**RISK SELECTION AND RISK ADJUSTMENT:
IMPROVING INSURANCE IN THE INDIVIDUAL AND SMALL GROUP MARKETS**

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I. INTRODUCTION

The individual and small-group markets for purchasing health insurance in the United States are widely acknowledged to function poorly. Several features of these markets undermine the pooling of risks, expose people to premium increases if they fall ill, cause job lock, and reduce insurance coverage among those most in need of health care. Furthermore, insurers engage in a variety of costly and welfare-reducing activities designed to attract healthier enrollees and to avoid attracting the ill. These are issues both of equity and of efficiency. These insurance market failures are broadly inefficient because they make it more costly to obtain the valuable financial protection that insurance affords, and result in resources being devoted to socially wasteful activities that do not improve health or economic well-being. They are also a matter of equity because the burden of the market failures is likely to be borne disproportionately by the sick and poor, who must spend extra for their insurance or become uninsured. Many people regard this as particularly inequitable since most modern societies choose to redistribute resources *towards* those in poor health. The issues of equity and efficiency are intertwined: if society has a strong interest in ensuring that all of its members have access to at least basic health care and financial protection, then promoting the lowest-cost solutions to market failures, and finding a way to redistribute resources that does not exacerbate these market failures, will also make providing a social safety net more affordable.

There are many possible government interventions to address these problems, some of which are in use now and others of which figure prominently in health system reform proposals. These interventions have varied goals.   Many seek to reduce the ranks of the uninsured, promoting insurance that people obtain when healthy and that is stable if they become sick or change jobs. This kind of stability would lower uncertainty about individual future premiums

and reduce volatility in market-level pools. A second goal is fostering high-value insurance. This implies both minimizing distortionary risk selection activities (such as when insurers structure policies to avoid enrolling high risk populations) and fostering competition among insurers to offer innovative and efficient policies (so that profits depend on improving value, rather than avoiding high risks). A third goal is cost containment. One avenue towards minimizing utilization of care with low value among the insured (moral hazard) is increased use of cost-sharing – while not creating an incentive for inefficient skimping. Cost containment is particularly important when much of health care spending is financed by public revenues that impose a drag on economic growth.

Unfortunately, many interventions make progress towards some of these goals at the expense of exacerbating other problems. One of the key threads that connects these outcomes is the effect of policies on risk selection and pooling. Premium regulations intended to make insurance affordable for high-risk populations, for example, may increase insurance coverage of the sick but decrease coverage of the healthy (Herring and Pauly, 2006). In evaluating policy choices, it is thus essential to consider the incentives that they generate for individuals, employers, and insurers to manage health risks and health spending.

This paper considers the functioning of U.S. individual and small-group health insurance markets under different regulatory regimes and reform proposals. Despite the objections of some (such as single payer advocates) that the individual and small-group health insurance markets are beyond repair, most mainstream reform proposals from both Republicans and Democrats continue to include a role for these markets. We thus consider the pros and cons of various approaches to strengthening them. First, we review the underlying problems in individual and small-group markets. We then outline key dimensions that characterize policies that aim to

address these problems, to aid in classifying, evaluating, and comparing those policies. The

subsequent sections discuss several policies in place now as well as alternative policies under

consideration, concluding with a discussion of which alternatives are likely to achieve policy

goals most effectively and efficiently. Our review suggests that flexible risk adjustment schemes

that take advantage of a wide array of information, are applied across the distribution of health

risks, and integrate the individual and small-group markets could form a key component of

reform proposals to improve insurance value, stability, and coverage.

II. UNDERLYING PROBLEMS

The primary role of health insurance is to provide financial protection from the risk of

high health expenditures. This includes both spreading the risk of catastrophically high costs in a

given period and protecting against the risk of high health insurance premiums in future periods

(among those who become chronically ill after obtaining insurance). This risk-sharing requires

the subsidizing of those who become sick by those in the risk pool who are fortunate to remain

healthy.

