South, while small firms in the Midwest and West are more likely to self-insure.

We performed additional analyses to test the effects of regional economic conditions (as measured by the gross domestic product per capita in the region) on self-insuring but found no statistically significant effects. Table C.1 in Appendix C provides full results of those analyses. However, the analyses are relatively limited because of the broad geographic level at which firm location is measured.[x]

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[x] We were not able to analyze differences across states in firms' decisions to self-insure or in the effects of state-level regulatory or economic characteristics because the Kaiser/HRET data do not include a state identifier.

CHAPTER 4. FINANCIAL SOLVENCY OF SELF-INSURED FIRMS

Employers that offer self-insured health plans are not subject to state insurance laws relating to insurer solvency, including laws prescribing reserve requirements or investment limitations, or other laws regulating the specifics of health plan financing. Instead, self-insured health plans are subject to ERISA's general fiduciary requirements, including the requirement that the plan be prudently managed and administered. Further, while some plans report to the U.S. Department of Labor (DOL) through Form 5500, not all plans are required to do so. Unfunded, fully insured, and combination unfunded/insured welfare plans covering fewer than 100 participants at the beginning of the plan year that meet certain requirements are exempt from filing an annual report.[xi] Consequently, concerns have been raised about how well firms manage the financial risk associated with their self-insured plans and how often the financial risk associated with the health plan affects the overall financial solvency of the employer.

As described in the section on financial risk in Chapter 2, employers can mitigate their risk by purchasing stop-loss insurance coverage, either for individual employees or for health claims in aggregate across all employees. The threshold over which the stop-loss insurer bears risk for claims is known as the *attachment point*, which may be for an individual (specific) or for all employees, and an employer may choose one or both types of attachment points. In some circumstances, stop-loss insurers may limit the amount of risk they are willing to bear by including a maximum claim level beyond which risk reverts to the employer (sometimes called a *stop-loss cap*). Information about the prevalence and characteristics of stop-loss insurance coverage is key to understanding financial risk among employers with self-insured health plans. Unfortunately, very little data are available on stop-loss insurance among self-funding

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[xi] See 29 CFR § 2520.104-20

employers.[xii] Nonetheless, our stakeholder interviews provided useful suggestive evidence, noting that large companies typically do not purchase stop-loss coverage. Some interviewees described stop-loss coverage as unusual for firms with 3,000 or more employees; others suggested that stop-loss coverage was rare only for firms with more than 20,000 employees. Interviewees noted the lack of good data to estimate the prevalence of stop-loss coverage among smaller firms.

Interviewees reported that the vast majority of firms that purchase stop-loss coverage purchase coverage with a specific attachment point, and roughly 40 to 50 percent of employers who purchase stop-loss coverage also have an aggregate attachment point (although this form of coverage was noted as being relatively expensive). Purchasing coverage with an aggregate attachment point only is highly unusual. Interviewees varied in their estimates of the prevalence of specific or aggregate caps; some perceived the inclusion of such caps to be the norm.[xiii] Some interviewees suggested that specific attachment points varied with firm size, with larger firms choosing higher attachment points and smaller firms choosing lower attachment points, but that the attachment points typically ranged from $20,000 to $300,000, with a perceived average of $125,000. A common aggregate attachment point identified was 125 percent of expected claims. Some suggested that caps on specific coverage might range from $1 million to $2 million.

While the specific levels of risk borne by the employer and the stop-loss insurer in self-insurance arrangements are not completely clear, the financial solvency of employers who self-insure is affected by both their own ability to pay the claims for which they are at risk and the solvency of the stop-loss carrier. We describe each below.

[xii] Using data from 1993, Acs et al. (1996)[10] estimate that 71 percent of self-funding firms purchase stop-loss coverage (74 percent of plans with 1–100 employees, 85 percent of plans with 101–500 employees, and 67 percent of plans with more than 500 employees).
[xiii]The 2011 wave of the Kaiser/HRET survey will include information about stop-loss coverage among self-funding employers.

EMPLOYER SOLVENCY

Employers who purchase stop-loss coverage with relatively low attachment points retain some risk for health care claims—including those below the specific attachment point and those above any stop-loss cap—as do employers who do not purchase aggregate coverage for higher-than-anticipated claims.

Employers typically pay for health plan claims either out of the firm's general assets or through a trust, in which cash is set aside for payments related to the health plan. These set-asides may include employee contributions as well as other monies. The importance of a trust is that its assets are afforded a level of protection if a firm declares bankruptcy; thus, employees are more likely to have medical claims paid if the employer becomes insolvent but has a trust than they would be if the employer had no trust. Some employers choose not to put funds into a trust because such funds are not accessible for other purposes. Our interviewees noted that most larger firms pay for claims out of the general assets of the firm. Some said that while they believed small firms should set up trusts to pay for health plan claims, most small firms do not.

Interviewees commented on the potential effects of the financial risk associated with a self-insured health plan on the viability of the plan. Some suggested that employers are likely to respond to unusually high expenses by decreasing benefits or dropping offers of coverage, regardless of whether they are self-insured or fully insured.

Stakeholders also commented on the relationship between self-insuring and the overall financial solvency of employers. Most noted that bankruptcy filings were typically the result of a number of factors and that it was difficult to identify examples of firms that had become insolvent as a direct result of risks associated with self-insuring.

In addition, interviewees remarked on the ways in which an employer's financial difficulty might affect self-insured and fully insured health plans differently. Some argued that firms that were struggling financially might stop paying their employees' health care claims if they were self-insured, but if they were fully insured, they might stop paying health care premiums. In either case, consumers would lose health plan benefits, and fully insuring would confer no advantage. However, other stakeholders acknowledged an important difference in consumer protection in self-insured and fully insured plans. Specifically, while a fully insured employer might stop paying health insurance premiums, the effect would be a prospective termination of employee benefits that consumers might be alerted to, whereas self-insured employers might not be able to pay for claims, potentially leaving employees responsible for costs they had already incurred.

STOP-LOSS INSURER SOLVENCY

Especially for small and medium-sized firms, which rely on stop-loss coverage for risk mitigation to a greater extent than larger firms do, the reliability of stop-loss insurers (in terms of paying claims and in a timely manner) is an important factor influencing their own financial well-being and, consequently, the security of their employees' health benefits.

As described in the section on the regulatory environment in Chapter 2, health insurers are subject to specific types of regulation by state insurance departments. Stop-loss insurance is also subject to insurance regulation, but the regulations are not the same as those for health insurers. Typically, stop-loss coverage is regulated as a property and casualty insurance product. Specific regulations vary by state, but most include solvency requirements, licensing, regulation of investments, and regulations related to surplus ratios. Nonetheless, our interviewees expressed a range of views about the relative stringency of regulation and level of regulatory enforcement

and oversight of stop-loss insurers compared with that for health insurers; several interviewees perceived stop-loss insurance as being more loosely regulated than health insurance.

A key concern expressed by stakeholders was related to regulatory avoidance In some circumstances, stop-loss insurance may be made available through the surplus lines market (also known as the excess and surplus lines, or E&S, market). This market is designed to ensure the availability of insurance products for esoteric risks, such as rebuilding homes in hurricane-prone areas or providing medical care in a developing country. Carriers in the E&S market are not subject to state insurance rules and regulation. For example, there is no state guaranty fund protecting employers who purchase stop-loss coverage in the E&S market in the event of an insurance company failure. By comparison, that protection and others afforded by state insurance departments' regulatory activities would apply to stop-loss policies purchased through carriers in, for example, the property and casualty market.

Interviewees articulated several other specific concerns related to stop-loss insurance coverage and its implications for the viability of self-insured plans and employer solvency. One was related to a practice known as "lasering," in which a stop-loss contract excludes one or more individuals because of a history of high costs or the plan includes such an individual but at a higher attachment point. Some interviewees noted that this practice ensured the availability of affordable stop-loss coverage to firms; others felt that the practice meant that a small firm might bear a large amount of risk, which could threaten the viability of the plan.

Several interviewees were concerned that employers might have difficulty managing their cash flow if the stop-loss insurer's determination process is lengthy, especially in cases where the claims under review are large. One interviewee mentioned an instance of a year-long delay in claims payment by a stop-loss insurer. The determination process is typically shorter if the

TPA and stop-loss insurer are the same entity, because the initial claims adjudication does not have to be re-reviewed. However, interviewees noted that using related entities for both TPA services and stop-loss insurance might present a potential conflict of interest, because the entity would have a financial incentive to deny claims in the initial adjudication process to limit stop-loss exposure.

Several interviewees were concerned about the stop-loss market and its relationship to adverse selection in the fully insured market (and also in the exchange market beginning in 2014). We discuss these issues in Chapter 8.

Concerns were also raised about fraud in the insurance market. These concerns were not necessarily specific to stop-loss coverage; rather, there was an overarching concern about various schemes that small and medium-sized companies, in particular, might be susceptible to given the more limited expertise they might have in navigating the insurance market. One example involved companies, licensed and unlicensed, that built insurance businesses using a Ponzi scheme and were unable to honor their contracts. In another example, employers purchased a self-funded plan that was advertised as a health insurance product, but premiums covered only TPA services and stop-loss coverage, and risk continued to reside with the employer.

CHAPTER 5. HEALTH BENEFITS AND COSTS IN SELF-INSURED PLANS

As described in Chapter 2, some employers may choose to self-insure to avoid costs associated with covering certain benefits mandated as part of state insurance regulation. Perceptions about the frequency of employers self-insuring in order to avoid mandates were widespread in our stakeholder interviews. Some stakeholders believe that even when mandated benefits are not covered, self-funded plans are no less generous than fully insured plans overall, because employers choose more generous benefits in other areas, such as specialty care, that best meet the needs of their employees.

This chapter provides empirical analyses of the actuarial values associated with self-insured and fully insured plans and specific benefits in those plans; the differences in premiums; and the differences over time in benefit fluctuations.

COMPARISON OF ACTUARIAL VALUES OF SELF-INSURED AND FULLY INSURED HEALTH PLANS

The actuarial value of a health plan is a number between 0 and 1 that indicates the proportion of health care expenditures that a plan is likely to cover for an individual who has average health care claims. This value is one way to measure the relative generosity of a benefit plan.

We calculated the actuarial value of each health plan in the Kaiser/HRET data, based on a wide range of parameters, including various types of co-payments, deductibles, and limits. (Our methods for calculating these values are described in detail in Appendix B). However, not all characteristics of a health plan that influence its generosity are captured in the actuarial values calculated, and there are unmeasured dimensions upon which plans may vary. Therefore, we are not able to capture benefits with enough specificity to analyze whether self-insured plans are less likely than fully insured plans to provide state-mandated benefits. More generally, we cannot

determine whether self-insured plans are more or less likely than fully insured plans to offer specific types of benefits, such as coverage for bariatric surgery, maternity benefits, or physical therapy.

We compared mean actuarial values among firms of the same size (2–199, 200–999, or 1000+ employees) and type (HMO, PPO, POS, or high-deductible health plan (HDHP)) across self-insured and fully insured plans and found limited variation. (Full results are given in Table C.2 in Appendix C.) The actuarial values of self-insured plans in small and medium-sized firms are the same as or slightly higher than those of fully insured plans. In large firms, actuarial values of self-insured plans are slightly lower (by at most 1.7 percentage points) than those of fully insured plans.

We conducted regression analyses to determine whether self-funded health plans had systematically higher or lower actuarial values than those of fully funded health plans, holding all other firm characteristics constant (e.g., size , region, and worker characteristics). We stratified our analyses by type of plan. The dependent variable is the plan's actuarial value (multiplied by 100); the key independent variable of interest is a dichotomous variable indicating whether or not the plan is self-funded (1 if self-funded; 0 if fully insured). Table 5.1 provides coefficient estimates for the self-insured variable alone. (Full regression results are provided in Table C.3 in Appendix C.)

**Table 5.1. Self-Funding and Actuarial Value of Health Plans Offered by Employers:
Results from Multivariate Regression Analyses**

Plan Type	Self-InsuringCoefficient (Std Err)
HMO	−0.010 (0.003)*
PPPO	0.006 (0.003)*
POS	−0.010 (0.006)
HDHP	−0.006 (0.008)

NOTES: The analysis includes 2,368 HMO plans, 5,568 PPO plans, 1,410 POS plans, and 1,510 HDHPs. Separate regressions were conducted for each plan type. Regressions include controls for firm size, year of observation, and region; whether the firm has unionized workers; whether more than 35 percent of the firm's employees earn $23,000 per year or less; whether more than 35 percent of the employees work part-time; whether more than 35 percent of the employees are 26 years old or younger; whether the firm is multiestablishment or single-establishment; industry of the firm; and whether the firm is in an urban or rural area.
* $p < 0.05$.

We found no statistically significant differences in the actuarial values of self-insured and fully insured POS or HDHP plans. Self-insured HMO plans have a statistically significant smaller actuarial value than fully insured HMO plans, and self-insured PPO plans have a slightly higher actuarial value than fully insured PPO plans. The differences in actuarial values for both HMO and PPO plans, however, are small. The mean actuarial value for HMO plans is 0.934, and that for PPO plans is 0.899. Thus, the estimated coefficients in Table 5.1 suggest just over a 1 percent difference in the actuarial values of self-insured and fully insured HMO plans (1.2 percent) and just under a 1 percent difference in the values of self-insured and fully insured PPO plans (0.7 percent).

To supplement our analysis of actuarial values, we compared particular benefits (co-pays, deductibles, out-of-pocket maximums, lifetime benefit maximums) of fully insured and self-insured plans. We again stratified by plan type and included a full set of controls for firm size and other firm characteristics. (Results of these analyses are given in Table C.4 in Appendix C.) We found that self-insured HMO plans have higher deductibles than fully insured HMO plans,

while co-payments for various services (specialty care, prescription drugs) are sometimes higher and sometimes lower. Self-insured PPO plans have lower deductibles, are more likely to have a maximum out-of-pocket liability for enrollees, have lower out-of-pocket liability caps, and have lower co-payments than fully insured PPO plans. These findings are consistent with our finding that the overall actuarial value of self-insured PPO plans is slightly higher than that of fully insured PPO plans, subject to the caveat that firm size may not be fully accounted for.

We also examined whether plans had a lifetime benefit maximum and, if they had one, the level of that maximum. We found that across all plan types—HMO, PPO, POS, and HDHP— self-insured plans were substantially more likely to have a lifetime maximum. Approximately 39 percent of all plans were reported to have a lifetime benefit maximum, but the odds of having a lifetime maximum were more than three times as great for self-insured HMO plans as for fully insured HMO plans and were roughly twice as great for other types of self-insured plans. In addition, lifetime benefit limits were somewhat lower in self-insured plans than in fully insured PPO, POS, and HDHP plans. These findings are particularly important in light of new provisions in the ACA that will eliminate annual and lifetime maximums. As some stakeholders noted, those provisions may provide an incentive for firms to fully insure in order to offset the risk of unlimited maximums.

Finally, some interviewees suggested that firms with self-insured plans may have more incentive to offer and engage their employees in wellness programs that could reduce health care claims. We compared employers' offering of wellness programs across self-insured and fully insured plans. The Kaiser/HRET data include whether firms offer one or more of a range of wellness programs, including weight-loss programs, gym membership or on-site exercise facilities, smoking cessation programs, personal health coaching, nutrition classes, web-based

resources, and wellness newsletters. We used this information to develop a measure for offering wellness programs among firms—specifically, a dichotomous variable indicating whether the firm offers three or more wellness programs.

In 2010, the majority of firms with 200 or more employees reported offering three or more wellness programs—roughly 80 percent of both self-insured and fully insured firms with 1,000 or more employees and roughly 70 percent of self-insured and fully insured firms with 200–999 employees. Roughly 25 percent of self-insured small firms reported offering three or more wellness programs, as did 31 percent of fully insured small firms.[xiv] (Full descriptive statistics are given in Table C.5 in Appendix C.)

We conducted regression analyses to examine whether self-funded plans were more or less likely to offer wellness programs, with other firm characteristics held constant. We found a small but statistically significant negative effect of self-insuring on the probability of offering three or more wellness programs. (Full regression results are given in Table C.6 in Appendix C.) The analysis does not account for potential differences in the generosity or nature of the programs offered or for potential differences in the types of programs employers considered to be "other" wellness programs.

In summary, the findings from our quantitative analyses do not suggest that benefits are systematically lower or higher at self-insured firms than at fully insured firms. We find that overall benefit generosity at self-insured firms, as measured by actuarial value, is slightly lower for self-funded HMO plans and slightly higher for self-funded PPO plans. Specific benefits vary between self-insured and fully insured health plans but are neither consistently higher nor consistently lower for self-funded plans across all types of benefits. Self-insured plans are more likely to have a lifetime maximum benefit than fully insured plans, and where such caps are

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[xiv] We define a self-insured firm as one that offers at least one self-insured health plan.

present, their level appears to be somewhat lower in self-insured plans. However, there are dimensions of benefit generosity for which we do not have measures, and thus we were unable to analyze those dimensions.

PREMIUMS FOR SELF-INSURED AND FULLY INSURED HEALTH PLANS

It is difficult to compare premiums of self-insured and fully insured health plans because the premium measurement is different across the two types of plans. The premium for fully insured plans is the amount per member per month that the employer must pay the health insurer to cover the health care claims of the employee. The premium charged by the insurer reflects not only the anticipated health care costs of the employee that will be covered under the plan, but also an adjustment for the risk the insurer bears, as well as adjustments for the administrative costs associated with the coverage. The premium for a self-insured plan is an employer's estimate of the cost of providing a group health plan to an employee. Employers calculate this cost, for example, to determine COBRA premiums. There are various methods self-insured employers can use to calculate premiums, and estimates developed for COBRA purposes may in some cases represent worst-case scenarios.[xv] Therefore, the comparability of premiums for fully insured and self-insured plans is imperfect.

Recognizing these limitations, we analyzed differences in reported premiums for self-insured and fully insured plans.[xvi] (Descriptive statistics are given in Table C.7 in Appendix C.) Premiums for self-insured and fully insured health plans are similar for most plan types (HDHP,

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[xv] Estimates for COBRA purposes are premiums that departed employees would need to pay to continue enrollment in the employer's health plan. Thus, for discretionary components of premium estimation, employers may be incentivized to use assumptions that result in upper- rather than lower-bound estimates.

[xvi] Self-insured employers in the Kaiser/HRET survey may use premium estimates developed for COBRA purposes. We analyzed only the full premium cost and not the employee's share of premium, because the latter is likely to reflect a wage/health-benefit trade-off that we do not observe and that may differ between self-insured and fully insured plans.

POS, PPO) and firm sizes. However, reported premiums for HMO plans are higher for self-insured plans than for fully insured plans.

We conducted regression analyses to examine the influence of self-insuring on premiums, controlling for other firm characteristics and for the actuarial value of the plans.[xvii] Results are given in Table 5.2. (Full regression results are given in Table C.8 in Appendix C.) We found that premiums were approximately $33 per month higher for self-insured HMO plans than for fully insured HMO plans, an 8 percent difference evaluated at the mean premium level among all HMO plans of $393 per month. We found no statistically significant differences in premiums between self-insured and fully insured plans of other types.

**Table 5.2. Influence of Self-Funding on Health Plan Premiums:
Results from Multivariate Regression Analyses**

Plan Type	Self-Funding Coefficient (Std Err)
HMO	32.9 (6.80)*
PPPO	7.5 (6.93)
POS	−20.2 (13.99)
HDHP	18.8 (14.43)

NOTES: Separate regressions were conducted for each plan type. Regressions include controls for firm size; actuarial value of plans; year of observation; region; whether the firm has unionized workers; whether more than 35 percent of the employees earn $23,000 or less per year; whether more than 35 percent of the employees work part-time; whether more than 35 percent of the employees are 26 years old or younger; whether the firm is multi- or single-establishment; industry of the firm; and whether the firm is in an urban or rural area.
 * $p < 0.05$. Standard error in parentheses.

We are not able to fully explain the difference observed in HMO premiums across self-insured and fully insured plans, but it is possible that insurers price full-risk HMO plans and no-risk HMO plans differently, offering steeper discounts to employers who purchase the full suite of services (administration, risk, provider network, etc).

[xvii] Our premium measure is the monthly amount for single coverage.

DIFFERENCES OVER TIME IN BENEFIT FLUCTUATIONS OF SELF-INSURED AND FULLY INSURED HEALTH PLANS

We used two methods to explore the possibility that volatility in benefits differs between self-insured and fully insured plans. First, we took the subset of firms in the Kaiser/HRET data that were observed for more than one year and that offer the same type of plan (HMO, POS, PPO, or HDHP) in the years observed. We calculated the change in actuarial value during those years for each set of plan observations. We then conducted regression analyses with the change in actuarial value as the dependent variable and with an indicator for self-insured versus fully insured as an independent variable, along with controls for year, region, and other firm characteristics. Table 5.3 provides coefficients on the key independent variable (the indicator for self-insured). (Full regression results are given in Table C.9 in Appendix C.)

Table 5.3. Self-Funding and Changes in Health Plan Benefit Generosity Over Time: Results from Multivariate Regression Analyses

Plan Type	Self-Insured Coefficient (Std Err)
HMO	-0.31 (0.270)
PPPO	-0.27 (0.426)
POS	1.29 (0.697)
HDHP	0.44 (0.815)

NOTES: The dependent variable is the difference between the actuarial value of an employer's health plan in the first year observed and the actuarial value of that plan in the second year observed, multiplied by 100. Separate regressions were conducted for each plan type. Regressions include controls for firm size; year of observation; region; whether the firm has unionized workers; whether more than 35 percent of the employees earn $23,000 or less per year; whether more than 35 percent of the employees work part-time; whether more than 35 percent of the employees are 26 years old or younger; whether the firm is multi- or single-establishment; industry of the firm; and whether the firm is in an urban or rural area.
* $p < 0.05$. Standard error in parentheses.

We found no statistically significant effect of a firm being self-insured on changes from year to year in the overall generosity of benefits, as measured by actuarial value. However, we

observed changes over only a limited time frame; the majority of firms observed for more than one year were observed in only two consecutive years, and benefits appear relatively stable for most of the employers observed. Additionally, because the Kaiser/HRET survey asks about the largest plan of each type (HMO, PPO, PPS or HDHP), it is possible that the plan under consideration could change from one year to the next. These analyses do not address whether benefits change more or less among self-insured and fully insured plans over a longer time horizon.

The Kaiser/HRET data include responses to the following question posed to employers in 2009 and 2010: In response to the economic downturn, has your company reduced the scope of health benefits or increased cost sharing? We conducted logistic regression analyses of this variable, with the key independent variable being an indicator of self-insured (versus fully insured), and we again controlled for region, year, and a set of firm characteristics. We found no statistically significant effect of firms' self-insured versus fully insured status on the probability of reporting a change in the scope of benefits or cost sharing. (Full regression results are given in Table C.10 in Appendix C.)

CHAPTER 6. CLAIMS DENIALS

The value of consumers' health insurance coverage depends in large part on the ability to access the benefits specified in the terms of the plan. Submitting a medical claim does not guarantee payment, and insurance companies routinely review claims for errors and retain the right to deny payment for claims outside the scope of the plan. Claims denial rates can provide additional information about the quality of plans with identical contract terms. Plans with higher claims denial rates are of lower value to consumers. This chapter explores the relationship between self-funding and claims denial rates by investigating the potential conflicts of interest in claims adjudication and comparing empirical evidence on denial rates.

CONFLICTS OF INTEREST IN CLAIMS ADJUDICATION

A potential conflict of interest arises in health insurance claims adjudication, because the insurance company that decides what claims to pay is also financially responsible for making the payments. Although the impact of this conflict on actual claims decisions is subject to debate, former insurance insiders have reported cases of financial factors influencing medical claims decisions.[11] Consumers who feel their claims have been improperly denied often cite this conflict of interest. Following the decision in *Metropolitan Life Insurance v. Glenn, 554 U.S. 105 (2008)*, courts are instructed to take this factor into consideration in judicial reviews[12] of claims relating to employer-sponsored group health plans.

The practical importance of conflict of interest in claims adjudication depends on the degree of discretion the insurer has in determining what claims are valid and the costs and benefits to the insurer from increasing denials. Consumer concerns about potential conflicts of interest in claims decisions became more pronounced in the 1990s as the spread of managed care introduced new tools for cost containment and a more active role for insurers in deciding

payments.[13] Managed care plans also tend to have more complicated contractual terms that impose limits on providers and services. These limits create a broader basis for denials within the terms of the contract than that in traditional fee-for-service plans. Perhaps unsurprisingly, state policies aimed at addressing this conflict of interest often target managed care plans: one-third of state external review programs are limited to appeals of managed care plan denials.

The key question for this study is how the conflict of interest in claims adjudication *differs* between self-insured and fully insured plans. For both plan types, the benefit to the plan from more denials is lower expenditures. The savings for firms with self-insured plans can improve the firms' financial performance; those for fully insured plans go to the insurance carriers. High rates of denial result in increased costs from potential legal challenges and market forces such as reputational harm.

