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Assessing Policy Options for the Non-Group Health Insurance Market:

Simulation of the Impact of Modified Community Rating in the New Jersey Individual Health Coverage Program

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Executive Summary

The New Jersey Individual Health Coverage Program (IHCP) was established in 1993 with the intent of providing access to private health insurance products to individuals regardless of their health status. After the mid-1990s, the IHCP experienced steady declining enrollment, increasing premiums, and a shift toward older and potentially more expensive enrollees. These trends have threatened the stability of the IHCP.

This report uses simulation modeling to examine the probable enrollment and premium impacts of moving the IHCP from pure to modified community rating. Data for this analysis are drawn from surveys of IHCP enrollees and the uninsured in New Jersey combined with data from a national survey measuring health expenditures and health insurance status. Analyses are limited to adults age 21 to 64.

The simulation model relies on the economic theory, specifically the expected utility model of the demand for health insurance with assumptions drawn from the published literature on health insurance purchasing behavior. The simulation model predicts the size and composition of adult IHCP enrollment as well as the premiums that would be paid by each rating group under each of several policy scenarios. Specifically, we examine three policy scenarios: (1) 3.5 to 1 rate bands with age-gender risk adjusters; (2) 3.5 to 1 rate bands with age-only rating; and (3) 5 to 1 rate bands with age-gender risk adjusters. Additionally, we test the sensitivity of findings to assumptions about the responsiveness of potential IHCP participants to changes in premiums and the degree to which affordability of premiums may be constrained by the income of potential purchasers.

We find that modified community rating would lead to significant changes in premiums for some groups, large increases in total enrollment, and significant changes in the composition of enrollment. Older enrollees would face premiums roughly 13% to 15% higher under each of the modified community rating scenarios compared to pure community rating. In contrast, premiums for the youngest adults would decline by between 66% and 77%, depending on rating strategy employed.

In light of these predicted premium changes, the model suggests that total adult IHCP enrollment would more than double. The wider rate bands would lead to the greatest total enrollment response. Under all three scenarios, the increase in enrollment would be dominated by young adults. The percentage of adult enrollees in IHCP between age 21 and 40 would rise from about 16% under pure community rating to between 51% and 66% under the modified community rating scenarios. Moreover, the model predicts that modified community rating would lead to greater enrollment among more moderate income persons. Median family income of the enrollees under pure community rating was about $57,000, this would decline to around $40,000 under each of the modified community rating scenarios, reflecting the increased enrollment of young adults.

The methods employed in this study do not take into account complex external forces that are important determinants of enrollment and premiums in the IHCP. Given historical IHCP trends, the future of the IHCP under pure community rating is uncertain. Nevertheless, moving to modified community rating would diversify the age mix in the program and thus exert a stabilizing influence on the program at least in the near term.

Policymakers face tradeoffs in considering whether to adopt modified community rating in the IHCP. Under modified community rating, most current IHCP enrollees would experience rate increases of about 15%. On the other hand, large numbers of previously uninsured young adults would enroll in coverage.

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Introduction

The New Jersey Individual Health Coverage Program (IHCP) was established in 1993 with the intent of providing access to a broad choice of private health insurance products to individuals regardless of their health status. However, after the mid-1990s, the IHCP market place experienced a steady decline in enrollment, a corresponding increase in premiums, and a change in enrollment composition toward older and potentially more expensive enrollees (Monheit et al. 2004). These trends have threatened the stability of the IHCP market and consequently, the prospects that the IHCP will achieve its stated goals.

In response to the possibility that IHCP market dynamics may be undermining program goals, stakeholders and policy makers in New Jersey have discussed ways to reverse these trends. Prominent among possible market interventions include a shift from pure community-rated premiums to risk-adjusted premiums coupled with the imposition of premium rating bands. A second policy option would merge the IHCP risk pool together with New Jersey's Small Employer Health Benefits Program (SEHBP). The SEHBP, also established in 1993, provides coverage to employees of small firms (2 to 50 employees) at modified community rates. Unlike the IHCP, enrollment in the SEHBP has been stable, even growing in most years since it was established. A final set of options involves segregating the highest-risk IHCP enrollees from the general risk pool on which premium rates are based. Removing the costs of the highest risk individuals would reduce the average cost of coverage for others, and could be accomplished by providing reinsurance or similar coverage for these cases.

In this report, we employ micro-simulation methods to evaluate probable enrollment and premium impacts of moving from pure to modified community rating (MCR) in the IHCP. We focus our analysis on the option of moving to 3.5 to 1 rate bands and consider the implications of using age and gender versus age alone as rating groups; we also examine the effect of wider rate bands (5:1) and of varying underlying simulation assumptions. In a future report we present analyses of two other policy options: pooling risk in the IHCP with the SEHBP and creating a reinsurance mechanism to cover the cost of the excess risk associated with the IHCP enrollees who have the highest expected costs.

The policy options that we examine in this report are described in more detail in Section II that follows. Sections III to V, respectively, describe our data sources, overall simulation methodology, and provide details of the simulation assumptions. Results of the simulations of MCR are provided in Section VI and their implications are discussed in Section VII.

Policy Options Examined

We expect the policy options that we examine to have varying effects on total enrollment and the cost of coverage for those who remain enrolled or enter the market after the policy change. For each option examined, we estimate the predicted change in the size and composition of IHCP enrollment and the premiums enrollees pay. Each policy scenario involves tradeoffs: that is, enrollment grows for some classes of individuals but declines for others and premiums rise for some but decline for others. Ultimately, the decision to adopt reforms in the IHCP will rest on political and value judgments balancing these tradeoffs with the need to stabilize enrollment in the individual market.

Although questions related to the distributional effects of market reforms will be paramount for policy makers, an understanding of market dynamics may also be helpful in deciding which options might be best for New Jersey.

As we have documented elsewhere, individual and small-group markets are greatly interdependent (Monheit et al., 2004). When the economy is strong and labor markets are tight, employers are more likely to offer health insurance in order to attract and retain workers. This dynamic prevailed in the 1990s, during which IHCP enrollment eroded while SEHBP enrollment grew substantially. The asymmetry of rating rules in these two markets, with pure community rating in the IHCP and modified community rating in the SEHBP, likely exacerbated this dynamic, with younger (and less costly) working individuals disproportionately abandoning the IHCP for newly available job-based coverage. In turn, the exit of younger individuals likely led to rising average costs for remaining IHCP enrollees triggering further cycles of disenrollment.

The interconnection between these two markets, and the sensitivity of enrollment trends to asymmetries in rating rules, provides one rationale for moving from pure to modified community rating in the individual market or, perhaps, even supports the notion of merging the IHCP with SEHBP risk pools. In this report we focus on understanding the probable impact of MCR in the IHCP. Our next report will consider the effect alternative policy strategies, including pooling the non-group and small-group markets.

A shift from pure to modified community rating would reduce premiums to lower risk (e.g., younger) enrollees, encourage those already in the market to remain, and attract new, lower-risk enrollees. At the same time, constraining the premium increases for higher-risk enrollees through rate bands would limit the financial burden on such enrollees thus meeting an important equity objective. Further, aligning the rating rules between the individual and the small group markets would provide some impetus for a stable IHCP in the longer term.