One of the key challenges to the system is that this risk pooling can break down. In

theory, if individuals purchase insurance prior to becoming ill, then schemes can be designed that

include health-related severance payments and guaranteed renewability that will ensure risk-

pooling in deregulated competitive insurance markets (Cochrane, 1995; Pauly, Kunreuther, and

Hirth, 1995).[1] In practice, institutional factors mean that the individual and small-group health

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[1] The authors note various potential problems with even such idealized schemes, though, that likely necessitate
government intervention. For example, there may be a need to subsidize those who develop health problems prior to
purchasing insurance (including genetic problems). Many observers also express concerns about the ability of
unregulated insurance markets adequately to address problems such as: protecting consumers from aggregate long-
term risk (given existing bankruptcy protection laws), high transaction costs in the individual market, and
prohibitively high costs for insurance shoppers to acquire adequate comprehensible information. Furthermore,
asymmetric information about demand for certain types of health care, such as infertility services, could make such
services very hard to insure against in unregulated markets.

insurance markets are highly imperfect. First, the "Samaritan's dilemma" undermines individual incentives to obtain insurance when healthy: healthy people with relatively low risk of illness know that in the case of emergency they will receive at least basic life-saving care regardless of their ability to pay (Coate, 1995). Second, social norms appear to strongly discourage insurers from writing actuarially fair insurance policies for applicants with very high expected costs. It is rare to see policies quoted over $15,000 per person; instead those applicants are typically denied insurance and labeled "uninsurable" by the carriers.[2] Third, while bankruptcy protection laws may provide individuals some minimal level of protection against catastrophic costs, they also allow insurance carriers to exit markets if their enrollees prove disproportionately expensive.

Last, the individual, small-group, and large-group markets are often operating under very different premium-setting regimes. Most big employers, in large part because of historical tax code provisions, offer their employees group-rated policies at tax-subsidized prices. In contrast, individual market policies are for the most part individually-underwritten and unsubsidized,[3] while the rate-setting in the small-group market varies widely from state to state. The prospect of being able to obtain a subsidized group-rated policy in the future (e.g., after falling sick) results in greatly reduced incentives for individuals to purchase long-term insurance contracts in the individual market, and contributes to the instability of individual insurance coverage. In a study of the 1998-2000 Medical Expenditure Panel Survey, 53% of the population initially enrolled in private non-group insurance retained the coverage for 2 years, while 86% of those with private group insurance did so (Klein, 2005).

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[2] This group has been estimated at about 1% of the market, although a recent report found that about 11% of applications in the individual market are rejected (AHIP, 2007). For a discussion of this estimate see Pauly and Nichols (2002). While everyone should be "insurable" at some price, insurers may be unwilling or unable to charge a high enough premium to cover the very sick.

[3] The self-employed are entitled to only partial tax preferences, as are some individuals with exceptionally high health costs.

These institutional factors have profound consequences for individual and firm behavior and contribute to the rising ranks of the uninsured. Some healthy individuals will "choose" to be uninsured because of the availability of free care and the possibility of finding a group-rated policy should they fall ill. Some of those "healthy uninsureds," however, will lose their gamble and be offered insurance policies only at very high but actuarially fair rates. AHIP (2007) reported that 11% of insurance offers in the individual market were rated up above standard premiums through underwriting, and another 11% of applicants were denied coverage altogether. These higher premiums may be unaffordable for many, although the definition of "affordable" clearly determines the share of the population represented (Bundorf, Herring, and Pauly, 2005). Nor are those in group policies protected from the consequences of these imperfections. Someone covered by an employer policy who develops a health condition then faces the risk of higher premiums or losing insurance altogether should she leave or lose her job and need to turn to the individually-underwritten individual market – known as "job lock" (Currie and Madrian, 1999; Madrian, 1994).[4]