Theoretically, the financial incentives to deny medical claims are expected to be *smaller* for self-insured plans, for two reasons. First, employers may be more willing than insurance companies to cover medical costs for members, because of their greater financial stake in the health and well-being of their employees. This reasoning was suggested by several stakeholders we interviewed. It is possible that medical claims denials by self-insured plans have a stronger effect on employee morale and loyalty, because the denial is perceived to be coming from the employer rather than an insurance company. Another possibility is that employers internalize more of the financial costs resulting from employee sickness. Poor worker health can lead to higher future medical claims, as well as lower productivity and greater use of benefits, such as paid time off and sick leave. It can also increase voluntary and involuntary worker turnover, which is likely more costly to firms than enrollee turnover is to insurers.

In addition to these financial differences for current workers, expected turnover rates may also tend to make optimal rates of claim denials lower for employers than for insurers. The insurance turnover rate of individuals with employment-related insurance coverage will generally be higher than their employer turnover rate, because individuals are more likely to change insurance plans (employers may offer multiple plans or employees may choose coverage from another source) than to change jobs (most job changes also involve a change in insurance coverage). High employer turnover rates create an externality in insurance payments for health claims that lowers the relative willingness of insurers to pay for medical services that will reduce health spending in the future, because these future gains will be realized by a different company.

The second reason for financial incentives to deny medical claims being smaller for self-insured plans relates to the common organizational structures employed in the administration of claims for these plans. Employers who self-insure are responsible for paying medical claims, but they rarely handle the processing of those claims directly. They generally contract plan administration out to a third party. The administrator can be a TPA company that specializes in plan administration or an insurance carrier that also sells fully insured products (through an administrative-services-only (ASO) contract). This added layer of intermediation may eliminate the conflict of interest because the administrator is employed by an entity separate from the payer.

The conflict will remain if the TPA has financial incentives to cut spending. Our investigation of TPA contract terms revealed substantial variation in plan terms. However, financial incentives for claims denials or cost savings in contracts are rare. They are prohibited in Section 8 of the National Association of Insurance Commissioners (NAIC) Model Third Party Administrator Statute, which had been adopted by 23 states by October 2010 (another 16 states

had related rules in place).[14] Typical pricing is per contract or per member per month, and performance guarantees relate to timely payment of claims and response to enrollees. Although direct conflict is avoided, there are concerns that employers may exert indirect influence by considering denials in their choice of a TPA. In cases where claims administration and stop-loss coverage are provided by the same insurance carrier, the company may have a financial interest in reducing claims beyond the stop-loss attachment point.

The stakeholders we interviewed did not perceive a greater conflict of interest in claims adjudications between self-insured and fully insured plans. Insurance companies reported no difference in their rules for initial determinations of claims from insured plans and those for claims processed through an ASO contract. Employers that changed coverage similarly reported no systematic differences in the handling of claims. Although the self-insured plan sponsor is the ultimate plan administrator, employers are said to rarely dispute claims that the TPA has approved. The plan rules, outlined in the SPD, are often quite specific and leave little room for employer involvement (without the risk of being sued). TPAs feel comfortable assuming that claims will be reimbursed if paid according to the SPD.

Employers are sometimes involved in deciding appeals of TPA denials, however, and the typical appeals process for self-insured plans consists of an initial appeal with the TPA and then a final appeal to the employer (handled by human resources, top management, or a committee). In some instances, employers have decided to pay claims that the TPA had rejected. One employer said it was easier to correct mistakes and make exceptions to favor employees outside of the terms of the SPD with a self-insured plan. The desire to recruit and retain a healthy workforce and to avoid negative publicity were mentioned as reasons for employers sometimes paying these claims out of their general assets. One stakeholder said, "More often than not, [self-

insured employers] who get involved in claims payments give away more than they should." Perhaps as a result, employers are counseled not to interfere with claims decisions or appeals. Those that avoid direct involvement sometimes help workers navigate the internal appeals process with the TPA. Some self-insured employers use an external, independent medical reviewer for some appeal requests, although they are not legally required to do so. Consumer advocates also report that when employers get involved, it is usually to the employee's benefit.

Even if the conflict of interest is no greater for self-insured plans, two countervailing factors could theoretically lead to higher denial rates in these plans. The first factor is the relative lack of public information regarding claims denial rates. Rates are not generally reported to consumers, but the information is sometimes available for insurance companies through state insurance regulator websites. For example, California and Texas provide company-specific information about denial rates. Self-insured plans are not considered insurance and are not subject to these reporting requirements, so information on denials is not reported for them. Although knowledge of claims denial rates could help consumers make informed plan choices, this information may be difficult for consumers to find or to interpret in terms of plan quality. Market forces such as reputation also may not be effective in reducing denials, even for fully insured plans, because employment-based group policies are typically marketed to employers rather than to individuals. People who purchase health insurance through their employers choose from a limited set of options (one plan or a few plans[15]). More important, denial rates may not be significant for consumers who are choosing new health plans or workers who are choosing employers.

The second countervailing factor is the more limited legal recourse options for consumers in self-insured plans. The stakeholders we interviewed did not consider either of these factors to

be an important source of differences in initial denial rates. However, several stakeholders were concerned about the differences in consumer protection between different plan types, especially the limited recourse options in self-insured plans. Recourse options for different types of plans and changes under the ACA are discussed in detail in Chapter 7.

Stakeholders also mentioned a conflict of interest regarding the use of private health information as a concern that might be heightened for individuals with self-insured plans. One advantage that employers cite for self-insurance is greater access to individual-level claims information to help predict expenses and craft plan features (see Baker, 2002[16]). Although the HIPAA Privacy Act protections apply to this information, detection and enforcement may be difficult, and some employers might consider health factors in promotion and termination decisions. This was not seen as a major difference, however, since employers can learn about health issues even if they do not self-insure.

CLAIMS DENIAL RATES

We attempted to supplement the results of our qualitative analysis with quantitative evidence on differences in initial claims denial rates between self-insured and fully insured plans. This exercise was severely limited by the lack of available data and the lack of comparability between different sources. There is no single national data source for claim denials by fully insured plans and no large-scale reporting of denials by self-insured plans.

Kapur, Gresenz, and Studdert (2002)[13] found denial rates of 8 percent and 10 percent for all claims at two large managed care organizations in California. This was higher than previous estimates in the literature that relied on insurance company self-reporting. Denial rates were highest for emergency care and durable medical equipment. Retrospective claims, filed after consumers had already received care, were denied at a higher rate than prospective, or pre-

service, claims (for pre-approval of services). Recent data on initial claims denial rates for plans regulated by the California Department of Managed Health Care were used in a 2010 report by the California Nurse's Association, which found a denial rate of 21 percent for claims filed at the six largest HMOs between January and June 2009.

These numbers suggest that a non-trivial share of managed care claims are initially denied. Whether or not this reflects poor plan quality depends in turn on the quality of the initial claims. If a large share of the denials were for erroneous, fraudulent, or otherwise improper claims, the rate would reflect diligence on the part of administrators. In fact, the insurance industry responded to the 2010 report, saying that most claim denials are for duplicate claims, incorrect or incomplete claims, claims sent to the wrong insurers, or physicians submitting claims for patients they treat in a capitated setting.[11]

Medical providers serve as another source of information on denied claims. These denials occur post-service, after the consumer has received care. As part of its National Health Insurer Report Cards, the American Medical Association reports claim denial rates for seven private insurance companies and Medicare. The plan-specific denial rates, excluding claim edits, for 2008 to 2010, ranged from 1 to 7 percent. Another source of data on claims by health-care providers is athenahealth, a company that offers electronic billing services. Athenahealth tracks initial denial rates for different insurance companies and reports the information publicly on its website. In 2010, denial rates ranged from 3 percent to over 30 percent, depending on the insurer. The highest denial rates were for Medicaid plans; private insurance rates were generally below 15 percent.

None of the data sources we identified provide separate evidence on claims denial rates for self-insured plans or a comparison of denial rates by funding type. Fortunately, with help

from athenahealth, we were able to obtain empirical evidence about difference in denials by funding type. Researchers at athenahealth identified claims from 11 plans that both offered fully-insured products and administered self-insured plans as a TPA. Within the 11 plans, 6556 claims were for self-insured enrollees, and 3.6 million were for fully-insured enrollees. Raw denial rates were 9.14 percent for self-funded claims, and 5.72 percent for fully-insured claims. However, the raw denial rates are misleading, since the self- and fully-insured claims were not evenly distributed across the 11 plans. More specifically, nearly 80 percent of fully-insured claims were from a single plan, whereas the self-funded claims were more evenly distributed across the 11 plans. When we re-weighted the fully-insured claims so that the distribution across plans was equivalent in to the distribution among self-funded claims, the denial rates were 9.14 percent for self-insured and 9.18 percent for fully-insured claims.

We then further limited the athenahealth sample to a subset of claims submitted to the same administrator and for the same set of providers. This restriction caused the variability in denial rates to increase substantially, likely due to the smaller number of claims. Depending on the administrator, self-insured plans showed both higher and lower denial rates than the comparable claims for fully-insured plans. This evidence is consistent with the qualitative findings that stakeholders did not expect there to be consistently more denials at self-insured plans.

In the data from athenahealth, the reported reasons for denial included documentation errors, patient ineligibility for coverage, benefits not covered, and specific providers not covered. About half of the denials for each plan type were coded as "benefits coverage," meaning the service was not included in the plan and was generally the patient's responsibility, and another

10 percent were coded as "patient insurance issues," meaning the patient was not eligible or had a coordination-of-benefits issue.

Even when information about the reasons for denial is available, several limitations should be noted concerning the use of denial rates as a metric for plan quality. One issue is variation in the nature of initial claims. Denials occur only if claims are submitted. Plans with restrictive contract terms may have higher denial rates if consumers are confused about the terms of their policies or if they wish to challenge those terms (possibly because of state insurance regulation that provides external reviews). Utilization controls employed by managed care plans to improve efficiency, such as pre-authorization and gatekeepers, may prevent some claims from being submitted. When insurance and service delivery are integrated within an HMO, providers can play a role in rationing services and lowering the number of claims submitted. In the case of capitated plans, no post-service claims are filed, but compensated medical care may nonetheless be restricted.

CHAPTER 7. CONSUMER RECOURSE OPTIONS

This chapter describes the main recourse options available to consumers with employer-sponsored group health plan coverage who experience denied medical claims. These options are internal appeals, external appeals, and litigation. For each type of recourse, we contrast the rights of consumers with self-insured group health plan coverage to those with fully insured coverage under the relevant state and federal laws and describe key changes that will result from the implementation of the ACA. Table 7.1 summarizes the main results of this analysis.

Table 7.1. Summary of Consumer Recourse Options Under State and Federal Law

	Self-Insured	Fully Insured
Internal Appeals		
ERISA	Yes	Yes
State law	No	Yes[a]
Changes to federal rules under the ACA	Yes (non-grandfathered)	Yes (non-grandfathered)
External Appeals		
ERISA	No	No
State law	No	Yes[a]
Changes to federal rules under the ACA	Yes (non-grandfathered)	Yes (non-grandfathered)
Litigation options for wrongful benefit denial or delay		
ERISA	Yes	Yes
State law	No	No
Changes to federal rules under the ACA	No	No

NOTE: ERISA rules for internal claims and appeals were updated in 2003. Details are provided in the text.
[a]Not all states extend requirements for internal and external appeals beyond ERISA requirements.

FEDERAL LAWS AFFECTING CONSUMER RECOURSE

Any discussion of consumer recourse options for denied claims in employer-sponsored group health plans must begin with ERISA, the federal law that covers all such plans irrespective of funding type, excluding church- and government-employee plans and plans that are primarily for non-resident aliens. ERISA protects plan beneficiaries by setting minimum standards for disclosure about plan benefits and rules concerning the timing of initial claims determinations and appeals procedures for denied claims.

ERISA also limits consumer recourse options by preempting state laws that would otherwise provide them in a way that differs by plan funding status and by recourse type, since ERISA does not preempt state laws regulating insurance.[xviii] As discussed earlier, fully insured group health plans purchased from insurance companies can be regulated under state insurance rules, but self-insured plans are not considered insurance and are not directly subject to these state laws. For the sake of ERISA preemption, the purchase of stop-loss insurance, even with a low attachment point, does not shift a plan out of self-insured status.[xix]

The ACA introduces new mandated recourse options that bring self-insured plans closer to fully insured plans, but differences may remain. Consumers with both plan types may have concerns about the limits that ERISA places on their recourse options that are not altered by the ACA. On July 23, 2010, three key federal agencies—the Department of Health and Human Services (DHHS), DOL, and the Department of the Treasury—jointly issued sets of regulations (effective on September 23, 2010) that implement the internal appeals and external review

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[xviii] See Chapter 2 for additional discussion of ERISA and state insurance regulation.
[xix] Sixteen states require minimum attachment points for stop-loss insurance, ranging from $5,000 to $25,000 for specific (individual) spending and from $100,000 to $150,000 for aggregate plan spending (see Ref. 17).

requirements of the ACA.[xx] Subregulatory guidance through technical releases, frequently asked questions (FAQs), and model notices was also issued in August and September 2010.

These new requirements will apply to all ERISA plans, regardless of self-insured or fully insured status, excluding those plans that are grandfathered. The ACA establishes a minimum level of federal protection. State standards that exceed the new ACA requirements will remain in effect, but only for fully insured plans.

PRE-ACA INTERNAL APPEALS OF DENIED CLAIMS

A set of ERISA regulations covers internal claims and appeals that apply to all employer-sponsored group health plans, both self-insured and fully insured. These rules were not in the original act but resulted from subsequent legislative amendments. The current ERISA rules on internal claims and appeals processes became effective in January 2003 and are found in 29 CFR 2560.503.

A key requirement is that each plan must establish and maintain a reasonable claims procedure. The plan documents must describe the steps needed to obtain prior approval for benefits, the claims procedure cannot unduly hamper or inhibit claims (no fees can be required to submit a claim, for example), and representatives must be allowed to bring claims on behalf of covered individuals. Decisions must be made in a timely manner, with time periods defined based on the type of claim or decision. Notices of decisions must be written in a manner calculated to be understood by the claimant (notices can be oral initially for urgent care) and must include the reasons for the adverse determination, the plan provisions being relied upon, a description of the information the claimant needs to provide and why it is needed, the plan's

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[xx] The parallel sets of regulations can be found at 26 CFR Parts 54 and 602 (Department of the Treasury), 29 CFR Part 2590 (DOL), and 45 CFR Part 147 (DHHS).

internal appeals process and time limits, and notification that federal court suit is allowed after the internal options are exhausted.

Moreover, the plan must also establish and maintain an internal procedure for appeal of an adverse decision and receiving a full and fair review. Requirements for such a procedure include the provision of an opportunity to submit written evidence; reasonable and free access to all documents, records, and relevant information; a holistic review of the totality of the circumstances surrounding the claim (going beyond what was submitted by the claimant); a 180-day window for filing an appeal; a reviewer who is not the same person (or his or her subordinate) who made the original decision; a review process that does not give deference to the original decision; consultation with fully disclosed experts (internal or external) when the decision involves a medical judgment; and an expedited review process when urgent-care claims are involved. There are rules for the timing of the internal appeals decision and requirements for the information that must be contained in any notice of an adverse benefit decision following an appeal. The notice must include the reason for denial, a statement that the claimant is allowed to have access to all evidence free of charge, a description of any available voluntary appeals process, and the information required for appeals.

Before filing suit in federal court, the claimant must first exhaust all ERISA claims procedures. However, no more than two levels of internal appeals can be required before federal ERISA actions are allowed. Additional voluntary levels of internal appeal must be transparent and truly voluntary for consumers. In instances where the plan fails to comply with the mandated internal claims and appeals rules, a claimant will be deemed to have exhausted all administrative remedies and able to pursue all remedies under ERISA in federal court.

Like self-insured plans, fully insured plans are required to comply with the ERISA process for internal claims and appeals. Unlike self-insured plans, they may also be subject to state regulations for internal appeals. States have passed enrollee grievance system requirements for HMOs operating within their borders, and many have mandated internal appeals processes for all types of insurance plans (HMO, PPO, POS, and indemnity plans). Lieberman et al. (2005)[18] provides a listing of internal claims procedures available as of the end 2004. These state review processes do not have to be exhausted before a claimant can decide to trigger an ERISA enforcement action, provided the ERISA claims procedures have been exhausted.

NEW ACA RULES FOR INTERNAL APPEALS

Under the ACA, all non-grandfathered group health plans[xxi] and health insurance issuers offering group or individual health insurance coverage must provide enrollees with an effective process for internal appeals of coverage and claims determinations. The new standards for internal appeals modify the ERISA appeals requirements in several ways:

- Rescissions of coverage are treated the same as adverse benefit determinations.

- Claimants must be given notice of benefit determinations for urgent-care services as soon as possible (taking into account medical exigencies) but at least within 24 hours after receipt of the claim, regardless of whether the determination is adverse (with some exceptions for instances where insufficient information was provided to the plan). The prior requirement in ERISA's standard claims-challenging process was 72 hours.

- Claimants have a right to review the claim file and to present evidence and testimony as part of the internal appeal process. Claimants must be provided with

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[xxi] Health plans that were in place on March 23, 2010, and that have not substantially changed the scope of benefits since that time are considered to be grandfathered and exempt from certain provisions in the ACA.

notice (with sufficient time for a reasonable opportunity to respond) that describes new or additional evidence considered, relied upon, or generated in connection with the claim. This information must be provided without charge.

- In advance of any final internal benefit determination that is based on a new or additional rationale from the initial claim decisions, the claimant must be provided with the rationale for the decision. As is the case for new or additional evidence, the information must be provided without charge and with sufficient notice to provide a reasonable opportunity to respond.

- Under the ACA, steps must be taken to ensure the independence and impartiality of the adjudication process. Employment decisions (hiring, compensation, promotion) of claims adjudicators, medical experts, and others involved in the process cannot be linked to past or future claims decisions.

- Notices of adverse benefit determinations must provide the claimant with sufficient information to identify the claim, including dates of service, names of health care providers, claim amounts, and the meaning of any codes used for diagnosis and treatment. The reasons for the adverse action must include the meaning of the denial code, the standards applied, and a discussion of the decision.

- Notice of any benefit determination must be provided to enrollees in a manner that complies with ERISA's existing notice requirements and that is culturally and linguistically appropriate. This notice must include information on the availability of internal and external appeals, as well as the availability of and contact information for appeals-related consumer assistance or ombudsmen.

A plan's failure to strictly adhere to these regulatory requirements will mean that a claimant will be deemed to have exhausted administrative claims and appeals processes, thus opening the door to ERISA judicial remedies.

Since the federal rules impose only a minimum standard, states may implement stricter rules for internal review on fully insured plans through their regulation of insurance. In response to the new federal internal review requirements, the NAIC has updated two of its existing model laws, the Health Carrier Grievance Procedure Model Act and the Utilization Review and Benefit Determination Model Act. The model laws conform to the new minimum federal standards and include a few additional consumer protections.[xxii] For example, the utilization review model requires health carriers to have written utilization review programs. It also requires, for concurrent reviews, that health carriers continue the health care service or treatment that is the subject of an adverse determination, without liability to the consumer, until the consumer has been notified of the determination of the appeal. The DOL interim final rule does not include these requirements. States that adopt the NAIC models or similar provisions can impose somewhat stricter requirements for initial claim determinations and internal reviews on fully insured plans than the requirements for self-insured plans.

PRE-ACA EXTERNAL REVIEW REQUIREMENTS

Prior to the ACA, ERISA did not require any particular type of external or independent medical review to be available to consumers who experience adverse claims decisions. For fully insured plans, states had the option to mandate external review procedures. Provisions in the ERISA internal claims and appeals procedure regulations are clear that state-mandated external

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[xxii] As of July 2010, four states had adopted the NAIC Health Carrier Grievance Procedure Model Act, and 34 others (plus the District of Columbia) had some related regulation in place.[20] By that same date, six states had adopted the NAIC Utilization Review and Benefit Determination Model Act, and 37 others had some related regulation.[21]

review procedures for insurance are *not* preempted for fully insured plans.[xxiii] ERISA also states that such procedures do not have to be exhausted before a claimant can pursue federal court remedies. In contrast, self-insured plans are not considered insurance and are not subject to state insurance laws mandating external review.[12]

The earliest state external review programs were implemented in Michigan in 1978 and Florida in 1985. Other states adopted external reviews in the mid-1990s, and 20 programs started in 2000 or later.[18] Before the passage of the ACA, the only states without external review requirements were Alabama, Mississippi, Nebraska, North Dakota, South Dakota, and Wyoming. The scope of external review programs varied across states. External review applied only to managed care plans in 11 states (Alaska, Florida, Georgia, Hawaii, Indiana, Nevada, New Hampshire, Oklahoma, Pennsylvania, Tennessee, and West Virginia). New Mexico and North Carolina exempted fee-for-service providers. Most state programs accepted requests for denials based on medical necessity or investigational treatments only, but some accepted all denials. More than 10 states required a minimum dollar amount under dispute, and nearly all had time limits (usually around six months) for requesting review. There was also variation in the procedure for requesting the review—sometimes the plan accepted applications, and sometimes the state did. The external review entity was sometimes selected by the state, sometimes by the enrollee, and sometimes by the plan (although in some states, the enrollee could object). In 16 states, consumers could be charged a fee for requesting an external review. The amounts were generally nominal ($25 or $50) and could sometimes be waived for financial hardship or if the decision favored the consumer.

[xxiii] This is a reflection of appellate opinions such as *Rush Prudential HMO, Inc. v. Moran*, 536 U.S. 355 (2002)[22] that external review rules survive preemption as a saved insurance law.

PRE-ACA DATA ON EXTERNAL APPEALS

Empirical studies of state external review programs have found that those programs tend to have a low volume of cases and a high success rate for consumers. The low volume of external review cases is described by Pollitz et al. (1998)[23] and Pollitz et al. (2002)[24]. Caseloads have tended to increase over time, but even in more-recent data, fewer than 500 cases per year were reviewed in all states but New York. This reflects a far lower rate per enrollee than the external review rate for Medicare managed care enrollees, for example. It is possible that the low caseloads reflect consumer satisfaction with the utilization review and internal appeals procedures provided by their plans. Alternatively, they may reflect a lack of consumer awareness of recourse options following adverse benefit decisions or other impediments to pursuing complaints through the full course of internal and external appeals. Common features of external review programs (aimed at preventing frivolous requests) such as application fees and short filing periods may have also served as barriers to some valid consumer complaints.

Given the volume of complaints, it is worth noting that the benefit of a state-mandated external review process can extend to consumers who never file complaints. Pollitz et al. (1998)[23] report anecdotal evidence from regulators that health plans respond to external review decisions by lowering denial rates for certain types of claims. This, in turn, could lead to lower success rates for external review cases, as the mix of cases that are appealed changes over time.

Studies of external appeal programs have found that consumers are successful in having their denied claims covered, either wholly or in part, about half of the time. The initial published evidence on external review is based on data from the California Department of Managed Health Care's independent medical review program. Chuang, Aubrey, and Dudley (2004)[25] examined independent medical review cases from the California program between January 2001 and December 2002 and found a reversal rate of 36 percent (excluding the 9 percent of cases that

were withdrawn by the plan or the consumer). Gresenz and Studdert (2005)[26] analyzed the outcomes of these cases and found tension between the external review rules and the contractual terms of the plans; many reversals involved reviewers rejecting coverage restrictions in the plan rules. Data spanning the life of the program from 2001 through 2010, available online from the regulator, show that consumers obtained reversals in 41 percent of the cases.

Success rates were also high in other states, although the rates varied. Using the definition of success for a consumer as having a claim denial overturned wholly or in part or having the health plan reverse its decision after the external review begins, Lieberman et al. (2005)[18] found success rates of between 39 percent and 57 percent in 2003–2004. The rates were 39 percent in California, 42 percent in Indiana and New York, 45 percent in North Carolina, 49 percent in Maryland, and 57 percent in Maine and Texas. An earlier study using data from the late 1990s and early 2000s found consumer success rates ranging from 21 percent to 72 percent in state programs, with an average of 45 percent.[24]

Since state programs do not apply to self-insured plans, it is impossible to know the extent of demand for external review among consumers with those plans. Indirect evidence from self-insured cases brought to state external review programs suggest that latent demand does exist. In 2003, Maryland could not accept 28 percent of consumer appeals based on medical necessity because the state did not have jurisdiction. North Carolina reported that it could not accept 7 percent of cases in 2003 and 2004 because of jurisdiction. Other major reasons for states not accepting appeal cases include incomplete requests and not having first exhausted the insurer's internal appeals process.[18] National data on complaints by disposition, reported by the NAIC for all types of insurance from 2007 to 2010, show much lower rates of lack of jurisdiction

(less than 1 percent), but this difference is likely due to large numbers of non–health insurance complaints.

Taken together, the quantitative evidence from state external review programs suggests that this recourse option provided meaningful relief for some consumers with fully insured plans but not for those with self-insured plans. Even in cases where the initial denial was upheld, consumers may have valued the external review process as a way to have their case decided by an impartial outsider rather than someone affiliated with the plan responsible for the original denial.

NEW ACA RULES FOR EXTERNAL APPEALS

The main change to recourse options in the ACA is the requirement that external review be available to consumers in all states and for both fully insured and self-insured plans. This requirement applies to all non-grandfathered plans, irrespective of funding status.