The Center for State Health Policy at Rutgers University (CSHP) has sought to estimate the potential impact on premiums and enrollment through the application of a micro-simulation model that characterizes potential behavioral responses of IHCP enrollees to MCR. The following sections describe the data used, modeling approach, and key findings associated with the alternative strategies for adopting MCR.

Data for Simulations

New Jersey Family Health Survey

Data on IHCP enrollees, uninsured persons, and persons with small employer coverage were obtained from the 2001 New Jersey Family Health Survey (NJFHS) and its 2002 supplemental survey of persons enrolled in IHCP coverage. The NJFHS is a statewide probability sample of 2,265 families conducted by the Rutgers Center for State Health Policy. CSHP also conducted a supplemental survey of IHCP enrollees consisting of 601 families. The sample for the 2002 IHCP supplement was drawn from the enrollment rosters of four of the five largest health insurers selling non-group coverage in New Jersey; collectively these carriers covered 95 percent of all IHCP enrollees in the year of the study. These data contain detailed information on the demographic characteristics, health status, insurance and employment status of persons enrolled in the IHCP. Data for a total of 500 individual uninsured adults and 701 IHCP enrollees ages 21 to 64 are used in the MCR simulation analyses.

Medical Expenditure Panel Survey

Data on health expenses required for the simulation analysis are not available in the NJFHS uninsured or IHCP samples. Rather, we developed predicted values of insured health expenses for these samples based on statistical models that we developed using the 2000 Medical Expenditure Panel Survey (MEPS) – Household Component (HC). Sponsored by the Agency for Healthcare Research and Quality, the MEPS-HC is a two-year panel survey of approximately 25,000 individuals and contains detailed information on individual health care use and expenditures, sources of payment, demographic characteristics, health status, and insurance and employment status. We use MEPS data on expenditures paid by private insurance along with data on individual characteristics of persons enrolled in private insurance to model the expected health plan payment for individuals who participate in private non-group insurance coverage. We also use MEPS data to model the expected insurance payouts for persons currently uninsured were they to enroll in private non-group insurance.

To obtain these predictions, we first apply MEPS data to estimate an econometric relationship between private insurance payouts and individual characteristics. To do so, we draw upon characteristics that are common to both the MEPS, NJFHS uninsured and IHCP samples. We then apply the MEPS-based model to the NJFHS samples to obtain predicted private insurance payouts for each individual. The predicted payout estimates form the basis for individual-specific reservation prices, market-specific pure community rates, and risk-adjusted premiums which are discussed further below.

The Simulation Model

Basic Modeling Framework

The framework that we use to simulate enrollment decisions is derived from expected utility theory, a standard economic approach used to model the demand for health insurance (see Phelps [1997] for a detailed description of this model and see Pauly and Zheng [2003] for a recent application). Based on this model, we posit that an individual will purchase health insurance if her 'reservation price' for insurance (e.g., her maximum willingness to pay for coverage) exceeds or is equal to the market premium that she confronts. Formally, the decision rule is specified as:

Participate in insurance if the individual's ***reservation price*** is greater than or equal to the ***cost of insurance to individual.***

Specifically, the reservation price consists of two components: (1) the benefit or payout an individual is expected to obtain from insurance and (2) a risk premium. The latter is defined as an amount above the actuarially fair expected payout an individual would be willing to pay for coverage. In economic terms, this additional dollar amount reflects the monetary value of her disutility due to risk. Formally, the reservation price (R) is defined for individual i as follows:

R_i = risk premium + expected benefit from insurance = $0.5 * r_i * V(\$)_j + E(\$)_i$, where:

r_i = risk aversion parameter for individual i (derived below);

$V(\$)_j$ = variance of expected plan payout for j^{th} rating group (e.g., defined by age/gender) that includes individual i;

$E(\$)_i$ = expected benefits from insurance (i.e., expected plan payout) for i^{th} individual

A central challenge to modeling participation in a health insurance market such as the IHCP is to be able to estimate the components of the reservation price. Below we describe the estimation strategy we apply to obtain values of the reservation price for each individual.

As noted, the market health insurance premium faced by a specific individual is a key factor in the decision process. In our model of the IHCP marketplace, such a premium is initially specified as a pure community-rated premium representing the average expected plan payout for all persons in the market inflated by a 25% loading fee. The latter accounts for the administrative costs associated with the management of participating health plans.

As described below, our modeling process involves estimating reservation prices for both IHCP enrollees and for uninsured persons. Based on our decision rule, IHCP enrollees have reservation prices that exceed (or are equal to) the initial community-rated premium, while uninsured persons have reservation prices that fall below this premium. The modeling effort assesses the behavior of members in each group in response to changes in community-rated premium.

Estimating the Reservation Price and Pure Community-Rated Premium

To estimate the reservation price and to calculate the initial community-rated premium, we apply a two-part econometric model of health expenditures to the 2000 Medical Expenditure Panel Survey (MEPS). The first part of the model predicts the likelihood that an individual will obtain a payout from private insurance, while the second part of the model predicts the magnitude of this payoff. These equations are estimated by using all MEPS sample observations with private insurance throughout 2000. Due to the small sample size of persons covered by non-group insurance, we include persons with non-group coverage as well as those with employment-based coverage. The estimating equations include a dummy variable to adjust expenditures for any differences between non-group and employment-based coverage. Once the estimating equations are obtained, we run the IHCP sample through the predicted expenditure equations and compute (1) the components of the reservation price (V and E($)) and (2) the pure community-rated premium (the average of the expected plan payout based on all IHCP enrollees, inflated by a loading factor of 25%). Similarly, we run all uninsured adults through the MEPS two-part model to predict the expected plan payout (if they were insured with non-group coverage) and variance components of their reservation prices.

The risk aversion parameter is the last element required for computation of the reservation price. Note that this parameter is unique to each insured and uninsured person. We derive its value by noting that according to our decision rule, the IHCP sample must have a reservation price that is at least equal to the community-rated premium (otherwise, they would not be enrolled). We then equate the predicted elements of the reservation price (absent the risk aversion parameter) to the estimated community-rated premium and ***solve*** for the value of the risk aversion parameter. Note that since our IHCP sample is insured, their reservation prices should exceed the community-rated premium. Hence, the value of the risk aversion parameter derived in this manner will represent a ***minimum value***.

Analogously, we solve for values of the risk aversion parameter for each uninsured person. Since these individuals are not in the market, their reservation prices fall below the community-rated premium so that the risk aversion parameter estimated for this sample represents a ***maximum value***.

Note that at this point we have the following measures characterizing the initial equilibrium or starting point in our model: all components of the reservation price and the community-rated premium.

Estimating Risk-Adjusted Premiums

As noted above, we use the two-part estimating model in conjunction with MEPS data to predict the **average plan benefit or payout** for all privately insured persons in MEPS. To develop risk-adjusted premiums, we use the demographic factors in the model – age and gender or age alone – to predict the average plan payout for the rating groups under each policy option. We then obtain the ratio of each rating group's predicted plan payout to the average plan payout for the entire MEPS sample. These ratios are the calibration factors used to determine risk-adjusted premiums by age/gender or age alone. We then apply these ratios to the community-rated premium derived for the IHCP enrolled population to obtain a risk-adjusted premium for each age/gender or age group in the IHCP sample.