There is thus a fundamental tension in insurance markets. Ideal insurance would protect individuals against the risk not only of high expenses this period but of increasing premiums in the future, thus having them pay premiums that are not affected by their changing health status. However, if insurers are paid this same amount for all enrollees even though they know that some will generate higher costs, this creates an incentive for them to avoid attracting those high cost enrollees. This tension is exacerbated by policies that make it less risky for healthy people to go uninsured, by settings in which such uninsurance is permitted, and by allowing people to

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[4] While regulations such as HIPAA and COBRA are meant to protect against this kind of risk, in practice those protections are limited: COBRA offers individuals the chance to continue their previous employment-based policy for a limited window (paying the full premium), while HIPAA prohibits the exclusion of pre-existing conditions but does not protect against them being fully priced into the new premium. Trade Adjustment Assistance also offers a subsidy for those losing jobs because of trade, but the benefits are somewhat limited.

select across insurance markets operating under different regulatory regimes for insurance premiums. We next discuss some of the subsidy design dimensions of policies to deal with these issues.

III. METHODS OF SUBSIDIZING HIGH-RISK POPULATIONS

There are a wide array of existing and proposed policy responses to insurance market failures, many of which involve subsidizing the insurance purchase of high-risk individuals. To facilitate discussion of these policies, it is helpful to first characterize certain key dimensions along which these policies vary.

Targeting of subsidy: Some approaches target subsidies towards those individuals who at the beginning of the period have ex-ante predictably high health care costs. These are the individuals for whom insurance markets now work the least well. This could involve simple targeting of only the top few percent of expected spenders, or more complex schemes that might target everyone above the mean spending level. In contrast, other approaches target subsidies towards insurers whose enrollees ex-post incurred high health expenditures during the insurance coverage period. This could include individuals who experienced an idiosyncratic health shock, such as an unpredictable car accident. This latter type of subsidy may have little benefit for improving insurance cost and availability in the marketplace, and indeed may worsen it if resulting in increased moral hazard (through disincentivizing insurers from using aggressive cost control measures). Ex-post approaches, however, may be less costly to implement in some cases, and may also reduce inappropriate stinting on care that is difficult to fully-specify in contracts.

Financing of subsidy: One common method of financing subsidies for high risks is implicitly or explicitly to tax low risk status. This can be achieved through simple methods such

as community rating, or alternatively through more sophisticated methods such as risk adjustment (discussed in more detail below). Insurer assessments on health plans that do not include high risk individuals are another source of revenue, although the tax incidence may fall more heavily on the near-high risks than on the low risks. With all of these methods, however, there is a concern that in the absence of an individual mandate, low risk individuals' premiums may rise so much that some of them drop coverage, further contributing to coverage instability. An alternative financing mechanism is through general revenues (such as income taxes). This method may not increase risk pooling as much as risk adjustment, since low risks may still pay on net much less than high risks, but it mitigates the incentives for lower risks to drop coverage. However, an important drawback to this approach is the efficiency cost of raising funds through general revenues: raising taxes comes at the cost of imposing a drag on economic growth, referred to by economists as "deadweight loss." It is not yet well-understood whether the drag on the economy imposed by raising taxes to finance a subsidy is greater or smaller than the social costs imposed on others by the alternative of funding the cross-subsidies for high risks via community rating (which raises uninsurance among low risks and can destabilize insurance markets). This is an important area for future research. Another drawback is that in settings where insurers have market power, general revenue subsidies may be captured by the insurers rather than being passed on to consumers as lower net premiums.

Insurance plans eligible for subsidy: Some approaches attempt to segregate the highest spenders from the rest of the marketplace, in the hope that removing the highest spenders will make the individual and small-group market premiums cheaper and more stable (Pauly and Nichols, 2002). However, this approach may limit the available range of insurance choices for those highest spenders, and "government failure" could lead to inefficient delivery. This concern

could be ameliorated by a competitive bidding process among private insurers for the right to serve the pool of predictable high spenders (if there is ample competition). Alternatively, insurance to this group could be provided privately, with eligible high risks taking a public subsidy to the broader private market.

