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Research Report

A Two-Step Procedure to Estimate Participation and Premiums in Multistate Health Plans

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RAND Health

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Preface

The Affordable Care Act requires the Office of Personnel Management to contract with health insurance issuers to provide multistate plans (MSPs) in the new marketplaces created by the law: the Affordable Insurance Exchanges and the Small Business Health Option Program Exchanges. Policymakers and other stakeholders are interested in the development of a methodology to estimate the demand for MSPs, which is the subject of this report. This work was sponsored by the Office of Personnel Management, who provided funding through an interagency agreement with the Department of Health and Human Services, Assistant Secretary for Planning and Evaluation. The research was conducted in RAND Health, a division of the RAND Corporation. Questions may be addressed to Amado Cordova (cordova@rand.org, 310-393-0411, ext. 7241). A profile of RAND Health, abstracts of its publications, and ordering information can be found at http://www.rand.org/health.

Abstract

Multistate plans (MSPs) provide an attractive alternative among the health insurance plans established by the Affordable Care Act (ACA) because they will have to be offered in multiple states. In this study, our first objective was to identify and characterize population groups that would likely be interested in enrolling in MSPs (Phase 1 of the study). Our second objective was to develop a methodology to project participation and to estimate premiums for these plans (Phase 2). For this second phase, we developed a two-step procedure to estimate the demand for MSPs. In the first step, we used the COMPARE microsimulation model and its utility maximization algorithms to project enrollment, irrespective of whether exchange participants choose an MSP or another exchange plan. The second step consists of calculating MSP premiums by means of a tool written in the R language that separates MSP participants from enrollees in other exchange plans using criteria selectable by the user. In this report, we present results from Phase 1 and from the first step of Phase 2 and explain the methodology and challenges associated with the second step. National-level microsimulation results suggest that three target population groups expected to prefer MSPs are also more likely to join the exchanges than the general population by over two percentage points. States with a higher uninsurance rate and lower participation in the nongroup market under current law, such as Texas, are projected to have a larger percentage enrollment in the individual market exchanges after enactment of the ACA. Thus, these states may also have a higher percentage of MSP participants than other states. Our main policy recommendation is for the Office of Personnel Management to make use of the findings of this report and to exercise the MSP premium calculator tool to aid in the implementation of the Multistate Plan Program.

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Section 1334 of the Affordable Care Act (ACA) directs the Office of Personnel Management (OPM) to enter into contracts with health insurance issuers to establish at least two multistate plans (MSPs) in each exchange in each state. Such plans must be offered in all 50 states and the District of Columbia by the fourth year of issuance. These plans, therefore, may be particularly attractive to individuals interested in purchasing insurance from issuers having a presence in multiple states. Some potential populations of interest are out-of-state students; interstate migrants; out-of-state workers; and temporary migrants, such as "snowbirds" and "sunbirds." These plans may also be attractive to individuals interested in increased access to out-of-state provider networks.

One goal of this study was to estimate the size and the characteristics of the populations that will be likely to enroll in the MSPs that will be offered through the state exchanges. Accordingly, we estimated the size, demographic characteristics (age, gender, and race), income, employment status, self-reported health, insurance status, and total medical expenditures[1] of out-of-state students, interstate migrants, and out-of-state workers at the national level. This work comprised Phase 1 of the project.

Another goal was to model participation in MSPs using the Comprehensive Assessment of Reform Efforts (COMPARE) microsimulation model, as well as to project how many participants will be eligible to receive the premium subsidies and cost-sharing reductions that the ACA makes available to low- and moderate-income exchange enrollees. This work—Phase 2 of the project—required important policy clarifications. A recently published Notice of Proposed Rulemaking (NPRM) by OPM clarified that it is OPM's intention that MSP premiums be set on a state-by-state basis.[2] Therefore, MSPs will not be allowed to pool risks across states. Moreover, the same NPRM indicates that OPM intends to adopt the state's structure of having either merged or split regulated nongroup and small-group markets for the purposes of risk pooling. According to the ACA, the decision to merge or split them will be made by each state.

Modeling MSP participation also entailed addressing two challenges.

First, the ACA and the subsequent NPRM by OPM blur the distinction between an MSP and another exchange plan for modeling purposes. They will both be subject to the same federal regulations—including guaranteed issue, rate banding, risk adjustment, the offering of metal-tier plans, and others—and to the same state regulations in the state in which they will both be sold, as long as the state regulations do not contradict the ACA. Moreover, concerning medical loss

[1] Throughout this report, "total medical expenditures" refers to those that include enrollee out-of-pocket costs.

[2] The NPRM will be eventually replaced by a Final Ruling (FR) in response to comments or other considerations. An FR was not available as of the time of this writing (February 2013).

ratios (MLRs), OPM expects that issuers will attain the MLR required under Section 2718 of the Public Health Service Act and regulations promulgated by the Department of Health and Human Services (DHHS). However, OPM reserves the authority to impose a different, MSP-specific MLR threshold in the interest of MSP enrollees. Therefore, there is not a clear distinction between MSPs and other exchange plans concerning MLRs. The main reason for the blurring of the line between MSPs and other health plans offered on the exchanges is OPM's desire to provide the level playing field of the ACA and to provide more flexibility to the states.

Second, our utility maximization algorithms make use of terms and factors derived from economic theory and empirical studies. Preferences for MSPs over other exchange plans may be driven by factors that are not readily quantifiable, that are not economic, or that cannot be derived from empirical observations.

For these reasons we decided to split the problem of projecting MSP participation and premiums into two steps. In the first step, the full COMPARE microsimulation model is used to project the choices that individuals and firms will make after the enactment of the ACA. We do not distinguish between enrollment in an MSP and enrollment in another exchange plan.[3] We performed this step both at the national level and for three states selected by the sponsors: Maryland, California, and Texas. For the second step, we did not come up with estimates of MSP participation. Instead, we provided a tool written in the R language to estimate MSP premiums. The main assumption in this step is that MSP participants will be a subset of those individuals and small firms' employees and dependents who, according to the COMPARE microsimulation results of the first step, decided to self-select into the exchanges.[4] The user of that tool separates those groups who in his or her opinion would prefer an MSP over another exchange plan, and the tool calculates the corresponding MSP premiums, taking into account rate banding, risk adjustment, reinsurance, and 9010 tax.[5]

An important point to consider for the final balance between participation in an MSP versus participation in another exchange plan pertains to the distinction between initial and final enrollments. Initial enrollment in an MSP may be driven by the interests of the population groups identified in this report, plus the preferences of other groups not yet identified. However, according to the law, anyone eligible for an exchange is also eligible for an MSP. Therefore, final enrollment will be most likely dictated by plan benefits and realized premiums. Regulations up to this date seem to blur the distinction between MSPs and other exchange plans, and, if this

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[3] Moreover, the current version of the COMPARE microsimulation model cannot distinguish between participation in the exchanges and participation in the regulated market outside the exchanges. This point will be explained in Chapter Two of this report.

[4] See footnote 3 above.

[5] Section 9010 of the ACA imposes a fee on private insurance enrollees. The fee is $11.3 billion in 2016 and grows in subsequent years. Nearly everyone who is covered under private insurance will pay a fraction of this amount as part of his or her premium. Section 1341 of the ACA establishes transitional reinsurance for the nongroup market. In 2016, all private insurance plans will pay a fee that will total $5 billion, of which $4 billion will be distributed to nongroup plans that are disproportionately affected by high-cost individuals. Reinsurance stops after 2016.

trend continues, the final balance of enrollment will be largely dictated by realized premiums. If the initial MSP enrollees have higher total medical expenditures than those on other exchange plans, they will drive MSP premiums upward, which may lead to adverse selection in the MSP. If the initial MSP enrollees have lower total medical expenditures, then the other exchange plans will potentially face adverse selection.[6] This strong dependence of the final balance of enrollment on the initial enrollee population is due to the current lack of differentiation between MSPs and other exchange plans. Final regulations still to be issued by OPM and DHHS may introduce differences and thus could affect the final outcome.

[6] In Chapter Four, we compare the total medical expenditures of the groups likely to be more interested in MSPs with the national average.

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Abbreviations

ACA	Affordable Care Act
ACS	American Community Survey
AIE	Affordable Insurance Exchange
ASPE	Assistant Secretary for Planning and Evaluation
CHIP	Children's Health Insurance Program
COMPARE	Comprehensive Assessment of Reform Efforts
CSV	comma-separated values
DHHS	Department of Health and Human Services
ESI	employer-sponsored insurance
FFE	federally facilitated exchange
FEHBP	Federal Employees Health Benefits Program
HIEU	health insurance eligibility unit
IT	information technology
MCBS	Medicare Current Beneficiary Survey
MEPS	Medical Expenditure Panel Survey
MLR	medical loss ratio
MSP	multistate plan
MSPP	Multistate Plans Program
NPRM	Notice of Proposed Rulemaking
NTHS	National Household Travel Survey
OPM	Office of Personnel Management
PHSA	Public Health Service Act
PPACA	Patient Protection and Affordable Care Act
SBE	state-based exchange
SIPP	Survey of Income and Program Participation
SHOP	Small Group Health Insurance Options Program

SOA	Society of Actuaries

1. Introduction

1.1. The Affordable Care Act

The Patient Protection and Affordable Care Act (PPACA) was signed into law by President Barack Obama on March 23, 2010. One week later, the President signed the Health Care and Education Reconciliation Act of 2010. These two laws are collectively referred to as the Affordable Care Act (ACA).

The ACA is the most comprehensive health legislation enacted in the United States since President Lyndon Johnson signed the Medicare bill on July 30, 1965. The ACA intends to substantially increase the number of individuals covered by health insurance in the United States by expanding the Medicaid program, by requiring most U.S. citizens and legal residents to obtain health insurance coverage or pay a penalty, by providing subsidies and cost-sharing reductions to individuals and families with low to moderate incomes and without an affordable source of coverage, and by imposing fines on firms that do not offer adequate coverage to their workers if those workers seek federally subsidized coverage as an alternative.

The ACA introduces new federal regulations for the nongroup (or individual) and the small-group health insurance markets. These regulations preclude insurers from denying coverage due to preexisting conditions (guaranteed issue) or from charging different premiums depending on health status or other enrollee characteristics. According to these new regulations, premiums can only vary by family size, geographic area, plan actuarial value, age, and tobacco usage. The variation due to age cannot exceed a ratio of 3 to 1 (age rate banding), and the variation due to smoking status cannot exceed a ratio of 1.5 to 1 (rate banding due to smoking status). Only some nongroup and small-group health plans that existed prior to the enactment of the ACA—the "grandfathered" plans—will not be subject to these new federal regulations.

The ACA also creates new marketplaces for the purchasing of nongroup and small-group health insurance. These new marketplaces are called the Affordable Insurance Exchanges (AIE) for individuals and families and the Small Group Health Insurance Options Program (SHOP) Exchanges for small firms. Premium subsidies and cost-sharing reduction for low- and moderate-income individuals will be available through the AIE. Temporary tax credits for businesses with 25 or fewer workers who have average wages below $50,000 per year will be available through the SHOP exchanges.

The Centers for Medicare and Medicaid Services (CMS) is working with the 50 states and the District of Columbia to establish exchanges in every state. The ACA allows each state to establish a state-based exchange (SBE), subject to certification that it meets federal standards and is ready to offer coverage by January 1, 2014. In a state that does not achieve certification, the ACA directs the Secretary of Health and Human Services to facilitate the establishment of an

exchange in that state. This will be called a federally facilitated exchange (FFE). A third type of exchange, the state partnership model, is also contemplated, with business functions to be designed and/or operated by the state or the federal government and with shared business functions.

The law permits state regulators to decide whether to merge or to split the small-group and nongroup markets for the purposes of risk pooling. These regulators will also decide whether firms with more than 100 workers may purchase coverage on the SHOP exchanges after 2016. Finally, they must also determine the nature of the essential health benefits (EHB) that will be offered on the exchanges, although the EHB must adhere to broad federal guidelines.

The new regulatory environment that applies to the nongroup and the small-group markets (including the exchanges) also applies to a new set of plans also created by the ACA, which are the subject of this report: multistate plans (MSPs).