Application of the Simulation Model: Change from Pure Community Rating to Risk Adjusted Premiums

Our simulations employ two 'loops' or passes through the data to produce predicted responses to the policy scenarios. The first loop begins with the initial IHCP market equilibrium (defined as pure community rating and baseline enrollee composition) along with the initial population of uninsured adults. We impose a change in premiums from the initial community rate by creating risk-adjusted premiums (as described above) according to age or age and gender and by imposing rate bands specifying the permissible upper and lower bounds for risk-adjusted premiums.[1] We simulate responses of IHCP enrollees and uninsured persons to the change in premiums which results in some IHCP enrollees withdrawing from the market and some uninsured persons entering the IHCP. We then compute the new number of IHCP enrollees, the new number of uninsured persons, and the new composition of each group. This completes the first loop and establishes a new IHCP market equilibrium.

Since the size and composition of the IHCP market has changed upon completion of loop 1, we need to establish a new set of risk-adjusted premiums. This is due to the fact that the basis for risk-adjusted premiums has changed in response to the change in enrollee composition. Thus a second loop (loop 2) begins with a new computation of the risk-adjusted premiums. These new premiums again result in some IHCP enrollees leaving the market and some uninsured persons entering the market. Once again, the size and composition of the IHCP market changes along with the size and composition of the uninsured population.

To keep simulation model procedures manageable and to enhance the interpretability of our findings, we make two simplifying assumptions. First, we do not take into account alternative plan types that may be available through the IHCP. Rather, for the purposes of our analysis, all IHCP enrollees are combined without consideration of selection among plan options. For purposes of illustration, we present findings in reference to premiums under the lowest cost HMO product in the IHCP. As we discuss above in the evaluation, historical changes in IHCP enrollment and risk selection among standard plan offerings has occurred. However, because of the complexity of incorporating the possibility of such selection in our analyses and limitations of our data, in these simulations we are not able to take into account within-market selection. Second, we assume that only single (i.e., not family) coverage is available in the IHCP. Historically, approximately 80% of current IHCP enrollees have had single coverage. However, as will be discussed below, a greater share of young-adult IHCP enrollees would likely opt for family coverage. The implications of this assumption are discussed further below.

The behavior underlying the simulation model reflects the responses of IHCP enrollees and uninsured individuals to the change from pure community rating to risk-adjusted premiums. At each loop in the model, some IHCP enrollees (e.g., older females) will face risk-adjusted premiums above the initial community-rated premium and we expect some of these enrollees to withdraw from the market. Persons who disenroll are individuals whose reservation price is now below the new risk-adjusted premium. Similarly, some of the uninsured (e.g., young males) will now face risk-adjusted premiums that are below the initial community-rated premium. Consequently, some of these individuals will enter the market. Thus at each stage of the model, these changes alter the demographic composition of the IHCP market and of the uninsured population.

More details of the methods employed to simulate responses to premium changes are provided in the Technical Appendix that appears at the end of this report.

Assumptions Underlying Modeling Scenarios

The policy scenarios addressed by our simulations are based upon two key assumptions. First, we make assumptions regarding plausible rates of health insurance participation for the individual insurance market. The literature generally has found that participation elasticities range of approximately 0.2 to 0.4 (see for example, Marquis and Long 1995 and Marquis et al., 2004). The most recent work on participation suggests elasticities near the top of this range. Thus, our basic simulations are based on a 0.4 elasticity assumption, although we also test the effect of lowering the elasticity assumption to 0.2.

Second, because our simulation method does not explicitly take into account income available to pay premiums, we apply an "affordability constraint". Specifically, we assume that individuals who face premiums in excess of 10% of family income will not purchase coverage regardless of their predicted reservation price. Again, we relax this assumption to test the sensitivity of our findings to applying the affordability constraint.

We consider three specific policy scenarios employing modified community rating. The first policy scenario reflects comparatively narrow rate bands (3.5 to 1) within age and gender rating groups, the second scenario also employs a 3.5:1 rate band but restricts premium variation to age groups, and the third scenario uses a wider rate band (5 to1) with age/gender rating. Each of these scenarios employs an affordability constraint of 10% of income and price elasticity of 0.4, assumptions that we judged to be most realistic and supported in previous studies. To test the implication of these assumptions for our findings, we examined the first policy scenario without the affordability constraint and assuming a lower price elasticity of 0.2. Below we provide an overview of our findings, describe detailed results of the base case scenario, then we turn to an analysis of the sensitivity of our findings to alternative assumptions.

Results

In this section we predict the impact of moving from pure to modified community rating in the IHCP. A subsequent report will provide findings with respect to pooling the IHCP and SEHBP and implementing a reinsurance mechanism.

Several findings emerge consistently across all of the scenarios, illustrating the impact of shifting from pure to modified community rating. First, the models all predict that modified community rating would substantially lower the premiums faced by younger individuals. Second, as a consequence of lower premiums, a large number of previously uninsured younger adults would enroll in coverage, especially young men. Young women would also enter the market to varying degrees, depending on specific simulation assumptions. Third, older IHCP enrollees will experience increased premiums. While the impact on premiums for older groups varies across the simulation scenarios, the increase would be roughly equivalent to one or two typical years of health insurance premium inflation. Finally, despite premium increases, very few older IHCP insured would exit the market. One reason for this modest enrollment impact is that over time the IHCP has shifted toward an older demographic with commensurately high premiums (Monheit et al. 2004). Those older individuals who have remained in the IHCP have a high willingness to pay for this coverage.