The remaining source of variation in the specific external review requirements for non-grandfathered plans is that the external review of some plans will be subject to state regulation, while others will be covered by federal regulation. For insured coverage, if the plan is already subject to state external review procedures and the state process includes at a minimum the consumer protections in the NAIC Uniform Health Carrier External Review Model Act, the state's rules on external review will control the plan.[xxiv]

The regulation lists minimum protections that define whether the state external review rules are sufficiently similar to the NAIC model act. Some of the key requirements are the following:

[xxiv] Section 2719 of the ACA mentions the NAIC act as the minimum standard for consumer protection required for a state external review. The interim final rules specify that the relevant version is the NAIC Uniform Health Carrier External Review Model Act in place on July 23, 2010.

- A process for the external review of adverse benefit determinations based on medical necessity, appropriateness, health care setting, level of care, or effectiveness of a covered benefit.

- Written notice to claimants of their rights.

- Exhaustion of the internal appeals process not always required for external review.

- The costs of the independent review organization (IRO) paid by the plan.

- No minimum-dollar thresholds.

- At least four months allowed to file a demand for an external appeal.

- Impartial assignment of the specific IRO performing the review.

- IRO approved by the state.

- Safeguards in place to assure the IRO's impartiality.

- At least five days for the claimant to submit additional information for the IRO's decision.

- The decision must be binding.

- The decision must be rendered in not more than 45 days.

- An expedited decision should be available under certain circumstances.

- The external review process should be described to plan participants.

- Written records of the review must be maintained and made available to the state.

- External review of experimental or investigational treatment should follow the NAIC model act.

States sometimes impose weaker requirements in some dimensions and stricter requirements in others. For example, several states provide weaker protection in that they impose

minimum-dollar thresholds for external review, while other states provide stronger protection by giving consumers up to six months to file their requests.

Plans that are not covered by a compliant state external review process will be subject to a federal external review process. These plans include self-insured group health plans and fully insured plans in states without external review procedures that meet the NAIC standard.

The broad outlines of the federal external review required by the ACA are known, but the precise details are not. However, they will include any adverse benefit determination or final internal adverse benefit determination other than decisions related to plan eligibility. According to the new regulations, the process will be similar to that found in the NAIC Uniform Health Carrier External Review Model Act. The standards will describe how to initiate an external review; the procedures for preliminary review; minimum qualifications for IROs; the process for determining IRO eligibility; the process for random assignment of IROs; standards for IRO decisionmaking; rules for providing notice of the final decision; the process for an expedited review when the life, health, and maximum function of the claimant are in serious jeopardy; consumer protections for claims involving experimental or investigational treatments; how the decision will be binding on the plan, issuer, and claimant; possible external review reporting requirements for IROs; and additional notice requirements for plans and issuers to disclose the availability of external review and provide information as the review takes place. For internal appeals, federal external review rules require notices to be "culturally and linguistically appropriate."

Until the federal external review process is fully developed, non-grandfathered self-insured plans have enforcement safe harbor if they comply with the appropriate technical release or if they participate in a state external review process (if their state allows access to them).[27]

Notwithstanding some remaining uncertainty about the exact federal external review process, the ACA will narrow the large gap that emerged in recent decades between the external review rights of consumers in self-insured and fully insured employer-provided plans. As grandfathered status becomes less common over time, the review processes for the two types of plans will become more similar. The remaining differences will stem from differences between state programs that apply to fully insured plans and the federal programs that cover the self-insured.

LITIGATION OPTIONS FOR EMPLOYER-SPONSORED PLANS

The main litigation option for consumers who wish to challenge plan decisions is an ERISA enforcement action, regardless of how the plan is funded.

ERISA actions are focused on getting plans to pay what they promised in the plan documents. In an ERISA claim, the court will generally overturn a plan administrator's decision only if it is arbitrary and capricious. The remedies available in ERISA federal court enforcement actions are aimed at reimbursing beneficiaries for medical expenditures, not for forcing plans to provide specific medical services or for addressing the ramifications of unreasonable benefit delay or denial. A federal court ERISA action allows claimants to recover benefits due, enforce or clarify rights under the plan, or obtain an injunction of any practice that is in violation of ERISA or the plan's terms. A successful claim for benefit delay or denial in an ERISA action will result *only* in the recovery of the cost of the care or a requirement that the plan pay for services, though a discretionary award of attorneys' fees and lawsuit expenses may also be available in some cases.

In general, lawsuits against self-insured or fully insured group health plans based on state-law claims have not been successful. Although a line of cases in the late 1990s suggested that benefit decisions that include both eligibility and treatment components might be actionable

under state tort law, later Supreme Court cases retreated from these openings.[xxv] Although the savings clause of ERISA allows states to regulate insurance, the courts have determined that this does not extend consumer recourse options for denied medical claims to include state common-law causes of action against employer-sponsored group health plans.[xxvi]

The ACA did not change the litigation options available under either plan type. Consumers with self-insured and fully insured plans are not able to sue their plans under state law and can obtain only the limited remedies provided under ERISA. The fact that ERISA does not provide any damages for injuries caused by claim denials[12] is a concern for consumer advocates, but not one that is particular to self-insured plans.

STAKEHOLDER CONCERNS ABOUT RECOURSE OPTIONS

Although none of the stakeholders we interviewed believed that conflicts of interest were greater in initial claims decisions for self-insured plans than in those for fully insured plans, several of them expressed concerns about the limited recourse options available to consumers with self-insured plans and disparities between options for employer-sponsored self-insured plans and fully insured plans.

The first concern expressed was that not all consumers are provided with the same rights for independent and objective review of their medical claims and coverage decisions. The lack of mandated access to external review in self-insured plans prior to the ACA, and post-ACA for grandfathered plans, was mentioned as especially important. Although many self-insured plans report using external reviewers for appeals of denials based on medical necessity, these ad hoc

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[xxv] See *Rush Prudential HMO, Inc. v. Moran*, 536 U.S. 355 (2002)[22] and *Aetna Health Inc. v. Davila*, 542 U.S. 200 (2004).[28] An exception to this rule appears to exist for coverage decisions made by treating physicians employed directly by the plan.[12]

[xxvi] *Pilot Life Ins. Co. v. Dedeaux, 481 U.S. 41 (1987)* ruled that state common law claims are not saved by the insurance clause.[29] *Massachusetts Mut. Life Ins. Co. v. Russell 473 U.S. 134 (1985)* suggested that any law characterized as "state insurance regulation" would be preempted by ERISA if it allowed remedies such as punitive damages that were rejected by Congress when ERISA was enacted.[22]

procedures were seen as limited and imperfect substitutes for the mandated processes. In particular, it was noted that voluntary external reviews can stop at any time and that the outcomes may not be binding on the plan. Furthermore, two stakeholders expressed the view that an essential step to ensuring the independence of medical reviewers is that they not be hired or selected directly by the health plan or employer. Stakeholders were also concerned that internal reviewers and some external reviewers may not have training in the relevant medical specialties.

Several stakeholders also mentioned the difficulty that consumers face in accessing their available recourse options. There was a general perception that many workers are ill-informed about their rights to appeal denied claims and confused about how to exercise those rights. Many workers are not aware of how their employer-sponsored group health plans are funded or that the funding status can affect their recourse options. The fact that consumers with self-insured plans file complaints about their plans and request external reviews of denied claims to their state insurance commissioners, who do not regulate those plans, indicates a lack of clarity about recourse options and some consumer difficulty with the current system.

Finally, stakeholders were uncertain about how the new federal external review procedure, mandated under the ACA, would unfold and how it would relate to existing state procedures. Some of exact details of the federal external review remain unsettled, and we heard questions about how the process will compare to the NAIC guidelines used for state external appeals to ensure the quality and independence of external reviewers and the promptness of information flow and decisions. One stakeholder recommended that the federal model be built on successful state models that have been honed through years of experience. An overriding issue was that regulators should focus on transparency and simplicity for consumers. Ideally, we were told, the process of requesting an external appeal would be the same for consumers regardless of

their plan type. One stakeholder suggested that requests could be collected from all consumers and then directed on their behalf to the relevant agency.

In summary, the ACA provides self-insured participants a valuable new right to external review of denied claims. However, legal remedies for wrongful claims denials will remain limited for consumers covered by either self-insured or fully insured employer-sponsored group health plans.

CHAPTER 8. THE IMPACT OF THE ACA ON EMPLOYER DECISIONS TO SELF-INSURE

HOW DOES THE ACA INFLUENCE THE SELF-INSURANCE DECISION?

The ACA makes substantial changes to the regulations governing fully insured small-group plans. Under the laws that existed prior to passage of the ACA, small-group insurance regulations were determined on a state-by-state basis (small-group plans are also generally governed by HIPAA and ERISA). While several states have adopted modified community rating laws that substantially restrict insurers' ability to charge different prices to different groups, the majority of states allow small-group premiums to vary by as much as 30 percent.[30] In addition, there is substantial variation across states in the number and type of benefits that insurance plans are mandated to offer.[31] In most states, laws governing the small-group market apply to businesses that have from two to 50 workers.

With the passage of the ACA, the small-group market is defined to include all businesses with 100 or fewer workers,[xxvii] and fully insured plans marketed to these businesses will be governed by new federal regulations. The ACA stipulates that all fully insured, small-group plans (other than grandfathered plans) must be considered part of a single risk pool for the purposes of determining health insurance premiums, regardless of whether they are offered inside or outside of the exchanges (section 1312,(c),(2)). Further, premiums on the small-group market can vary only by plan type (individual or family), geography, actuarial value, age, and tobacco-use status. Price differences based on age and tobacco use cannot exceed 3 to 1 and 1.5 to 1, respectively (see sec. 1201 of the Patient Protection and Affordable Care Act (PPACA), which amends sec. 2701 of the Public Health Services Act). Of particular importance, health status or previous claims experience may not be considered when determining premiums. Fully

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[xxvii] In 2014 and 2015, states will have the option to limit the small-group market to firms with 50 or fewer workers.

insured small-group plans are also subject to risk-adjustment policies that will transfer funds from plans with low actuarial risk to plans with high actuarial risk (sec. 1343).[xxviii] Risk-adjustment policies may tend to increase premiums for low-actuarial-value plans, since these policies tend to attract relatively healthy and less-expensive enrollees. Finally, fully insured small-group plans must offer a yet-to-be-defined package of EHB, which will include coverage for items and services in 10 general categories (sec. 1302). Most of the new regulations that affect the small-group market, including risk-adjustment, rate-banding, and EHB requirements, are imposed both inside and outside of the exchanges.

The provisions in the ACA regarding EHB, premium pricing, and risk adjustment apply primarily to small-group plans that are fully insured. Self-insured firms are exempt, and large-group plans are exempt *unless* the state governing the employer permits large firms to offer coverage through the health insurance exchange (in which case, large employers would be required to offer EHB and would be subject to rating regulations and risk adjustment). Small-group plans are also exempt if they were in existence prior to March 23, 2010, and if they meet the requirements for grandfathering outlined in the *Federal Register* (June, 2010).[32] Plans offered by small employers are exempt from the new regulations described above if they are self-insured.

Because policies such as mandated benefits, premium rate limitations, and risk adjustment tend to increase premium prices for low-cost groups and reduce premiums for high-cost groups, the option to self-insure to avoid regulations may be attractive to employers that have low expected costs. In particular, employers that have healthy employees or employees who

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[xxviii] Small-group plans are also subject to payment transfers if actual expenditures exceed or fall below a target amount, but these risk corridors are applicable only in 2014, 2015, and 2016. Similarly, surcharges levied on all group plans (including small-group plans) to fund reinsurance for high-risk enrollees in the individual market are applicable only in 2014, 2015, and 2016.

are unlikely to use EHB might consider self-insuring in order to avoid the ACA regulations. Adverse selection could occur if firms with less-expensive workers (e.g., healthier workers or workers who use less health care) disproportionately opt to self-insure. Specifically, if a large share of small firms with less-expensive workers self-insure, premiums will increase for small firms remaining on the fully insured market. High premiums, in turn, may induce some marginal firms to either self-insure or drop coverage altogether. In an extreme scenario, adverse selection could lead to a "death spiral"—that is, premium prices could escalate to the point where the fully insured market would be unaffordable for most small firms.

The incentive to self-insure to avoid regulation currently exists in states with highly regulated small-group markets. Between 1980 and 1990, the number of state insurance mandates nearly doubled, and Jensen et al. (1995)[6] considered whether the increase in mandated benefits requirements influenced employer decisions to self-insure. While they found some evidence that mandates influenced that decision in the early part of the study period, their overall results were mixed, and some mandates (e.g., mandated alcoholism treatment and coverage of visits to psychologists) actually reduced the probability of self-insurance. Other studies have found similarly mixed results—for example, Garfinkel (1995)[7] found a negative relationship between state-mandated mental health benefits and the decision to self-insure. Overall, the literature does not show a strong correlation between state regulatory requirements and self-insurance, suggesting that adverse selection due to self-insured firms' ability to avoid regulation may be of limited concern. This finding may partially reflect the fact that many benefits mandates are predicted to have limited influence on premiums,[33, 34] although some—such as mental health parity laws—could have a larger impact.[35] Since the changes under the ACA are broader in scope than many state regulatory changes, the ACA may have a more substantial influence on

firm decisionmaking than the literature suggests. In the analysis described below, we used the RAND COMPARE model to predict how many firms will self-insure after the reform takes full effect and the degree of adverse selection that might be expected.

MODELING THE DECISION TO SELF-INSURE

Overview of the COMPARE Model

We predicted firms' decisions to self-insure using the COMPARE microsimulation model, which was developed at RAND, to estimate the effects of major health care policy changes. Details of the modeling approach are given in Appendix D. COMPARE uses data, economic theory, and computer programming to predict how individuals and firms will respond to policy changes, given the responses of others. The model relies on data from the Survey of Income and Program Participation (SIPP), Kaiser/HRET, the Statistics of U.S. Businesses (SUSB), MEPS-HC, and the SOA 1997–1999 Group Medical Large Claims dataset to create a synthetic population of individuals, families, and firms with realistic behaviors and health expenditures.[xxix] Workers are matched to firms, using an imputation procedure based on Census region, firm size, industry, and whether the firm offers health insurance. Health expenditures are based on worker age, insurance status, health status, region, and income. We used Census Bureau estimates to inflate population demographics in the model to reflect the projected population in 2016, which we used as our base year because it is the first year in which the exchanges will be fully operational.

Individuals and families—or more specifically, health insurance eligibility units (HIEUs)—in the model make decisions about health insurance enrollment, using a utility

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[xxix] The MEPS-HC data used in the model are from 2002 and 2003, the SIPP data are from 2001 and 2002, and the Kaiser/HRET data are from 2006. We aged the data to reflect current demographic characteristics and health care costs, using projections from the Census and the National Health Expenditure Accounts (NHEA).

maximization approach. Specifically, HIEUs weigh the benefits of an option (e.g., reduced out-of-pocket expenditure, lower risk) against the costs (e.g., higher premiums). In making health insurance decisions, HIEUs consider an array of factors, including eligibility for Medicaid, eligibility for subsidies on the health insurance exchange, the generosity of the plan they are considering, health insurance premiums, penalties for not obtaining coverage, and expected health expenditures. HIEUs consider the options available to each individual member, so, for example, a child is permitted to enroll in Medicaid, while one of the parents buys a single employer-sponsored insurance (ESI) plan and the other parent is uninsured. The model also allows for the possibility that married couples may have more than one employer-provided insurance plan available to them. However, in the current implementation of our utility maximization framework, HIEUs are allowed to buy only one ESI plan.

Firms in the model decide whether and what type of plan to offer based on a "group choice" algorithm that considers the aggregate utility of their workers, the total cost of offering health insurance coverage, the financial risk associated with offering a self-insured plan, and any penalties the firm might face for failing to offer a plan. Premiums in the model are determined endogenously, using the predicted expenditure of enrollees in each health insurance risk pool. Risk pools for fully insured and self-insured firms comprise employees and their dependents. Estimated premiums for small firms reflect 3-to-1 rate-banding on age and the risk-adjustment policies stipulated under the ACA. The model calculates premiums and then allows HIEUs and firms to change their health insurance decisions, using an iterative process, until results converge to an equilibrium. Expenditures in COMPARE are based on data from the MEPS-HC.[xxx] However, because the MEPS-HC data do not capture the extreme upper tail of the health care

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[xxx] The expenditure data in the MEPS-HC do not necessarily reflect negotiated discounts that insurers may be able to obtain.

spending distribution, we recalibrated the top 1 percent of expenditures to reflect high expenditures found in the SOA Group Medical Insurance Large Claims Data Base.[36] We also adjusted the MEPS-HC spending estimates to match the NHEA, using the detailed procedure described in Sing et al. (2006).[37]

Stop-Loss Assumptions

A critical factor in firms' decision to self-insure is the risk associated with self-insurance and the opportunity to mitigate this risk by purchasing stop-loss coverage. Although systematic data on the pricing and contract terms governing stop-loss policies are not available, our qualitative discussions with experts (see Chapter 4) provided general guidance on how to model these policies. The discussions revealed that individual-specific stop-loss policies are more common than aggregate stop-loss policies and that stop-loss attachment points for individual-specific policies typically range from $20,000 for small firms to $300,000 for larger firms. Stop-loss policies can also have a maximum cap, above which additional claims risk is not covered. Typically, caps range from $1 million to $2 million. Although aggregate stop-loss plans are less common than individual-specific plans, a typical attachment point for an aggregate policy is 125 percent of expected claims. While many small and midsize firms purchase stop-loss coverage, stakeholders reported that firms with more than 5,000 workers seldom do so.

We estimated the risk associated with self-insuring by calculating the variance in enrollee health expenditure for firms of different sizes in the MEPS-HC, augmented with data from the SOA large-claims study. We then standardized these measures by dividing by payroll. The risk measures used in our analysis are adjusted to reflect stop-loss coverage, which reduces the potential variance in expenditure. (Full methodological details on the risk calculations and their role in estimating firm choice are given in Appendix D.) Because limited information is

available on stop-loss coverage, we assumed that all self-insured firms with fewer than 5,000

workers purchase stop-loss coverage and that the terms of this stop-loss coverage vary only with

firm size. In our sensitivity analyses, we considered how alternative assumptions about the stop-

loss policy influence the results. Table 8.1 presents the baseline stop-loss scenario, as well as the

alternatives used in the sensitivity analyses. We assume that the baseline stop-loss scenario

represents the current market. The alternative scenarios are modeled only in the post-ACA

environment, to capture the possibility that the market for stop-loss might change after the ACA

takes full effect.

Table 8.1. Stop-Loss Scenarios

	Attachment Point (in dollars)	Maximum Cap (in dollars)
Baseline scenario		
<=100 workers	75,000	2,000,000
101-4999 workers	125,000	2,000,000
Lower-risk alternative		
<=100 workers	20,000	2,000,000
101-4999 workers	50,000	2,000,000
Higher-risk alternative		
<=100 workers	125,000	1,000,000
101-4999 workers	300,000	1,000,000
Aggregate alternative	Adds a global attachment point equal to 125% of expected claims to the baseline scenario	

Our literature review and qualitative discussions with stakeholders suggested that stop-

loss plans are priced to be competitive with fully insured insurance products.[38] The notion of

competitively priced stop-loss insurance is vague and difficult to clarify given the lack of data.

For modeling purposes, we assumed that the expected cost of self-insuring with stop-loss

coverage is comparable to the cost of purchasing full insurance in a market without small-group

rating regulations. We incorporated this assumption into the model by assuming that the

administrative loading factor charged by full insurers is equivalent to the stop-loss premium plus

any excess managerial costs born by self-insured firms. Because self-insured firms do not pay

state premium taxes, we allow for a slight reduction (1.3 percent) in the total administrative load born by self-insured firms. Conceptually, we assumed that the self-insured firm sets aside money based on the "notional" premium that it would have charged if it offered fully insured coverage, and that these notional premiums reflect the cost of offering insurance. The notional premium accounts for expected claims, administrative costs, and the actuarial value of the plan. We assumed that some portion of these funds is used to purchase stop-loss coverage, and the remainder is kept in reserve and eventually used to pay claims. While this approach assumes that the expected costs of full insurance (without rating regulations) and stop-loss-adjusted self-insurance differ only due to state premium taxes, the risk associated with offering self-insured and fully insured products is not necessarily the same even when stop-loss coverage is available. Our estimates of the risk associated with self-insurance are discussed more thoroughly in Appendix D.

This approach taken to model stop-loss insurance is a simplification and would not be appropriate if we were attempting to model the decision of whether and what type of stop-loss coverage to purchase. However, datasets reporting pricing information for stop-loss coverage are not available, and because firms' stop-loss decisions are fixed in the model, small changes to our assumptions about pricing have very little impact on the results.

Essential Health Benefits

Small firms that self-insure are not required to offer the EHB package mandated in section 2701 of the ACA. By law, the EHB package will be defined by the Secretary of DHHS, and the terms have not yet been clarified. However, the law stipulates that the EHB must include coverage for items and services within 10 general categories. Because the terms of the EHB package have not been defined in detail, we were not able to fully model how the ability to avoid

EHB may influence the decision to self-insure. To get a rough sense of the impact, we considered how the ability to avoid covering mental health or prescription drug benefits—two required EHB service categories —might influence firms' decisions. Our focus on these two service categories was based on information from industry experts and the availability of data.

Currently, the vast majority of employer health plans include both prescription drug coverage and mental health benefits. The most recent Kaiser/HRET survey found that 99 percent of covered workers have drug benefits, and in 2004, 98 percent of covered workers had mental health benefits. The 2010 Kaiser/HRET survey found that a small share (less than 2 percent) of firms that previously offered mental health coverage had dropped it following enactment of the Mental Health Parity and Addiction Equity Act of 2008.[39] However, the majority of covered workers currently receive mental health benefits, so this analysis assumed that self-insured firms are currently offering mental health and drug coverage but might opt to drop it over time (e.g., because of rising health care costs), while fully insured firms would be prohibited from doing so.

To model the benefit to the firm of dropping either mental health or prescription drug coverage, we needed to assess the trade-off between the savings from premium reductions and the reduction in utility to workers who value the benefit and will no longer have it. The full approach is described in more detail in Appendix D, but—briefly—understanding the cost and benefits of mental health and drug coverage requires that we estimate the change in total spending, the change in out-of-pocket spending, and the change in the variance in out-of-pocket spending associated with the elimination of the coverage.

We estimated current spending on drug and mental health benefits, using data from the MEPS-HC, and we derived current coinsurance rates for each service category by taking the ratio of out-of-pocket to total spending for each benefit among those with both employer-

sponsored coverage and positive spending for each service category. To estimate the changes in total and out-of-pocket spending that would be expected due to an increase in coinsurance for mental health or drug benefits, we used elasticities found in the literature (–0.2 for drugs, –1 for mental health, based on estimates provided in Joyce et al., 2002,[40] and Frank and McGuire, 1986[41]). The new total spending estimates were used to recalculate premiums after the elimination of the benefits.

Once we calculated the new premiums, out-of-pocket expenditure, total expenditure, and variance terms, we entered them into individuals' health utility functions and re-estimated the model. The elimination of mental health or drug coverage influences firm decisions both because premiums for the self-insured plan have changed and because workers' aggregate utility associated with the self-insured plan has changed.

The methodology for modeling EHB has several important limitations. First, we do not model firms' choice to offer a self-insured plan with the benefit or without the benefit, we simply estimate how outcomes would change if all self-insured plans excluded mental health or drug coverage (although we have also modeled a scenario in which only firms whose workers have low value for the benefit drop it). Second, we assign a uniform coinsurance rate for each service category j in the status quo. Third, we assume a uniform elasticity for all enrollees, although certain types of workers may have more- or less-elastic demand. Because of these limitations, coupled with the lack of specificity regarding how the EHB package will be implemented in practice, we considered the effects of EHB only in the sensitivity analyses.

Additional Assumptions

For the purposes of this analysis, we assumed that the exchanges will be open only to firms with 100 or fewer workers and that the risk pools for the individual and small group

markets will be combined. In reality, states may choose to open the exchanges to larger businesses after 2016, and they may decide whether to split or combine the individual and small-group markets for the purposes of risk pooling. In a previous report,[42] we conducted sensitivity analyses around these assumptions. While neither assumption had a substantial impact on the total number of people insured, opening the exchanges to the large group greatly increased the number of people enrolled in exchange-based coverage. Splitting the exchanges had the effect of raising premiums on the individual exchange market and lowering premiums on the employer exchange market; these premium changes led to a slight increase in the number of people enrolled in the exchanges through an employer and a slight decrease in the number of people enrolled as individuals.

We did not allow for rating based on tobacco usage, since we were unable to reliably identify smokers in the simulation. We also did not consider temporary start-up provisions that might influence exchange enrollment and premium prices, including transitional reinsurance, risk corridors, and small-business tax credits. Other unmodeled provisions of the law include first-dollar coverage of preventive services, prohibitions on lifetime benefits limits and restrictions on annual benefits limits, requirements to extend coverage to dependents under the age of 26, changes in provisions related to insurance nondiscrimination, and newly imposed medical loss ratio limits. Some of these provisions may have bearing on the decision to self-insure. In particular, restrictions on annual and lifetime limits (which apply for both self-insured and fully insured plans) may discourage firms from offering self-insured coverage, since they will no longer be able to limit their losses by directly capping enrollees' annual expenditures.