1.2. Multistate Plans

Section 1334 of the ACA authorizes the Office of Personnel Management (OPM) to enter into contracts with health insurance issuers to offer at least two MSPs through each exchange in each state. It prescribes that at least one contract be entered into with a nonprofit entity and that such plans provide individual, or in the case of small employers, group coverage. The law directs OPM to negotiate with each issuer "the medical loss ratio, the profit margins, the premiums to be charged, and such other terms and conditions of coverage as are in the interests of the enrollees in such plans."[7]

To offer MSPs in a particular state, health insurance issuers need to be licensed in that state and are subject to all requirements of state law not inconsistent with Section 1334 of the ACA. The MSPs must meet all the requirements for a qualified health plan prescribed by the ACA, including offering the essential health benefits and the bronze, silver, and gold levels of coverage and catastrophic coverage described in Section 1302 of the ACA.[8]

An individual enrolled in an MSP is eligible for premium subsidies and cost-sharing assistance in the same manner as an individual who is enrolled in a qualified health plan that is offered through an exchange.[9]

If an MSP is offered in a state with an age rating requirement that is lower than a ratio of 3 to 1, the state may require that exchanges operating in the state only permit the offering of such an MSP if it complies with the state's more-protective age rating requirement.[10]

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[7] Compilation of the Patient Protection and Affordable Care Act (PPACA) (as Amended Through May 1, 2010), prepared by the Office of the Legislative Counsel for the use of the U.S. House of Representatives, May 2010.

[8] Compilation of the PPACA, Sec. 1334(b)(2).

[9] Compilation of the PPACA, Sec. 1334(c)(3).

[10] Compilation of the PPACA, Sec. 1334(c)(5).

The ACA authorizes an issuer to phase in the states in which the MSP is offered. The MSP must be offered in all 50 states and the District of Columbia by the fourth year from the time the issuer first offered the MSP, as well as in all subsequent years. The issuer must offer the MSP in at least 60 percent of the states during the first year, in at least 70 percent of the states in the second year, and in at least 85 percent of the states in the third year.[11]

MSPs enrollees must be treated as a separate risk pool from enrollees in the Federal Employees Health Benefit Program (FEHBP), and issuers offering coverage under FEHBP are not also required to offer MSPs.[12] FEHBP is a federal health insurance program that is also under OPM's oversight.

1.3. How MSPs Will Be Implemented

OPM recently issued a Notice of Proposed Rulemaking (NPRM) to establish the Multistate Plans Program (MSPP).[13] This NPRM defines an MSPP issuer as a health insurance issuer that has a contract with OPM to offer MSPs.

The NPRM proposes that an MSPP issuer that desires to offer coverage in the individual exchange but not in the SHOP be allowed to do so throughout the duration of the phase-in period of four years, but that the issuer will be required to offer coverage in both the SHOP and the individual exchange by the end of the phase-in periods.[14]

OPM proposes that an MSPP issuer must offer at least one plan at the silver level of coverage and one at the gold level of coverage in each exchange in which the issuer is certified to offer.[15]

OPM proposes to maintain a level playing field by requiring MSPs and MSPP issuers "to comply with the State and Federal laws relating to the 13 categories listed in Section 1324(b) of the Affordable Care Act."[16] These categories are guaranteed renewal, rating, preexisting conditions, nondiscrimination, quality improvement and reporting, fraud and abuse, solvency and financial requirements, market conduct, prompt payment, appeals and grievances, privacy and confidentiality, licensure, and benefit plan material or information.

OPM proposes to negotiate annually with an MSPP issuer the premiums for each MSP offered by that issuer. "OPM intends that each MSP set its premiums on a State-by-State basis. Unlike the FEHBP, there will not be any MSPs that are offered at one premium nationwide. Therefore, OPM intends to follow State rating laws as much as practicable so as not to distort

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[11] Compilation of the PPACA, Sec. 1334(e).

[12] Compilation of the PPACA, Sec. 1334(g)(2) and Sec. 1334(g)(6).

[13] OPM 45 CFR Part 800, "Patient Protection and Affordable Care Act; Establishment of the Multi-State Plan Program for the Affordable Insurance Exchanges; Proposed Rule," Federal Register, Vol. 77, No. 234, December 5, 2012.

[14] OPM 45 CFR Sec. 800.102.

[15] OPM 45 CFR Sec. 800.107.

[16] OPM 45 CFR Sec. 800.115.

local markets."[17] As will be explained later, the intention of setting premiums at the state level instead of the national level has important consequences for modeling purposes.

"Section[s] 1312(c)(a) and (2) of the Affordable Care Act provide that a health insurance issuer consider all enrollees in all non-grandfathered health plans in the individual market to be members of a single risk pool,"[18] and a similar statement applies to enrollees in the small-group market. Consequently, OPM "clarifies that an MSPP issuer must consider MSP enrollees to be members of the same risk pool as all other enrollees of the issuer in non-grandfathered health plans in the individual and small group markets respectively."[19] Moreover, if a state decides, as permitted by the ACA, to merge the individual and small-group markets within the state, OPM proposes that such merging also occurs for MSPs. These statements also have important implications vis-à-vis modeling of MSPs.

1.4. Study Goals

While the Center for Consumer Information and Insurance Oversight (CCIIO) within CMS is responsible for supervising the exchanges in general, Section 1334 of the Act directs OPM to enter into contracts with health insurance issuers to offer MSPs. To prepare for these contracts, the Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (DHHS/ASPE) and OPM wanted to identify the populations that may be particularly interested in enrolling in MSPs and their eligibility to receive premium subsidies and cost-sharing reductions.

One purpose of this study was to estimate the size and characteristics of the populations that will be particularly likely to participate in the MSPs that will be offered under the exchanges. With guidance from DHHS/ASPE and OPM, the study team identified the following populations or groups of interest to the study:[20]

- workers who live in one state and are employed in another state (out-of-state workers)
- people attending college or pursuing other studies outside their original state of residence (out-of-state postsecondary students)
- people who move from one state to another during a year (movers or interstate migrants)
- people who live in different states for different parts of the year ("snowbirds" and "sunbirds").

DHSS/ASPE and OPM directed the study team to address the following questions:

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[17] OPM 45 CFR Sec. 800.201.

[18] OPM 45 CFR Sec. 800.201.

[19] OPM 45 CFR Sec. 800.201.

[20] The ACA requires that members of Congress and their staffs obtain coverage through their state's exchange and no longer through the FEHBP. Thus, they comprise another group that might enroll in MSPs. However, we did not include this group in the modeling effort, since it is presumably much smaller than the other groups.

1. How many individuals, with what insurance status, income levels, and demographic characteristics, will fall into each one of the populations of interest specified above?
2. How many people in the populations of interest will be eligible to receive premium subsidies and cost-sharing reductions in the exchanges?
3. How many people in the populations of interest will be expected to participate in the exchanges?
4. How many people will be expected to participate in MSPs?
5. How many of those people in the populations of interest that participate in the exchanges will be receiving premium subsidies and cost-sharing reductions?
6. What value of premium subsidies will those in MSPs receive?

Originally, projecting participation in MSPs (Question 4) and estimating the cost to the government in the form of premium subsidies and cost-sharing reductions in MSPs (Question 6) were some of the objectives of this study. These objectives were later changed to developing a two-step procedure to estimate participation (including demographic characteristics of participants) and premiums in MSPs. As we shall explain later in this report, the procedure involves a software tool to calculate premiums in the MSPs.

The study was conducted in two phases. The goal of Phase 1 was to identify individuals at the national level who belong to the groups of interest defined above (answers Question 1). The goal of Phase 2 was to project who among the groups of interest is expected to participate in the exchanges, who among them will be eligible for subsidies (answers Questions 2, 3, and 5), and to develop a tool to estimate MSP premiums. Phase 2 required utilization of the Comprehensive Assessment of Reform Efforts' (COMPARE's) behavioral models, whereas Phase 1 did not.

In Chapter Two of this report we present an introduction to the COMPARE microsimulation model, which was used for the first step of Phase 2 of this project. That chapter also explains the challenges we faced in modeling MSPs. Chapter Three summarizes the approach followed for Phase 1 and for Phase 2. Chapter Four describes the project deliverables. Finally, Chapter Five presents our conclusions.

2. COMPARE and the Modeling of MSPs

In this chapter we first present an overview of the COMPARE microsimulation model (more detailed descriptions of COMPARE can be found in Cordova et al. [2013] and Eibner et al. [2011]) and a brief summary of the national- and state-level work we have done to estimate the consequences of the ACA. Then we explain the challenges we faced in modeling MSPs.

2.1. The COMPARE Microsimulation Model

2.1.1. Overview of COMPARE

COMPARE was developed by researchers at RAND to predict how firms and individuals would respond to health care policy changes, particularly the ACA. This section provides a brief overview of the COMPARE microsimulation and highlights the aspects of the model that are most pertinent for this study.

A microsimulation is an analytical tool in which agents make decisions in response to a change, as well as the decisions of other agents. Other groups have also developed microsimulation models.[21] In COMPARE, agents include individuals, families, and firms, all of whom make decisions in response to the implementation of the ACA. Construction of the COMPARE model requires a synthetic population of individuals, families, and firms with representative consumption preferences and expenditures. To create synthetic populations, we rely on data from the following sources:

1. Survey of Income and Program Participation (SIPP)—U.S. Census Bureau
2. Statistics of U.S. Businesses (SUSB)—U.S. Census Bureau
3. Employer Health Benefits Survey—Kaiser Family Foundation/Health Research Educational Trust (Kaiser/HRET)
4. Group Medical Large Claims dataset —Society of Actuaries (SOA)
5. Medical Expenditure Panel Survey (MEPS)—Agency for Health Care Research and Quality (AHRQ)

[21] See the bibliography: Blumberg et al. (2003) for the Urban Institute's model, UCLA Center for Health Policy Research for CalSIM (2012), the Lewin Group (2009), and Jonathan Gruber (2000 and 2008).

The SIPP is our main population database, but because it does not contain information about medical expenditures, it must be statistically matched to the MEPS, which has that information.[22, 23]

At the core of COMPARE, agents make decisions in response to the regulatory environment of the ACA. Individuals and families decide whether and, if applicable, which type of health insurance coverage to enroll in given the new economic structure created by the ACA. Available plan types may include employer-sponsored insurance (ESI), Medicare, Medicaid, plans offered through the newly created state-based individual exchanges, other nongroup insurance, or some other source (e.g., military-related health programs). We assume that enrollment in Medicare and enrollment in military-related health programs are not affected by the ACA. Hence, COMPARE focuses on enrollment shifts between ESI, Medicaid, and nongroup coverage, as well as the uninsured gaining coverage under the ACA.

The current version of COMPARE focuses on generating projections for the population under 65 years old, since that is the main target population of the ACA.

In COMPARE, health insurance enrollment decisions are made by health insurance eligibility units (HIEUs).[24] Hence, we model insurance decisions at the level of the HIEU. HIEUs often have several options available to them, such as a family insurance policy, individual policies for each family member, or a hybrid. For each option, HIEUs consider the expected costs and benefits of the plan. In addition to selecting an insurance plan, HIEUs can also opt not to insure some or all of their members, but they may incur higher out-of-pocket costs and a penalty under the individual mandate. HIEU decisions are based on a utility-maximization approach, as proposed in Goldman et al. (2000). The HIEU selects the insurance coverage option that maximizes the utility of its members. Note that more-generous options increase the value of the health insurance coverage but also increase premiums.

In addition to HIEUs making enrollment decisions, firms in COMPARE decide whether to offer their employees health insurance coverage and what type of plan to offer (i.e., a traditional plan[25] or a plan in the regulated small-group market, if the firm has fewer than 100 workers). The aggregate utility of a firm's workers associated with each health option plays a key role in the firm's decision, along with static firm characteristics, such as firm size and industry. Once firms make their decisions, employees consider the offer and decide whether to accept it or obtain

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[22] Here, "medical expenditures" include two types: "total medical expenditures" and "out-of-pocket" expenditures. They are both taken from the MEPS and transferred to our SIPP database via statistical matching.

[23] Because the MEPS is known to underestimate the highest expenditures, we extend the tail of the MEPS expenditure distribution by using data on the highest spenders from the Society of Actuaries (SOA). This procedure allows us to construct a more realistic distribution of total medical expenditures.