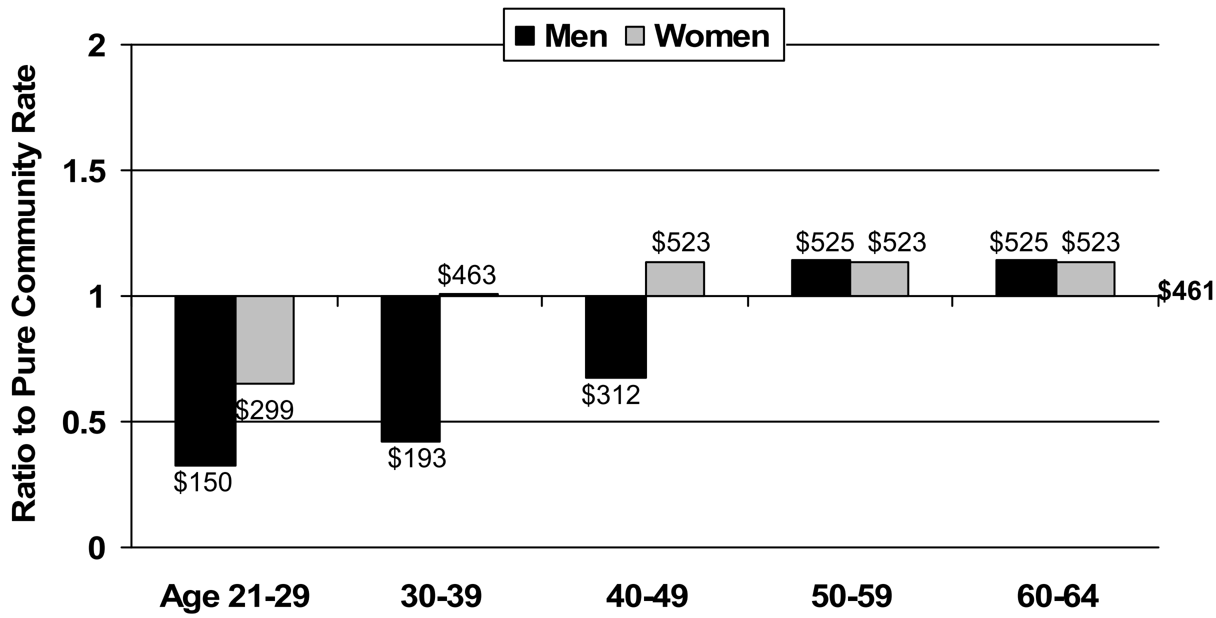
Impact on Premiums

Figures 1 to 3 illustrate the expected impact on premiums of shifting from pure to modified community rating under the three policy scenarios.[2] Under the first scenario (3.5 to1 rate bands with age-gender rating), women age 40 or older and men age 50 or more would face premiums under modified community rating approximately 14% higher than they did under pure community rating (Figure 1). Women in their 30s would experience a very small premium increase, and the remaining demographic groups would all experience premium reductions. Men under age thirty, the group with the greatest premium decline, would experience a price reduction of about 67%.

The range of predicted premiums under age-only rating is similar to that under age-gender rating. Scenario 2 (3.5 to1 rate bands with age-only rating) would increase premiums for the oldest groups (those age 45 to 64) by about 13%. Premiums for those below age 45 would decline by as much as 66% (in the age 21 to 24 rating group). Not permitting variation by gender eliminates premium disparities between young men and young women.

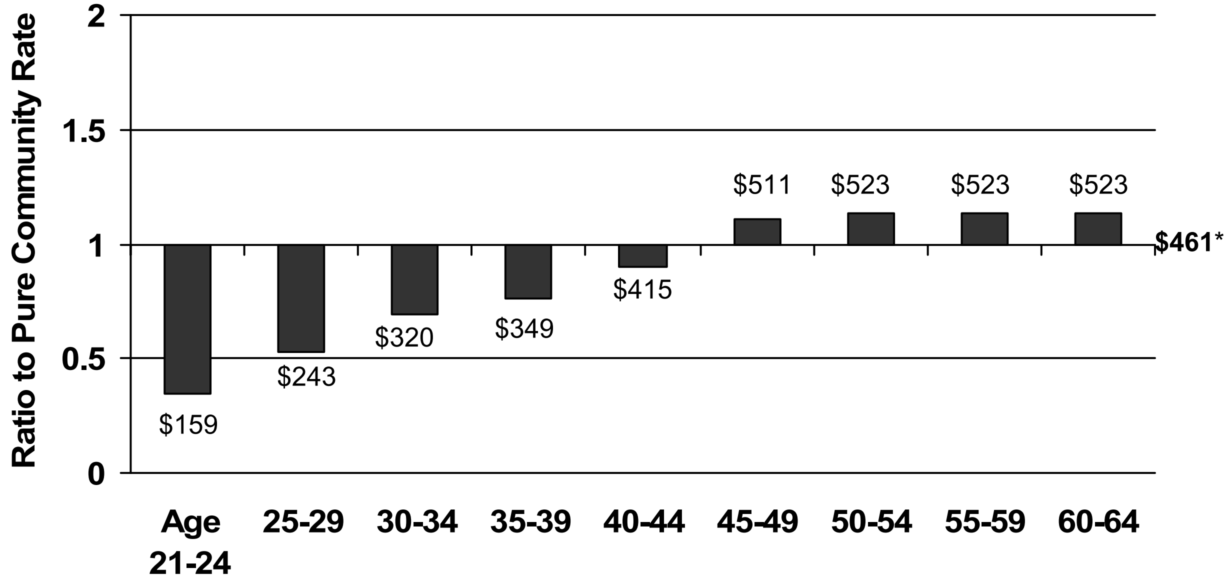
Compared to 3.5 to 1 rate band with age-gender rating, wider rate bands of 5 to 1 (scenario 3) have little impact on premiums for men age 40 to 64 or women age 50 to 64. The maximum increase in premiums is 15%, compared to 14% for narrower rate bands. The model predicts modestly greater impact on premiums of moving to wider rate bands among younger IHCP enrollees, with predicted premiums for men age 21 to 29 declining by about 77% (compared to 67% for 3.5 to 1 rating).

Figure 1: Change in IHCP Monthly Single Adult Premiums under Scenario 1 (3.5 to 1 Bands with Age-Gender Rating)



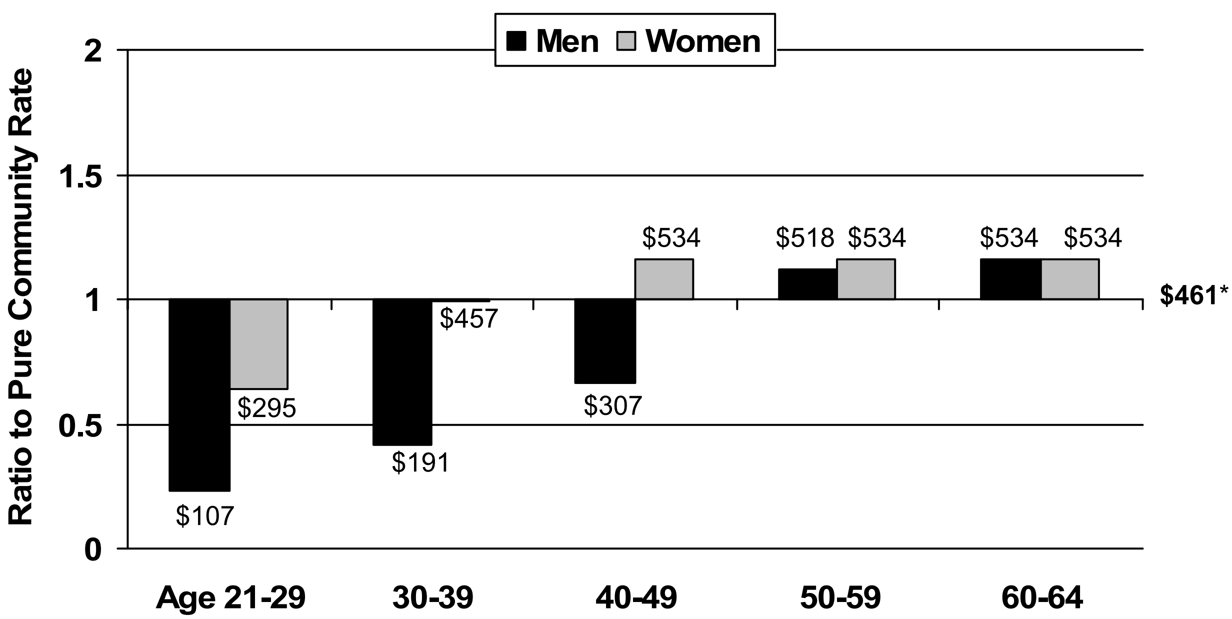
Source: Rutgers Center for State Health Policy, New Jersey Individual Health Insurance Market Simulation Model
*Monthly premium for the lowest cost HMO product in the NJ IHCP ($15 copay plan in October, 2004).