We also made the simplifying assumption that firms offer at most one plan. On the exchanges, we modeled a single plan of each type (bronze, silver, gold, and platinum); we did

not attempt to model the (non-grandfathered) fully insured market outside of the exchanges. In the grandfathered, self-insured, and fully insured large-group models, we assumed that actuarial values are fixed and vary only with firm size. In general, these assumptions are necessary to keep the firms' choice set tractable. Allowing firms to choose among multiple plans with different actuarial values and the option to offer one or more types of coverage would result in an extremely large number of choices. Additionally, as the number of plans available expands, the number of data records allocated to each risk pool declines, leading to unstable results. Because of these complexities, we attempted to keep the choice set to a minimum while still capturing the essential decisions that could affect offer rates or lead to risk selection.

Finally, we assumed that some employers relinquish their grandfathered status because of cost pressures and the restrictions that prevent grandfathered plans from substantially altering cost-sharing requirements. We based erosion rates for the grandfathered market on the middle-range estimates reported in the Interim Final Rule and Proposed Final Rule for status as a grandfathered health plan under the ACA.[32]

COMPARE MODEL PREDICTIONS, SELF-INSURANCE

Table 8.2 shows the proportion of firms that offer self-insured plans and the proportion of workers at self-insuring firms, overall and by firm size, predicted by the COMPARE model. The first column shows predictions from a hypothetical status quo, in which population demographics are projected forward to 2016 but the provisions of the ACA are not modeled. The second column shows projected self-insurance rates in 2016 assuming that the ACA takes full effect, given the midrange assumptions about stop-loss coverage described above. The remaining columns show predictions under alternative assumptions about stop-loss coverage.

In the status quo, 6 percent of firms offer a self-insured plan in 2016, and 49 percent of workers are offered a self-insured plan. With the base-case stop-loss assumptions, these rates do not change when the provisions of the ACA are incorporated. However, if we allow very-low-risk stop-loss plans to enter the market, the share of firms offering self-insured coverage increases to 33 percent. The increase in self-insurance is driven almost entirely by small businesses (100 or fewer workers), which is not surprising given that the modeled insurance regulatory provisions that differentiate self-insured from fully insured firms apply only to the small-group market. Under the low-risk stop-loss assumptions, the share of workers offered self-insured plans (among all workers, including those without an insurance offer) increases to 54 percent. The increase in self-insurance offers for workers is less dramatic than the increase for firms, since most firms are small, but most workers are at larger businesses. (In a slightly anomalous result, the share of workers at small firms offered self-insurance increases less substantially than the share of small firms offering self-insured plans, because of the relatively large increase in self-insurance among firms with 10 or fewer workers that have high payrolls and low health expenditures.)

Firm self-insurance rates are slightly lower than the base-case prediction if we assume only high-risk stop-loss coverage is available. If we add an aggregate stop-loss policy to the base case, self-insurance rates are similar to those predicted in the low-risk scenario.

Table 8.2. Predicted Self-Insurance Rates Under Alternative Assumptions About Stop-Loss Coverage

	Status Quo	Stop-Loss Scenarios			
		Base Case	Low Risk	High Risk	Base Case + Aggregate
Share of firms that self-insure (percent)					
All firms	6	6	33	5	37
<=100 workers	4	4	33	3	37
101+ workers	39	39	40	38	40
Share of workers at self-insured firms (percent)					
All firms	49	49	54	48	53
<=100 workers	4	4	16	3	15
101+ workers	75	75	75	74	75

NOTE: Rates are for all firms and workers, regardless of whether insurance is offered. Numbers are based on results from the COMPARE microsimulation model.

Overall, the results in Table 8.2 suggest that the effects of the ACA on self-insurance are likely to be modest. We predict a change in self-insurance rates relative to the status quo only if stop-loss policies offered after the ACA takes full effect are very comprehensive and available at a relatively low cost (e.g., if all self-insured small businesses obtain stop-loss policies with a $20,000 individual-specific maximum and that the stop-loss policies are priced to compete with fully insured products). Even under these extreme assumptions, the share of workers at self-insured firms increases by only 5 percentage points, since most workers are in larger firms, which are not subject to the modeled regulatory provisions.

The results shown in Table 8.2 do not account for self-insured firms' ability to avoid the EHB package required under the ACA. Thoroughly accounting for the ACA's EHB provisions is difficult, given that the package has yet to be defined. However, we attempted to determine whether the ability to avoid EHB could have a significant influence on the results by modeling three alternative scenarios. In the first case, we assumed that all self-insured plans opt to drop

coverage for mental health benefits, one of the 10 general service categories that must be included in EHB. In the second scenario, we assumed that all self-insured plans opt to drop coverage for prescription drug benefits, another required coverage category. In the third scenario, we allowed self-insured firms whose workers place a relatively high value on health care coverage (specifically, firms with workers whose aggregate utilities for prescription drug coverage are in the top quartile) to maintain drug coverage.

These assumptions are extreme. The most recent data from the Kaiser Family Foundation show that 99 percent of offering firms (both self-insured and fully insured) currently offer prescription drug benefits. Although the 2010 Kaiser/HRET survey did not ask about mental health coverage, a module fielded in 2004 found that 98 percent of offering firms offered mental health coverage. Given the high rates of mental health and prescription drug coverage in the status quo, it seems unlikely that a significant portion of self-insured firms would opt to drop this coverage simply because they are not subject to the ACA's EHB requirements. Yet, even in these extreme scenarios, the option to avoid EHB coverage categories has no effect on self-insurance rates, overall or for small businesses. Table 8.3 shows that firm self-insurance rates hold steady at 6 percent, and the share of workers offered self-insured plans remains at 49 percent, regardless of the assumptions about EHB.

Table 8.3. Predicted Self-Insurance Rates, Alternative Assumptions About EHB

		Essential Health Benefits		
	Base Case (1)	Omit Mental Health Benefits (2)	Omit Prescription Drug Benefits (3)	Omit Prescription Drug Benefits, Lower 75% Only (4)
Share of firms that self-insure (percent)				
All firms	6	6	6	6
<=100 workers	4	4	4	4
101+ workers	39	39	39	39
Share of workers at self-insured firms (percent)				
All workers	49	49	49	49
<=100 workers	4	4	4	4
101+ workers	75	75	75	75

NOTE: Numbers are based on results from the COMPARE microsimulation model.

Although the EHB assumptions have no effect on self-insurance offer rates, they do lead to slight changes in insurance enrollment. Table 8.4 shows total health insurance enrollment among the non-elderly, overall and by source of coverage, in the status quo, under baseline ACA assumptions, and with the alternative assumptions about EHB. Relative to the status quo, an additional 29 million people will become insured, and approximately 67 million people will receive health insurance coverage in the newly created health insurance exchanges (36 million through an employer and 31 million through an individual plan).[xxxi] The number of workers enrolled in self-insured plans is stable under the baseline assumptions, at 94 million, with or without the ACA. However, when we assume that self-insured plans opt to omit benefits, the number enrolled in self-insured coverage declines. In particular, if all self-insured plans dropped

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[xxxi] We estimate that a much larger proportion of the population will be insured through the exchanges than is estimated by the Congressional Budget Office. This difference is due to assumptions about inertia (described more thoroughly in Ref. 42) and the fact that we allow for significant erosion in the grandfathered market between 2010 and 2016. Additionally, we do not attempt to model the non-exchange, non-grandfathered small-group market—in effect, we assume that all non-grandfathered small-group plans are offered on the health insurance exchanges.

prescription drug coverage (column 4), 3 million fewer people would enroll in these plans. This effect is mitigated when firms whose workers value drug benefits highly are prevented from dropping them (column 5).

Table 8.4. Effect of Self-Insurance on Enrollment UnderAlternative Assumptions About EHB (millions of non-elderly enrollees)

		ACA Scenarios			
	Status Quo (1)	Baseline (2)	Omit MH (3)	Omit Rx (4)	Omit Rx, Low Value Only (5)
Total insured	225.4	253.8	253.8	253.3	253.6
Self-insured ESI plans	94.1	94.2	94.1	91.2	92.2
Fully funded ESI plans	61.7	25.9	25.6	26.1	26.1
Exchange-based ESI	0.0	36.0	36.1	36.3	36.2
Individual exchanges	17.4	30.8	30.9	31.6	31.3
Medicaid	36.5	51.2	51.4	52.4	52.0
Other	15.7	15.7	15.7	15.7	15.7
Uninsured	51.4	23.2	23.1	23.6	23.4

NOTE: Numbers are based on results from the COMPARE microsimulation model.

The decline in self-insurance enrollment when prescription drug benefits are omitted stems from the fact that drug coverage is a valuable benefit for which there is inelastic demand. Because demand is inelastic, out-of-pocket expenditures (one of the main arguments to the individual utility function for health insurance) increase, leading to an overall reduction in the plans' utility. We predict almost no change in self-insurance enrollment if mental health coverage is omitted, primarily because demand for mental health benefits is relatively elastic.[41] A general finding of this analysis is that if the benefits specified in the EHB package are valued by workers, the requirement will not induce firms to self-insure.

To summarize, our model, which accounts for risk-pooling, rate-banding, risk adjustment, and—in some cases—EHB, does not predict a change in self-insurance rates unless comprehensive stop-loss policies become widely available for small firms. These results are consistent with those of prior research, which has found only limited evidence that state-level

benefits mandates are associated with an increase in self-insurance rates. The small change in self-insurance predicted by the COMPARE model is driven by the fact that for small firms, self-insurance remains relatively risky even if stop-loss insurance is available. Table 8.5 shows the estimated dollar value of the "risk" associated with self-insurance under various stop-loss scenarios, for firms of various sizes.[xxxii]

Table 8.5. Stop-Loss Adjusted Risk Variables for Representative Firm Sizes

Firm Size (employees)	Stop-Loss Scenario			
	Base (dollars)	Low-Risk (dollars)	High-Risk (dollars)	Base+Aggregate (dollars)
25	24,650	7,740	41,160	15,830
100	8,550	3,330	12,950	7,360
500	1,930	990	4,110	1,930
1,000	930	510	2,200	930
10,000	50	50	50	50

NOTE: Numbers are derived from an analysis of the MEPS-HC, supplemented with data from the SOA.

In all scenarios, the risk faced by a firm with 25 workers is orders of magnitude higher than that faced by a firm with 500 workers. As a result, many small firms opt to remain in the fully insured market despite the regulatory changes.

ADVERSE SELECTION IN THE NON-SELF-INSURED MARKET

One of the potential consequences of an increase in self-insurance following implementation of the ACA is adverse selection in the exchange market. The results shown in Table 8.2 suggest that it is unlikely that a large number of small businesses will opt to self-insure after the ACA takes full effect, unless comprehensive stop-loss coverage become widely available at prices that compete with fully insured products. However, given the limited

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[xxxii] Risk variables used in the model are variance measures divided by payroll. Since the numerator and denominator for these risk terms are both dollar values, they are expressed as pure numbers. In Table 8.5, we have converted the pure numbers back into dollars, using a procedure described Appendix D.

information on the availability and terms of stop-loss coverage in the current market, it is difficult to predict what will be available in 2016. To estimate the potential for adverse selection, we used results from the low-risk/comprehensive post-ACA stop-loss scenario and compared them with estimates predicted under an alternative scenario in which firms with 100 or fewer employees are prohibited from offering self-insured policies. We focus on the low-risk stop-loss scenario because adverse selection is possible only if the ACA leads to an increase in the share of firms opting to self-insure.

Theoretically, adverse selection would cause an increase in exchange premiums, since less-expensive firms would gravitate toward the self-insured market. It is unclear how adverse selection would influence other outcomes, such as the total number of people insured or the total number of firms offering coverage. Although higher exchange premiums could cause fewer firms to offer coverage on the exchanges, the option to avoid the ACA regulations by self-insuring might keep some firms from dropping health insurance coverage or enable more firms to offer a policy in response to higher worker demand stemming from the individual mandate. While the net effect is unclear, firms with less-expensive workers will likely have more-elastic demand for insurance than other firms, which could make their offer decisions very sensitive to the ability to self-insure.

To quantify the effects of adverse selection, we considered premiums for self-insured firms, insurance enrollment (overall and by source of coverage), and firm offer rates. We compared scenarios with and without self-insurance permitted for small firms. We then

determined whether differences are statistically significant by running the model 30 times for each scenario and computing a margin of error based on results from all 30 iterations.[xxxiii]

COMPARE MODEL PREDICTIONS, ADVERSE SELECTION

Table 8.6 shows the estimated effect on premiums of eliminating small firms' option to self-insure. Prohibiting self-insurance causes premiums in the exchanges to decline, suggesting that firms with healthier, less-expensive workers are attracted to self-insurance if the option is available. Although premiums decline for most plans in the exchanges, the declines are not large. Premiums for the platinum plan, which is the most popular employer-offered exchange plan because of the favorable tax treatment of employer-sponsored insurance,[xxxiv] decline by only 3.3 percentage points. These results suggest that adverse selection occurs, but it is not substantial enough to cause death-spiraling or destabilization in the exchange market. As modeled, the adverse selelection that we observe represents the combined effect of the regulatory changes introduced by the ACA, and the increased availability of low-risk stop-loss policies after the ACA takes full effect.

[xxxiii] Results vary across model runs because we allowed for uncertainty in decisionmaking. For example, if the probit model predicts that the firm will self-insure with a probability of X, we drew a random variable that is uniformly distributed on the interval [0,1] and allowed the firm to self-insure only if the random variable exceeds X.
[xxxiv] Among the 33.3 million people enrolled on the exchanges through employers, 30.7 million will be offered the platinum plan. For those enrolled as individuals, the silver plan is the most popular choice, covering 12.9 million out of 30.4 million exchange enrollees.

Table 8.6. Effect of Self-Insurance on Small-Group Premiums in the Low-Risk Stop-Loss Scenario

	Self-Insurance Permitted for Small Group (dollars)	Self-Insurance Not Permitted for Small Group (dollars)	Difference	T-Value
Self-insured ESI	5,361 (10)	NA	NA	NA
Fully funded ESI	4,640 (787)	4,405 (834)	–234	1.12
Exchanges				
Platinum	5,912 (51)	5,715 (59)	–197	13.9
Gold	5,167 (1065)	5,323 (1374)	$155	0.49
Silver	4,766 (619)	4,680 (621)	–86	0.53
Bronze	4,161 (247)	4,055 (241)	–106	1.67

NOTE: Numbers are based on results from the COMPARE microsimulation model. Standard deviations based on 30 model runs in parentheses.

Table 8.7 shows the effect of eliminating small firms' option to self-insure on insurance enrollment for the non-elderly population after the ACA takes full effect. Total insurance enrollment declines by 1.4 million if self-insurance is prohibited. Without the option to self-insure, some firms drop coverage, and some individuals—faced with only the option of an exchange plan—choose not to enroll. Table 8.8 shows the decline in firm health insurance offer rates predicted when the option to self-insure is unavailable to small firms. Overall, firm offer rates fall from 79 percent to 60 percent—a sizable decline. However, since small firms account for most of the decline, the total number of workers offered coverage declines by only 3.7 percentage points. Many workers who lose coverage will enroll in Medicaid or take subsidized plans on the exchanges, which could increase government spending.

Table 8.7. Effect of Self-Insurance on Enrollment Among the Non-Elderly, Low-Risk Stop-Loss Scenario

	Self-Insurance Permitted for Small Group (millions)	Self-Insurance Not Permitted for Small Group (millions)	Difference	T-Value
Total insured	254.8 (0.20)	253.2 (0.27)	–1.4	23.1
Self-insured ESI plans	100.4 (0.26)	92.2 (0.16)	–8.2	148.2
Fully funded ESI plans	25.3 (0.43)	26.6 (0.50)	1.2	10.0
Exchange-based ESI	33.2 (0.72)	36.4 (0.86)	3.1	15.2
Individual exchanges	30.4 (0.21)	31.3 (0.30)	0.9	12.7
Medicaid	49.6 (0.16)	51.2 (0.19)	1.6	35.9
Other	15.7 (0.0)	15.7 (0.0)	0	0
Uninsured	22.2 (0.21)	23.6 (0.27)	1.4	22.9

NOTE: Numbers are based on results from the COMPARE microsimulation model. Standard deviations based on 30 model runs in parentheses.

Table 8.8. Effect of Self-Insurance on Firm Health Insurance Offer Rates

	Self-Insurance Permitted for Small Groups (percent)	Self-Insurance Not Permitted for Small Groups (percent)	Difference (percentage points)	T-Value
Firm offer rates				
All firms	79.3 (1.1)	59.9 (1.4)	–19.4	60.4
<=100 workers	79.0 (1.1)	58.5 (1.5)	–20.5	60.3
101+ workers	86.0 (0.1)	85.7 (0.2)	–0.3	5.42
Share of workers at offering firms				
All firms	85.3 (0.3)	81.6 (0.4)	–3.7	36.7
<=100 workers	72.0 (0.9)	62.1 (1.2)	–9.9	35.4
101+ workers	92.8 (0.1)	92.8 (0.1)	–0.1	2.62

NOTE: Numbers are based on results from the COMPARE microsimulation model. Standard deviations based on 30 model runs in parentheses.

DISCUSSION OF MODEL RESULTS

Our analysis suggests that unless comprehensive stop-loss policies are widely available at prices comparable to those of fully insured products, there will be virtually no change in self-insurance rates after ACA's insurance regulations go into effect. This result is driven by the fact that even when stop-loss coverage is available, self-insurance is risky for small firms, especially

under baseline assumptions about such coverage. If comprehensive stop-loss policies are available (e.g., with a $20,000 individual-specific maximum), the predicted fraction of self-insured firms increases substantially relative to the status quo. However, because few small firms self-insure in the status quo, even a substantial increase in the share of those that do so does not have a large influence on the overall insurance market. In our low-risk stop-loss scenario, the share of firms with 100 or fewer workers that self-insure increases from 4 percent to 33 percent after the ACA takes full effect. While this is a sizable increase, 67 percent of small firms still opt not to self-insure (if we restrict the analysis to offering firms only, 59 percent of small firms are fully insured and 41 percent are self-insured after the ACA takes full effect). Moreover, because the majority of workers are employed by large businesses, the eightfold increase in self-insurance rates among small firms corresponds to only a 10 percent (5 percentage point) increase in the share of workers at firms offering self-insured plans.

Even if we assume that comprehensive stop-loss policies are widely available after the ACA takes full effect, the option to self-insure does not lead to substantial adverse selection in the exchange market. When small firms are prohibited from self-insuring, exchange premiums fall by 3.3 percent. However, eliminating the option to self-insure also leads to a decline in the number of people with insurance, because some firms opt not to offer coverage (and some offered workers choose not to enroll). These results are consistent with evidence on the impacts of state small-group regulatory reforms that were implemented in the 1990s.[1-3] In general, it appears that regulatory reforms increase prices for lower-risk enrollees while decreasing prices for higher-risk enrollees. Because low-risk enrollees tend to have more-elastic demand for health insurance than high-risk enrollees, the net effect is a small decline in coverage. In the model, eliminating the option to self-insure also increases the number of people enrolled in government-

subsidized insurance through Medicaid or on the exchanges. Overall, these results suggest that adverse selection due to the option to self-insure is not a large concern and that policies to reduce adverse selection could have unintended consequences for insurance enrollment and government spending.

We describe the stop-loss coverage modeled in this report as "comprehensive" because we assume that plans with relatively low individual-specific attachment points ($20,000) are available to all small businesses, implying that there is no redlining in the stop-loss market. We further assume that the expected cost of self-insuring with this type of stop-loss coverage is below the cost of full insurance (although, based on our analysis of the MEPS-HC data, the risk associated with self-insuring remains high for small firms even with stop-loss). Moreover, we assume that "lasering"—in which a stop-loss plan does not cover one or more high-risk enrollees—does not occur. Because few small firms self-insure in the current market, we believe that this type of comprehensive stop-loss policy is not widely available. However, we do not have empirical data that enable us to verify this assumption. Once the ACA takes full effect, it is possible that comprehensive stop-loss policies will become more available, perhaps with attachment points lower than $20,000. If policies with lower attachment points become widely available, there could be more adverse selection in 2016 than is predicted by the model. Additional data on the contracting terms of stop-loss policies, as well as close monitoring of premium prices in the exchanges, will be necessary to guard against the possibility of adverse selection after the ACA takes full effect.

Like all models, COMPARE is an imperfect tool, and it does not capture all aspects of a firm's decisionmaking process. For example, the model assumes that actuarial values for self-insured plans are fixed and vary only by firm size. If the ability to offer low-actuarial-value plans

on the exchanges erroneously brings some less-expensive firms into the exchange market, this assumption could reduce the chance of observing adverse selection. We do not believe this factor has a major influence on our results, since the model predicts that most firms that offer in the exchange choose the generous platinum plan because of the tax advantage.

We also assume that firms' decisions about stop-loss coverage are fixed, and in sensitivity analyses related to EHB, we do not allow firms to have a heterogeneous response to the ability to avoid offering specific benefits. In reality, firms that anticipate having higher health expenditures may opt to choose more-generous stop-loss policies. However, except for anecdotal reports from our discussions with experts, we have virtually no information on the terms of stop-loss policies currently offered. Similarly, firms that place a lower value on benefits such as drug coverage may be more likely to self-insure to avoid coverage requirements. We attempted to address this in our scenario testing, where we permitted only firms whose workers place a low value on health benefits to drop prescription drug coverage when they self-insure. Fully modeling the effects of the EHB package is not possible at this time, since the terms of these benefits have not been fully articulated.

Perhaps of greater concern, workers in our model are matched to firms based on Census region, firm size, industry, and whether or not the firm currently offers health insurance. Health expenditures are then assigned to workers based on age, insurance status, health status, region, and income. This approach accounts for heterogeneity in health spending across workers and allows for the possibility that some firms will randomly have more-expensive workers than others. However, we do not capture nonrandom correlation in health insurance expenditures across workers within firms, which would occur if certain types of firms systematically attracted older or sicker workers. As a result, the variance across firms in health spending as predicted by

the model may be constrained relative to actual variance. This could inhibit our ability to observe adverse selection, since our model could be underrepresenting firms with very expensive workers or those with very inexpensive workers. Unfortunately, there is no way to verify or account for this possibility, because there are no nationally representative surveys that contain employee health expenditure data that can be linked to employers.

Other limitations of the model include the fact that firms do not incorporate idiosyncratic information about employees into their decisionmaking process (e.g., knowledge that a particular worker is being treated for cancer or had a baby who will require prolonged treatment in the neonatal intensive care unit). In reality, firms may use this type of information to make choices, and it is not clear how this would influence self-insurance decisions. We also have very limited information on differences in administrative and managerial costs of self-insured and fully insured plans. Finally, there is much uncertainty regarding how the exchange will be perceived. If the exchanges are viewed negatively, or if they are bureaucratic and difficult to navigate, more firms may opt to self-insure to avoid them.

To summarize, we attempted to model the decision to self-insure after the ACA takes full effect, using realistic assumptions and nationally representative data. Our analysis does not suggest that self-insurance will dramatically increase at that point unless comprehensive and relatively inexpensive stop-loss policies are widely available. And even if we assume that firms obtain comprehensive stop-loss policies, the effect of self-insurance on the exchange market is modest. These results are consistent with findings from studies of the effect of state benefits mandates on self-insurance. Generally, benefits mandates have had a modest (if any) effect on self-insurance decisions and have not caused death-spiraling in the fully funded insurance market. However, our results are only predictions, and there are limits to what we can model

given the available data. Close monitoring will be necessary after the ACA takes effect to ensure

that unforeseen factors do not cause more adverse selection than is predicted by this analysis.

CHAPTER 9. DISCUSSION AND FUTURE IMPLICATIONS

The ACA makes substantial regulatory changes for the small-group insurance market that may influence employers' decisions to self-insure. To determine whether those changes could have adverse, unintended consequences related to employers' decisions to self-insure or fully insure, we held discussions with industry experts, analyzed secondary data from the Kaiser/HRET annual survey and data on claims denials from athenahealth (a company that offers electronic billing services to health care providers), and predicted changes in self-insurance rates, using the COMPARE microsimulation model.

In the current environment (prior to ACA implementation), regulatory differences of self-insured and fully insured plans that affect the cost of purchasing insurance may incentivize firms to self-insure. In particular, fully insured plans are subject to state insurance regulation, whereas self-insured plans are not. Coverage mandates, premium rate restrictions for small groups, and premium taxes are areas of state insurance regulation that are thought to create the strongest incentives for firms to self-insure, although historical empirical evidence on the relationship between regulatory burden and self-insuring has been mixed. The financial risk associated with self-insuring is a counterbalancing factor to its relatively light regulatory burden, although firms can mitigate their risk through the purchase of stop-loss insurance coverage. Motivation to self-insure also comes from perceived benefits such as greater autonomy in benefit design and claims adjudication and better access to plan claims data. Differences in consumer recourse options between self-insured and fully insured plans do not appear to influence the decision to self-insure, although the internal (employer) costs associated with administering a self-insured plan and the administrative burden of regulatory compliance increase the attractiveness of full insurance.

Our analysis shows that self-insurance is common in the current health insurance market—more than 50 percent of enrollees in employer-sponsored health plans were covered by self-insured plans in 2010. Large firms are far more likely to self-insure than small firms. Among firms offering a health plan, roughly 80 percent of those with more than 1,000 employees self-insured in 2010, compared with 8 percent of firms with fewer than 50 employees and approximately 20 percent of firms with 50–199 employees.