[24] An HIEU is a group of individuals that are eligible to participate in the same health insurance policy. This typically means a traditional family with parents and children.

[25] By "traditional plan," we mean a large employer ESI plan for firms with 100 or more employees or a grandfathered small firm plan for firms with fewer than 100 employees (if available).

coverage elsewhere. This process iterates, with firms deciding whether to offer based on the observed behavior of their employees, until equilibrium is achieved.

Of particular importance to this study is the model implementation of the regulated nongroup market and the regulated small-group market. As constructed, COMPARE contains four "metal tier" plans—platinum, gold, silver, and bronze—that differ by their actuarial values. COMPARE explicitly incorporates the regulations governing which individuals are eligible for premium and cost-sharing subsides, as well as which individuals are eligible to enroll in the exchange. Subsidies are assigned on a sliding scale to eligible individuals with incomes between 100 percent and 400 percent of the federal poverty level (FPL). In calculating premiums, we assume perfect risk adjustment.[26] Furthermore, COMPARE incorporates the capability to merge or split the individual and employer exchange risk pools. Our analysis in this study assumes that the individual and employer exchanges are split. Our national-level results assume that Medicaid expansion is adopted in every state. In this report, we also address key results for three states: California, Maryland, and Texas. We assume that California and Maryland will expand Medicaid eligibility to 138 percent of FPL, while we assume that Texas will maintain its current eligibility thresholds, as recently announced by the Texas executive branch.[27]

2.1.2. Modeling Limitations

COMPARE cannot distinguish exchange enrollment from enrollment in the ACA-regulated market outside of the exchanges; this is because premiums for plans inside and outside of the exchanges are governed by the same risk pooling and regulatory environment. For this reason we prefer to report predicted enrollment in the ACA-regulated nongroup and small-group markets instead of exchange enrollments. We provide two types of enrollment outcomes:

- those who self-select in the regulated market (either nongroup or small group) and who are also eligible for exchange subsidies (either AIE subsidies or SHOP tax credits)
- those who self-select in the regulated market but are not subsidy eligible.

The sum of the sizes of these two groups provides an upper bound on potential exchange enrollment. The first group can be considered to be a lower-bound estimate of AIE enrollment because eligible nongroup market enrollees will have strong incentives to take those subsidies (which are only available within the exchanges). Concerning SHOP, the size of the first group could be higher than the lower bound for SHOP enrollment. The reason for this is that previous experience with employer tax credits indicates that not all tax credit–eligible firms take the credit that is available to them (GAO, 2012).

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[26] By "perfect risk adjustment," we mean that the ratio of the premiums of two different metal tier plans (platinum, gold, silver, or bronze) is made to be equal to the ratio of their actuarial values.

[27] The Texas legislature is expected to make a final decision during its 2013 session. It is possible that Texas will consider the strong financial incentive to expand given by the offer by the federal government to pay for 100 percent of the costs of the expanded population in the early years, which phases down to 90 percent by 2019.

Concerning self-selection, it is important to point out that self-selecting into the regulated nongroup market means that the individual, according to COMPARE utility maximization algorithms, chooses that option when faced with numerous other insurance options. Moreover, those decisions are made at the HIEU level. Self-selection into the regulated small group market in COMPARE involves two decisions. First, the firm opts to join the regulated small-group market when faced with numerous options (no offer, four metal tiers, grandfathering if available). Second, the employee accepts the firm's health insurance offer. Both decisions are also made within COMPARE's utility maximization algorithms for the firm and for the HIEU.

2.1.3. Summary of National- and State-Level Work Completed

RAND completed the sixth version (V6) of COMPARE in May 2012. All results included in this study are based on COMPARE V6. As we describe more fully in the next chapter, we identified groups of individuals who are most likely to participate in MSPs from the subset of individuals who self-selected into the regulated nongroup and small-group markets.

In addition to developing a national-level baseline, the RAND team modeled individual states. Since the SIPP is not representative at the state level, the SIPP records are reweighted for each state using data from the Current Population Survey (CPS), the American Community Survey, and other benchmark datasets, using a procedure called iterative proportional fitting (Ruschendorf, 1995). Once the reweighting procedure is applied, we obtain a set of data that reflect the demographic, economic, and health coverage characteristics of the state. As of this writing, RAND has modeled all 50 states and the District of Columbia. In this report we focus on California, Texas, and Maryland, as well as the national-level baseline.

2.2. MSP Modeling Challenges

One important clarification required for modeling purposes was whether an MSP offered in multiple states by a particular MSPP issuer would be allowed to pool risks across states. The recent NPRM clarifies that "OPM intends that each MSP set its premiums on a State-by-State basis" and that "[u]nlike the FEHBP there will not be any MSPs that are offered at one premium nationwide." The implication is that MSPP issuers will not be allowed to pool risks across states. Therefore, an MSP in a particular state will compete for participants only with other plans in that same state. The competing plans may be offered in the individual exchange (AIE); in the regulated nongroup market outside the exchange; in the SHOP exchange (if the person has an ESI offer from a small employer that has decided to purchase a SHOP plan); or in the outside-SHOP, regulated small-group market (also if the person has an ESI offer from the firm). But the common characteristic of all of them (including MSPs) is that they will be state-level plans. The NPRM also clarified that if the state decides to exercise the option of merging the regulated small-group and the regulated nongroup markets, MSPP issuers should also merge MSPs for individuals and for small firms for the purposes of risk pooling.

With the above issues clarified, we faced two primary challenges in trying to model participation in an MSP.

The first modeling challenge was brought about by the difficulty in distinguishing an MSP from other exchange plans for the purposes of modeling. In COMPARE, individuals' preferences are determined by the following equation:

$$U_{ijk} = u(H_{ij}) - \mathrm{E}[OOP_{ij}] - p_{ij} - \frac{1}{2} r\mathrm{VAR}[OOP_{ij}] + CalFac_k \qquad (1),$$

where U_{ijk} is the utility for individual i who belongs to group k (defined by age, income, and insurance status) and associated with choosing insurance option j. The first four terms in this utility equation are determined from health economics theory and empirical health economics data. They account for the individual making choices based on economic costs and benefits. $u(H_{ij})$ is the value that such individual gets when consuming health care services under option j, $E[OOP_{ij}]$ *is* the average (or expected value) of out-of-pocket spending, p_{ij} is the premium that he or she has to pay for that insurance option (such as employee premium share for ESI, subsidized premium for an exchange plan if eligible, or a penalty for uninsurance when an individual mandate is in place), and the fourth term is the risk aversion term. VAR[OOP_{ij}] is the variance of the out-of-pocket spending. r is the coefficient of risk aversion, which we take as the average of inflation-adjusted values reported in Pauly and Herring (2000) and Manning and Marquis (1996). $CalFac_k$ is a "calibration factor" that depends on the individual's age, income, and insurance status and will be explained later when discussing the second modeling challenge.

The insurance status j depends on the options available to the individual. Pre-ACA, they are ESI, nongroup coverage, Medicaid, or uninsurance. In the post-ACA world, additional options are the bronze, silver, gold, or platinum plans offered on the exchanges. When making decisions, individuals and families weigh the benefits of an option (e.g., reduced out-of-pocket expenditure, lower risk) against the costs (e.g., higher premiums). They also consider many factors, such as eligibility for Medicaid, eligibility for exchange subsidies, the generosity (the actuarial value) of the plan, insurance premiums, penalties, and expected out-of-pocket health expenditures. None of these considerations can be used to distinguish an MSP from other state exchange plans because the ACA stipulates that MSPs must offer the same metal-tier plans as other exchange plans and that they will be subject to the same regulations (age and tobacco usage rate banding, guaranteed issue, etc.).

Section 1324(b) of the ACA (the "level playing field" provision) and two guidance statements provided in OPM's NPRM further blur any potential distinction between MSPs and other exchange plans for modeling purposes. One statement is OPM's intention "to follow State rating laws as much as practicable so as not to distort local markets." The second one is OPM's clarification that "an MSPP issuer must consider MSP enrollees to be members of the same risk pool as all other enrollees of the issuer in non-grandfathered health plans in the individual and small group markets respectively." Moreover, there is not a distinction between MSPs and other exchange plans concerning medical loss ratios (MLRs).

In COMPARE, premiums are calculated endogenously: Firms and individuals are allowed to make their insurance decisions, such decisions determine the composition of all the risk pools, and pool risk composition (among other factors) determines the premiums of that pool. Firms and individuals are then allowed to reevaluate their insurance decisions based on the new premiums they are facing. They may then (and they typically do) change such decisions. In COMPARE, this process is allowed to iterate until an economic equilibrium is reached. This means that realized premiums can distinguish MSPs from other exchange plans, but that is a consequence of risk pool composition, thus an *a posteriori* distinction.

The second modeling challenge pertains to making a quantitative assessment of the preferences of certain people for an MSP over another exchange plan. As previously indicated, we sought to identify the populations (within the exchange) who are likely to prefer an MSP because they spend a substantial amount of time in multiple states. These populations would include out-of-state students; out-of-state workers; interstate migrants; and temporary movers, such as snowbirds (people who move to the southern portions of the United States for the winter). Moreover, MSPs are intended to allow individuals to purchase insurance from issuers that have a presence in multiple states. Therefore, an MSP may have increased access to out-of-state provider networks, and the broader network may serve to disproportionately attract some segments of the population to the MSP. For example, some people with chronic conditions may disproportionately prefer an MSP if it allows them access to the top hospitals to treat their conditions.

However, there is no easy way to quantify the utility associated with the preferences of the above populations for an MSP over another exchange plan. The $CalFac_k$ term in Equation 1 accounts for noneconomic factors that enter into an individual's insurance decisions. Examples are stigma (such as Medicaid stigma), political ideology, misinformation, hassle, and inertia, as well as the preferences of certain populations. Calibration factors can, in principle, be used to capture certain noneconomic factors, and, in fact, we use them to insure that we accurately replicate the status quo both at the national level and for a specific state. Calibration factors vary by insurance status, age, and income (expressed as a percentage of the FPL) and are adjusted so that the predicted levels of uninsurance, as well as those of ESI, non-group, and Medicaid enrollments, match actual enrollment in the status quo (pre-ACA). For example, a negative adjustment to the Medicaid utility is needed to account for the observation that many people do not enroll in Medicaid in the status quo even though they are eligible and Medicaid is free and requires almost no cost-sharing. The challenge in using calibration factors to capture noneconomic determinants of people's behavior is that they can only be calculated when observations (such as enrollment figures) are available. The procedure cannot be applied to future, hypothetical enrollment figures.

Because of the above challenges, the decision was made to split the problem of projecting participation in MSPs and estimating MSP premiums into two steps. In the first step, we use the COMPARE microsimulation model and its utility maximization algorithms to project enrollment

irrespective of whether exchange participants choose an MSP or another exchange plan. The second step consists of calculating MSP premiums by means of a tool written in the R language that separates MSP participants from enrollees in other exchange plans using criteria selectable by the user.

3. Approach

In this chapter we explain the approach that we followed in the two phases of this study. First, we describe our methodology to identify the four main populations of interest. This comprised the work under Phase 1 of the project. Second, we explain the two-step procedure to estimate participation and premiums in MSPs. The latter was the work performed under Phase 2 of the contract.

3.1. Phase 1 of Study: Identification of Likely MSP Participants

A key objective of this study was to identify individuals who are likely to participate in MSPs. To this end, the study team identified four groups of individuals who may be inclined to join an MSP:

1. out-of-state postsecondary students
2. interstate migrants
3. out-of-state workers
4. sunbirds and snowbirds.

The study encountered numerous challenges in identifying these groups of individuals in the SIPP. In the following four sections, we describe these challenges and our approach to overcoming them for each of the four groups. When regression was required to impute any of these populations, our approach was a backward step-wise regression, for which we manually dropped variables that were not significant until we achieved a parsimonious model.[28]

3.1.1. Out-of-State Postsecondary Students

Out-of-state postsecondary students include college and graduate students who attend school in a state that is not their state of residence. For instance, a college student may officially live in Maryland but be enrolled in a Virginia university.