Figure 2: Change in IHCP Monthly Single Adult Premiums under Scenario 2 (3.5 to 1 Bands with Age-Only Rating)



Source: Rutgers Center for State Health Policy, New Jersey Individual Health Insurance Market Simulation Model
*Monthly premium for the lowest cost HMO product in the NJ IHCP ($15 copay plan in October, 2004).

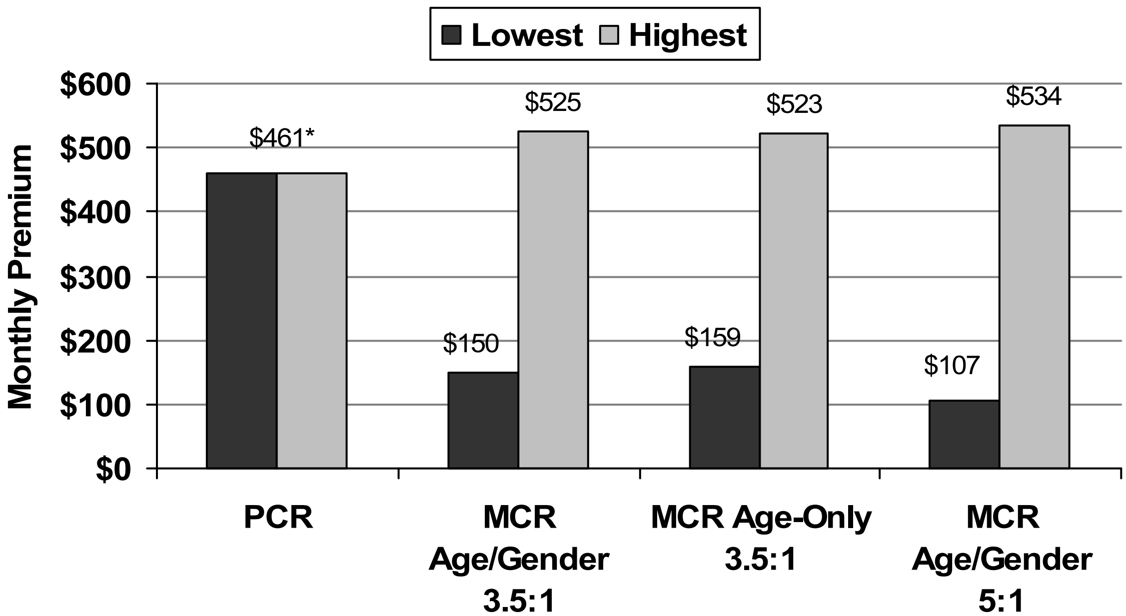
Figure 3: Change in IHCP Monthly Single Adult Premiums under Scenario 3 (5 to 1 Bands with Age-Gender Rating)



Source: Rutgers Center for State Health Policy, New Jersey Individual Health Insurance Market Simulation Model
*Monthly premium for the lowest cost HMO product with a $15 copay in the NJ IHCP (October, 2004).

Across all three scenarios, predicted changes in premiums are much greater for the younger rating groups than for those in the older categories (Figure 4). This is not surprising given that by 2002 enrollment in the IHCP was concentrated in the older groups, and premiums under pure community rating had already risen to reflect the expected expenditures of these older enrollees.

Figure 4: IHCP Monthly Single Adult Premiums under Various Simulation Scenarios



Source: Rutgers Center for State Health Policy, New Jersey Individual Health Insurance Market Simulation Model
PCR is pure community rating and MCR is modified community rating
*Monthly premium for the lowest cost HMO product in the NJ IHCP ($15 copay plan in October, 2004).

Impact on Total Enrollment

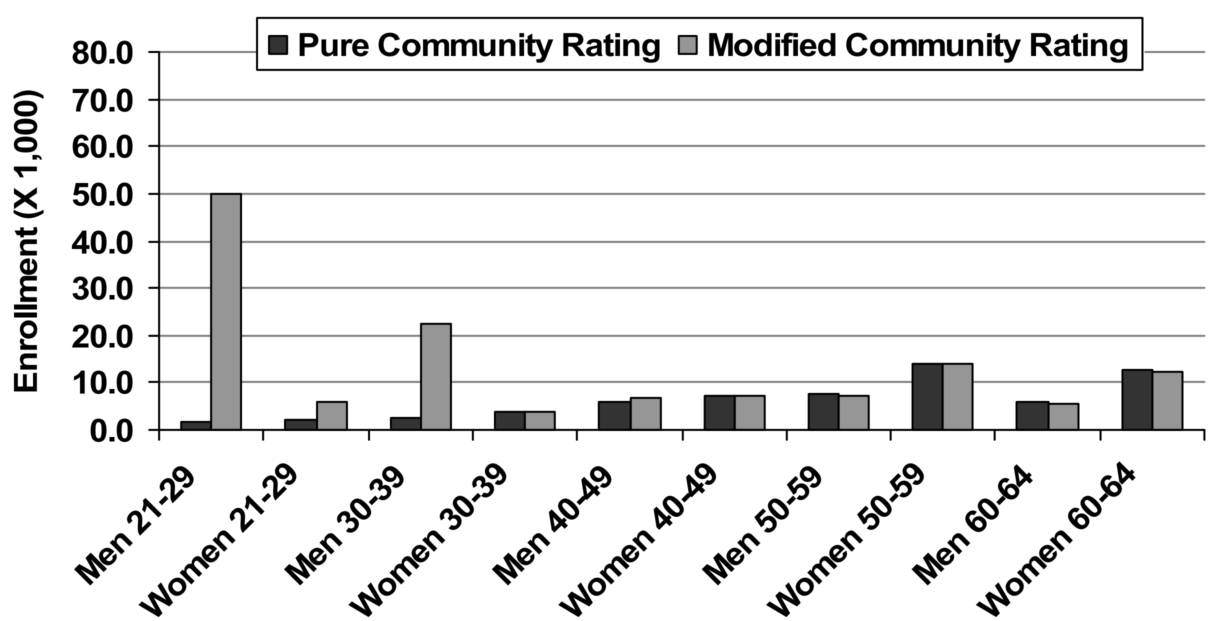
The simulation model predicts that the premium changes associated with each of the MCR scenarios would lead to a major increase in total enrollment in the IHCP. IHCP enrollment in the four leading carriers contributing data for the simulation analysis would grow from about 62,700 to about 135,300 under the first scenario (3.5 to 1 bands with age-gender rating); more than doubling enrollment in the program.[3] As expected, a greater enrollment impact would occur in response to wider rate bands (5 to 1 bands with age-gender rating), with enrollment predicted to reach nearly 195,000. We predict the most modest enrollment response for age-only rating with 3.5 to 1 bands. Under this scenario, enrollment would increase by about 74% to just over 109,000 adults.

The enrollment response to age-only rating may more closely approximate the actual response in a market with both single and family coverage. Under our assumption of a market limited to single coverage, all maternity-related costs are assigned to women. This artificial assumption thus leads to an exaggerated premium differential between men and women. Since families with maternity costs are likely to elect family coverage, assigning these costs more equally to men and women, as we do in the age-only rating scenario, may therefore be more realistic.