We found little evidence to suggest that self-insured plans differ from fully insured plans in any substantial or systematic way in terms of overall benefit generosity. Our analysis of the Kaiser/HRET data found that actuarial values of the two types of plans are similar, and even when plan differences are statistically significant, the magnitude of the differences is small. Specific benefit parameters (deductibles, benefit maximums) do vary to some extent between self-insured and fully insured plans. In particular, self-insured plans are more likely than fully insured plans to have a lifetime benefit maximum. Stakeholders we interviewed remarked that the ACA prohibitions on these types of limits may reduce the likelihood of self-insuring, since benefit maximums reduce self-insured firms' exposure to risk. Comparing premiums across self-insured and fully funded plans is challenging because the premiums are measured in different ways. Nevertheless, our analysis of premiums found few differences between plan types.

The financial solvency of self-funding firms, particularly small- to medium-sized firms that choose to self-insure, is an issue of key interest to regulators concerned with consumer protection. Because of the prevalence of stop-loss insurance coverage, the financial solvency of employers depends both on their ability to manage the risk they bear and the solvency and reliability of their stop-loss insurers. Some stakeholders expressed concern that too few small businesses that self-insure establish trusts, which provide some level of protection for workers

against health-care-related financial loss in the event the firm declares bankruptcy. Further, they noted that a fully insured plan confers some advantage to employees whose firms face financial difficulty short of bankruptcy. Employers with a fully insured health plan may stop paying premiums, and consumers may lose health care benefits prospectively, while employers with a self-insured health plan may stop contributing to health care claims payments, which could leave employees with the costs of already incurred claims.

Despite its importance for assessing the solvency of self-insured plans, little recent and reliable information is available on the prevalence and nature of stop-loss insurance coverage. Stakeholders suggested that such coverage is unusual for firms with several thousand employees and more common among smaller firms, but the share of smaller firms that have this type of protection is unknown. Further, no data are available to systematically assess the prices and contracting terms of stop-loss policies. To better understand the current market for stop-loss policymakers would require information on premiums, attachment points for individual-specific and aggregate coverage, maximum caps, specific employee exclusions (lasering), and policy renewability. Finally, stakeholders expressed concerns about the possibility of regulatory avoidance in the stop-loss market and the perceived susceptibility of small firms that diverge from the fully insured marketplace to fraudulent schemes.

Our examination of the claims adjudication process in self-insured and fully insured plans found that no systematic data are currently available that can be used to assess differences in claims denial rates between self-insured and fully insured plans. While many states require health insurers to report claims denial rates, self-insured plans are not included in this requirement. An analysis of a small sample of claims provided by athenahealth found no

difference in denial rates between self-insured and fully insured plans. These data, however, are not nationally representative.

Prior to the passage of the ACA, consumers with fully insured plans typically had more recourse options available than consumers with self-insured plans in the event of a denied claim, because of state regulations that supplemented the protections offered under ERISA. The ACA extends some of the protections to enrollees of self-insured plans, but differences will likely remain, since states may still offer protections to fully insured consumers that go beyond those in the ACA. Stakeholders remarked that the separate regulatory regimes governing self-insured and fully insured plans may be confusing and difficult for enrollees to navigate. Several stakeholders were concerned that the federal external review process for self-insured plans might not offer the same level of protection as state-run external review programs, either because the federal requirements (when they are finalized) will be less stringent than the NAIC standard applied to state programs or because individual states will adopt standards that exceed those in the NAIC model law. Stakeholders also emphasized that the internal review processes and voluntary use of external review currently applied to self-insured plans (they will continue to apply for grandfathered plans after the ACA is fully implemented) is not sufficient to ensure that consumers receive an independent, objective, and binding review of their claims. To the extent that recourse rights and procedures for filing appeal requests continue to differ by plan funding status, consumers may feel burdened with navigating the complex environment. Stakeholders also expressed concern that the ACA did not change regulations limiting consumers' ability to sue their plans in state court or to request punitive damages, but these concerns apply equally to fully insured and self-insured plans.

Despite concerns that self-insurance will cause adverse selection in the exchange market after the ACA takes full effect, our microsimulation analysis did not predict large increases in self-insurance following the reform. The limited impact is driven partly by the fact that even with stop-loss coverage, small firms are exposed to significant risk if they self-insure. A notable increase in self-insurance after the ACA takes full effect would be predicted only if all small businesses are able to obtain comprehensive stop-loss policies and the expected cost of self-insuring with stop-loss coverage is similar to the cost of full insurance in a market without rating regulations. However, because the prevalence of self-insurance among small firms is low, even with these extreme assumptions, less than half of the workers at small businesses would be offered self-insured plans. Allowing self-insurance with comprehensive stop-loss coverage in the small-group market is associated with a 3.3 percent increase in exchange premiums, suggesting a modest degree of adverse selection.

The COMPARE model may understate adverse selection for several reasons, the most important of which may be that workers must be imputed to firms based on observable characteristics, and our imputation strategy cannot fully capture the possibility that health expenditures are correlated across workers within firms. This concern cannot be addressed with available data systems, since nationally representative data linking firms, workers, and health expenditures do not exist. However, the microsimulation model may also overestimate adverse selection. For example, we did not incorporate the ACA prohibitions on annual and lifetime out-of-pocket maximums, which apply to both self-insured and fully funded plans. Some stakeholders argued that the inability to impose a maximum spending cap could reduce the appeal of self-insurance, since such caps offer firms a way to bound the risk associated with self-

insuring. In either case, it is clear that the model is an imperfect tool and that close monitoring

will be necessary to determine whether adverse selection actually occurs.

APPENDIX A. ANALYSIS OF KAISER/HRET DATA: METHODOLOGY

Kaiser/HRET conducts an annual survey of employer-sponsored health benefits that asks each participating firm many questions about its largest plan—HMO, PPO, POS, or high-deductible health plan with a savings option (HDP). These questions elicit information about the cost of health insurance, offer rates, coverage, eligibility, enrollment patterns, premiums, employee cost sharing, prescription drug benefits, retiree health benefits, and wellness benefits, as well as employer opinions.

Our analysis used data for 2006 through 2010 and focused on a limited set of variables, described in detail below. Many of the variables were changed to create consistency through all the years. Some variables could not be used, because they were not collected in some years or they varied too greatly during our sample period.

FIRM CHARACTERISTICS

Variables we used to describe firms include firm size, industry, Census region, rural or urban setting, presence of a union, percentage of part-time workers, percentage of workers under 26 years of age, percentage of low-income workers, and number of establishments. Because the last three of these variables were not collected in 2006, we limited our analysis to data for 2007–2010 when including controls for firm characteristics.

PLAN CHARACTERISTICS

In the Kaiser/HRET data, each firm has one observation in each annual survey. Thus, to create plan-level data, we extracted and synchronized the plan characteristics that were common across the four plan types (HMO, PPO, POS, and HDP). Variables included self-insurance status, percentage of employees covered by the plan, monthly premiums, deductible, maximum out-of-

pocket expense, office visit coverage, specialty office visit coverage, outpatient surgery coverage, hospital admission coverage, and prescription drug coverage.

For each of the coverage areas, we used variables describing the type of coverage (co-pay and/or coinsurance), along with the amount of co-pay and/or coinsurance. Additionally, for the prescription drug coverage, we broke down the coverage into three tiers: generic, preferred, and non-preferred.

WEIGHTS

The Kaiser/HRET data use several different weights to answer different types of questions and to account for item nonresponse to individual questions. To describe firm level, we use the "employer weight," which is post-stratified to match U.S. public and private firms by firm size, Census division, and industry. To describe employee coverage, we use the "worker weight," i.e., the total number of workers in each respondent firm multiplied by the employer weight.

ACTUARIAL VALUES

We contracted with Actuarial Research Corporation (ARC) to estimate the actuarial value of each plan described in the Kaiser/HRET data. This value is a fraction between 0 and 1 that represents the expected share of total medical expenditures of the covered population that will be paid for by the health plan.

To estimate expenditures, ARC combined individual-level data from the MEPS-HC for 2004, 2005, and 2006 to establish an initial population. These data were then adjusted to match 2010 Social Security Administration estimates for insurance coverage by age and gender and February 2010 projections to the National Health Accounts (Centers for Medicare & Medicaid Services Office of the Actuary) for health expenditures. Individuals under 65 years of age with

ESI were then extracted to create the sample. Estimates were made of each individual's total

expenditures, out-of-pocket expenditures, and utilization of inpatient, outpatient, emergency

room, primary care office visits, specialty care office visits, and prescription drugs.

For each individual, ARC then estimated total spending by person and plan, using the

plan characteristics extracted from the Kaiser/HRET. To account for a behavior response to the

relative generosity of plans, total spending for covered services was assumed to be proportional

to

$$1/(1 + \alpha*P)$$

where α is the induction parameter, and **P** is the average fraction of the cost of services paid by

the consumer.[43] These parameters were calculated iteratively at the service level while

generating the final actuarial values. This adjustment tends to have a more dramatic impact on

the value of expenditures than on actuarial values.

APPENDIX B. QUALITATIVE METHODS

To obtain information on the impact of the ACA on self-insurance, we conducted a number of semistructured interviews with experts and stakeholders. The sampling strategy started with a convenience sample of self-insured companies and contacts with companies that offer self-insured plans. We then used a snowball strategy to add interviews when participants suggested additional interviewees. We completed a total of 17 interviews with consumer groups, self-insured companies, TPAs, stop-loss insurers, and self-insurance experts.

The topic areas of the interviews varied, depending on the organization we were interviewing, but all revolved around how the ACA may affect self-insurance in the future.

We collected names and titles of people we interviewed but assured them that we would not attribute any statements in our report. The titles and affiliations of the interviewees are listed in Table B.1. Interviews were done by telephone by two RAND interviewers with one note-taker. The interviews lasted about 45 minutes on average. We analyzed interview notes by summarizing and enumerating themes to establish areas of theme convergence.

Table B.1. Titles and Organizations of Interview Participants

Title	Organization
Director of Human Resources	Multistate, self-insured and fully insured firm, ~2,000 employees
Benefits Manager	Multistate, self-insured and fully insured firm, ~2,000 employees
Director, Health Care Research	Towers Watson
Senior Actuary	Towers Watson
VP, Brand Strategy & Marketing Services	Blue Cross Blue Shield Association
Executive Director, Legislative and Regulatory Policy	Blue Cross/Blue Shield Association
Vice President, Finance & Operations	Multistate self-insured paper products firm, ~1,000 employees
Partner	Large employee-benefits consulting firm
Assistant General Counsel	Nonprofit corporation specializing in health and hospital services, ~ 9,000 employees
Benefits Manager	Nonprofit corporation specializing in health and hospital services, ~ 9,000 employees
Account Manager	Anthem BC
Vice President, Large Groups, California	Wellpoint
Health Policy Director	Wellpoint
Director of Human Resources	Midwestern employer, 850 employees
Director/Architect	athenahealth
Denials Associate	athenahealth
Chief Operating Officer	Self-Insurance Institute of America
Manager, Government Relations	Self-Insurance Institute of America
Senior Vice President	HCC Life (stop-loss insurer)
Senior Officer	CoreSource (TPA)
Insurance Regulatory Practice Group	Morris, Manning, & Martin
Director, Health Research & Education Program	Employee Benefits Research Institute
Manager, Health Policy & Legislation	National Association of Insurance Commissioners
Legal Counsel (ERISA specialist)	National Association of Insurance Commissioners
Manager, Benefits & Payroll	Small Midwestern wholesale distributor, ~350 employees
General Counsel	Office of the Commissioner of Insurance (Midwestern state)
Senior Policy Analyst	Consumers Union

APPENDIX C. SUPPLEMENTAL TABLES

**Table C.1. Decision to Self-Insure: Model with Regional Economic Indicators,
Multivariate Regression Results**

Variable	Firm Size 2–199	Firm Size 200–999	Firm Size 1000+
Indicator: Industry = Ag/Mining/Con	-1.546 (0.3935)*	0.348 (0.2487)	0.340 (0.3125)
Indicator: Industry = Manufacturing	-0.049 (0.2731)	0.765 (0.1780)*	1.008 (0.1855)*
Indicator: Industry = TUC	-0.181 (0.3942)	0.766 (0.2107)*	0.498 (0.1730)*
Indicator: Industry = Wholesale	-0.669 (0.3688)	0.249 (0.2125)	0.946 (0.2091)*
Indicator: Industry = Retail	-1.101 (0.3625)*	-0.326 (0.2272)	0.797 (0.2102)*
Indicator: Industry = Financial	-0.220 (0.3114)	0.322 (0.2077)	1.157 (0.2414)*
Indicator: Industry = State/Local Gov't	0.479 (0.5008)	0.295 (0.2461)	-0.086 (0.2035)
Indicator: Industry = Healthcare	0.181 (0.2714)	1.048 (0.1892)*	0.769 (0.1720)*
Indicator: Region = Northeast	1.470 (3.4555)	1.240 (2.1301)	-0.734 (1.8550)
Indicator: Region = Midwest	1.231 (0.2668)*	0.602 (0.1563)*	0.100 (0.1506)
Indicator: Region = West	1.647 (2.2439)	0.724 (1.3871)	-0.735 (1.2095)
Indicator: Firm in urban area	0.283 (0.2438)	-0.164 (0.1505)	-0.019 (0.2133)
Indicator: Multi-establishment Firm	0.057 (0.2503)	0.313 (0.1146)*	0.083 (0.1227)
Indicator: Year = 2008	0.147 (0.3298)	0.131 (0.1968)	0.200 (0.1815)
Indicator: Year = 2009	0.187 (0.2620)	-0.010 (0.1573)	0.184 (0.1481)
Indicator: Year = 2010	0.276 (0.5058)	0.030 (0.3278)	0.205 (0.2930)
Indicator: Firm Has Unionized Workers	0.843 (0.3093)*	-0.131 (0.1294)	-0.046 (0.1045)
Indicator: >=35% earn $23k or less	-0.263 (0.2484)	-0.290 (0.1432)*	-0.734 (0.1257)*
Indicator: >=35% work part-time	-0.212 (0.2142)	-0.720 (0.1696)*	-0.524 (0.1320)*
Indicator: >=35% age 26 or less	1.376 (0.2126)*	-0.104 (0.1690)	-0.253 (0.1407)*
Indicator: Offer HMO Plan	-1.557 (1.0152)	-0.664 (0.2572)*	0.139 (0.1766)
Indicator: Offer PPO Plan	-1.792 (1.0139)	0.915 (0.2834)*	1.118 (0.1887)*
Indicator: Offer POS Plan	-1.380 (1.0158)	-0.316 (0.2660)	-0.418 (0.1706)*
Indicator: Offer High Deductible Plan	-1.085 (1.0155)	-0.182 (0.2511)	0.731 (0.1625)*
Indicator: Offer more than one plan	1.879 (1.0515)	-0.237 (0.2920)	-0.428 (0.2055)*
Regional GDP per capita, previous year	-0.000 (0.0004)	-0.000 (0.0003)	0.000 (0.0002)

NOTES: Coefficients (standard errors) reported. * $p < 0.05$ Regressions conducted separately for firms of various sizes (2–199 employees, 200–999 employees, 1,000 or more employees). Dependent variable is a dichotomous indicator of self-insured (=1) or fully insured (=0).

Table C.2. Mean Actuarial Value of Employer-Offered Health Plans, by Firm Size, Plan Type, and Self-Insured versus Fully Insured Plan: Descriptive Statistics

	Self-Funded		Fully Insured	
	Mean	(Std Dev)	Mean	(Std Dev)
HMO plans				
3–199 employees	0.925	(0.009)	0.917	(0.005)
200–999 employees	0.943	(0.011)	0.935	(0.005)
1,000+ employees	0.928	(0.004)	0.943	(0.002)
PPO				
3–199 employees	0.909	(0.010)	0.867	(0.013)
200–999 employees	0.905	(0.004)	0.898	(0.005)
1,000+ employees	0.899	(0.003)	0.898	(0.005)
POS				
3–199 employees	0.889	(0.025)	0.889	(0.013)
200–999 employees	0.932	(0.011)	0.905	(0.009)
1,000+ employees	0.916	(0.009)	0.932	(0.010)
HDHP				
3–199 employees	0.843	(0.006)	0.806	(0.020)
200–999 employees	0.838	(0.013)	0.819	(0.011)
1,000+ employees	0.797	(0.004)	0.814	(0.015)

Table C.3. Actuarial Values in Self-Insured versus Fully Insured Plans: Multivariate Regression Results

Variable	HMO	PPO	POS	HDP
Indicator: Self-insured Plan	-0.01 (0.003)*	0.01 (0.003)*	-0.01 (0.006)	-0.01 (0.008)
Indicator: Firm Size = 50-199 employees	-0.00 (0.005)	0.01 (0.004)*	0.01 (0.006)*	-0.01 (0.009)
Indicator: Firm Size = 200-999 employees	0.01 (0.005)*	0.01 (0.004)*	0.02 (0.008)*	0.00 (0.009)
Indicator: Firm Size = 1000+ employees	0.01 (0.005)	-0.00 (0.004)	0.02 (0.008)*	-0.04 (0.011)*
Indicator: Industry = Ag/Mining/Con	0.01 (0.005)	-0.01 (0.006)*	-0.02 (0.009)	-0.00 (0.014)
Indicator: Industry = Manufacturing	-0.00 (0.003)	-0.01 (0.004)*	-0.00 (0.007)	0.01 (0.008)
Indicator: Industry = TUC	-0.00 (0.005)	-0.00 (0.005)	-0.01 (0.012)	0.00 (0.012)
Indicator: Industry = Wholesale	-0.00 (0.006)	-0.01 (0.005)	-0.01 (0.008)	0.02 (0.009)
Indicator: Industry = Retail	-0.01 (0.007)	-0.00 (0.006)	-0.02 (0.010)	0.01 (0.010)
Indicator: Industry = Financial	0.00 (0.004)	-0.01 (0.004)	-0.01 (0.013)	0.02 (0.012)
Indicator: Industry = State/Local Gov't	0.01 (0.005)*	0.01 (0.005)	0.00 (0.011)	0.01 (0.010)
Indicator: Industry = Healthcare	-0.01 (0.005)	-0.00 (0.004)	-0.01 (0.008)	0.03 (0.011)*
Indicator: Region = Northeast	0.00 (0.003)	0.02 (0.003)*	0.01 (0.006)*	0.02 (0.008)
Indicator: Region = Midwest	-0.00 (0.004)	0.00 (0.003)	0.00 (0.005)	0.01 (0.007)
Indicator: Region = West	0.01 (0.003)	-0.00 (0.004)	-0.01 (0.009)	0.01 (0.008)
Indicator: Firm in urban area	0.01 (0.005)	0.01 (0.003)*	0.01 (0.007)	0.01 (0.008)
Indicator: Multi-establishment Firm	0.00 (0.003)	-0.00 (0.002)	-0.01 (0.005)	-0.01 (0.007)
Indicator: Year = 2008	-0.00 (0.004)	0.01 (0.003)*	0.00 (0.005)	0.01 (0.009)
Indicator: Year = 2009	0.00 (0.003)	0.00 (0.003)	0.00 (0.007)	0.02 (0.008)*
Indicator: Year = 2010	-0.00 (0.003)	-0.00 (0.003)	-0.01 (0.006)	0.02 (0.008)
Indicator: Firm Has Unionized Workers	0.00 (0.003)	0.01 (0.003)*	0.01 (0.007)	-0.01 (0.007)
Indicator: >=35% earn $23k or less	-0.01 (0.004)	-0.01 (0.004)*	-0.01 (0.006)*	-0.01 (0.009)
Indicator: >=35% work part-time	0.00 (0.004)	-0.00 (0.004)	0.01 (0.005)	0.02 (0.007)*
Indicator: >=35% age 26 or less	-0.00 (0.004)	-0.00 (0.004)	-0.00 (0.006)	0.01 (0.009)

NOTES: $p < 0.05$. Coefficients and standard errors reported. Separate regressions conducted for each plan type. Dependent variable is the actuarial value multiplied by 100.

Table C.4. Differences in Benefits in Self-Insured Plans Relative to Fully Insured
Results from Multivariate Regression Analyses

Dependent Variable	Mean (all Plans)	Self-Insured		
		HMO	PPO	POS
Annual Deductible (Single)	$518.02	28.25 (13.050)*	-138.7 (19.809)*	21.78 (39
Annual Deductible (Family)	$987.99	58.77 (27.049)*	-275.6 (35.635)*	10.05 (81
Maximum Out-of-Pocket (Single)^	76.6%	0.83 (0.68-1.01)^	1.48 (1.24-1.77)*^	0.99 (0.74-
Maximum Out-of-Pocket (Family)^	78.5%	0.88 (0.64-1.20)^	0.89 (0.75-1.04)^	0.98 (0.63-
Maximum Out-of-Pocket Amount (Single)	$2,233.90	83.53 (69.618)	-137.5 (43.403)*	-88.47 (14
Maximum Out-of-Pocket Amount (Family)	$4,224.10	52.73 (152.71)	-335.1 (96.218)*	26.46 (37!
Office Visit Co-payment Amount	$19.51	-0.12 (0.289)	-1.07 (0.211)*	-0.04 (0.4
Office Visit Co-insurance Rate	17.87	-0.01 (2.382)	-1.14 (0.613)	0.07 (1.5
Specialty Office Visit Co-payment Amount	$25.70	2.27 (0.506)*	-1.38 (0.371)*	-1.45 (0.7
Specialty Office Visit Co-insurance Rate	17.93	0.33 (2.547)	-1.05 (0.599)	0.25 (1.5
Outpatient Surgery Co-payment Amount	$123.51	7.44 (7.470)	-16.96 (8.402)*	-15.98 (11
Outpatient Surgery Co-insurance Rate	17.74	-1.16 (0.636)	-0.83 (0.277)*	-0.71 (0.8
Hospital Admission Co-payment Amount	$240.64	-0.21 (11.708)	-26.41 (11.329)*	-85.24 (35
Hospital Admission Co-insurance Rate	17.57	-0.64 (0.688)	-0.50 (0.266)	-0.93 (0.8
Hospital Admission Per Diem Amount	$200.51	-33.50 (19.099)	-92.50 (32.611)*	-60.93 (42
Generic Drug Co-payment Amount	$10.68	-0.68 (0.190)*	-0.64 (0.141)*	-0.21 (0.3
Generic Drug Co-insurance Rate	20.00	-7.81 (1.995)*	-3.71 (1.124)*	-4.37 (2.6
Preferred Drug Co-payment Amount	$25.15	0.26 (0.451)	-1.36 (0.288)*	0.15 (0.7
Preferred Drug Co-insurance Rate	24.86	-1.89 (2.196)	-1.32 (0.866)	-0.24 (3.4
Non-Preferred Drug Co-payment Amount	$40.80	3.19 (0.792)*	-2.74 (0.507)*	-0.24 (1.6
Non-Preferred Drug Co-insurance Rate	31.94	-4.76 (2.091)*	-0.50 (1.173)	1.16 (3.8
Lifetime maximum benefit (any)^	39.2%	3.88 (2.88-5.24)*^	1.70 (1.41-2.06)*^	2.17 (1.50-3
Lifetime maximum benefit (amount in $1m)	$2.50	0.01 (0.218)	-0.87 (0.093)*	-0.65 (0.2

Notes: *p<.05. Each row represents a separate regression. Coefficient and standard errors of the variable indicating self-insured r
^Odds ratio and 95% confidence interval reported for the variable indicating self-insured. Regression includes controls for year, i
characteristics. Analyses of deductibles, benefit, and out-of-pocket maximums and co-pays conducted for those plans that have su
lifetime maximum benefit and amount of such benefit available only in selected years.

Table C.5. Comparison of Wellness Plan Offerings of Self-Insured and Fully insured Plans: Percentage of Firms Offering Three or More Wellness Plans, Descriptive Statistics

Firm Size (employees)	Fully/ Self- Insured	2008 Mean (Std Dev)	2009 Mean (Std Dev)	2010 Mean (Std Dev)
50–199	Fully	21.75 (3.549)	33.72 (4.250)	30.63 (5.057)
	Self	15.51 (6.861)	33.29 (10.000)	23.95 (7.036)
200–999	Fully	58.73 (4.087)	66.09 (4.054)	69.17 (3.737)
	Self	66.63 (4.060)	73.46 (3.562)	69.61 (4.352)
1,000+	Fully	65.79 (5.138)	71.40 (4.364)	78.82 (4.146)
	Self	76.93 (2.232)	83.65 (1.813)	80.03 (2.153)

Table C.6. Wellness Plan Offerings in Self-Insured versus Fully Insured Plans: Multivariate Regression Results

Variable	Three or More Wellness Programs
Indicator: Some self-insured	0.74 (0.59-0.93)*
Indicator: Industry = Ag/Mining/Con	0.46 (0.37-0.57)*
Indicator: Industry = Manufacturing	0.95 (0.75-1.20)
Indicator: Industry = TUC	0.87 (0.61-1.24)
Indicator: Industry = Wholesale	1.64 (1.29-2.08)*
Indicator: Industry = Retail	0.41 (0.31-0.54)*
Indicator: Industry = Financial	0.61 (0.47-0.79)*
Indicator: Industry = State/Local Gov't	0.52 (0.32-0.87)*
Indicator: Industry = Healthcare	2.38 (1.87-3.03)*
Indicator: Firm Size = 200-299	5.15 (3.48-7.61)*
Indicator: Firm Size = 1000+	8.26 (4.20-16.23*)
Indicator: Region = Northeast	1.93 (1.61-2.31)*
Indicator: Region = Midwest	1.23 (1.02-1.48)*
Indicator: Region = West	0.83 (0.69-1.00)
Indicator: Firm in urban area	1.19 (0.98-1.45)
Indicator: Multi-establishment Firm	1.31 (1.08-1.58)*
Indicator: Year = 2009	2.03 (1.72-2.40)*
Indicator: Year = 2010	1.48 (1.26-1.74)*
Indicator: Firm Has Unionized Workers	1.80 (1.36-2.38)*
Indicator: >=35% earn $23k or less	0.61 (0.49-0.75)*
Indicator: >=35% work part-time	0.60 (0.49-0.72)*
Indicator: >=35% age 26 or less	0.46 (0.35-0.60)*
Indicator: Offer HMO Plan	2.64 (1.63-4.29)*
Indicator: Offer PPO Plan	1.25 (0.77-2.03)
Indicator: Offer POS Plan	1.43 (0.88-2.33)
Indicator: Offer High Deductible Plan	1.27 (0.78-2.08)
Indicator: Offer more than one plan	0.94 (0.55-1.61)

NOTES: Odds ratios and 95 percent confidence intervals shown. *$p < 0.05$. Dependent variable is a dichotomous variable indicating whether the employer offered three or more wellness programs (=1 if yes, =0 if no).