Identification of out-of-state students in the SIPP was challenging and required a fairly involved imputation procedure. First and foremost, out-of-state students comprise a very small fraction of the U.S. population; there are 3,631 records for postsecondary students in a wave of the SIPP, of whom only 324 are out of state. Unfortunately, unlike the fifth topical module of the 2001 SIPP, the 2008 SIPP did not ask students where they pursued their studies. Since participants in the 2001 SIPP and 2008 SIPP are not congruent, we devised the following imputation procedure:

[28] A parsimonious model uses the fewest number of predictor variables that is possible. Models with a large number of variables are not necessarily useful and eat up many degrees of freedom. In regression modeling, it is often preferred to include only those variables that are significant.

1. Estimate a logit model using the 2001 SIPP (see predictor variables below).
2. Predict in the 2008 SIPP whether students study in a different state from their residence using estimated logit coefficients.

Note that every predictor variable in the estimated logit using the 2001 SIPP data must also be present and defined identically in the 2008 SIPP. After numerous iterations of testing and considering alternative model specifications, we decided to use the following regressors in the logit model:

1. state of residence
2. enrollment level/grade
3. age
4. total family income
5. citizenship status
6. flag for white/Caucasian race
7. flag for Hispanic ethnicity
8. health status
9. enrollment in Medicaid
10. employed.

All included variables were significant at the 10-percent confidence level. Two particularly important variables were total family income, with wealthier students more likely to study in another state, and employment status, with student workers less likely to study in another state. Students in certain states were also significantly more likely to enroll in postsecondary education in another state, including residents in Maine, Massachusetts, New Hampshire, New Jersey, Maryland, Virginia, and the District of Columbia. Furthermore, the 2001 SIPP data suggest that students in graduate school are much more likely than their undergraduate counterparts to study in another state. Conversely, students who attended postsecondary school at a later age had a lower rate of enrolling in another state. Among the remaining variables, whites, citizens, and healthy individuals studied in another state at higher rates, while Medicaid enrollees and individuals of Hispanic ethnicity were less likely to be out-of-state students.

To assess model adequacy, we estimated a receiver operating characteristic (ROC) curve. The area under the ROC curve gives a measure of model accuracy. The area under the ROC curve is shown in Table 3.1. The table also shows that it is close to our benchmark value. Hence, we concluded that our logit model performs reasonably well in predicting out-of-state student status.

We considered adding interaction terms to this logit model. The only interaction terms that were found to be statistically significant (at the 5-percent significance level) were Age and Employed, Age and School Enrollment Level, and Income and Medicaid Enrollment. However, the area under the ROC curve increased only slightly (see Table 3.1). Moreover, these interaction terms reduced the significance of the component variables. We therefore decided to eliminate interaction terms from the regression model.

Table 3.1. Areas Under the ROC (Receiver Operating Characteristic) Curves

Area	Without Interactions	With Interactions
Out-of-state students regression	0.784	0.787
Movers regression	0.763	0.767
Out-of-state workers regression	0.752	0.755

NOTE: Our benchmark is 0.8.

3.1.2. Interstate Migrants

The second group of individuals who may be inclined to join an MSP are those who move from one state to another in a given year. In contrast with out-of-state student status, interstate migration is recorded in the 2008 SIPP. Since each wave of the SIPP covers four months, we extracted the interstate migration data from the fifth and seventh waves of the 2008 SIPP, as well as the sixth wave that was used as the primary data source for our analysis. Unfortunately, one issue that we confronted was missing data for the interstate migration variable in the fifth and seventh waves,[29] presumably due to attrition or reappearance of respondents. Approximately 14,500 records out of about 90,000 records in the 2008 SIPP had missing values for the migration variable. Note that if a respondent moved in wave 6 but was missing in waves 5 and/or 7, this issue is moot; however, if a respondent did not move to another state in wave 6 and was missing in waves 5 and/or 7, we had to impute whether the respondent moved during the year. Given these parameters, we constructed the following imputation procedure:

1. Estimate a logit model using records with interstate migration data for all three waves or records of individuals moving during the sixth wave.
2. Predict whether the remaining individuals moved during the given year using the estimated logit coefficients.

After experimenting with alternative model specifications, we decided to use the following predictor variables:

1. interview status in wave 6
2. state of residence
3. total family income
4. flag for Hispanic ethnicity
5. health status
6. employed
7. flag for guardian
8. flag for dependent
9. age
10. school enrollment.

[29] Values are missing because respondents who answered questions in one wave did not answer questions in subsequent waves. Some people refuse to answer questions, cannot be located, or move within the same state. Therefore, we cannot conclude that nonresponse is indicative of being an interstate mover.

All of the included variables were significant at the 10-percent confidence level, and most were significant at the 5-percent confidence level. An important consideration is nonresponse, since data in waves 5 and 7 may be missing precisely because an individual moved to another location. As expected, the interview status of respondents in wave 6 was highly significant, with those not present in person for the survey much more likely to have moved to another state. Individuals of Hispanic ethnicity and those with a job were much less likely to migrate to another state, while younger individuals had a higher rate of interstate migration. Among the remaining variables, guardians, dependents, and students were less likely to move to another state. Certain states had a higher rate of interstate migration, including Nevada and the District of Columbia.

As with out-of-state students, we estimated an ROC curve to assess model accuracy in predicting movers. Table 3.1 shows the area under the ROC curve for this regression and indicates that it is not far from our benchmark value. Hence, we concluded that our model was sufficiently accurate for imputing the 14,500 missing values in the migration status variable. We considered adding interaction terms to this model. The only interaction terms that were found to be statistically significant were Age and Health Status and Total Family Income and Hispanic. Adding these interaction terms increased only slightly the area under the ROC curve (see Table 3.1). Moreover, as with the out-of-state student regression, the addition of these interaction terms reduced the significance of at least one of the component variables outside of the 0.05 level of statistical significance. Therefore, we decided not to include these interaction terms in the model.

3.1.3. Out-of-State Workers

Out-of-state workers include individuals who reside in one state but work in another. For instance, it is common in the metropolitan Washington, D.C., area for people to work in Virginia but live in Maryland. Since the SIPP does not ask respondents if they work in a different state from their residence, the study team had to impute out-of-state workers using an alternative dataset. We devised the following imputation procedure:

1. Estimate a logit model using data from the American Community Survey (ACS).
2. Predict whether workers in the SIPP work in a different state than their state of residence.

Concerning the choice of a data set, we explored the use of the National Household Travel Survey (NTHS), in addition to the ACS. The NTHS is a small survey (about 150,000 households) compared with the ACS (2.9 million U.S. households annually[30]). In addition to the larger size of the ACS, the ACS is administered by the Census Bureau, while the NHTS is funded by the Federal Highway Administration under the Department of Transportation. Since the SIPP and ACS are both administered by the Census Bureau, demographic variables are better aligned, which is critical for imputation and prediction purposes. Furthermore, while the NHTS has many key and important variables that could be employed to predict whether individuals

[30] "The American Community Survey," undated.

work in another state from their state of residence, these variables are not contained in the SIPP and cannot be used for the prediction. Given these factors, we decided that the ACS was a better choice than the NHTS.

Constructing the logit model requires two key considerations. First, the corresponding variables in the ACS and SIPP must carry exactly the same meaning. Furthermore, the levels of each variable must be aligned. Consequently, we had to be circumspect in determining which variables to include and in recoding variables to ensure alignment. For instance, an individual's work state is an important variable that is omitted since it is not available in the SIPP; if this variable were available, there would be no need for a complicated imputation procedure using the ACS. Accounting for these issues and assessing alternative model specifications, we decided to construct our logit model with the following variables:[31]

1. state of residence
2. gender
3. income
4. age
5. citizenship status
6. marital status
7. flag for White/Caucasian race
8. flag for Hispanic ethnicity
9. flag for health insurance
10. school enrollment.

All variables included in the model are significant at the 1-percent significance level. This high level of significance is primarily due to the large sample size of the ACS. The estimated logit model coefficients are consistent with expectation. For instance, in states close to major metropolitan areas in other states, such as Connecticut, New Jersey, Virginia, and Maryland, the regression coefficients are positive, indicating that residents in those states are more likely to work in another state. By contrast, states with large metropolitan areas far from the state border, such as Georgia, Texas, or California, have negative regression coefficients and are less likely to be home to out-of-state workers. Among the other variables, younger workers, higher-income workers, and males are more likely to work in a different state from their residence, while student workers are less likely.

Once again, we estimated the ROC curve to assess model adequacy. Despite the limitations associated with constructing the logit model, the area under the ROC curve was close to our benchmark value, as shown in Table 3.1. According to the ACS, roughly 3–4 percent of the

[31] We attempted to introduce the occupation variable in our logit. This variable has over 1,000 categories in the ACS and the SIPP, and such incorporation required category grouping. However, it was not clear how to perform the grouping, since, for example, a grouping by industry resulted in a category called "services" that may contain pilots (most likely out-of-state workers) and barbers (most likely not out-of-state workers). We created 11 groups of categories for the occupation variable, and none of the dummies were found to be significant. In our final logit model, we decided to put priority on parsimony and excluded the occupation variable.

working population works in a different state from their residence. Our imputation in the SIPP leads to approximately 3–4 percent of the population working outside their state of residence. Hence, our model is reasonably successful in predicting whether workers have a job in a different state from their state of residence. As we did for the out-of-state students' and the movers' logits, we also considered adding interaction terms to this logit model. However, similarly to our attempts to introduce interaction terms in those two previous logits, we found that their inclusion here did not increase the area under the ROC curve by more than a few tenths of a percent (see Table 3.1). We therefore decided not to include them in the model.

3.1.4. Snowbirds and Sunbirds (Temporary Migrants)

Snowbirds are people who live in the U.S. Northeast, U.S. Midwest, Pacific Northwest, or Canada and spend a large portion of the winter season in warmer states, such as Florida, California, Arizona or Texas. The term *sunbird* refers to those who live in a warmer climate and decide to move north for part of the year.

In contrast with the first three groups of interest, it was not possible (even by using imputation) to identify these temporary migrants in our SIPP database. We also found that the literature on snowbirds and sunbirds focuses on particular states or regions within states, instead of providing national-level migration patterns. Florida seems to be the most-studied destination state (Smith and House, 2006), followed by Arizona. Monthly migration data for Florida is readily available.[32] Other papers refer to small surveys that only represent part of a state (Martin et al., 1987). Moreover, the focus of much of the literature on state-level and local-level surveys is the population age 65 or older, thus Medicare-eligible and, therefore, out of the scope of our study.[33]

Work by other researchers also confirms the lack of nationally available data for temporary migrants, even at the aggregate level. The paper by Smith and House states that there are no data sources "capable of providing complete consistent coverage of temporary migration in the U.S. for elderly adults or any other demographic group." Another paper (Hogan et al., 1993) states that "the 1980 census, for the first time, compiled data relating to nonpermanent residents," but a more recent reference indicates that "In 1990 the Census Bureau eliminated the question that identifies individuals who are temporarily away from a primary residence."[34] Finally, it seems that some data confuse temporary with permanent migration, possibly for the valid reason that it is not always easy to separate the two groups. These two groups could be distinguished by a good longitudinal survey that is specifically looking for temporary migrants.

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[32] Janet Galvez, "The Florida Elusive Snowbird," October 1997.

[33] The Medicare Current Beneficiary Survey (MCBS) is the most authoritative survey on the Medicare population. Since our study only addressed the nonelderly, the MCBS would have been helpful only in identifying that relatively small number of disabled nonelderly snowbirds and sunbirds. For that reason, we did not pursue the MCBS.

[34] Galvez, 1997.

For all the stated reasons, ASPE, OPM, and RAND agreed to drop this group of people from the study.

3.2. Phase 2 of Study: Two-Step Procedure to Estimate MSP Participation and Premiums

As pointed out in Chapter Two, there were two main challenges in modeling participation in MSPs: distinguishing MSPs from other exchange plans and quantifying potential preferences for MSPs of particular segments of the population. For these reasons, we decided to undertake a two-step procedure.