Impact on the Composition of Enrollment

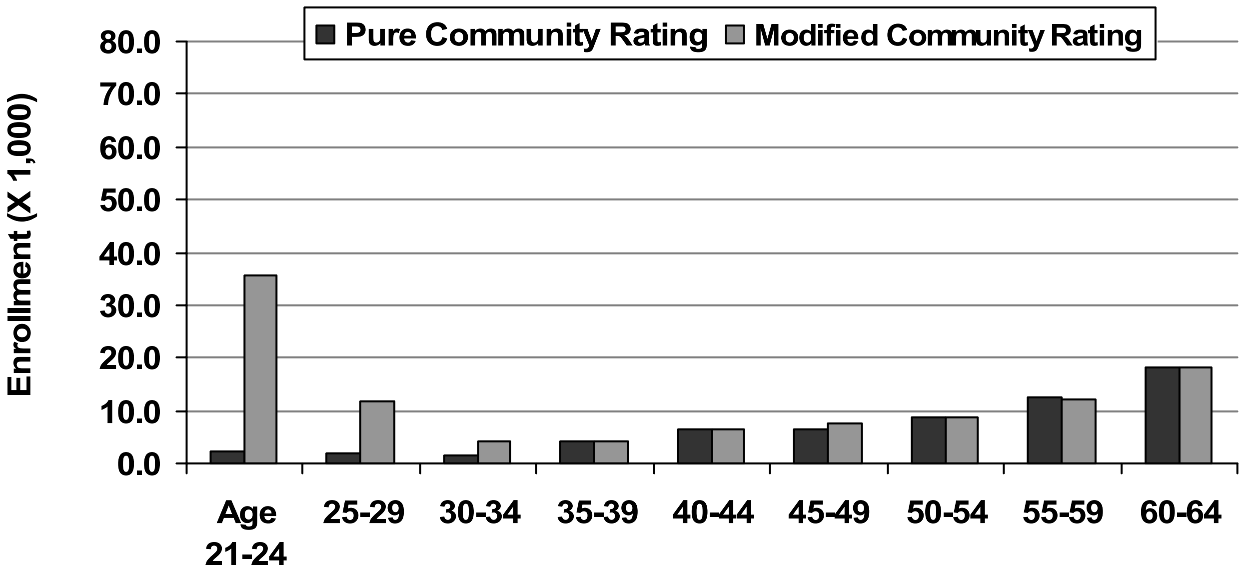
Figures 5 to 7 show that the majority of the new IHCP enrollment would come from the ranks of previously uninsured younger adults. In the scenarios incorporating age and gender rating, most new enrollment is among young men, with previously uninsured young women enrolling in much smaller numbers. As noted in the previous section, the large difference in enrollment response between young men and young women in the scenarios permitting gender rating is likely due to artificial assumption that family coverage is not available. At the older end of the age distribution, changes in enrollment are very small despite premium increases.

Figure 5: Adult IHCP Enrollment under Pure Community Rating and Modified Community Rating Scenario 1 (3.5 to 1 Bands with Age-Gender Rating)



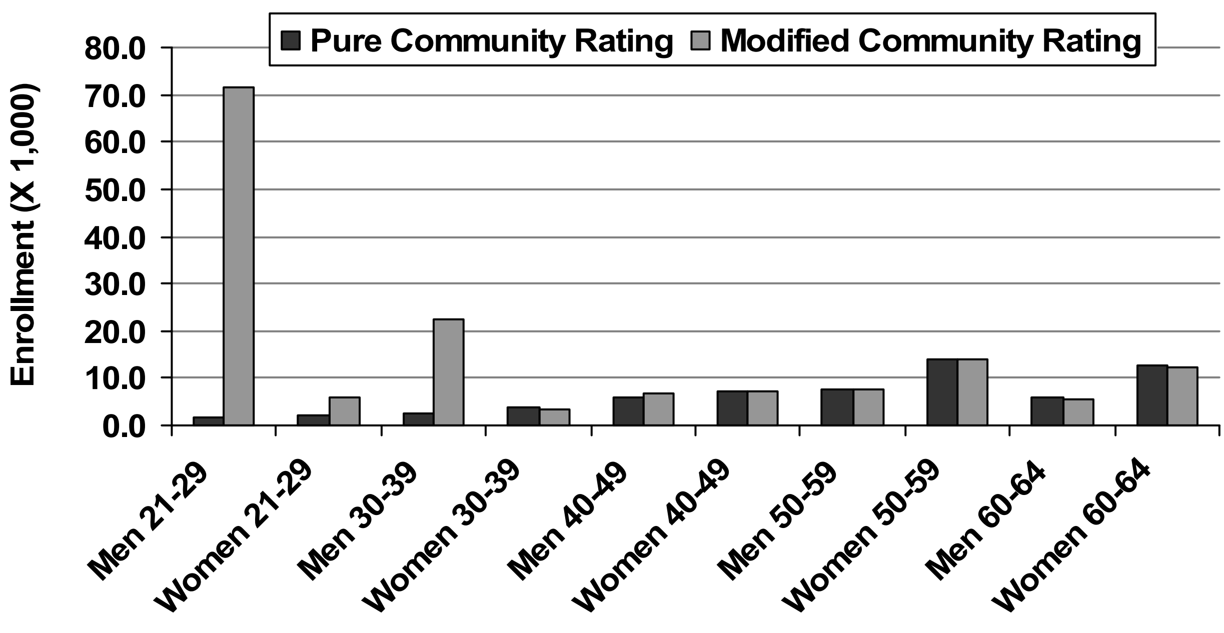
Source: Rutgers Center for State Health Policy, New Jersey Individual Health Insurance Market Simulation Model
Note: Limited to four of the five largest carriers, representing 95% of total covered lives

Figure 6: Adult IHCP Enrollment under Pure Community Rating and Modified Community Rating Scenario 2 (3.5 to 1 Bands with Age-Only Rating)



Source: Rutgers Center for State Health Policy, New Jersey Individual Health Insurance Market Simulation Model
Note: Limited to four of the five largest carriers, representing 95% of total covered lives

Figure 7: Adult IHCP Enrollment under Pure Community Rating and Modified Community Rating Scenario 3 (5 to 1 Bands with Age-Gender Rating)



Source: Rutgers Center for State Health Policy, New Jersey Individual Health Insurance Market Simulation Model
Note: Limited to four of the five largest carriers, representing 95% of total covered lives

The simulation model predicts that the move to modified community rating would change the composition of the enrolled population in other ways as well (Table 1). Specifically, MCR would bring more moderate income individuals into the program. Median income of the study population under pure community rating of just over $57,000 would drop to about $40,000 under each of the alternative MCR scenarios. This change is consistent with the changed demographics of enrollment under modified community rating. While the *number* of persons age 50 to 64 would remain virtually constant under the modeled reforms, nearly all enrollment growth would be younger individuals. Thus, the percentage of the adult IHCP enrollees under age 40 would grow from under 16% to between 51% (3.5 to 1 bands with age-only rating) and 66% (5 to 1 bands with age-gender rating).

Table 1: Age and Income of Adults Enrolled in the IHCP Under Pure Community Rating and Alternative Modified Community Rating Scenarios

	Pure Community Rating	Modified Community Rating		
		Scenario 1 3.5 to 1 Age-Gender	Scenario 2 3.5 to 1 Age-Only	Scenario 3 5 to 1 Age-Gender
Age 21 to 40 (%)*	15.8	60.8	51.3	66.0
Median Family Income (x1,000)	$57.1	$40.0	$42.0	$40.0

*Percent of adults age 21 to 64.