Table C.7. Premiums in Health Plans Offered by Employers, by Firm Size, Plan Type, and Self-Insured versus Fully Insured: Descriptive Statistics

	Self-Funded		Fully Insured	
	Mean	(Std Dev)	Mean	(Std Dev)
HMO				
3–199 employees	532.55	(60.89)	377.99	(11.73)
200-999 employees	435.65	(13.62)	381.34	(6.44)
1000+ employees	405.90	(4.92)	374.30	(3.61)
PPO				
3-199 employees	450.71	(14.41)	409.66	(17.28)
200-999 employees	436.16	(5.67)	417.31	(5.60)
1000+ employees	410.78	(2.65)	416.91	(6.29)
POS				
3-199 employees	391.99	(22.84)	392.87	(13.23)
200-999 employees	406.11	(12.55)	406.55	(8.38)
1000+ employees	404.57	(6.87)	398.37	(8.85)
HDHP				
3-199 employees	332.09	(11.60)	321.35	(10.79)
200-999 employees	348.77	(8.30)	355.29	(8.43)
1000+ employees	327.51	(3.83)	315.34	(8.67)

Table C.8. Premiums in Self-Insured versus Fully Insured Plans: Multivariate Regression Results

Variable	HMO	PPO	POS	HDP
Indicator: Self-insured Plan	32.90 (6.800)*	7.53 (6.933)	-20.22 (13.986)	18.79 (14.426)
Actuarial Value	301.72 (76.329)*	506.96 (87.343)*	330.23 (95.252)*	132.23 (68.680)
Indicator: Firm Size = 50-199 employees	-22.37 (15.964)	-19.87 (20.678)	-30.57 (13.815)*	21.27 (16.300)
Indicator: Firm Size = 200-999 employees	-3.36 (13.231)	-1.52 (20.651)	-4.77 (17.367)	37.41 (13.738)*
Indicator: Firm Size = 1000+ employees	-28.03 (12.906)*	-40.21 (22.283)*	-16.21 (19.662)	-6.85 (16.159)
Indicator: Industry = Ag/Mining/Con	-24.17 (15.748)	-52.44 (10.354)*	-48.63 (22.906)*	-7.90 (18.274)
Indicator: Industry = Manufacturing	-36.81 (10.295)*	-41.87 (7.493)*	-27.41 (14.848)	-22.44 (13.298)
Indicator: Industry = TUC	-10.69 (12.816)	9.35 (22.570)	-19.72 (18.505)	-8.35 (13.975)
Indicator: Industry = Wholesale	-32.87 (11.390)*	-22.22 (8.613)*	0.82 (24.272)	-20.02 (13.579)
Indicator: Industry = Retail	-46.06 (13.587)*	-42.10 (11.404)*	12.08 (23.481)	-22.90 (13.697)
Indicator: Industry = Financial	-16.04 (9.898)	6.76 (9.153)	56.72 (15.906)*	-7.10 (13.827)
Indicator: Industry = State/Local Gov't	15.49 (9.606)	61.94 (14.130)*	87.40 (30.560)*	-4.88 (13.197)
Indicator: Industry = Healthcare	12.49 (10.852)	34.08 (10.645)*	25.90 (16.865)	34.92 (14.637)*
Indicator: Region = Northeast	42.44 (9.390)*	25.04 (6.785)*	26.01 (12.567)*	1.01 (13.054)
Indicator: Region = Midwest	12.64 (7.434)	28.20 (7.221)*	16.56 (14.315)	-6.42 (10.116)
Indicator: Region = West	5.36 (7.669)	49.90 (12.836)*	15.84 (15.949)	27.45 (12.499)*
Indicator: Firm in urban area	4.26 (10.121)	7.91 (7.661)	-4.15 (13.408)	-38.34 (11.175)*
Indicator: Multi-establishment Firm	-0.73 (7.591)	-8.29 (7.659)	-1.62 (13.282)	-4.70 (9.225)
Indicator: Year = 2008	43.45 (9.510)*	9.92 (11.288)	33.24 (13.557)*	-4.70 (12.588)
Indicator: Year = 2009	46.27 (7.392)*	25.46 (10.850)*	54.27 (14.358)*	3.60 (11.115)
Indicator: Year = 2010	70.44 (7.851)*	44.49 (11.384)*	74.96 (12.734)*	31.34 (10.972)*
Indicator: Firm Has Unionized Workers	19.21 (5.912)*	24.03 (8.441)*	31.99 (13.269)*	7.53 (9.489)
Indicator: >=35% earn $23k or less	-0.17 (7.976)	-5.71 (8.394)	-29.63 (11.117)*	2.73 (9.737)
Indicator: >=35% work part-time	18.30 (8.769)*	20.33 (8.841)*	-3.92 (11.909)	-7.36 (13.457)
Indicator: >=35% age 26 or less	0.34 (11.305)	-23.12 (7.968)*	-7.08 (13.816)	2.28 (16.096)

NOTES: *p < 0.05. Coefficients and standard errors reported. Separate regressions conducted for each plan type. Dependent variable is premium.

Table C.9. Changes in Actuarial Values of Self-Insured versus Fully Insured Plans: Multivariate Regression Results

Variable	HMO	PPO	POS	HDP
Indicator: Self-insured Plan	-0.31 (0.270)	-0.27 (0.426)	1.29 (0.697)	0.44 (0.815)
Indicator: Firm Size = 50-199 employees	-0.11 (0.584)	0.59 (0.534)	0.87 (1.010)	-0.26 (1.065)
Indicator: Firm Size = 200-999 employees	0.23 (0.543)	0.20 (0.499)	1.60 (1.446)	-0.79 (1.264)
Indicator: Firm Size = 1000+ employees	0.20 (0.466)	0.31 (0.571)	-0.88 (1.121)	-0.69 (1.386)
Indicator: Industry = Ag/Mining/Con	-0.61 (0.678)	-0.47 (0.352)	1.25 (1.971)	0.16 (0.950)
Indicator: Industry = Manufacturing	1.03 (0.473)*	-0.17 (0.290)	-0.16 (0.759)	-1.18 (0.708)
Indicator: Industry = TUC	0.76 (0.403)	0.57 (0.439)	-1.07 (1.645)	-1.19 (0.859)
Indicator: Industry = Wholesale	0.32 (0.328)	0.26 (0.391)	-0.17 (0.953)	0.16 (1.374)
Indicator: Industry = Retail	0.91 (0.759)	1.44 (0.634)*	-0.43 (1.422)	-1.71 (1.224)
Indicator: Industry = Financial	-0.38 (0.338)	-0.22 (0.364)	-2.87 (1.581)	-0.71 (0.896)
Indicator: Industry = State/Local Gov't	0.44 (0.302)	0.71 (0.426)	1.20 (0.967)	1.85 (1.400)
Indicator: Industry = Healthcare	0.07 (0.330)	-0.17 (0.321)	-1.73 (1.057)	-1.05 (0.792)
Indicator: Firm in urban area	-0.51 (0.413)	0.22 (0.292)	0.32 (1.155)	0.76 (0.741)
Indicator: Multi-establishment Firm	0.52 (0.330)	0.32 (0.280)	1.11 (0.821)	0.69 (0.963)
Indicator: Year = 2008	-0.15 (0.460)	2.68 (0.474)*	3.58 (1.003)*	-0.78 (1.383)
Indicator: Year = 2009	0.78 (0.462)	1.34 (0.387)*	3.22 (1.204)*	-0.91 (0.878)
Indicator: Year = 2010	-0.03 (0.418)	1.22 (0.332)*	1.73 (1.134)	-1.68 (1.377)
Indicator: Firm Has Unionized Workers	0.29 (0.245)	0.25 (0.218)	1.16 (0.703)	0.23 (0.486)
Indicator: >=35% earn $23k or less	-0.22 (0.341)	-0.15 (0.482)	-0.66 (0.983)	-3.54 (2.223)
Indicator: >=35% work part-time	-0.56 (0.456)	-0.33 (0.427)	0.72 (0.804)	3.19 (2.109)
Indicator: >=35% age 26 or less	1.34 (0.371)*	0.91 (0.459)*	0.12 (1.170)	-0.20 (1.006)
Indicator: Region = Northeast	0.32 (0.404)	-0.61 (0.263)*	-0.84 (0.680)	-0.14 (0.840)
Indicator: Region = Midwest	-0.51 (0.301)	-0.35 (0.245)	0.18 (0.690)	-1.14 (0.752)
Indicator: Region = West	-0.22 (0.311)	-0.15 (0.329)	1.38 (1.343)	-0.31 (0.928)

NOTES: *$p < 0.05$. Coefficients and standard errors reported. Separate regressions conducted for each plan type. Dependent variable is the difference between the actuarial value of an employer's health plan in first year observed and second year observed, among employers observed for two consecutive years, scaled by multiplying by 100.

Table C.10. Change in Scope of Health Benefits or Increased Cost Sharing in Response to an Economic Downturn in Self-Insured versus Fully insured Plans: Regression Results

Variable	Odds ratio (95% confidence interval)
Indicator: Some self-insured	0.97 (0.73-1.28)
Indicator: Industry = Ag/Mining/Con	0.97 (0.75-1.24)
Indicator: Industry = Manufacturing	2.54 (1.93-3.33)*
Indicator: Industry = TUC	0.66 (0.41-1.06)
Indicator: Industry = Wholesale	1.09 (0.80-1.47)
Indicator: Industry = Retail	0.94 (0.68-1.28)
Indicator: Industry = Financial	1.76 (1.26-2.45)*
Indicator: Industry = State/Local Gov't	0.68 (0.36-1.29)
Indicator: Industry = Healthcare	2.54 (1.89-3.41)*
Indicator: Firm Size = 200-299	1.70 (1.05-2.76)*
Indicator: Firm Size = 1000+	2.13 (1.02-4.48)*
Indicator: Region = Northeast	1.30 (1.05-1.61)*
Indicator: Region = Midwest	0.94 (0.75-1.17)
Indicator: Region = West	0.48 (0.38-0.61)*
Indicator: Firm in urban area	0.91 (0.73-1.15)
Indicator: Multi-establishment Firm	0.73 (0.57-0.93)*
Indicator: Year = 2010	1.69 (1.43-1.99)*
Indicator: Firm Has Unionized Workers	0.82 (0.56-1.19)
Indicator: >=35% earn $23k or less	0.42 (0.33-0.55)*
Indicator: >=35% work part-time	0.69 (0.54-0.89)*
Indicator: >=35% age 26 or less	0.74 (0.52-1.06)
Indicator: Offer HMO Plan	0.57 (0.33-1.01)
Indicator: Offer PPO Plan	0.32 (0.18-0.57)*
Indicator: Offer POS Plan	0.57 (0.32-1.00)*
Indicator: Offer High Deductible Plan	0.74 (0.42-1.33)
Indicator: Offer more than one plan	1.92 (1.01-3.66)*

NOTES: $p < 0.05$ Dependent variable is a dichotomous indicator for whether the employer changed the scope of health benefits or increased cost sharing in response to the economic downturn (=1 if yes, =0 if no).

APPENDIX D. MODEL METHODOLOGY

INDIVIDUAL DECISIONS

Individuals and families—or, more specifically, HIEUs—in the model make decisions about health insurance enrollment, using a utility-maximization procedure. The HIEU selects the combination of insurance policies that maximize the sum of individual utilities, defined as

$$(A4.1) \quad U_{ij} = -\mathrm{E}[OOP_{ij}] - \text{premium}_{ij} - \frac{1}{2} r \mathrm{VAR}[OOP_{ij}] + u(H_{ij})$$

Where OOP$_{ij}$ is the out-of-pocket spending expected for individual i under insurance option j, r is the coefficient of risk aversion, and u(H) is the utility associated with consuming health care services. We favor the functional form shown in Equation (A4.1) for two reasons: First, it has only one free parameter, the coefficient if risk aversion, and this parameter has been estimated in the literature.[xxxv] Other functional forms would entail additional parameters whose values are unknown and would need to be calibrated. Estimating and calibrating additional parameters would add an additional layer of complexity—and uncertainty—to an already complex problem. Second, this functional form has already been used by several authors,[46-48] and it has proved to be able to successfully reproduce individuals' choices. Conceptually, the approach used in Equation (A4.1) accounts for the fact that individuals prefer lower premiums, lower out-of-pocket spending, and lower risk but also value health care consumption.

[xxxv] We use a value of 0.000464 (in 2010 dollars) as the coefficient of risk aversion. This figure was obtained by averaging inflation-adjusted values reported in Pauly and Herring (2000)[44] and Manning and Marquis (1996).[45]

When the ACA takes effect, penalties associated with not having health insurance coverage enter into the utility function. Specifically, these penalties are subtracted from the utility associated with the option of being uninsured.

FIRM DECISIONS IN THE STATUS QUO SCENARIO

In the status quo scenario, firms have three insurance offer options available to them: offer a fully insured plan, offer a self-insured plan, or do not offer coverage. Our econometric model of choice is a multinomial probit, which allows for freedom in the specification of the noise term and does not make the independence-of-irrelevant-alternatives assumption that is made by the multinomial logit.[xxxvi] There are two key variables in the multinomial probit: the aggregate firm utility and the financial risk associated with offering insurance. We also add a small set of covariates to control for determinants of choice not captured by these two variables. We estimate the model using a sample of synthetic firms built by matching workers from the SIPP to firms in the Kaiser/HRET data (which provide the information about self-insurance). The model has the following structure:

$$(A4.2a) \quad P_{full} = \gamma \Delta U_{full} + \beta_{full} x + \varphi \, \text{risk}_{full} + \varepsilon_{full}$$
$$(A4.2b) \quad P_{self} = \gamma \Delta U_{self} + \beta_{self} x + \varphi \, \text{risk}_{self} + \varepsilon_{self}$$
$$(A4.2c) \quad P_{no} = 0$$

The subscripts *full*, *self*, and *no* (which are also denoted by α in the following discussion) denote the options to fully insure, to self-insure, or to not offer coverage, respectively. The terms P_α are the latent variables of the probit model that can be interpreted as random utilities—the firm chooses the option that corresponds to the latent variable with maximum

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[xxxvi] In previous analyses, we found that this assumption is problematic once the exchanges are introduced and may lead to overstating firms' participation in the exchange.

value. The term ΔU_α is the aggregate worker utility associated with receiving an offer of plan type α relative to the utility associated with having no insurance offer and is fully defined below. Briefly, the term captures employer and employee premium contributions, the tax treatment of employer coverage, the risk reduction to the worker associated with having insurance of type α (which is different from the risk to the firm associated with self-insuring), firm managerial costs associated with offering insurance (which are separate from administrative load factors included in the premium calculation), and penalties the firm would face if it did not offer coverage (although these penalties are not relevant for status quo decisionmaking).

We assume that employer premium contributions and insurance management costs would be fully passed on to workers in the form of wages if the firm dropped coverage or, conversely, would be subtracted from worker wages if the firm began to offer coverage. Similarly, we assume that any penalties paid by the firm would be subtracted from worker wages. If the wage reduction necessary to finance the insurance plan requires the average wage at a firm to fall below the minimum wage, we set wages at minimum wage and make the firm absorb the excess amount as an additional cost of offering insurance.

The term x in Equations (A4.2a) and (A4.2b) is a small set of firm characteristics, including firm size (< 25 workers, 25–99 workers, 100 or more workers), unionization status, and industry sector. The term risk_α is the variance in health expenditure faced by the firm (expressed as a percentage of payroll) if the firm offers a plan of type α. By definition, $\text{risk}_{\text{full}} = 0$. Variance in health expenditure for self-insured firms is estimated using the MEPS-HC, adjusted for high-cost cases with information from the SOA Large Claims Database. The risk term is also adjusted to account for the possibility of self-insured firms

purchasing stop-loss coverage. Theoretically, we expect that a higher degree of variance will reduce a firm's likelihood of offering a self-insured plan. While firms are often thought to be risk neutral, small firms that are not publicly traded may in fact be risk averse.[6, 49] Even if larger firms are risk neutral, they face a cost associated with bankruptcy, which occurs when claims costs exceed revenues plus assets.[6] Because variance in claims increases the probability that a firm will not have adequate reserves to cover realized expenses, high variance should reduce large firms' probability of offering self-insured coverage even if they are not risk averse.

The coefficients of the multinomial probit and the covariance of the noise are estimated using the R package for fitting the multinomial probit model (MNP).[50] The MNP software uses a Monte Carlo Markov chain (MCMC) to compute the multivariate integrals required to estimate likelihood. Since our model has only three choices and a small number of covariates, the estimation is relatively simple, and the MCMC requires less than 10,000 iterations. We discarded the first 500 iterations of the MCMC process to allow the model to stabilize. The coefficients entering the simulations are computed as the mean of the posterior distribution provided by the MCMC algorithm. Table D.1 shows the mean, standard deviation, and 10th and 90th percentiles of the posterior distribution.[xxxvii]

The coefficients of a multinomial probit are more difficult to interpret than those of a logit or a probit. However, the interpretation of the coefficients for the utility term ΔU and the risk variable is simple, since they do not vary across choices. As expected, the

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[xxxvii] We assume that error terms ε_{full} and ε_{self} are jointly normally distributed. The error terms may be correlated, although the structure of their covariance matrix Σ is unknown. Since we are estimating the multinomial probit in a Bayesian framework[50] we can specify a prior for Σ, and we have done some sensitivity analysis around this choice. The default choice of a diffuse prior for Σ returned a posterior distribution with a small negative correlation between the two error terms. Making the *a priori* assumption that these terms are perfectly correlated returned a covariance matrix similar to the one corresponding to the diffuse prior, and therefore our final choice was that of a diffuse prior.

coefficient on the firm utility ΔU is positive ($\gamma = 0.1$), so firms with higher utility for offering insurance are more likely to offer, and the coefficient on the risk variable is negative ($\varphi = -19.37$), showing that firms are risk averse. While the standard deviation for the coefficient on the utility is somewhat smaller than the mean, the coefficient on risk has a very small standard deviation.

Table D.1. Mean, Standard Deviation, and 10th and 90th Percentiles of the Posterior Distribution of the Coefficients of the Multinomial Probit Used in the Simulation

	Mean	Standard Deviation	10th Percentile	90th Percentile
Intercept, full	0.16	0.14	0.02	0.38
Intercept, self	−1.23	0.27	−1.56	−0.90
Delta utility	0.10	0.08	0.01	0.21
Risk	−19.37	5.31	−27.01	−12.81
Firm size 25–99, full	0.04	0.04	0.00	0.10
Firm size 25–99, self	0.22	0.25	−0.11	0.53
Firm size 100+, full	−0.06	0.04	−0.11	−0.01
Firm size 100+, self	2.29	0.23	2.01	2.58
Health/finance/government, full	0.06	0.05	0.01	0.14
Health/finance/government, self	−0.49	0.13	−0.65	−0.32
Retail/wholesale, full	0.01	0.02	−0.01	0.03
Retail/wholesale, self	−0.07	0.16	−0.27	0.13
Service, full	0.05	0.05	0.00	0.12
Service, self	−0.29	0.15	−0.49	−0.09
Mining/agriculture/construction, full	−0.03	0.03	−0.07	0.00
Mining/agriculture/construction, self	−0.72	0.23	−1.01	−0.44
No union, full	−0.16	0.13	−0.37	−0.02
No union, self	−0.63	0.16	−0.85	−0.44

NOTE: Regression output from a multinomial probit model used in the COMPARE microsimulation.

The multinomial probit predicts the firm choices reasonably well. In Eibner et al. (2010)[42] we used the area under the receiver operating characteristics (ROC) curve to estimate the goodness of fit, since in that case the choice variable was binary. When three choices are present, the concept of ROC curve does not apply directly. However, we can still use it, because the firm choice has a clear nested structure: the first level is the choice between not offering health insurance and offering any health insurance, and the second level is the choice between offering fully funded and self-insured plans. Since the choice in each nest is binary, we can construct ROC curves for each nest, and we can report the area under the curve (AUC) for both cases. Table D.2 shows the AUC, while the full ROC curves are shown in Figure D.1. Not surprisingly, the probit finds it easier to distinguish between offering and not offering health insurance (AUC = 84.2 percent) than to distinguish between fully insured and self-insured plans (AUC = 76.6 percent), since the latter is more likely to depend on variables that are not accounted for in our set of covariates, such as state regulatory requirements.

Table D.2. The Area Under the ROC Curve for Two Binary Decisions: Not Offering Health Insurance versus Offering Any Health Insurance and Offering a Fully Insured Plan versus a Self-Insured Plan

Binary Decision	Area Under the ROC Curve (%)
Not offering health insurance vs. offering any health insurance	84.2
Offering fully insured plan vs. offering self-insured plan	76.6

SOURCE: Author estimates using data from the COMPARE microsimulation model.

Figure D.1. The ROC Curve for the Firm Decision Between Not Offering Health Insurance a Health Insurance and the ROC Curve for the Decision Between Fully Insured and Self-I

ROC Curve: not offering HI vs. offering any HI

Area under the curve: 0.842

Sensitivity

1−Specificity

ROC Curve: offering fully insured vs. offering

Area under the cur

Sensitivity

1−Specificity
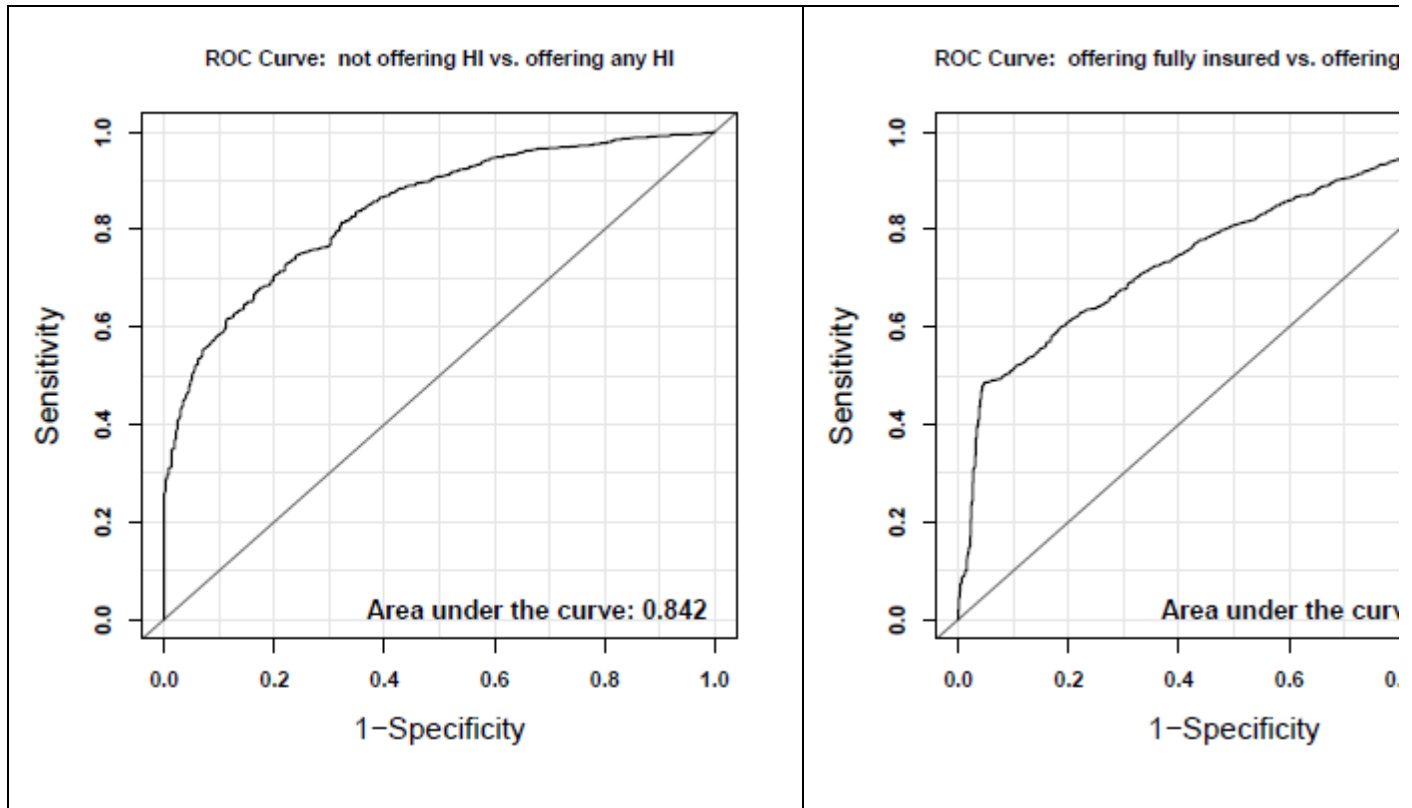
The coefficients of the multinomial probit also determine the elasticity of the firm's demand for health insurance. In computing the elasticities, we do not distinguish between fully insured and self-insured plans. We show average elasticities by firm size in Table D.3. The elasticities were averaged using firm weights and show the expected result that larger firms have less-elastic demand for health insurance.