In the first step, we use the COMPARE microsimulation to determine who will be an exchange participant irrespective of whether he or she chooses an MSP or another exchange plan. In this step, COMPARE's utility maximization algorithms (based on Equation 1, for HIEUs and individuals[35]) are exercised for all members of the population. A particular HIEU is faced with numerous choices for each one of its members, such as joining Medicaid (if eligible), accepting an ESI offer (if available), participating in a nongroup plan, or being uninsured. After the ACA, these options expand to include enrolling in one of four metal-tier plans (bronze, silver, gold, and platinum) in the regulated nongroup market (which includes AIE). Moreover, if the individual has access to an ESI offer from a small company (with fewer than 100 employees),[36] there are additional options, since the small company may decide to join the regulated small-group market (that includes SHOP) and purchase one of four metal-tier plans.[37] The individual and the HIEU are allowed to accept or refuse the ESI offer. In this first step, the regulated nongroup and the regulated small-group markets are considered separate risk pools. At the end of this step, all participants in the regulated nongroup market (including AIE and MSPs) end up in the same pool. Similarly, all employees (and their dependents) who accepted an ESI offer from a small firm that decided to purchase a SHOP plan (including SHOP MSP) or a small group plan not offered through the SHOP are also in the same pool.

The second step consists of separating MSP participants from enrollees in other exchange plans and computing MSP premiums. MSP participants are selectable by the user,[38] based on demographic characteristics (age, race, or gender), income expressed as a percentage of the FPL, total medical expenditures, self-reported health status, employment status, immigration status, and whether the individual belongs to one of the groups of interest (out-of-state students, movers,

[35] For firms, see Eibner et al. (2011).

[36] Under current law, many states define *small company* as one with 50 employees or fewer. This limit will be increased to 100 under the ACA. However, the ACA allows states to keep their current definition until 2016.

[37] If a small company offers ESI, it must offer one of the four metal tiers unless it has a grandfathered plan.

[38] *User* here refers to the Office of the Assistant Secretary for Planning and Evaluation of the Department of Health and Human Services or to the Office of Personnel Management. Use by anyone else must be authorized by these organizations.

or out-of-state workers). Additional selection criteria for potential SHOP MSP participation are firm size, industry sector, and census region.[39] Once MSP participants have been selected by the user, the associated MSP premiums are computed. For this second step, we developed a simple software tool that allows the user to separately calculate individual MSP and SHOP MSP premiums.

The following chapter (Chapter Four) is devoted to the project deliverables.

[39] These additional selection criteria for potential SHOP MSP participation are only available at the national level in the current version of the MSP premium calculator.

4. Results and Deliverables

4.1. Baseline National-Level Results

In this section, we highlight the most pertinent results of the COMPARE baseline national-level microsimulations, primarily focusing on enrollment patterns in the regulated nongroup and regulated small-group markets. Furthermore, we compare enrollment for the three groups of individuals identified as likely candidates to join an MSP to national-level enrollment.

In our analysis, we estimated that the U.S. population in 2016 would include approximately 2.2 million out-of-state students, 3.0 million interstate movers, and 5.0 million out-of-state workers. By comparison, the U.S. nonelderly population in 2016 is projected to be approximately 277 million. To build a strong foundation for interpreting the results, we first investigate the age and income characteristics, as well as expected total medical care expenditures, of the three target groups. In Figure 4.1, we compare the age distributions for the three target groups to the entire population. As expected, out-of-state college students tend to be between the ages of 19 and 29 and are quite a bit younger than the general population. Interstate movers are also younger than the national population, in agreement with the notion that older individuals are more settled and less likely to migrate. Out-of-state workers, who are primarily adults, are somewhat older than the general population. In aggregate, the three target groups have smaller representation at the bottom and top of the age spectrum.

Figure 4.1. Age Distribution by Population

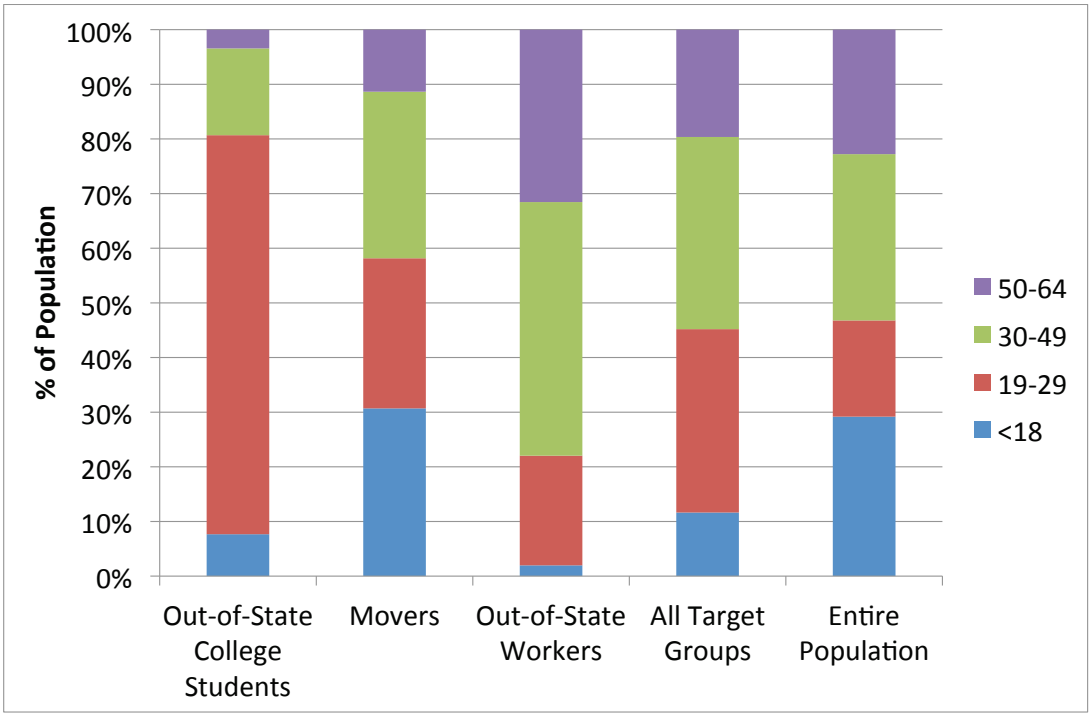
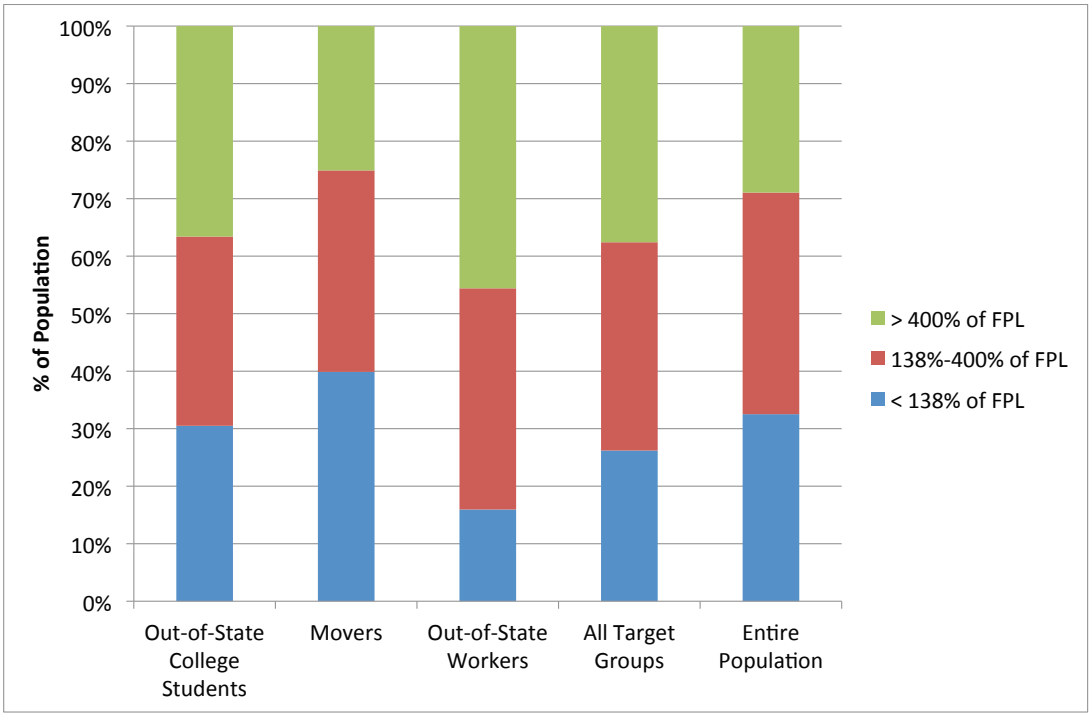


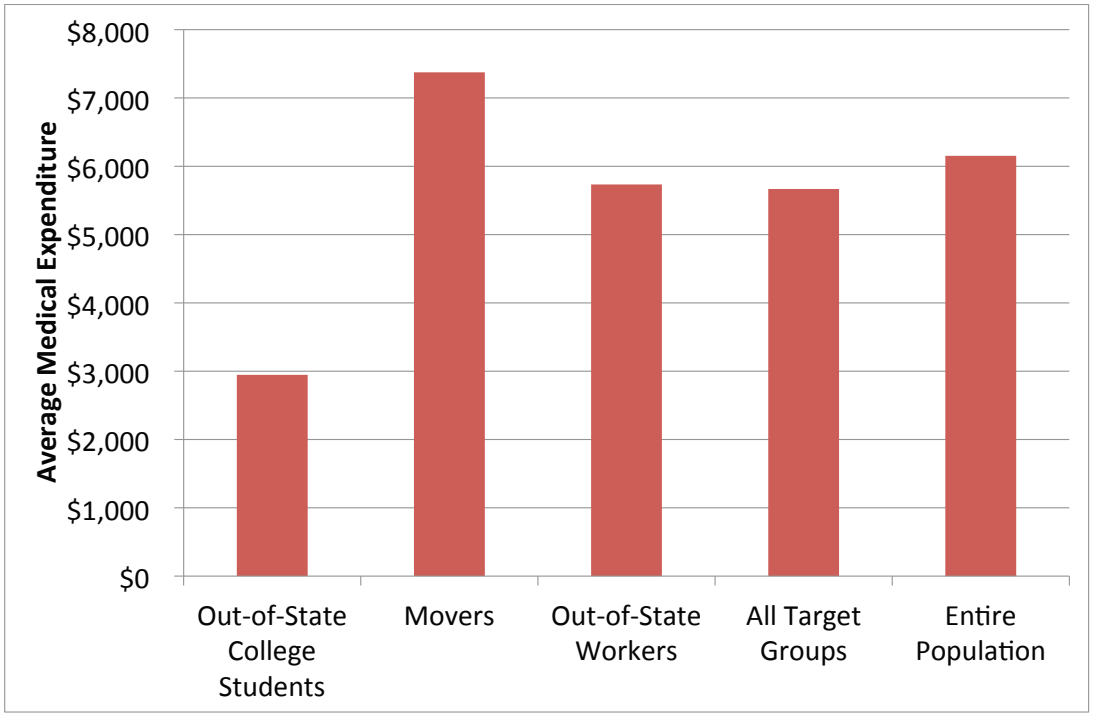
Figure 4.2 displays the poverty category distribution as a percentage of the FPL for the three target groups. In general, movers tend to be members of poorer households, while out-of-state workers are members of higher-income households, as compared with the general population. Out-of-state college students tend to belong to slightly higher-income households than the general population, but their household income levels are close to the national average.