While the focus of this analysis is on changes to IHCP premiums and enrollment, it is noteworthy that there would be parallel changes in the size and composition of the uninsured population in New Jersey. At the time of our analysis, there were about 757,000 uninsured adults ages 21 to 64 in New Jersey. A shift to modified community rating under the scenarios modeled in this report would reduce this number by between roughly 46,000 (3.5 to 1 bands with age-only only) and 94,000 (5 to 1 bands with age-gender rating), or 6.1% to 12.4% of the uninsured, respectively. It should be noted that our model did not take into account recent trends in private health insurance that affect the number of persons without medical coverage, such as rising employer-sponsored premiums and growing employee premium shares.

Effect of Varying Simulation Assumptions

To test the effect of two key assumptions in our model, the affordability constraint and insurance participation elasticity, we applied relaxed assumptions to the first policy scenario, 3.5 to 1 bands with age-gender rating. Table 2 shows the results of these sensitivity analyses. The relaxed assumptions have little impact on the range of premiums under MCR compared to the initial pure community rate, but significant impacts on the size and composition of enrollment. Relaxing the affordability constraint (i.e., assuming that any individual with a reservation price above their group-specific modified community rate would purchase coverage regardless of the proportion of family income that would be devoted to premiums) would lead to 30% higher total enrollment. As well, and not surprisingly, with no affordability constraint the median income of enrollees drops by nearly a quarter.

Table 2: Sensitivity Analysis

Scenario	Premium Change*		Total Enrollment	Age 21 to 40 (%)	Median Income (x1,000)
	Minimum	Maximum			
Base Case**	0.32	1.13	135.3	60.8	$40.0
No Affordability Constraint	0.31	1.08	176.1	63.9	$31.4
0.2 Price Elasticity	0.32	1.13	88.9	41.9	$40.0

*Ratio to initial pure community rate
**3.5 to 1 bands, age-gender rating, 10% affordability limit, 0.4 price elasticity

Assuming lower price responsiveness (i.e., a participation elasticity of 0.2 rather than 0.4) would cut total enrollment by about one third, reducing the proportion of the market covering 21 to 40 year olds to about 42%, but leaving the median income of the enrolled population unchanged. These results are consistent with expectations, yet they frame the possible range of variations in response to a shift to MCR that could be seen in this market.

Conclusions and Discussion

Summary and Implications of Findings

Innovative reforms in New Jersey's non-group health insurance market in the early 1990s stabilized a faltering market, but enrollment declines and rising premiums beginning in 1996 raised questions about the sustainability of the hallmark community rating and open access provisions of the Individual Health Coverage Program. Today, these decade-old reforms are being re-evaluated.

This paper provides analyses to inform discussions about possible changes to regulations intended to make affordable coverage available to larger number of individuals who do not have access to group coverage and to bolster long-term sustainability of the non-group market.

We constructed a simulation model to illustrate the effects of moving from pure to modified community rating with rate bands by age and gender. The model predicts that premium costs for younger individuals would decline by as much as two-thirds, inducing a large number of uninsured young people to purchase coverage. The large impacts on younger individuals are mirrored by much smaller effects among older IHCP enrollees (e.g., ages 50 to 64). The model predicts that premiums for the oldest rating categories would rise by approximately 20%, but despite this fact, few current enrollees would drop coverage.

While a move to modified community rating would add financial burden for many older enrollees, that burden should be seen in the context of recent market trends. A study by the Center for State Health Policy demonstrated that during the late 1990s, the age and risk profile of the average IHCP participant rose significantly (Monheit et al. 2004). In turn, premiums during this period rose much faster in the IHCP than in other health insurance markets and consequently IHCP enrollment declined. While more recently the IHCP has experience a period of comparative stability, enrollment in the Program today is less than half of its peak and few young people are enrolled. It is unlikely under current community rating rules that the IHCP will be sustainable in the long term. Our simulation results suggest that a move to modified community rating would bolster enrollment the IHCP, at least temporarily.

Our simulation methodology does not enable us to forecast trends in future IHCP costs or enrollment, and we cannot predict whether modified community rating would stem future excess premium inflation. However, the current period of IHCP stability is likely the result of weakened labor markets and a period of rapid health care cost increases in the group market. Should these conditions change, rapid premium increases and decreasing enrollment could return to the IHCP. Other forces being equal, the diversifying impact of moving to MCR on the mix of age groups in the market is likely to have a stabilizing effect. At least in the near term, however, a shift to MCR would increase premiums for older enrollees. It is this tradeoff that policy makers must weigh in considering a shift from current market regulations.

Limitations of the Research and Effects of Varying Simulation Assumptions

Simulation modeling is an imprecise science, and it is important to bear its limitations in mind when interpreting the findings in this report. Data limitations and the complexity of health insurance market require simplifying assumptions to be used in empirically assessing the policy scenarios. This section describes these assumptions and their implications for our findings.

First, our simulation model does not take into account choices available in the IHCP market. Specifically, the IHCP offers a number of plans that vary by product type (i.e., HMO and indemnity plans) as well as cost sharing structures and other plan features. An earlier CSHP study demonstrated that under community rating risk segregation across plans appeared to have occurred (Monheit et al. 2004). Over time, younger and healthier individuals who remained in the IHCP moved into plans with high cost sharing or with restrictive managed care practices while higher risk persons remained disproportionately in lower-deductible indemnity plans. It would be very complex to simulate a shift from pure to modified community rating in a multiple-plan choice environment, and it is unlikely that incorporating multiple plan choices into the simulation would have a major impact on our overall enrollment or premium predictions. Allowing modified community rating in the multi-plan environment would likely reduce the amount of risk segregation that we observed under pure community rating, possibly stabilizing the more generous or less restrictive plan options now available.

Second, as we discussed above, we assumed that only single-person policies were available in the IHCP. In fact, a large majority of IHCP plans cover only individuals, with only about 20 percent of lives covered in couple or family plans. Nevertheless, if modified community rating draws in large numbers of young adults as we predict, it is likely that many young couples would purchase family plans. If so, the large differentials between young men and young women in premiums and enrollment that we predict would likely be much smaller. Notably, one of the highest costs in this age group is pregnancy and childbirth. In a single-plan only environment, these costs are borne by women only, but under the more realistic scenario these costs would fall disproportionately on those with family plans.

We believe that several other simplifying assumptions in the simulation models have not greatly influenced the results of our findings. Among these choices are the exclusion of children from our modeling, use of wide (e.g., ten-year) age bands, and exclusion of geography as a rating factor.

Next, our simulations are done in a static context. In other words, we assume that environmental forces were not in play in determining market outcomes, such as health care cost inflation, changes in the labor market that might affect demand for employer-sponsored coverage or policy changes such as allowing more young adults to be covered as dependants on their parents' plan. Clearly, these forces have large influences on demand for non-group coverage. Most importantly, we have not predicted what would happen in the future to the IHCP if pure community rating was to continue. The predicted changes resulting from a move to modified community rating should be viewed in the context of the status quo. If history predicts the future, then continued pure community rating could lead to higher costs for older high-risk individuals than our simulated move to risk rating.