We next consider the implications of specific policy alternatives in use or under debate, many of which involve subsidies that vary along these dimensions.

IV. CURRENT POLICY RESPONSES

Both federal and state governments have implemented policies to address the problem of covering high risk populations not already covered by public programs or large employer groups. These policies include premium rating restrictions, guaranteed renewability, and high risk pools. Some of these policies exacerbate adverse selection problems, while others may mitigate them – but all have significant drawbacks that limit their ability to strengthen individual insurance markets.

State Rating Regulations

Many states attempt to address individual market problems by regulating the ability of insurers to charge different premiums based on health status. This includes community rating (uniform premiums for all enrollees of a given plan), modified community rating (e.g., allowing premium variation only based on age and geography), and rate bands (for example, allowing health-related rate variation of no more than +/-25%). More extreme forms of community rating are often paired with "guaranteed issue" regulations that require insurers to issue policies to all applicants, regardless of the applicants' health status. Along the policy dimensions discussed above, this approach implicitly offers ex-ante premium subsidies to sicker individuals, with

subsidies being largest for the sickest, while "taxing" the healthiest (remaining in the pool) in proportion to their health. These rating schemes are commonly used in both private insurance regulation and public insurance premium pricing.

Although this approach makes insurance less costly than an actuarially fair premium for high risk individuals, the unintended consequence of raising premiums for low risk individuals well above their actuarially expected costs is that some low risk individuals may then choose to drop insurance. This can exacerbate uninsurance among the healthy and decrease risk pooling across healthy and sick. Furthermore, these dynamics make even existing risk pools in the individual and small -group markets unstable and limit the type of insurance products available. Plans that are subjected to adverse selection may experience premium spirals and eventual bankruptcy, which is disruptive to both insurers and enrollees (Cutler and Reber 1998; Cutler and Zeckhauser 1998, 2000; van de Ven and Ellis, 2000).

The state of New York, which requires community rating, provides a concrete example of this effect. In 2007, a 60-year-old in New York faced a similar premium for a Blue Cross HMO plan as a 60-year-old in California, but a 25-year-old in New York faced a premium of $760/month compared to $264/month for a 25-year-old in California. Pauly and Herring (2007) estimate that while community rating can raise insurance 5-10% among the chronically ill, it can lower it among healthy groups by 12-14%, resulting in an average 6% net drop in insurance coverage.

A related feature of community rating is that it typically only pools risks across healthy and sicker individuals who are within the same health insurance plan. If healthy individuals drop insurance, or are sorted into different plans than sicker individuals, then the risk pooling benefits of community rating break down. Thus one key effect of rating restrictions is to greatly increase

incentives for harmful and costly cream-skimming activities by insurers designed to attract low-cost enrollees and avoid high-cost enrollees. Strategies particularly damaging to patients include poor service to high-cost enrollees, provider networks that exclude top specialists, or exclusion of benefits that attract high risks. These strategies are very hard to contract against, especially when outside insurance options are limited by the risk of being individually re-underwritten. Some states use additional regulations to mitigate these activities, such as requiring that certain benefits be covered, but this type of behavior is difficult to regulate fully.

These dynamics thus affect the size and composition (high vs. low risk) of the insured pool and movement between insurance pools (since those entering the individual market are re-underwritten even if they were previously covered in the group market). These well-documented problems are exacerbated when these markets have different age-based rating, as older individuals will prefer pure community-rated policies such as within employers, while younger individuals will prefer to select out of pure community-rated markets in favor of markets with rates that vary by age. Differential regulation of individual and small-group markets creates further distortions in firms' decisions about whether or not to offer insurance based on the level and heterogeneity of the health of their workforce.