Figure 4.2. Poverty Category Distribution (% of FPL) by Population



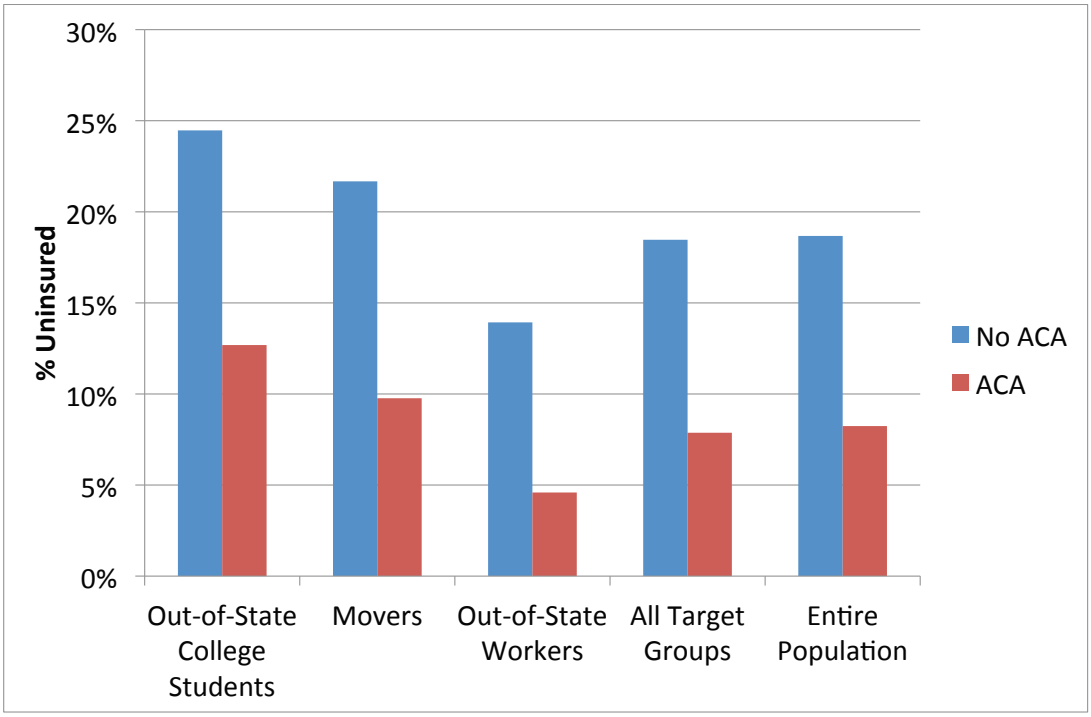
In Figure 4.3, we examine the average total medical expenditures for nonelderly individuals in the target groups and compare their expenditures with those of the general nonelderly population. Not surprisingly, out-of-state college students have the lowest average total medical expenditures because of the higher prevalence of younger individuals. Interstate movers have higher total medical expenditures relative to the overall population, while out-of-state workers tend to spend slightly less.

Figure 4.3. Average Total Medical Expenditures by Population



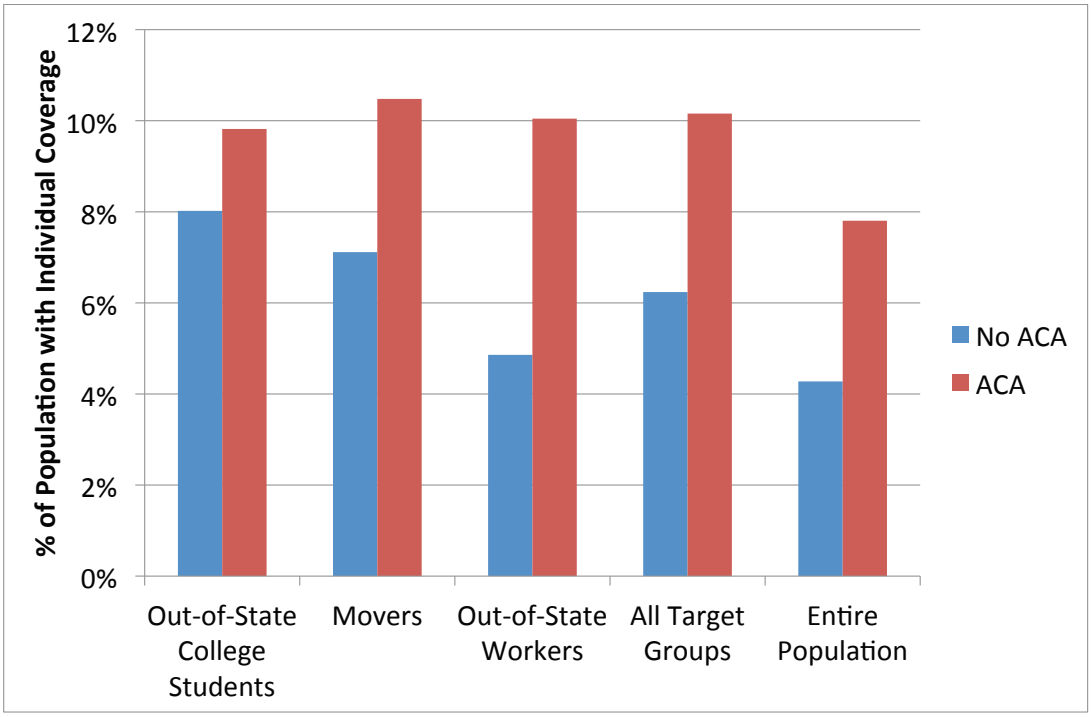
Given these demographic trends, it would not be surprising to observe a large number of uninsured among the significantly younger out-of-state college student population (whose total medical expenditures are lower), as well as the poorer and younger interstate mover population (with higher total medical expenditures but low incomes). Younger individuals derive less benefit from health insurance coverage, since their expected total medical expenditures are lower. Likewise, poorer individuals face severe budget constraints and may find health insurance unaffordable. Indeed, Figure 4.4 indicates that the COMPARE model results agree with this hypothesis, as out-of-state college students and movers have larger shares of uninsured compared with the general population, while the higher-income and older population of out-of-state workers has lower uninsured rates. Furthermore, the drop in the percentage of uninsured is higher for out-of-state college students and movers under the ACA. Many of these individuals entering the insurance market join the regulated nongroup market, as we explore in Figure 4.5. For those without an employer offer who do not qualify for Medicaid, the regulated nongroup market may be the only insurance coverage option. Individuals entering the regulated nongroup market will have access to MSPs, which may be an attractive insurance coverage choice.

Figure 4.4. 2016 Rate of Uninsurance With and Without the ACA by Population



In Figure 4.5, the COMPARE model suggests that members of the three target groups may be more likely to enter the regulated nongroup market. Nongroup enrollment for all three target groups as a percentage of the population subset exceeds nongroup enrollment in the general population by at least two percentage points after implementation of the ACA. Recall that in COMPARE, the fact that an individual belongs to one of these target groups plays no role in the behavioral model because of the previously explained modeling challenges. Consequently, these results appear to validate the hypothesis that the three target groups are more likely candidates for joining the regulated nongroup markets or an MSP. The increase in enrollment under the ACA is higher for out-of-state workers, presumably because they are older than the general population. An individual's subsidized premium (the amount he or she actually pays) is determined by income, and the full unsubsidized premium is determined by age (higher for older people). Therefore, older individuals receive a larger subsidy (the difference between unsubsidized and subsidized premium) than younger individuals with a similar income. That is, older individuals eligible for federal subsidies have much more to gain by joining the nongroup markets through the exchanges.

Figure 4.5. 2016 Nongroup Enrollment With and Without the ACA by Population



Furthermore, COMPARE results suggest that the percentage of regulated nongroup market participants receiving federal subsidies diverges from the general population. As indicated in Figure 4.6, approximately 65 percent of nongroup enrollees nationwide receive subsidies, while fewer than 50 percent of out-of-state college students and just over 50 percent of interstate movers receive subsidies. By contrast, the proportion of out-of-state workers on the exchange that are subsidized is higher: close to the national average. Out-of-state workers with affordable ESI offers—that is, individuals for whom the single premium does not exceed 9.5 percent of family income—are ineligible for exchange subsidies; they are thus unlikely to decline their offers and pay full price in the exchanges. Among those out-of-state workers who decide to join the exchanges, most do not have an ESI offer, while many of the remaining individuals lack an affordable ESI offer. These individuals tend to have lower incomes and are, therefore, eligible for exchange subsidies.

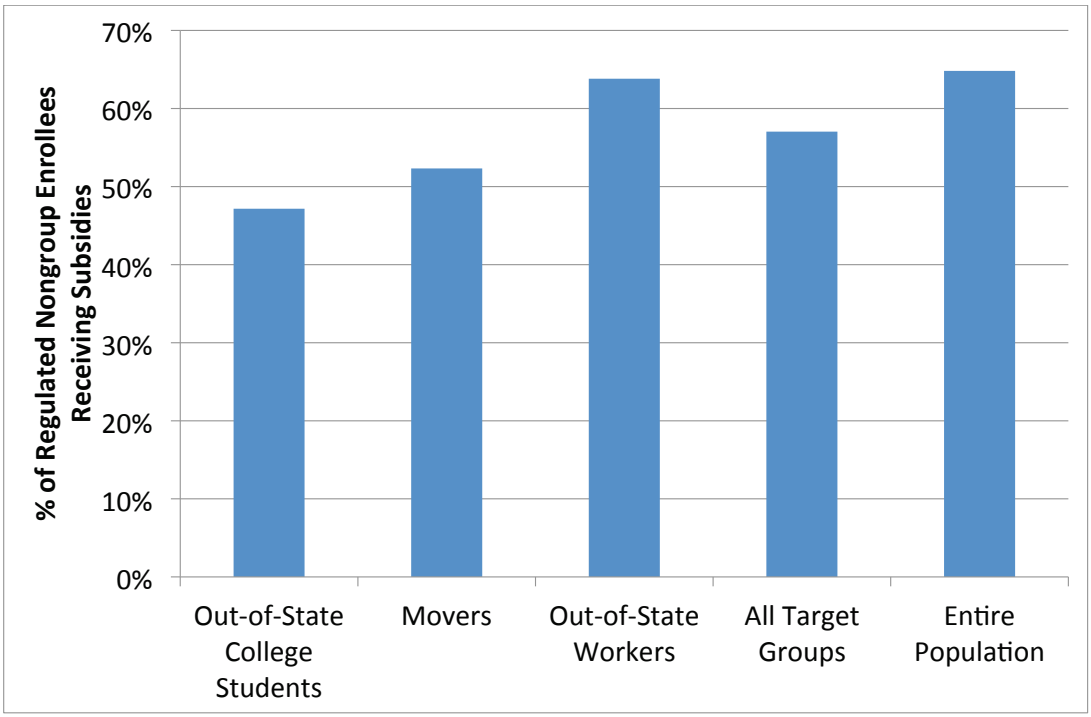
Indeed, COMPARE results indicate that over 80 percent of out-of-state workers enrolled in the exchanges do not have an offer from their employer, and 70 percent have incomes below 400 percent of FPL. Among out-of-state students and interstate movers, employment rates are lower. Consequently, individuals above 400 percent of FPL in these populations have less access to ESI than among out-of-state workers; since Medicaid is not an option, the only insurance choice is

paying full price on the exchanges. Hence, we observe a greater share of individuals in households above 400 percent FPL in the out-of-state college student and mover populations enrolling in the exchanges without subsidies, explaining the result we observe in Figure 4.6.

Some students (including out-of-state students) are required by their universities to be enrolled in student health plans. Concerning eligibility for exchange subsidies, the ACA explicitly excludes employees who have an affordable offer from their employer. Because some students are not employees of the university, regardless of whether a student health plan is in fact an affordable plan, it would not fall under the exclusionary categories outlined in the law. Thus, students, as a class, should be eligible for subsidies under the law. There may be other incidental exclusionary criteria for students, such as if they are counted as a dependent by someone with an affordable offer from his or her employer.[40]

[40] COMPARE can partially address the case of adult children—that is, those adults who are claimed as dependent for tax purposes. In the SIPP, we can identify parents of adult children if they live in the same household, but we miss those children who do not live in the same house as their parents. More than 30 states already mandate that people under 26 can be covered by a parent's plan, and we account for these requirements to the extent possible, given the limitations of the SIPP. For the remaining states, we keep the same age limits for family construction with the ACA as were used prior to the ACA.