Table D.3. The Elasticities of Firms' Demand for Health Insurance, by Firm Size

Firm Size	Elasticity
3–9	−0.6
10–24	−0.47
25–49	−0.46
50–99	−0.23
100–999	−0.11
1,000+	−0.02
100+	−0.09
< 100	−0.55
Any size	−0.52

NOTE: Elasticities produced by the COMPARE microsimulation model.

Table D.4 compares self-insurance rates predicted by the model to actual 2010 self-insurance rates estimated using the Kaiser/HRET data. Our predicted rates are virtually identical to those produced by Kaiser. Overall, our estimate of the share of workers employed by firms offering at least one self-insured plan is also comparable to the Kaiser estimate. However, the COMPARE number is lower than the Kaiser/HRET number for workers in small businesses, and slightly higher than the Kaiser/HRET number for workers in large businesses.

Table D.4. Comparison of COMPARE Self-Insurance Predictions with Kaiser/HRET Estimates

	COMPARE Status Quo[a]	Kaiser 2010[b]
Share of firms that self-insure (percent)		
All firms	6	6
<=100 workers	4	4
101+ workers	39	37
Share of workers at self-insured firms (percent)		
All workers	49	50
< = 100 workers	4	8
101+ workers	75	70

[a]Predicted using the COMPARE microsimulation model
[b]Estimated using the Kaiser/HRET Employer Benefits Survey, 2010.

FIRM DECISIONS AFTER THE ACA TAKES FULL EFFECT

After the ACA takes full effect, the choice sets available to firms will change. Most significantly, small firms (<=100 workers) will have the option to offer a bronze, silver, gold, or platinum plan in the newly created health insurance exchanges (large firms may also be permitted to offer coverage in the exchanges, but this decision is left to the states). Simultaneously, new rating regulations will influence how premiums are calculated in the small-group market. These regulations will apply to both the fully insured and exchange markets. After the ACA takes full effect, premiums in the small-group market may vary by only a few factors, including geographic location, tobacco-use status (within a 1.5-to-1 rating band), age (within a 3-to-1 rating band), whether the plan provides single or family coverage, and the actuarial value of the plan. Further, small-group plans will be subject to risk adjustment, where funds are transferred from plans whose enrollees have lower-than-average actuarial risk to plans whose enrollees have higher-than-average actuarial risk. As described above, self-insured plans are

exempt from the new rating regulations and risk adjustment. Plans that existed on March 23, 2010, and that have not substantially changed since that date are also exempt from the new regulations under grandfathering provisions.

To model the impact of the ACA, we introduce four new options for small firms, corresponding to the bronze, silver, gold, and platinum plans available through the exchanges. We assume that only firms with 100 or fewer workers are permitted to offer coverage on the exchanges. The option to fully insure in the traditional sense—that is, to obtain a fully insured plan that is not subject to risk adjustment and rate banding—is available only to grandfathered small firms that offered coverage before the ACA was implemented. We allow the grandfathered market to erode over time, since plans will be disqualified from grandfathered status if they increase cost-sharing requirements substantially. We do not allow small firms other than grandfathered plans to offer coverage outside of the exchanges. Although it is possible that distinct markets would exist for exchange and non-exchange (fully insured) small-group plans, the model is not nuanced enough to capture features that would define these markets.[xxxviii] We also do not model new regulations that affect the large-group market, such as requirements to cover preventive health services and restrictions on annual and lifetime benefit limits.

To predict firm decisions after the ACA takes full effect, we add the option of offering coverage on the exchanges to Equations (A4.2a) to (A4.2c). The model now becomes

$$(A4.3a) \quad P_{full} = \gamma \Delta U_{full} + \beta_{full} x + \varphi \, \text{risk}_{full} + \varepsilon_{full}$$

$$(A4.3b) \quad P_{self} = \gamma \Delta U_{self} + \beta_{self} x + \varphi \, \text{risk}_{self} + \varepsilon_{self}$$

$$(A4.3c) \quad P_{ex_m} = \gamma (\Delta U_{ex_m} + \mu_{ex_m}) + \beta_{full} x + \varepsilon_{full}$$

$$(A4.3d) \quad P_{no} = 0$$

[xxxviii] Jost (2010) provides a discussion of requirements that must be met by exchange plans, but not necessarily other small group plans.[51] For example, exchange plans must use a standard enrollment form and may not use marketing practices that discourage high-risk enrollees.

Where ex_m indicates an exchange plan of type $m \in$ {bronze, silver, gold, platinum}. We assume that the coefficients on the vector of covariates *x* is the same for the exchanges and for fully insured ESI plans, and we also assume that the noise for the exchange is perfectly correlated with the noise associated with the fully insured ESI plan (ε_{full}). Assuming that the noise for the exchange is uncorrelated with ε_{full} would lead to results similar to those we would get if we made an independence-of-irrelevant-alternatives assumption, leading to an artificially high number of firms offering health insurance on the exchange. In sensitivity analyses performed on a previous version of this model, we found that the assumption of full correlation leads to the most stable results. However, because the exchange is an entirely new option about which we have little or no empirical experience, we assume that the utility of the exchange is known with an uncertainty characterized by Gaussian noise μ_{ex_m}, whose covariance is estimated empirically. In brief, we compute the covariance matrix for the μ terms by regressing ΔU_{ex_m} for each exchange plan against a comprehensive set of covariates, including firm size, industry, industry/firm size interactions, region, union status, percentage of workers who are part-time, percentage of workers who are low-wage, average medical expenditure of workers, payroll, average marginal tax rate of workers, employer share of single premiums, and employer share of family premiums. We then define μ_{ex_m} as a sample from the joint distribution of residuals. The random variables μ_{ex_m} are, not surprisingly, highly correlated with each other, since the underlying individual utilities for the exchange have that property.

We note that Equations (A4.3a) through (A4.3d) are not estimated empirically. Rather, for each type of plan available to a firm, we calculate the utilities defined in those equations, using parameters estimated in the status quo equations, (A4.2a) to (A4.2c). The firm then selects

the option with the highest value of the latent variable P.[xxxix] As discussed in greater detail in the next section, the ΔU_α terms included in Equations (A4.2a) to (A4.2c) and (A4.3a) to (A4.3d) compare the relative utility of plan α to the utility associated with the option of not offering coverage (this is why P_{no} can be set to 0). This approach accounts for the possibility that some workers may prefer not to receive an insurance offer because of factors such as eligibility for Medicaid or subsidies on the individual exchanges, eligibility to enroll in a spouse's plan, or low taste for insurance. As a result, it is possible that firms in our model might drop coverage in response to the ACA, even though they could be fined for doing so.

ESTIMATING FIRM UTILITIES

We assume that firms have a utility function that includes both costs incurred by the firm and benefits that accrue to workers. Workers are assumed to have a utility function that depends on both wages and health insurance. The firm utility for offering option α is assumed to have the form

$$U^\alpha \equiv \lambda V^\alpha - C^\alpha,$$

where V denotes the aggregate utility of workers and their dependents, and C denotes the cost of the offer to the firm. The parameter λ serves several purposes:

- The worker's utility V is measured in dollars in the current version of the microsimulation. It is not obvious that these dollars are comparable to the dollars used in the computation of the cost, so λ plays the role of conversion factor between units of measurements that might be different.

[xxxix] In other words, the firm maximizes the random utility P.

- Workers and firms have different preferences, and it is not clear how much weight the firm puts on the utility of the workers. Therefore, λ controls the trade-off between cost and utility to workers.

While λ is a model parameter, its value depends on the choice of V, and therefore it is not a real "structural" parameter that describes some economic quantity or that could, in principle, be measured. This does not mean that we are agnostic about the values it can take; we would certainly expect it to be on the order of 1 and certainly larger than 0.

In our current simulation, we set λ to 1. In the sensitivity analysis presented in Eibner et al. (2010), we found that the results are not very sensitive to the choice of this parameter.

The utility of a worker (or dependent) for being offered plan α has the following form:

$$(A4.4) \qquad v^{\alpha} = -\mathrm{E}\left[OOP^{\alpha}\right] - \mathrm{premium}^{\alpha} - \tfrac{1}{2} r \mathrm{Var}\left[OOP^{\alpha}\right] + u(H^{\alpha})$$

where E[•] and Var[•] denote expectation and variance operations, respectively; OOP is the out-of-pocket expenditures under plan α; r is the coefficient of risk aversion;[xl] and $u(H^{\alpha})$ is the utility associated with consuming health care services H^{α} (the area under the demand curve for health insurance). The term $u(H^{\alpha})$ has been approximated with one-third of the expected value of total expenditures (after trimming out extreme values). Pauly et al. (2002)[47] use a factor of one-half rather than one-third, but the choice we made fit our data more closely.[xli]

The firm chooses the option with maximum utility, which formally means that the firm solves the following problem:

[xl] The value of the coefficient of risk aversion was 0.000431 in 2016 dollars and was obtained by averaging inflation adjusted values reported in Pauly and Herring (2000)[44] and Manning and Marquis (1996).[45]

[xli] In previous analyses, we have also estimated this term with a direct computation of the area under the demand curve for health services, performed using data from the RAND Insurance Experiment, but we found no clear advantage of the more complex calculation.

$$\underset{\alpha}{\text{Max}}\left(\lambda V^{\alpha} - C^{\alpha}\right)$$

In the status quo scenario, the plan being offered is either a fully insured ESI plan or a self-insured ESI plan, while in the context of health care reform, the plan could be any of the exchange plans. Therefore, the offer options that we consider are as follows:

$$\alpha \in \{\text{no offer, fully insured ESI, self - insured ESI, Exchange plan 1, ..., Exchange plan n}\}.$$

In the status quo scenario, we assume that there are only three choices available to the firm: not offering ESI (α=No), offering an average fully insured ESI plan (α= full), or offering an average self-insured ESI plan (α= self). In the following, for ease of notation, we will not distinguish between fully insured and self-insured plans, and we will simply refer to them as ESI.

We denote by N the total number of workers, and by N^{ESI} the number of workers who opt for ESI (we do not need to specify single or family ESI at this point). We denote by $\overline{P}^{\text{ESI}}$ the total premium necessary to cover all the workers in the firm who opt for ESI. We split $\overline{P}^{\text{ESI}}$ into an employer contribution and a worker contribution, which we denote by P_e^{ESI} and P_w^{ESI}, respectively:

(A4.5) $$\overline{P}^{\text{ESI}} \equiv P_e^{\text{ESI}} + P_w^{\text{ESI}}$$

In order to model the firm decision, we need to explicitly model the components of the firm utility.

The Cost of Offering ESI

The cost of offering ESI is simply the employer contribution to premiums plus a managerial cost, K:

(A4.6) $$C^{\text{ESI}} = P_e^{\text{ESI}} + K$$

We think of *K* as the wages of the individuals in the human resources department who administer the health insurance plan. While this could be mildly firm-size dependent, we assume that it takes approximately the same value across firms.

We assume that if the firm does not offer ESI, a fraction δ of the amount that would have been spent in offering ESI is given to the employees as wages. Therefore, the cost of not offering ESI is

(A4.7) $$C^{\text{No}} \equiv \delta C^{\text{ESI}} = \delta(P_e^{\text{ESI}} + K)$$

In the current version of the model, we use a value of δ equal to 1. However, the model shows only a mild dependency on this parameter. In the reform scenario, an appropriate penalty term is added to the cost of not offering health insurance to account for the fact that firms may pay a fine if they do not offer.

The Utility of the ESI Offer to Workers

When a firm offers ESI, only a fraction of workers, N^{ESI}, take it. The utility of those taking ESI is $N^{\text{ESI}}v^{\text{ESI}} - P_w^{\text{ESI}}$, where v^{ESI} is the portion of individual utility for ESI that does not include the premium, and P_w^{ESI} is the aggregate workers' share of the premium. If the firm offers a Section 125 plan, the workers' share of the premium is not taxable. In this case, the expression above is replaced with $N^{\text{ESI}}v^{\text{ESI}} - P_w^{\text{ESI}}(1 - t)$, where *t* is the average marginal income-tax rate of the workers. Workers who do not take ESI receive a value equal to $(N - N^{\text{ESI}})v^{\text{No}}$, where v^{No} is the utility associated with not taking the ESI offer and includes premiums paid to private insurers

(if any). Introducing a binary indicator variable S that is 1 if the firm offers a Section 125 plan, the utility to workers being offered ESI is

$$V^{\text{ESI}} = N^{\text{ESI}}v^{\text{ESI}} - P_w^{\text{ESI}}(1-St) + (N - N^{\text{ESI}})v^{\text{No}}$$

It is convenient to define $\Delta v^{\text{ESI}} \equiv v^{\text{ESI}} - v^{\text{No}}$ to rewrite the expression above as follows:

$$(A4.8) \qquad V^{\text{ESI}} = N^{\text{ESI}}\Delta v^{\text{ESI}} - P_w^{\text{ESI}}(1-St) + Nv^{\text{No}}$$

Workers in a firm that does not offer ESI receive an aggregate value equal to Nv^{No}, but they are partially compensated for the lack of an ESI offer by an amount equal to δC^{ESI}, on which they have to pay taxes at marginal tax rate t:

$$(A4.9) \qquad V^{\text{No}} = Nv^{\text{No}} + \delta(1-t)(P_e^{\text{ESI}} + K)$$

Firm Utilities

We can finally write the firm utilities for offering and not offering ESI:

$$U^{\text{ESI}} = \lambda \left[N^{\text{ESI}}\Delta v^{\text{ESI}} - P_w^{\text{ESI}}(1-St) + Nv^{\text{No}} \right] - (P_e^{\text{ESI}} + K)$$

$$U^{\text{No}} = \lambda \left[\delta(1-t)(P_e^{\text{ESI}} + K) + Nv^{\text{No}} \right] - \delta\left(P_e^{\text{ESI}} + K\right),$$

where we can identify the terms multiplying λ with those coming from the workers' value.

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The firm offers ESI if $\Delta U^{\text{ESI}} \equiv U^{\text{ESI}} - U^{\text{No}} > 0$. This condition is obviously unchanged if we effect the transformation

$$U^{\text{ESI, No}} \rightarrow \frac{1}{\lambda} U^{\text{ESI, No}}$$

Some algebra shows that we can write ΔU^{ESI} as follows:

(A4.10)
$$\Delta U^{\text{ESI}} = N^{\text{ESI}} \Delta v^{\text{ESI}} - P_w^{\text{ESI}} (1 - St) - \left(P_e^{\text{ESI}} + K \right) \left[\delta(1-t) + \frac{1-\delta}{\lambda} \right]$$

Let us interpret Equation (A4.10): The equation says that there is a certain linear combination of the firm-dependent variables $N^{\text{ESI}} \Delta v^{\text{ESI}}$, P_w^{ESI}, P_e^{ESI}, and t (and their interactions) whose sign predicts the firm's decision to offer health insurance. The linear combination involves three unknown parameters, δ, λ, and K. From an empirical point of view, this equation is not very useful—even if we could identify δ, λ, and K from our data (which seems unlikely), the model would have limited predictive power, because many other variables enter the firm's decision and need to be taken into account. The usefulness of Equation (A4.10) is that it shows a particular combination of variables that will enter the firm's decision. Therefore, if we want a predictive model, the natural approach is to use the variable ΔU^{ESI} as one covariate in a reduced-form model that involves other covariates that describe firm characteristics.

In other words, the model we just described is used to constrain the specification of a reduced-form model. *The value of the structural model is that Equation (A4.10) shows how variables that can be altered by a reform (v^{ESI}, prices, the tax rate t, fixed cost K) enter the firm's decision.* In our case, the reduced-form model takes the form of the multinomial probit introduced in the methodological section of this report and described in more detail above.

To use Equation (A4.10) in a reduced-form model, we need to make an important modification. The workers' utilities and price are summed over all the workers, and therefore they scale with firm size. This implies that variation across firm size gets confounded with some variation in per capita prices. It is therefore convenient to normalize all the variables by some variable that also scales with size, such as payroll or number of employees. This leaves the meaning of Equation (A4.10) unaltered, since it is a scaling factor, but it makes a difference in the reduced-form approach. Our default normalizing variable is total payroll, which means that total health care costs are expressed as a percentage of payroll. This default was chosen because the percentage of payroll an employer spends on health care has been estimated in the literature, allowing us to validate some of our variables. Therefore, the variable ΔU^{ESI} is expressed as a percentage of payroll.

Premium Calculations

We use the claims experience of enrolled workers to estimate premiums for each type of plan available in the model. Although the premiums are not directly shown in Equations (A4.2a) to (A4.2c) and (A4.3a) to (A4.3d), they factor into the calculation of ΔU_α, described above. For fully insured firms not offering coverage on the exchanges, individual premiums are firm-specific and represent a weighted average of the firm's experience-rated premium and a community-rated premium. Expected claims for the experience-rated premiums are estimated by predicting the level of health spending that workers and dependents would experience if they were on an ESI plan. The prediction is made using a set of regressions that account for individuals' age, insurance status, health status, income, Census region, gender, and firm size. Expected claims for the community-rated premiums reflect the average expenditure for all firms in a given size category (< 25 workers, 25–99 workers, 100+ workers) and Census region. To

calculate premiums, both the experience-based and community-based claims estimates are

adjusted to reflect administrative loading factors and actuarial values, which vary by firm size

and are shown in Table D.5. Justifications for these values are provided in Eibner et al. (2010).[42]

Table D.5. Administrative Load and Actuarial Values, Outside of the Exchange

Firm Size	Administrative Load (percent of premiums)	Actuarial Value
<25 workers	0.20	0.75
25-99 workers	0.13	0.80
100+ workers	0.08	0.85

After estimating the community- and experience- rated premium for each firm, we calculate

the final premium, using the following function:

(A4.11) $P_{full}=[\omega\times(P_{experience})]+[(1-\omega)\times(P_{community})]$

where ω is a term that ranges from 0 to 1 and reflects the relative weight insurers place on the

firms' claims experience relative to the expected expenditure among all similarly sized firms.[xlii]

On the basis of advice from actuaries, we assume that ω is 0.25 for firms with fewer than 25

workers, rising (on a sliding scale) to 1 for firms with more than 500 workers. The weighting

reflects the possibility that small firms' past claims might be inaccurate predictors of future

costs, so insurers hedge by relying on market experience to set prices.

Premiums for self-insured firms are calculated in the same way that we calculate

premiums for fully insured firms, except that ω is equal to 1 regardless of firm size. Additionally,

we divide the self-insured premium by 1.013 to account for the fact that self-insured plans are

not subject to state premium taxes, the average of which is 1.3 percent.[53] We assume that the

administrative cost of a self-insured plan, including the cost associated with obtaining a stop-loss

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[xlii] The Urban Institute uses a similar strategy to estimate premiums. See Equation 9.1.2 on p. 128 of Ref. 52.

policy, is identical to the administrative cost of a fully insured plan.[xliii] The self-insured premium can be thought of as money set aside to pay anticipated claims plus the costs associated with administering the plan or hiring a TPA. For both the fully insured and self-insured markets, we assume that family premiums are 2.7 times as expensive as individual premiums, based on ratios estimated in the Kaiser/HRET Employer Benefits Survey.

Finally, premiums on the exchanges are calculated using the experience of all enrollees in the exchanges. On an individual basis, we allow the premiums to vary by a factor of 3 to 1, depending on the enrollee's age. We do not allow the exchange premium to vary according to geography or enrollee's tobacco use. Because all workers within a firm pay the same premium, we set the premium for each firm equal to the average exchange premiums for the firm's enrolled workers. By assigning premiums for each actuarial-value tier based on the experience of *all* exchange enrollees, we are implicitly incorporating an assumption of perfect risk adjustment. More specifically, premiums in our model for an individual of a given age can vary only by the actuarial value of the plan and do not depend directly on the experience of others enrolled in that plan. In reality, risk adjustment is likely to be imperfect, so plans that carry higher-than-average actuarial risk may not be fully compensated for this risk. The ACA requires plans whose enrollees have "less than the average actuarial risk of all enrollees" to transfer funds to plans whose enrollees have "greater than average actuarial risk" (section 1343). However, the details regarding how risk adjustment will be implemented have not yet been finalized. Fully modeling

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[xliii] We do not have the data necessary to verify this assumption. Some stakeholders argued that self-insurance involves a significant investment of human-resources labor to manage the plan and deal with regulatory compliance, in which case this assumption may understate the costs of self-insurance. However, other stakeholders argued that full insurance and self-insurance with stop-loss were comparable in terms of price to the firm.

risk adjustment would require significant modification to the current version of the COMPARE model, as well as a better understanding of how risk adjustment will be implemented.[xliv]

Risk and Stop-Loss Calculations

To define the risk associated with self-insuring, we modified slightly one of the approaches proposed by Jensen, Cotter, and Morrisey (1995),[6] which defines the risk as the variance in claims per worker. Rather than normalizing the variance in claims by the number of workers at the firm, we normalize using payroll, so we compute the variance of total claims expressed as a percentage of payroll. Intuitively, the payroll standardization implies that a high-revenue firm will be less deterred from self-insuring by a given level of variance than a less affluent firm will be.[xlv] The risk variables for COMPARE were constructed using data from the merged 2002–2003 MEPS-HC, adjusted to match the National Health Expenditure Accounts and adjusted to match the tails of expenditures distribution using the Group Medical Insurance Large Claims Data Base[36].The data were inflated to year 2016 values using Centers for Medicare & Medicaid Services projections.

To estimate the risk variables, we first estimated the variance in expenditure for firms of size x, where x ranged from 4 to 500 or more in multiples of four (4, 8, 12, etc.), by sampling x individuals from a pool of at least 2,000 individuals in the employed ESI population, to generate 5,000 hypothetical firms for each value x. All individuals with firm size between $x-\varepsilon_x$ and $x+\varepsilon_x$ belonged to this pool, where ε_x was chosen such that the sample contained at least 2,000 records. The maximum firm size was limited to 500 workers, because the MEPS-HC firm-size

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[xliv] In our 2010 report,[42] we assigned "slippage" factors to the risk-adjusted premiums, based on the assumption that higher-risk individuals would gravitate toward the higher-actuarial-value plans. Subsequent sensitivity analyses indicated that the silver plan might actually attract the highest-risk enrollees because of generous cost-sharing subsidies. Because fully modeling slippage was not possible for this report, we opted to simplify by removing the slippage factors altogether.

[xlv] This standardization is consistent with the standardization of the firm utilities in the model, which was adopted because it was empirically preferable to standardization by firm size.

variable is top-coded at this value. Once the employees of the firm were sampled, we obtained

all the records of their dependents. Total claims $M_j(x)$ for firm j of size x were defined as the

difference between the total and the out-of-pocket expenditures of the workers and dependents

attached to the firm. We repeated this calculation for firm sizes ranging from 4 to 500 employees

in steps of four. Thus for each firm size x in this range, we obtained the sampled distribution of

claims $M(x)$, out of which we computed the variance $\text{Var}[M(x)]$. Not surprisingly, the

variance is a smooth function of firm size, which makes it easy to extrapolate to firm sizes of

more than 500 employees, using a linear regression on a log-linear scale. The result of this

extrapolation is that we can now attach to each firm in the simulation the variance of total claims.

We then explored how the risk variable changed depending on four different stop-loss

senarios, shown in Table D.6. The first three scenarios limit the firms' exposure to risk by

applying an attachment point A and a cap C to each enrollees' medical expenditure. Thus when

calculating the total expenditure $M_j(x)$ for firm j, if any of its employees has medical

expenditures greater than A dollars, the firm will be responsible for covering only cost A.

However, if medical expenditures are above C, the firm will have to pay out the sum of A

dollars plus the difference between the employee's medical expenditures and the cap. For each

scenario, values for the attachment point and the cap are separately defined for firm sizes of 100

or fewer employees, 101 to 5,000 employees, and more than 5,000 employees, where in this case

no attachment point or cap applies. In the aggregate scenario, we limit total claims costs to 125

percent of expected costs given firm size.

Table D.6. Stop-Loss Scenarios

	Attachment Point (in dollars)	Maximum Cap (in dollars)
Baseline scenario		
<=100 workers	75,000	2,000,000
101–4,999 workers	125,000	2,000,000
Lower-risk alternative		
<=100 workers	20,000	2,000,000
101–4,999 workers	50,000	2,000,000
Higher-risk alternative		
<=100 workers	125,000	1,000,000
101–4,999 workers	300,000	1,000,000
Aggregate alternative	Adds a global attachment point equal to 125% of expected claims to the baseline scenario	

The variance of total claims, however, is not the correct variable to quantify risk, since it clearly increases with firm size and does not capture the fact that large firms are better suited to absorb risk than smaller firms are. While Jensen, Cotter, and Morrissey (1995)[6] normalize the variance by considering claims per worker, we found it preferable to normalize by expressing it as a percentage of payroll, because (1) this captures the fact that, keeping firm size constant, firms with higher payroll face less risk, and (2) we have used payroll as a normalizing variable for the utility of the firm, since it was shown empirically to be more predictive.