Long-Term Contract Regulation

In theory, healthy individuals should be able to protect against high future premiums by buying long-term insurance contracts with fixed premiums when they are healthy – as in the life insurance market. These contracts implicitly involve cross-subsidies from still-healthy enrollees to those who have become ill after buying insurance, although conceptually they involve cross-subsidies within an individual from healthy states of the world to sick states of the world. The long-term contracting approach could be strengthened by including explicit general-revenue

financed subsidies for those entering the market with illnesses, in order to jumpstart the market

or to compensate for health conditions evident by childhood, but this has not been embraced by

policy-makers and would need to be designed so as not to encourage delay in obtaining

insurance. Instead, to encourage long-term contracts, virtually all states have now enacted laws

attempting to strengthen protections for consumers in such contracts, such as requiring

guaranteed renewability in the same rate class. However, in practice it has proven difficult to

prevent – through contract or regulation – premium increases for entire classes of policies that

have attracted disproportionately sick enrollees.

Furthermore, although long-term contracts could theoretically offer great flexibility for

enrollees to choose new heath plans as their preferences and health needs change (thus avoiding

the segregation of high risks into limited and non-preferred plans), in practice this flexibility has

not been observed. Instead, those desiring to change health plans – such as those who are

dissatisfied with their insurer's services, those who want to change networks or bundled services,

or those who move to a state in which their insurer does not operate – are typically at risk for re-

underwriting in a higher premium rate class, thus limiting competition and perhaps reducing

quality and innovation. The reasons for this are many, including the problems of costly

contracting and uncertainty induced by corporate bankruptcy protections discussed above.

Regulatory barriers also likely play a role in limiting the effectiveness of long-term insurance

approaches in strengthening individual insurance markets. For example, the existence of 50

state-level insurance regulators greatly complicates the approval of features that would facilitate

mobility such as the health-contingent severance payments proposed by Cochrane (1995).

Perhaps the largest barrier to long-term insurance in individual and small-group markets,

however, is the co-existence of community-rated products such as large-group employer health

insurance. As long as other policies encourage community-rated large-group employment-based insurance, regulatory policies such as guaranteed renewability are likely to have little effect on strengthening the overall individual and small-group markets.

State High Risk Pools

Well over half of states have established high-risk pools to insure the chronically ill who are unable to obtain affordable coverage in the individual market. They subsidize these ex-ante high risk enrollees by charging premiums below actuarial value. Some are financed through general revenues, others through insurer assessments. Some provide public policies, while others rely solely on private insurers to cover the pool.

Nationwide, however, state high-risk pools cover fewer than 200,000 individuals, in part due to the limited cross-subsidies that leave these pools unaffordable to many potential enrollees (Stearns et al., 1997). Enrollment could be expanded substantially with additional funding, but several concerns remain.   First, most state financing schemes have been bluntly targeted; e.g., by assessments on insurers. These may fall most heavily on sick individuals with high insurance premiums in the open market, rather than cross-subsidizing from the healthiest to the sickest. Furthermore, to the extent that the premiums of low risks are raised, the policy runs the risk discussed above of raising uninsurance rates among the healthy. An option for addressing this, not currently in use to our knowledge, would be to use income-scaled risk adjustment mechanisms to determine the size of each person's subsidy received or tax paid towards this pool.

Second, there is still the challenge of creating appropriate incentives for managing patient health care utilization and costs. For example, most state high-risk pools have been slow to incorporate disease management programs over the past decade. In general, neither the pools run

by state agencies nor those contracted out to private insurers were well-incentivized to develop plans that efficiently cater to the needs of the chronically ill. Conceptually, this limitation could be addressed through a competitive bidding process for pool contracts, but the size of high-risk pool enrollment is typically small enough that there is not robust competition for entities vying to manage these plans. Thus, in practice it is difficult to create strong competition on efficiency. Similarly, these pools typically offer little choice to enrollees, as compared to the larger individual market available to other consumers. This is again a fundamental limitation of attempting to segregate high risk enrollees into a separate market whose population is so small. The types of risk adjustment approaches outlined below offer promising alternatives to segregating sick enrollees into high risk pools.