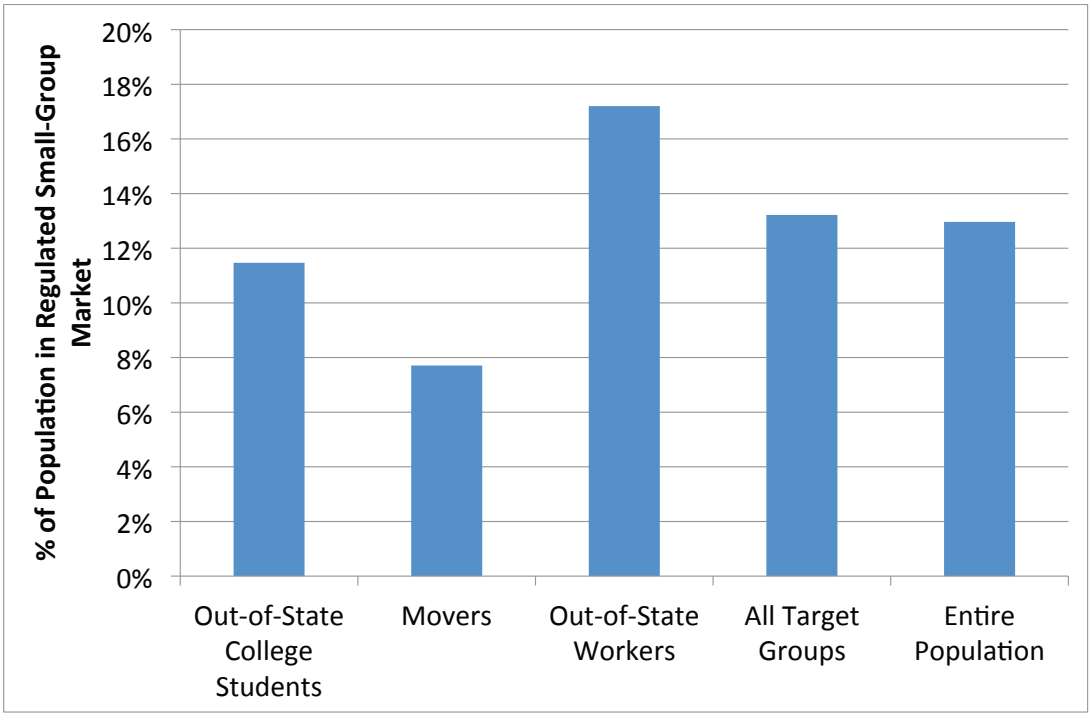
Figure 4.6. Percentage of 2016 Regulated Nongroup Market Enrollees Receiving Subsidies by Population



We will now review the results concerning the small-group market.

Not all of the target groups are as broadly represented in the regulated small-group market as the general population, particularly interstate movers. In fact, less than 8 percent of movers self-select into the regulated small-group market, as compared to roughly 13 percent of the general population. As indicated in Figure 4.7, out-of-state college students are also less broadly represented in this market. However, over 17 percent of out-of-state workers join the regulated small-group market. The differences in enrollment patterns can be attributed to access: Out-of-state workers are more likely to have offers by the very fact that they are, by definition, employed. Conversely, many out-of-state college students are less likely to be fully employed, or employed at all, while interstate movers are generally poorer and may not have an employer offer.

Figure 4.7. 2016 Regulated Small-Group Enrollment by Population



4.2. State-Level Results

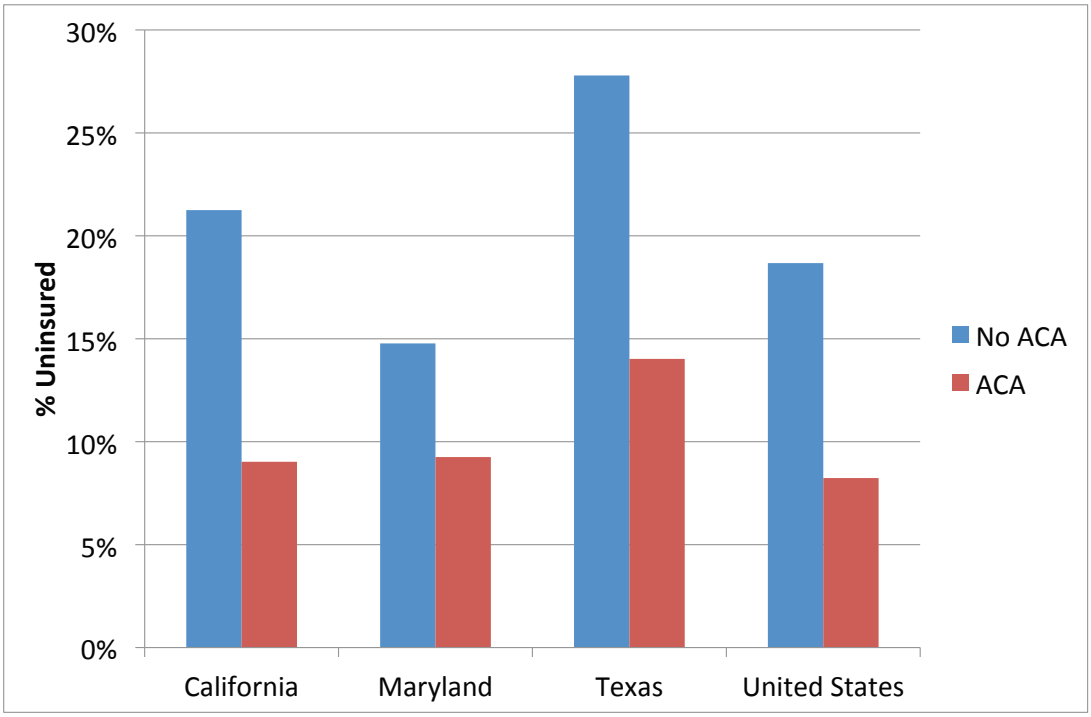
In addition to national-level analysis, we have also used COMPARE to assess the impact of the ACA at the state level. This section summarizes key results for three states: California, Maryland, and Texas. We assume that California and Maryland will expand Medicaid eligibility to 138 percent of FPL, while we assume that Texas will not expand Medicaid eligibility and will maintain its current eligibility thresholds.[41] In COMPARE, the assumption of whether a state will expand its Medicaid eligibility under the ACA or not can be easily adjusted.

Figure 4.8 depicts the rate of uninsurance in each state before and after implementation of the ACA. Prior to implementation of the ACA, Texas has the highest percentage of uninsured in the nation. Despite our assumption that Texas does not expand Medicaid, the number of uninsured is cut in half. As we show in Figure 4.9, some of the individuals who would have been eligible for Medicaid if Texas had expanded eligibility enroll in the regulated nongroup market. By contrast,

[41] The Texas executive branch has publicly stated that the state will not undertake Medicaid expansion. The Texas legislature is expected to make a final decision during the 2013 session.

Maryland has a smaller rate of uninsurance, which falls modestly after the ACA is implemented. California's rate of uninsurance is relatively close to the national average.

Figure 4.8. 2016 Rate of Uninsurance by State



Furthermore, nongroup enrollment patterns in the three states are striking. Despite having the lowest percentage of participants enrolled in nongroup coverage in the status quo, Texas has the highest percentage of nongroup enrollees after implementation of the ACA. If regulated nongroup participants are the most likely candidates to join an MSP, Texas may have a higher percentage of MSP participants than other states. As Figure 4.10 indicates, Texas has a much larger share of regulated nongroup enrollees receiving subsidies, with 80 percent receiving subsidized coverage. This higher percentage can largely be attributed to the state's assumed decision not to expand Medicaid. Many individuals who would have been eligible for Medicaid if the state had expanded are eligible for federal subsidies and are enticed to join the individual exchange. As compared to Texas, growth in the nongroup market in Maryland and California is more modest, although slightly more robust than the national average.

Figure 4.9. 2016 Nongroup Enrollment With and Without the ACA by State

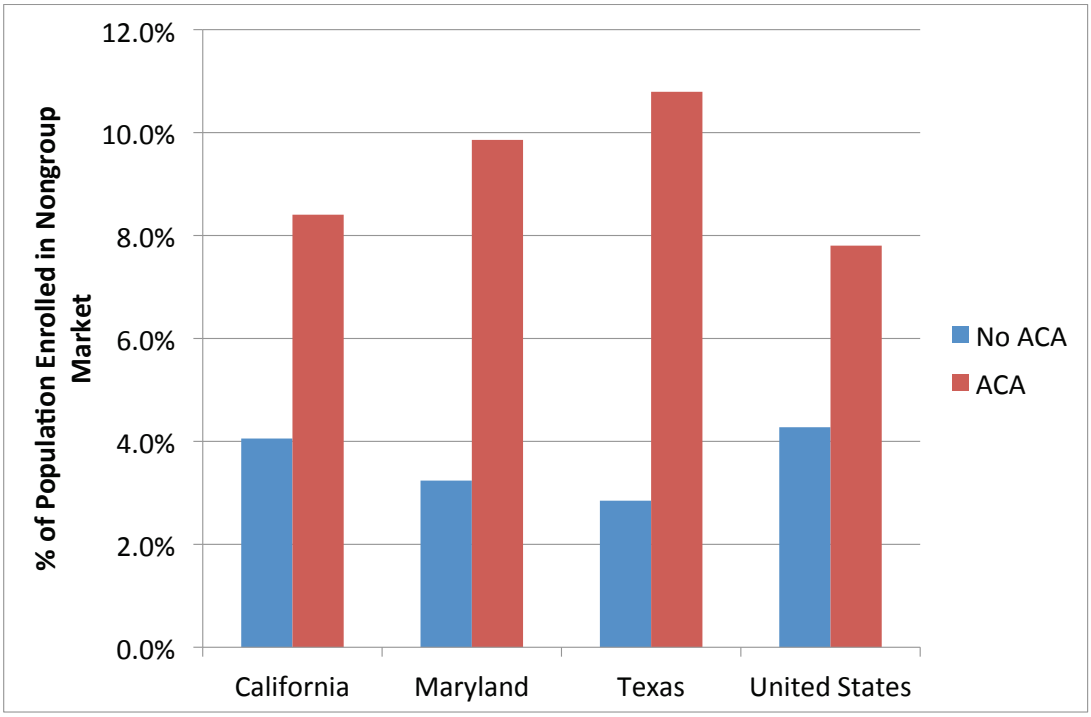
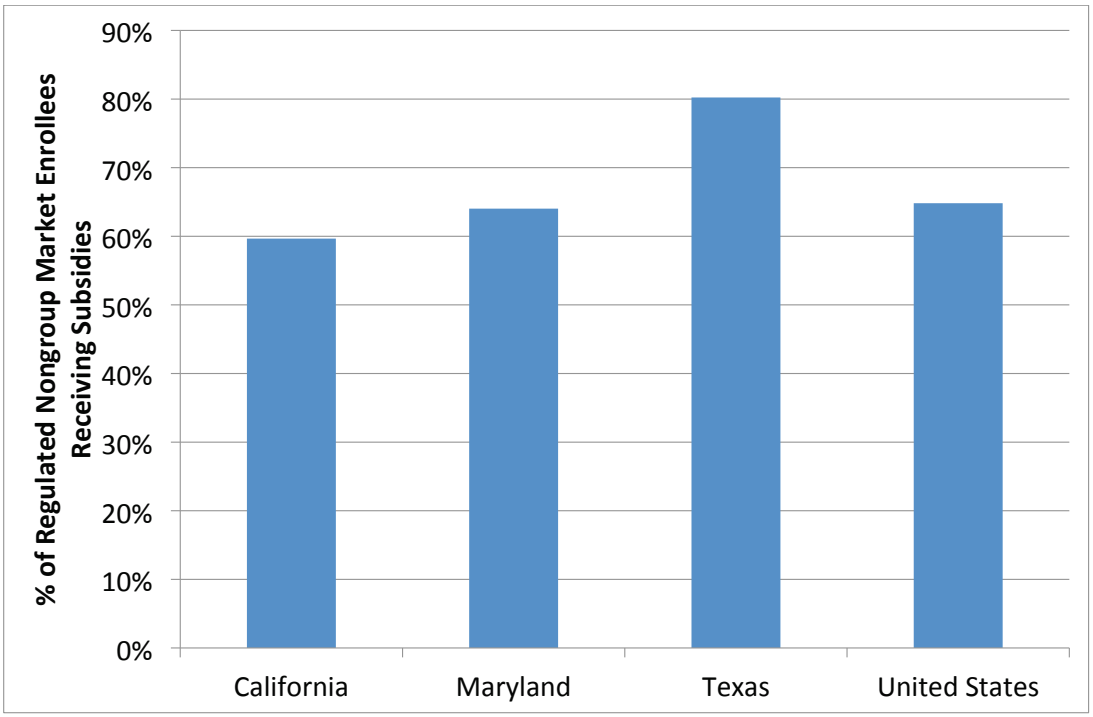
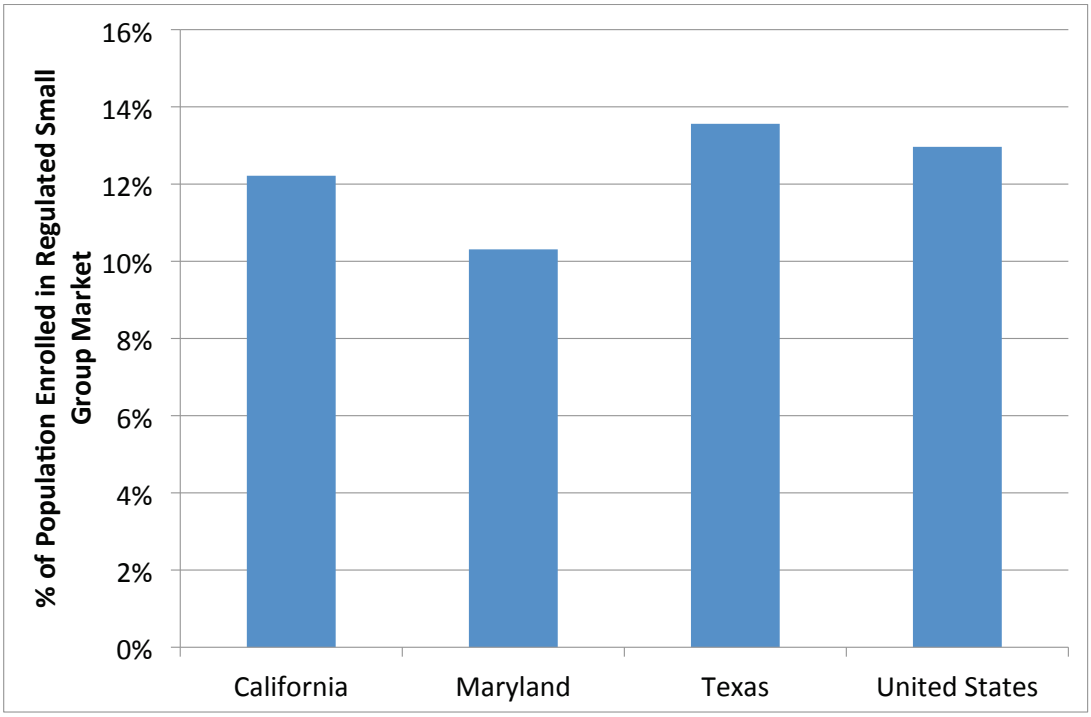