Finally, the predictions of the simulation model are a function of specific assumptions about consumer behavior. In turn, the behavioral assumptions derive from the economic theory of "expected utility." Expected utility theory presumes that consumers act in purely rational way; that is, risk-averse consumers will purchase coverage if they are economically better off paying a premium with certainty than bearing the expected cost of uninsured losses. While widely accepted and applied, consumers may not always respond with the coldly rational calculus as they theory predicts. Young and healthy individuals, for example, may not purchase coverage even if it is their economic self-interest to do so. If this is the case, then our enrollment predictions may overstate the likely consumer response.

Future Research

A second report based on the IHCP simulation analysis is under preparation. This report will provide estimates of the market response to two other policy reform options. The first option considered in the second report is the merger the IHCP risk pool together with New Jersey's Small Employer Health Benefits Program (SEHBP). This option begins with modified community rating using 3.5:1 rate bands stratified by age and gender. A final simulation involves segregating the highest-risk IHCP enrollees from the general risk pool on which premium rates are based. In this simulation, the excess cost for individuals above the 90th percentile of expected insured expenditures are assumed covered by reinsurance. The report will show the impact of this policy option in the context of modified community rating. Two variants are simulated: one with externally-financed reinsurance and the other with the cost of reinsurance borne within the IHCP.

Endnotes

[1] Throughout, we assume that these policies yield premium revenue sufficient to covered total expected plan payouts and administrative costs.

[2] All results are illustrated with the single premium for the least expensive HMO product in the IHCP as of October 2004.

[3] In 2002, the year of the study, approximately 80,000 persons were enrolled in the IHCP. Our analysis is based only on adults ages 21 to 64 who enrolled through one of four large carriers. At the time of the study, the carriers participating in our study covered 95% of all IHCP enrollees.

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Technical Appendix: Simulation Model Procedures for Predicting Responses to Premium Changes

In this Appendix, we provide a detailed exposition of how we model changes to the IHCP marketplace as a result of a change from pure community-rated premiums to risk-adjusted premiums.

A.1. Baseline IHCP Enrollees

The behavior driving our simulation model is based upon comparisons of an individual's reservation price to the prevailing market premium. Recall from Section IV.b. above that the initial reservation price for each IHCP enrollee is based on a minimum risk aversion parameter whose value equates the reservation price to the community-rated premium. This ensures that IHCP enrollees are indeed in the market.

However, if we maintain this initial risk aversion value and reservation price, the increase in premiums experienced by some groups through modified community rating would mean that all enrollees in these groups would drop out. That is, since initial reservation prices for enrollees were assumed equal to the market premium, an increase in a group's premium through risk adjustment would exceed the reservation price for all enrolled group members. Consequently, such enrollees would leave the market. However, this should not be the case since many (if not most) individuals have risk aversion values above the minimum level initially used to compute the reservation price. As a result, their reservation prices will still exceed the new and higher premiums. Thus we need to find values of the risk aversion parameter (and thus the reservation price) that cause some IHCP enrollees who face premium increases to drop out and others to remain enrolled. We also need to ensure that these changes appear to be reasonable.

To determine these values of the risk aversion parameter and reservation price, and hence, the specific individuals who drop out or remain in the market, we adopt the following procedure. For each age/gender group that faces a risk-adjusted premium in excess of the initial community rate, we estimate the expected number of IHCP dropouts. To do this, we apply an elasticity estimate (e.g., 0.40 as in our discussion in Section V above) to the given premium increase to determine the expected aggregate number of individuals in each age/gender group who drop out.

Next we determine the specific individuals who drop out of the IHCP. We do so by considering alternative values of risk aversion parameters above the initially established minimum value. These values yield new reservation prices that for some individuals are below the new risk-adjusted premium. We iterate on alternative risk aversion values, beginning with the median value for the group under consideration and changing values by small increments. We stop this process when the number of persons with reservation prices below the risk-adjusted premium equals the expected aggregate number of dropouts (based on our elasticity assumption).

Note that the resultant risk aversion parameter obtained from this process is group-specific and represents the value that yields the expected number of dropouts for the specific age/gender group. Reservation prices still vary across individuals within any age/gender group since the predicted plan payout varies by individual. We retain the value of the group-specific risk-aversion parameter for use in the second loop of the model.

A.2. The Uninsured

Initially, uninsured persons had reservation prices below the community-rated premium and chose not to participate in the market. Now, they face a new set of risk-adjusted prices that depart from the initial community rate. We now assess who among the uninsured will enter the market as a result of this change. To do so we now confront the uninsured with the new risk-adjusted premiums. We use a participation elasticity (e.g., 0.40) to assess how many uninsured persons in each age/gender group are now likely to participate. As before, to identify specific new enrollees among the uninsured, we begin with the median risk aversion parameter for each affected group. We change the value of this parameter by small increments until we yield individual-specific reservation prices whose values (in comparison with the risk-adjusted premium) yield the expected number of new IHCP enrollees (consistent with that derived from our elasticity measure).

A.3. New Composition of IHCP and Uninsured Groups

After the first loop of the simulation model, we have a new IHCP market comprised the following groups:

- Initial IHCP enrollees who stayed in the market when premiums changed (their reservation prices remained above their respective new risk-adjusted premiums).
- New IHCP enrollees from the uninsured population (their reservation price are now above the risk-adjusted premiums)

We also have a new group of uninsured persons:

- The initial uninsured who continue not to participate in the IHCP (their reservation prices remain below their respective risk-adjusted premiums).
- IHCP dropouts (their reservation prices are now below their respective risk-adjusted premiums).

A.4. Simulating the Second Loop Responses

As noted, the composition of the IHCP market has changed after loop 1. As a result, we need to compute a new community-rated premium for use as the basis of new risk-adjusted premiums. We do so by using the estimated MEPS two-part model to predict the mean plan payout for current participants in the IHCP market. We apply the original MEPS age/gender calibration rates to obtain a new set of risk-adjusted premiums for persons now in the market.

Current IHCP members now confront a new set of age/gender premiums. Using the previously computed risk-aversion parameters, we compare the reservation prices of the pool members to the new premiums (we maintain the previously computed expected plan payout for each individual and the age/gender group variance of payout). Since premiums may increase for some IHCP age/gender groups, some members within these groups will drop out since their reservation prices are now below the new premiums.

Given the new risk-adjusted premiums, some uninsured persons will now participate in the market. As noted, there are two types of uninsured persons:

Those who previously were IHCP members but dropped out after the initial change from community to risk-adjusted premiums. We retain their risk aversion parameters and reservation prices for this new comparison. If their reservation price now exceeds the new risk-adjusted premiums, they enter the market.

Those who never were in the market. For these individuals, we have individual-specific (not group-specific) risk aversion parameters derived from solving for the risk aversion parameter that equated the reservation price to the initial community rate. To determine how many of these uninsured individuals will enter the market, we apply an elasticity measure (e.g., 0.40) to determine the aggregate number of new entrants, and as before, obtain individual-specific risk aversion parameters that yield this result.

After these two loops, we collect information on the number of IHCP enrollees (total and by demographic characteristics), the size of the uninsured population (total uninsured adults and by demographic characteristics), and the change in premiums from baseline community rate to risk-adjusted levels. We compare these results across the set of alternative policy scenarios described above.