V. ALTERNATIVE MECHANISMS GAINING INTEREST

We now discuss some less commonly used approaches to improving risk pooling in the individual and small-group markets, some of which figure prominently in current public debates. These include individual and employer mandates, "Connector"-style purchasing pools, reinsurance, and risk adjustment.

Individual and Employer Mandates

Some states are experimenting with individual and employer mandates as ways both to expand insurance coverage and to mitigate some of the adverse consequences of existing policies (Glied, Hartz, and Giorgi, 2007). Employer mandates, sometimes called "pay or play" provisions, require employers either to offer health insurance to their employees (with at least a minimum share paid by the employer) or to contribute to a central fund to provide insurance for those not covered by an employer plan. These policies can be appealing because of the fact that

our current system already primarily pools risk through employers, and because of the dysfunction of the current individual market. However, they have the potential to reduce employment by raising the cost of hiring workers – particularly low-wage workers – and create incentives for firms to switch to part-time workers who might not be covered by the mandate (Baicker and Levy, 2008; Baicker and Chandra, 2006).

Furthermore, simply requiring firms to offer health insurance does not ensure that workers will choose or be able to afford to take up benefits. In particular among small employers, premiums quoted may be similar to those found in the individual market, and suffer from the same limitations: with a chronically ill employee, the experience-rated premiums can be prohibitively high (Pauly and Herring, 2007; Pauly and Lieberthal, 2008). Thus while employer mandates may increase insurance offer rates, they may have little effect on insurance market dysfunction in the absence of other accompanying reforms (such as the risk adjustment schemes discussed below).

Employer mandates are often coupled with individual mandate proposals, as in the recent Massachusetts reforms (widely discussed elsewhere, e.g. Holahan and Blumberg, 2006). Individual mandates require individuals, often with exceptions based on affordability, to be covered by health insurance or face a penalty. One consequence of this is that low risk individuals can no longer choose to become uninsured rather than cross-subsidize high risks. In the aggregate, risk pools will be more stable. However, there remain strong adverse selection concerns across different plans within this aggregate risk pool. If, for example, individual mandates are implemented in the context of community rating (as currently done in Massachusetts), then plans still have strong incentives to engage in the types of distortionary

cream-skimming behavior discussed above. Thus individual mandates would also need to be combined with some additional policies to mitigate those concerns.

"Connector"-Style Purchasing Pools

Increasingly prominent in insurance reform proposals are government-sponsored purchasing pools (such as the "Connector" in Massachusetts). There are many potential varieties of such pools. A typical Connector-style purchasing pool would negotiate insurance premiums with selected private carriers and then allow eligible individuals to choose from among these options and enroll at a community-rated premium. These pools may offer important benefits to individuals in terms of lower search costs and decreased overhead costs (less advertising, lower broker fees and collection costs).

However, in order to reduce distortionary cream-skimming activities, the pools need to adopt additional mechanisms. One such option is tight regulation of allowable plan features, thus limiting the potential for adverse selection across plans, but this raises the concern of welfare loss due to squelched innovation and imperfect matching of individuals with preferred plan types. New Jersey's pool has attempted to ease this problem by defining multiple categories of highly regulated plans, but this has resulted in the predictable outcome that the fee-for-service plans have been heavily selected against, leading to premium spirals.

An additional concern is raised by the interaction between rating rules in the pool and in other markets. In California's 2007 proposed reforms, for example, firms facing pay-or-play mandates would have been eligible either to buy insurance for employees in the group market at experience-rated premiums, or to pay into a state pool from which employees would then be eligible to purchase insurance at community-rated premiums. This raised concerns, however, that small employers with higher cost enrollees would disproportionately select into the

purchasing pool, creating adverse selection in the state pool. This would undermine social risk pooling by allowing employers with low expected costs to buy insurance privately at rates that did not cross-subsidize sicker enrollees in the state pool. Here, too, the risk adjustment mechanisms discussed below could ameliorate these concerns, and could incorporate both the small-group and individual markets.