Figure 4.10. Percentage of 2016 Regulated Nongroup Market Enrollees Receiving Subsidies by State



Lastly, we compare enrollment in the regulated small-group market in Figure 4.11. Differences among the three states are not that significant. Texas has a slightly larger percentage of regulated small-group market participants than the national average, while California and Maryland are slightly below the national average. Other COMPARE analyses indicate that states with older populations tend to have a smaller percentage of small-group enrollees following implementation of the ACA. Of the three states, Maryland has the oldest population, while Texas has the youngest.

Figure 4.11. 2016 Regulated Small-Group Enrollment by State



4.3. MSP Calculator Modeling Tool

To assist in determining the impact that different populations have on the premium calculations, we developed an MSP calculator modeling tool. This tool was written in the R programming language. Different target populations can be fed into the tool to calculate the MSP premiums. In this way, premium comparisons can be made based on the preferences for the MSP among different populations.

The first step in using this tool consists of selecting the target population that would serve as the MSP pool among those enrollees who self-selected into the regulated market. These enrollees, according to COMPARE microsimulations, had decided to join a particular metal tier (bronze, silver, gold, or platinum) in the exchanges. Therefore, the premiums in the MSP pool are calculated taking into consideration the actuarial value of the metal tier for that enrollee and the enrollee's total medical expenditures. In the next step, the tool applies a template that distributes the expenditures according to the 3:1 age banding and 1.5:1 tobacco rating rules (this is described in the appendix). Finally, we convert these expenditures into premiums by applying the administrative cost, the appropriate taxes (specifically, the tax described in Section 9010 of

the ACA), and the effects of reinsurance. The tool can be used for either the individual MSPs or the SHOP MSPs. The mathematical formalism on which this tool is based is summarized in the appendix.

Concerning participation in individual MSPs, the inputs to the tool are either R objects or comma-separated values (CSV) files containing the records of individuals who, according to national-level or state-level COMPARE microsimulations, self-selected into the regulated nongroup market after the ACA. The following information is provided for these records: demographic characteristics (age, race, and gender), immigration status, income expressed as a percentage of the FPL for that individual's family, total medical expenditures for that individual (either from the original MEPS data or after adjustment to state-specific expenditures), self-reported health status, employment status, flags indicating whether the individual belongs to one of the groups of interest for this study (out-of-state students, permanent movers, out-of-state workers), national-level or state-level weight associated with this individual, and a flag indicating whether the individual was eligible for exchange subsidies.

Concerning participation in SHOP MSPs, the inputs to the tool are either R objects or CSV files containing the records of individuals who, according to national-level or state-level COMPARE micro-simulations, were associated to small firms that decided to join the regulated small group market after the ACA and who accepted the firm's offer of health insurance.

It should be emphasized that the premium estimates generated with this tool do not reflect the full equilibrium among the interactions between firms, individuals, and families that is typically reported by the COMPARE model. In this MSP tool, firms and individuals are not given the option to respond to the premiums that are estimated by the tool after the MSP pools have been defined by the user.[42]

[42] Moreover, the current version of COMPARE assumes that the supply for medical services can accommodate increased demand resulting from the ACA. Currently, COMPARE does not yield an equilibrium between supply and demand that takes into consideration limited supply.

5. Conclusions

MSPs may be attractive alternatives for certain population groups, given that the law prescribes they must be offered in multiple states. In this study, we characterized the population groups that will likely have preference for enrollment in MSPs after enactment of the ACA. Their demographic characteristics are not surprising. Concerning age and income, out-of-state students tend to be between the ages of 19 to 29 and to belong to slightly higher-income households than the general population. Interstate movers also tend to be younger—confirming the idea that older individuals are more settled and less likely to migrate—but they tend to be lower-income. Out-of-state workers tend to be older since they are primarily adults, and members of higher-income households. Pertaining to their insurance status under current law, the young out-of-state students and the low-income movers have a larger representation among the uninsured. The higher uninsured rate among these groups can be explained by the low incentive for young—and typically healthy—people to purchase insurance under current law, and by the budget constraints faced by low-income people who are not Medicaid-eligible and may find insurance unaffordable. Out-of-state workers, by definition, have a higher probability of access to ESI; thus their uninsurance rate is lower.

In this study, we projected participation of these population groups in the regulated nongroup market (which includes AIE) and in the regulated small-group market (which includes SHOP). We also projected who, among those who decide to join the regulated market, would be eligible for and receiving exchange premium subsidies and cost-sharing reductions.

Our microsimulation runs project that the drop in the uninsurance rate is higher for low-income interstate migrants who either take advantage of the Medicaid expansion or join the exchanges with subsidized premiums. The young out-of-state students are incentivized to get insured mainly by the individual mandate. Out-of-state workers who had declined their firm's insurance offer are now also incentivized by the mandate. A particularly interesting result is that nongroup enrollment after the ACA for these three population groups exceeds nongroup enrollment in the general population by at least two percentage points, giving credence to the original hypothesis that these groups would be interested in joining the regulated nongroup market (specifically an MSP). Concerning participation in the regulated small-group market (which includes SHOP), out-of-state workers are more likely to have access, due to the simple fact that they are employed.

We performed microsimulation analyses at the state level for three states selected by our sponsors: Maryland, California, and Texas. For the first two, we assumed that their governments would decide to adopt the ACA's Medicaid expansion. However, for the state of Texas we assumed the opposite, since the Texas governor has already expressed his intention of not expanding Medicaid and of maintaining current Medicaid eligibility thresholds.

Texas currently has the highest uninsurance rate in the nation. However, despite our assumption that it will not expand Medicaid, the uninsurance rate is projected to be cut in half. Many of the individuals who would be eligible for Medicaid if the state had adopted the Medicaid expansion will be instead eligible for exchange subsidies and are projected to enroll in the regulated nongroup market. Maryland has a smaller rate of uninsurance under current law, which is projected to drop modestly after the ACA. California pre- and post-ACA uninsurance rates are found to follow the national-level projections.

Concerning participation in the nongroup market, Texas is projected to have the highest percentage of nongroup enrollees after enactment of the ACA, with a very large percentage of them receiving exchange subsidies. Given our hypothesis that participation in the regulated nongroup market (which includes AIE) will drive participation in MSPs, this result suggests that states like Texas will have a larger proportion of MSP enrollees. Compared to Texas, the growth in the nongroup markets of California and Maryland is more modest. In the regulated small-group market, we project that enrollment as a percentage of the population will be similar across the three states, with Texas having a slightly higher percentage and Maryland having a slightly lower percentage compared to the national percentage level.

The second step of our proposed procedure consists of separating MSP participants from other exchange participants and computing the associated premiums. An MSP premium calculator tool was provided to the sponsors for these purposes.

Even though the initial enrollment in MSPs may be dominated by the groups investigated under this study (or by other groups), the law does not preclude any exchange or regulated market participant from enrolling in an MSP. Therefore, the final composition of MSPs will be dictated by the differences between MSPs and other plans—for example, differences in benefits or MLRs—and by realized premiums. Regulations to date tend to blur the distinction between MSPs and other health care plans offered in the regulated nongroup and small-group markets. Future regulations to be issued by OPM and other government agencies, such as DHHS, will help determine whether MSPs offer an advantage or a disadvantage to certain populations within a state or to the state population as a whole. These regulations may also eventually influence whether an MSP faces adverse selection or whether such risk will be faced by other plans.

Appendix: Summary of the Mathematical Formalism to Calculate MSP Premiums

MSP premiums are subject to ACA's age and tobacco usage rate-banding requirements. They must also comply with risk adjustment and actuarial value requirements (called metal tiers). These metal-tier plans (bronze, silver, gold, and platinum) are associated with specific actuarial values.

In our approach to estimating premiums, we first construct pools based on age, tobacco usage, and metal tier, and then we integrate them into a "super-pool." Premiums in this super-pool are computed assuming that the ratios of pool premiums remain constant but that the premiums themselves change dynamically at every iteration of the microsimulation, depending on the behavioral responses of individuals and firms to the policy changes. Their final values are a function of the final composition of the super-pool.

We explain this approach by applying it to a super-pool for which pool premiums only vary by age. Denote by p_a the premium in the pool a, by m_a the average expenditures of that pool, and by w_a the number of enrollees in that pool.

The total amount collected in premiums is $\sum_\alpha w_\alpha p_\alpha$.

We build the premium ratios $r_a = p_a / p_1$, where p_1 is a reference pool that could be any of the pools of the super-pool. Denoting by δ the administrative cost factor and by AV the actuarial value, then the total cost to insurers is $\sum_\alpha w_\alpha m_\alpha AV(1+\delta)$, and the premiums are set by imposing the following condition:

$$\sum_\alpha w_\alpha p_\alpha = \sum_\alpha w_\alpha m_\alpha AV(1+\delta) \tag{A.1}$$

The initial set of ratios r_a are computed using averages of observed premiums in the United States. This is what we call the "template" of pool premium ratios.

Substituting the ratios r_a into the previous equation yields a set of equations for each of the individual pool premiums that can be solved, yielding the following:

$$p_\alpha = r_\alpha \frac{\sum_\beta w_\beta m_\beta AV(1+\delta)}{\sum_\beta w_\beta r_\beta} \tag{A.2}$$

During COMPARE microsimulation runs, the composition of the super-pool is allowed to change in response to the decisions by individuals, HIEUs, and firms, and, therefore, all the pool premiums will vary accordingly, but the template is assumed to remain constant.

The ACA brings about important changes to the regulatory environment by imposing rate-banding restrictions, as well as a set of actuarial values for four metal-tier plans. The approach sketched above can be readily modified to include these ACA regulations. The 3 to 1 age rate-banding restriction is introduced simply by "compressing" the template to ensure that the ratio of the maximum to minimum pool premiums inside the super-pool is equal to 3. Similarly, we include risk adjustment among metal-tier plans by imposing the additional condition that the ratio of the two pool premiums equals the ratio of the actuarial values. The associated math includes more equations and is slightly more complicated than the math presented above, but the approach is basically the same.

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