The analysis effectively assumes that risk varies only with firm size and payroll. In reality, characteristics of workers, such as age and health status, could influence risk variables. However, stratifying the pools of MEPS-HC used to draw sample firms adds substantially to the run time needed for the Monte Carlo simulation and results in small pools of workers available to populate hypothetical firms. In matching workers to hypothetical firms to determine firm and worker choice, we use a more detailed array of characteristics, including Census region, firm size, industry, and whether or not the firm offers health insurance (in the SIPP data, we know

whether or not the worker was offered insurance, regardless of whether he or she accepted it). Thus, the limitations of matching based only on firm size apply to the risk variables but not to the synthetic population used in the model.

Because we divide the variance, which is estimated in dollars, by payroll, which is also in dollars, the final risk variable that enters the multinomial probit is a pure number. It is difficult to interpret the pure number without additional context. To convert the risk variables into a form that is more readily understandable, we use the results of the multinomial probit to "dollarize" it, using the following procedure. The latent variable corresponding to the self-insurance option in the multinomial probit has the form $P_{self} = \gamma \Delta U_{self} + \varphi\, \text{risk}_{self} + \ldots$, where coefficient γ is positive and coefficient φ is negative. Therefore, we can always think of the risk as an amount x of negative utility. We define x as follows:

$$\gamma \Delta U_{self} + \varphi\, \text{risk}_{self} = \gamma(\Delta U_{self} - x) \Rightarrow x = -\frac{\varphi}{\gamma}\, \text{risk}_{self}$$

The variable x has now the same units as ΔU_{self}, i.e., the aggregate firm utility (summed over all workers), normalized by payroll. To convert x to a dollar amount that can be interpreted as a utility per worker, we simply need to multiply x by payroll and divide by the firm size. The final "dollarized" version of the risk variable for a firm is then

$$x = -\frac{\varphi}{\gamma}\frac{\text{payroll}}{\text{firm size}}\, \text{risk}_{self}$$

Therefore, we can think of a firm facing a level of risk, risk_{self}, as facing an extra premium of x dollars for each of its workers (since premiums enter linearly in the utility and with a negative sign).

Firms of the same size have different values for risk (and dollarized risk) because they have different values of total payroll. Averaging over payroll for each firm size, we can obtain a

smooth plot of the dollarized risk as a function of firm size. Figure D.2 shows the smoothed version of the dollarized risk corresponding to the stop-loss scenarios we considered. The scenarios converge for firms with more than 5,000 workers, reflecting the fact that we assume no stop-loss coverage for firms with more than 5,000 employees. Because there is such a great variation in risk across firm sizes, it is not helpful to provide average values by broad firm-size categories. Rather, we use the values of the dollarized risk corresponding to selected firm sizes shown in Table D.7.

It is important to keep in mind that the dollarized risk is a measure of risk *as seen by the firm*, since its definition depends on the probit coefficient φ, which represents risk aversion. Therefore, there is no easy relationship between these figures and the actual variance of total claims, prior to any normalization.
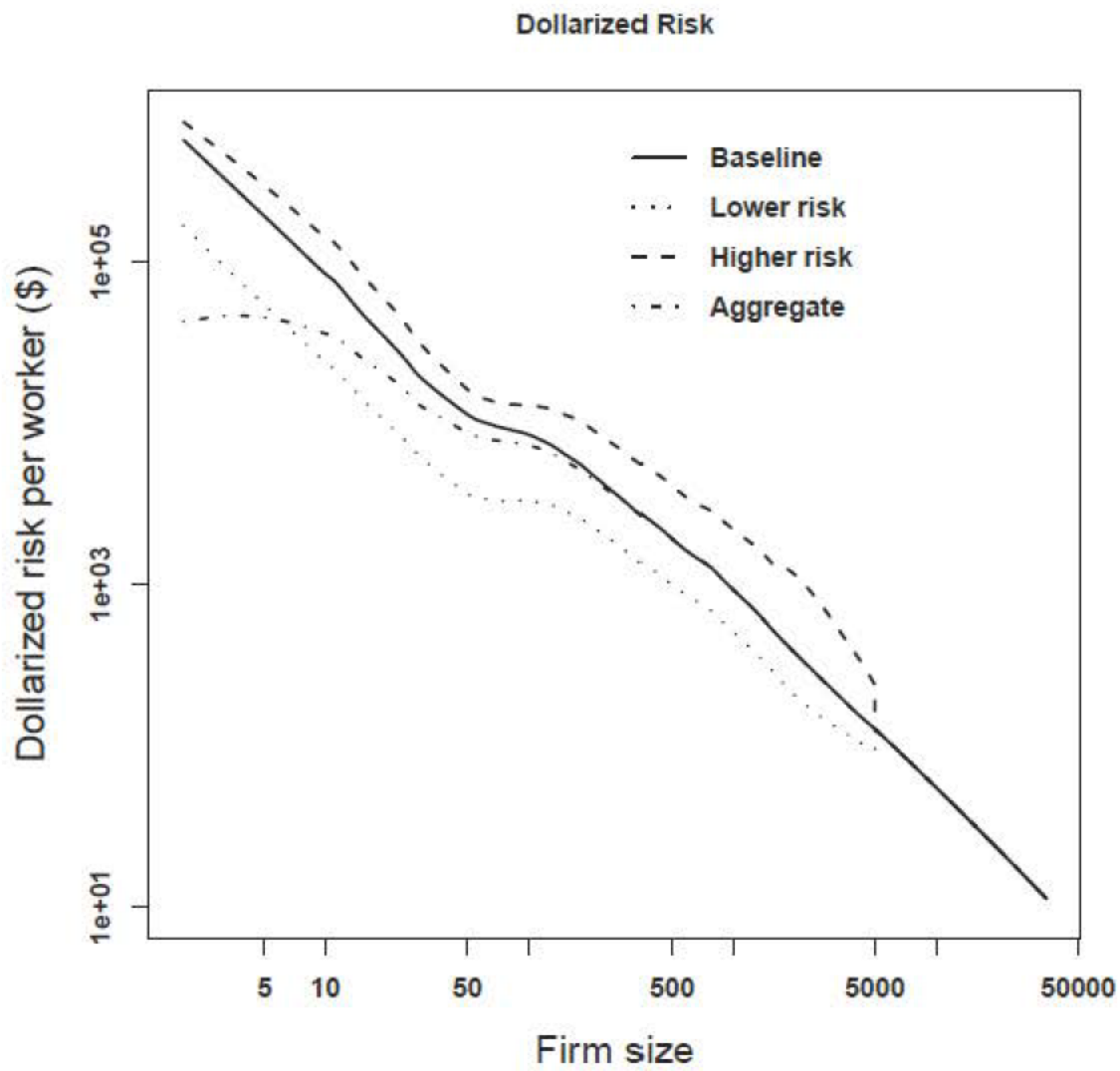
Figure D.2. Risk Associated with Each Stop-Loss Scenario, by Firm Size

Dollarized Risk

Table D.7. Dollarized Risk for Selected Firm Sizes (averaged across payroll distribution)

Firm Size	Stop-Loss Scenario			
	Baseline	Lower-Risk Alternative	Higher-Risk Alternative	Aggregate Alternative
25	24,650	7,740	41,160	15,830
100	8,550	3,330	12,950	7,360
500	1,930	990	4,110	1,930
1,000	930	510	2,200	930
10,000	50	50	50	50

Erosion of the Grandfathered Market

Although plans that existed on or before March 23, 2010, are exempt from many of the ACA's regulations, these plans will lose their grandfathered status over time if they make changes to their benefit packages. Based on regulations issued by the Department of the Treasury, DOL, and DHHS, plans will lose grandfathered status if they drop coverage for procedures or conditions, change coinsurance rates, or increase cost-sharing requirements by more than the rate of medical inflation (except for a one-time increase). The interim final rules related to grandfathering issued in June 2010[32] provide estimated erosion rates for the grandfathered market, overall and for small (fewer than100 workers) and large firms (100 or more workers). To replicate projected erosion rates for grandfathered plans, we assign a random number f, which is uniformly distributed on the interval [0,1], to each firm that offers health insurance in the status quo. We then compare this value to the expected fraction of firms that will have remained on the grandfathered market by year X, based on the midrange estimates in the interim rule. Since these estimates are available only for 2011, 2012, and 2013, we use linear extrapolation to project erosion rates in later years. Defining r as the erosion rate for some firms

and *y* as the number of years after 2010, a firm is allowed to remain grandfathered if $f < (1-r)^y$.

Table D.8 shows our predicted grandfathering erosion rates for 2011 through 2016.

Table D.8. Estimates of the Cumulative Percentage of Employees Whose Plans Lose Grandfathered Status, 2011–2016

	2011	2012	2013	2014	2015	2016
Small employers (<=100 workers)	30	51	66	76	83	88
Large employers (101+ workers)	18	33	45	55	63	70
All employers	22	39	53	63	71	77

Modeling Essential Health Benefits

We assume that in the status quo, all offering firms (fully insured and self-insured) offer the EHB package. To estimate the possible effects of the EHB requirements on self-insurance, we assume that after the ACA takes full effect, all or most self-insuring firms will opt to drop either mental health or prescription drug coverage—two of the 10 service categories that will be required. In scenarios where only a fraction of self-insuring firms drop EHB components, we assume that the first firms to drop are those whose employees value the benefit least. The employees' value for the benefit is computed as the difference between the average utility for insurance with and without the benefit, where the average is computed over non-elderly workers and dependents. Conceptually, firms that drop a specific service category are assumed to have a coinsurance rate equal to 1.

Before proceeding with the details of how we modeled the modification of a benefit, we first summarize qualitatively what happens when a firm's plan raises the coinsurance rate for a specific service. The first effect is that total enrollee spending on that service, and therefore total

spending, decreases, as a consequence of the higher coinsurance rate. The size of the effect depends on several factors:

- The base spending on that service: clearly, if the service has low utilization or low cost, overall spending will not change much.

- The elasticity of demand for that service: the higher the elasticity of the demand curve, the greater the change in spending.

- The change in coinsurance rate: if the starting coinsurance rate was relatively low, the change in total spending will be higher.

We do not take into account the possibility of spillover effects from the higher coinsurance rate that may lead to an increase in spending in other services. For example, a higher coinsurance rate for prescription drugs may lead to underconsumption of prescription drugs and an increase in hospitalization or other costly procedures.

Increasing the coinsurance rate also has an effect on enrollees' out-of-pocket expenditures. The direction of the average change in out-of-pocket expenditures depends, however, on the elasticity of demand. If the demand curve is inelastic (elasticity smaller than 1), out-of-pocket expenditures will increase, on average, as enrollees reduce their utilization and pay for the service with out-of-pocket money. If the demand is elastic, the reduction in spending is so great that even if enrollees pay a larger proportion of their bills, the overall out-of-pocket expenditures actually decrease.

The combined effect of changing total and out-of-pocket expenditures is a reduction in premiums that for a self-insured plan is simply the expected value of total expenditures minus enrollee out-of-pocket expenditures, plus an administrative cost factor. When the demand is inelastic, premiums decrease, because the total spending decreases and because enrollees pay

more out-of-pocket. When demand is elastic, premiums decrease because total spending decreases, and this effect is only partially mitigated by the decrease in out-of-pocket expenditures.

Changes in total and out-of-pocket expenditures also lead to a change in the utility that workers and dependents have for the plan being offered. In fact, the utility depends on the expected value of out-of-pocket expenditures, the premium, the variance of the out-of-pocket-expenditures distribution, and the expected utility for health care services received under the plan. We have already discussed out-of-pocket expenditures and premiums. The expected utility for overall health care services unequivocally falls as the coinsurance of a service is raised. The variance of the out-of-pocket expenditures, which represents the risk associated with a plan, remains to be considered. The precise effect of increasing coinsurance rates on the variance depends on the assumptions made about the distribution of elasticity across individuals. Under reasonable assumptions, if the elasticity is constant across individuals, the variance will increase when the demand is inelastic, as out-of-pocket expenditures increase for everybody. However, under the same assumptions, if the demand curve is inelastic, the variance of the out-of-pocket expenditures would most likely decrease as the entire distribution "shrinks." This does not seem realistic, since in general, we expect that removing one service from a plan makes the plan more risky for the enrollees. This appears to be a problem only for the analysis of the mental health benefit, since the demand curve for mental health services is elastic, for which we will need to assume that the elasticity of demand is inversely proportional to an individual's mental health expenditures.

We have considered two specific benefits that firms may drop: the prescription drug benefit and the mental health benefit. The key parameters that are necessary for the analysis are

the elasticities of demand and the current average coinsurance rates, which determine the drop in total spending. These parameters are shown in Tables D.9 and D.10. The average coinsurance rates were estimated on the same merged MEPS 2002–2003 data we used for the rest of the simulation, although in order to estimate the mental health expenditures, we had to merge those files with the Household Component Event files. When estimating coinsurance rates, we took a "robust" approach, and rather than estimating them as the average of the ratio between out-of-pocket expenditures and total expenditures (for a specific service), we estimated them as the ratio of the average out-of-pocket expenditures and the average total expenditures. The reason for this is that both out-of-pocket expenditures and total expenditures are highly skewed, and estimating their ratio is highly sensitive to noise. The effectiveness of this procedure was demonstrated by Goldman and Smith (2001) in the estimation of the out-of-pocket-expenditures burden for the elderly.

Table A4.9. Estimates of the Elasticity of Demand for Prescription Drug and Mental Health Services

Benefit	Elasticity (ε)	Source(s)
Prescription Drugs	−0.2 to −0.3	Joyce et al., 2002; Gilman and Kautter, 2008
Mental Health	−1 to −2	Taube et al., 1986; Frank and McGwire, 1986

Table A4.10. Average Estimated Coinsurance Rates for Employer-Sponsored Insurance

Benefit	Average Coinsurance (percent)
Prescription Drugs	29.4
Mental Health	29.7

SOURCE: Derived from MEPS-HC, 2002–2003.

We will describe the method, assuming that we are dropping the prescription drug benefit. We observe the current total, out-of-pocket, and prescription drug expenditures of an individual, which we denote by T, O, and D, respectively. When needed, we use a subscript i to indicate that these quantities refer to individual i, but in general we omit this subscript, since most calculations are performed at individual level.

In the model, we have already estimated the total and out-of-pocket medical expenditures an individual would face if he/she were on an average ESI plan that includes the prescription drug benefit. We denote these quantities by T^{ESI} and O^{ESI}, respectively. Our main goal is to estimate how T^{ESI} and O^{ESI} change if the coinsurance rate for prescription drug is raised from c to c^{new}. We will denote the new values of T^{ESI} and O^{ESI} by $T^{ESI\,new}$ and $O^{ESI\,new}$, respectively. To estimate these quantities, we also need the expected value of prescription drug expenditures when an individual is on an ESI plan with coinsurance c and c^{new}, denoted respectively by D^{ESI} and $D^{ESI\,new}$.

We start with estimating $T^{ESI\,new}$. By definition, it is equal to

(A4.12)
$$T^{ESI\,new} = T^{ESI} - D^{ESI} + D^{ESI\,new}$$

To compute D^{ESI}, we make the assumption that the proportion of an individual's total expenditures on prescription drugs is unchanged if the individual moves from his or her current insurance status to ESI. Formally, we assume that

(A4.13)
$$\frac{D^{ESI}}{T^{ESI}} = \frac{D}{T} \quad \Rightarrow \quad D^{ESI} = T^{ESI}\frac{D}{T}$$

For individuals with $T = 0$ and $T^{ESI} = 0$, we simply set $D^{ESI} = 0$. For individuals with $T = 0$ but $T^{ESI} > 0$, we impute the value of D/T with its mean across the population. We assume that the demand curve has constant elasticity and therefore has the following functional form:

(A4.14)
$$D \propto p^{-\varepsilon}$$

where p is the price of the service that is represented by the coinsurance rate c. The value of D^{ESI} new, corresponding to the new coinsurance rate c^{new}, is easily computed using Equation (A4.14):

(A4.15)
$$D^{ESI\,new} = D^{ESI}\left(\frac{c^{new}}{c}\right)^{\varepsilon}$$

where ε is the elasticity of demand for prescription drugs. Substituting Equation (A7.15) into Equation (A7.12), we obtain

(A4.16)
$$T^{ESI\,new} = T^{ESI} - D^{ESI}\left[1 - \left(\frac{c^{new}}{c}\right)^{\varepsilon}\right]$$

where D^{ESI} is obtained from Equation (A7.13). Since ε is negative, total ESI spending drops when the employee moves to a plan with a less generous prescription drug benefit.

To estimate $O^{ESI\,new}$, we proceed similarly:

(A4.17)
$$O^{ESI\,new} = O^{ESI} - OD^{ESI} + OD^{ESI\,new}$$

where OD^{ESI} and $OD^{ESI\,new}$ are the out-of-pocket-expenditures component of D^{ESI} and $D^{ESI\,new}$, respectively. By definition, we have

(A4.18)
$$OD^{ESI} = cD^{ESI}, \quad OD^{ESI\,new} = c^{new}D^{ESI\,new}$$

Substituting Equation (A4.18) in Equation (A4.17), we obtain after some algebra

(A4.19)
$$O^{ESI\,new} = O^{ESI} + cD^{ESI}\left[\left(\frac{c^{new}}{c}\right)^{\varepsilon+1} - 1\right]$$

It is not clear whether the out-of-pocket expenditures will increase or decrease under the new prescription drug benefit: they increase because the new coinsurance is higher, but they also decrease because the total spending on drugs decreases. The out-of-pocket expenditures will increase if $|\varepsilon| < 1$, that is, if the elasticity of demand is "not too large."

Since Equations (A4.16) and (A4.19) are defined for each individual, *and if the elasticity were constant across individuals*, they are sufficient to estimate the change we must make to the

utility of ESI to reflect the less generous prescription drug benefit. In fact, the utility for ESI is computed as follows:

$$U^{\text{ESI}} = -E[O^{\text{ESI}}] - \frac{1}{2}rVar[O^{\text{ESI}}] + \frac{1}{3}E[T^{\text{ESI}}] - \text{premiums}$$

where the r is the coefficient of risk aversion, and the expected value and the variance are computed, for each individual, on a population of individuals with similar characteristics (such as age, income, and sex). The new utility for ESI is computed by simply performing the above calculations with the new values for T^{ESI} and O^{ESI}.

However, it is important to question the assumption that all individuals have the same elasticity, especially in cases where the elasticity is >1 (as it is for mental health). In fact, Equation (A4.19) tells us that when the elasticity is >1, overall out-of-pocket expenditures fall. If the elasticity is constant across individuals, this implies that the variance of the out-of-pocket expenditures distribution also falls, since the entire distribution "shrinks." This may not be realistic—for individuals with small elasticity, we expect out-of-pocket expenditures to rise, so that the overall out-of-pocket distribution becomes more spread out and the overall variance may increase. To make the mental health scenario more realistic, we made the assumption that people with high mental health expenditures have lower elasticity. We experimented with several ways of assigning elasticities as a function of mental health expenditures, and they all gave similar results. The simplest one consists of assuming that people over a certain threshold of mental health expenditures have 0 elasticity, and people under that threshold have infinite elasticity. The threshold can be determined by fixing the average elasticity. When we implemented this algorithm, we found that overall out-of-pocket expenditures fall, and the variance does increase.

The changes in utility due to dropping the prescription drug or mental health benefit are shown in

Tables D.11 and D.12.

Table D.11. Average Changes in Utility Due to Dropping the Prescription Drug Benefit

	Non-Elderly	Non-Elderly with Positive Prescription Drug Expenditures
Change in the out-of-pocket portion of the utility ($)	338	412
Change in the risk portion of the utility ($)	292	371
Change in the health services portion of the utility ($)	−38	−45
Overall change in ESI utility ($)	−669	−828

NOTE: The baseline with respect to which the change is computed is the status quo. Both out-of-pocket expenditures and risk increase because of the change, while utility of health services drops. As entered into the utility function, the out-of-pocket expenditures and risk terms have different signs than the health services term (e.g., an increase in risk enters negatively).

Table D.12. Average Changes in Utility Due to Dropping the MH Benefit

	Non-Elderly	Non-Elderly with Positive Mental Health Expenditures
Change in the out-of-pocket portion of the utility ($)	−37	−55
Change in the risk portion of the utility ($)	77	207
Change in the health services portion of the utility ($)	−51	−84
Overall change in ESI utility ($)	−91	−236

NOTE: The baseline with respect to which the change is computed is the status quo. The out-of-pocket expenditures decrease, because of the elastic demand, while risk still increases. Also, as entered into the utility function, the out-of-pocket expenditures and risk terms have the opposite sign from the health services term (e.g., an increase in risk enters negatively).

Notation Used in This Appendix

- T: total medical expenditures of a generic individual.

- O: out-of-pocket medical expenditures of a generic individual.

- D: prescription drug expenditures of a generic individual.

- T^{ESI}: the total medical expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c.

- O^{ESI}: the out-of-pocket expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c.

- D^{ESI}: the prescription drug expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c.

- OD^{ESI}: the out-of-pocket component of the prescription drug expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c.

- $T^{ESI\ new}$: the total medical expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c^{new}.

- $O^{ESI\ new}$: the out-of-pocket expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c^{new}.

- $D^{ESI\ new}$: the prescription drug expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c^{new}.

- $OD^{ESI\ new}$: the out-of-pocket component of the prescription drug expenditure an individual would face if he/she were on an average ESI plan with prescription drug coinsurance c^{new} .

- c: prescription drug coinsurance level for ESI.

Notes on Differences between COMPARE and Other Models

There are other microsimulations that could be used to analyze health care reform. Here we briefly describe how they differ from the COMPARE model.

The Congressional Budget Office (CBO) developed the Health Insurance Simulation Model (HISIM)[54] to provide analyses of many versions of the health care reform legislation. The

main differences between COMPARE and the CBO model are (1) CBO does not model a firm's decision to self-insure, and (2) CBO does not use utility maximization to model individual and firm behaviors; rather, it uses elasticities. The elasticity approach was pioneered by Jonathan Gruber of the Massachusetts Institute of Technology, who designed the Gruber Microsimulation Model (GMSIM).[xlvi] In GMSIM, the effects of policy changes are converted into price changes, and elasticities are then used to convert the price changes into changes in behaviors. For example, imposing a penalty for being uninsured is equivalent to lowering the price of insurance, so the elasticity of individual demand for health insurance can be applied to estimate changes in insurance coverage. This approach is strongly based on empirical evidence from health economics and is most reliable when the reform being modeled does not alter the structure of the insurance market too much, a change that might make the use of the elasticities invalid, since they were estimated in a different environment.

The concern that health care reform may include market structures (such as exchanges) and incentives (such as the individual mandate) that have never been observed before is what led us to develop the utility-maximization approach, which is more flexible than the elasticity approach and less dependent on past behaviors in its predictions of future behaviors. The same approach was undertaken by the Urban Institute, which developed the Health Insurance Policy Simulation Model (HIPSM). HIPSM has a wide range of applicability,[55] although, like HISIM, it does not model the firm's decision to self-insure. HIPSM uses utility maximization as the driving principle for modeling individuals' choices. The available documentation on individual behavior in HIPSM[xlvii,xlviii] is brief, but we believe that our approaches are similar; because of the

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[xlvi] Jon Gruber, untitled, http://econ-www mit.edu/files/5939, accessed 3/2/2011.
[xlvii] "The Health Insurance Policy Simulation Model (HIPSM)," slides and presentation by Bo Garret, prepared for the National Committee on Vital and Health Statistics, Populations Subcommittee Meeting on Modeling Health

limited documentation, we are unable to compare the approaches to modeling firm behavior. We know that HIPSM models the firm's decision to offer health insurance by comparing workers' total willingness to pay with the total cost of the insurance policy. On the surface, this is similar to the COMPARE approach, but there are so many ways in which the modeling paths could have diverged that it seems prudent to abstain from comparisons until more information is available.

Another approach was taken by the Lewin Group, which designed the Health Benefits Simulation Model (HBSM).[xlix] The HBSM makes extensive use of multivariate models, estimated on various datasets, to predict behavior of individuals and firms. However, some components of HBSM combine multivariate models with considerations regarding how firm actions may (or may not) improve worker well-being. While the multivariate models are estimated on historical data and could suffer from the same problems that elasticities may have in simulating a "new" environment, the considerations about worker well-being attempt to capture heterogeneity in individual and firm behavior. The HBSM, like all the other simulation models described above, lacks the ability to differentiate between self-insured and fully insured firms.

Insurance Data, Including Coverage, Access, Utilization, Quality, and Cost of Care," Washington D.C., February 27, 2009.
[xlviii] Transcript from the National Committee on Vital and Health Statistics, Populations Subcommittee Meeting on Modeling Health Insurance Data, Including Coverage, Access, Utilization, Quality, and Cost of Care," Washington D.C., February 27, 2009.
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