Reinsurance

An alternative approach to strengthening the individual and small-group markets that has recently received bipartisan attention is government-sponsored reinsurance (Swartz, 2006; Blumberg and Holahan, 2004; Chollet, 2004; Swartz, 2003). Reinsurance proposals aim to mitigate the potential cream-skimming incentives induced by community rating and guaranteed issue, targeting in particular the incentive for insurers to encourage disenrollment by high cost insureds. Private "reinsurance" generally refers to the common practice of smaller insurers buying policies from larger, more diversified insurers to protect against unusually high losses on their policies (Cutler and Zeckhauser, 1999). In the context of health insurance, purchasing reinsurance would limit an insurer's risk of high expenses driven by a few chronically ill enrollees, making it less risky to enroll them.[5] In the U.S. there is already an active private market in reinsurance for health insurers (as well as insurers of other risks), e.g. for firms with self-insured ERISA plans. The government's role in typical proposals would be (1) to require all insurers to enroll in a government-sponsored reinsurance plan, and (2) to subsidize reinsurance premiums.

Swartz (2006) explains several reinsurance variants, and advocates "excess-of-loss" reinsurance that covers expenditures for each enrollee that exceed some threshold level. Because

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[5] For a recent comprehensive discussion of reinsurance see Swartz (2006) *Reinsuring Health*. For background see van de Ven and Ellis (2000).

the distribution of health insurance spending is so skewed, proposals often focus on reinsuring just the top few percentiles of the spending distribution, such as covering 75% of costs above a threshold exceeded only by the top 1% of spenders (who account for about one-quarter of all health spending in a given year). Based on 2004 Medical Expenditure Panel Survey (MEPS) data inflated to 2007, only 1% of non-elderly privately insured individuals spent above $35,000, and this 1% had mean spending of about $65,000. Thus, a policy that reinsured 75% of spending above this threshold would reimburse insurers on average $22,500 for each high spender (75% of ($65,000 minus $35,000)).

The actual incidence of that subsidy, and hence the effect on high versus low risk individuals, would depend on the nature of market rating rules. If implemented in a market that allowed underwriting on health, then the reinsurance cross-subsidies would primarily serve to lower the premiums for predictably high spenders (though it would have some effect on low risk premiums also, as some of those could be expected to incur idiosyncratically high expenditures due to accidents, undetected heart disease, etc.). However, those predictably high spending groups in underwritten markets would be likely to have exorbitantly high premiums to begin with, and it is likely that few would actually be individually insured at those rates. Thus Swartz (2006) advocates using reinsurance in combination with community rating. Under community rating, the reinsurance subsidies would serve to lower the community-rated premium for all plan enrollees equally, regardless of health status.

In previous work we use data on the distribution of health expenditures to make rough estimates of the cost and cream-skimming implications of a typical reinsurance proposal using a simple stylized model under community rating (see Dow et al., 2008). Using data from the 2004-2005 MEPS, we simulate an insurer's expected profit from insuring people with different

ex-ante risk levels under several reinsurance schemes. We find that even with reinsurance, insurers would still have a strong incentive to avoid enrolling high-risk populations and to attract selectively low-risk populations. Reinsurance is thus likely to have only small benefits in terms of reducing cream-skimming and improving functioning of the overall individual or small-group markets. Furthermore, we find that the average cost of actuarially fair insurance policies under a typical reinsurance proposal would only fall by a few hundred dollars ($225, if a $22,500 average reinsurance payment for the top 1% was spread equally across all enrollees in a community rated plan).[6] While this would lower the rate of uninsurance slightly, other policies might be able to achieve the same reduction at lower budgetary cost by better targeting subsidies by income.

Finally, reinsurance will also suffer from the same limitations as other ex-post subsidy approaches. Typical reinsurance proposals would partly subsidize random expenditure shocks that were unpredictable—exactly the type of risk insurance markets handle well—which raises the overall cost of such schemes. This could be ameliorated, however, by requiring reinsurance to cover only certain individuals identified ex-ante as high risk. A more serious limitation of reinsurance is the potential moral hazard induced at the plan level, since insurers would no longer be at risk for high costs incurred by individuals who spend the most. This decreased incentive for cost containment might reduce investment in intensive disease management

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[6] Even that small amount assumes that the reinsurance is fully externally funded from general revenue; premium savings would be less if funded from taxes on insurance carriers. We also assumed that only the actuarial value of the subsidy is passed along, and that there are no other premium reductions associated with reducing insurers' aggregate risks. This assumption is consistent with several features of these markets. First, insurer stocks are widely traded on broad markets, allowing individual owners to diversify risks without requiring large risk premiums. Second, the level of risk faced by insurers is not generally very large in the context of overall insurance market capitalization. Insurers routinely pay life insurance claims of millions of dollars, easily diversifying this risk; the danger of a small number of health insurance enrollees incurring million dollar claims is not all that large in comparison. Third, our assumption is consistent with the observation that private reinsurance premiums tend to be quite low, providing further evidence that insurers in competitive markets would not be able to charge large risk premiums in markets without reinsurance.

processes, etc. The scale of this insurer-level moral hazard problem is not yet well-understood, and should be a priority for future research.

Risk Adjusted Cross-Subsidies

Dow et al. (2008) cast reinsurance as a special case of a broader family of risk adjustment approaches. Risk adjustment, which provides a variable subsidy based on enrollee risks, has been studied in the theoretical and empirical economics literature for decades, and sophisticated variants are now being used successfully in many government settings. Risk adjustment schemes may use retrospective and/or prospective information on patient risks, may rely on spending and/or diagnoses, and may be applied to entire populations or just subsets such as the highest risks. The typical reinsurance mechanism discussed above is thus a special case of risk adjustment that bases subsidies only on retrospective expenditures and only for the highest spenders. Compared to more sophisticated risk adjustment variants (e.g., van de Ven et al., 2000), this limited reinsurance may be less effective at curtailing cream-skimming, may dull insurer incentives for cost containment, and may have higher budgetary costs for achieving intended effects such as expanding coverage and generating higher-value consumption of health care.

Van de Ven and Ellis (2000) discuss several current uses of risk adjustment schemes. Medicare uses risk adjustment to vary premium payments to Medicare Advantage plans to minimize adverse selection; the risk adjustment formula is determined prospectively by prior patient diagnosis information, with retrospective outlier payments also used (Pope et al., 2004). The Medicare risk adjustment scheme has facilitated the development of special needs plans that compete on value rather than selection, such as plans designed for HIV patients, which can potentially improve efficiency through specialization. A growing number of states also use risk

adjustment to determine capitated payments to Medicaid managed care plans. These schemes are typically quite crude though, incorporating only limited health information beyond demographics. Some states have incorporated risk adjustment schemes into individual market pools as well. For example, New York uses a risk stabilization pool, a self-funded mechanism to compensate insurers who experience high claims in the individual and small-group markets. The Health Insurance Plan of California purchasing pool (now defunct) began using risk adjustment in the mid-1990s to protect against risk segmentation across plans, though only inpatient-based risk adjusters were used at that time—risk adjustment methodologies have since been greatly improved to incorporate a much richer information set. Many European countries also use risk adjustment to prevent adverse selection risk spirals across plans (Antioch et al., 2007). The most advanced is the Netherlands, which now incorporates substantial health information into its risk adjustment formula (van de Ven, van Vliet, and Lamers, 2004).

As these examples suggest, risk adjustment schemes can vary along a number of dimensions. One key design choice is eligibility. The special case of reinsurance is generally designed to apply to only the very top spenders, partly to reduce the overall cost of the program and partly to limit the moral hazard introduced when insurers' incentives to contain costs are dulled. However, limiting eligibility to a small part of the pool limits the extent to which the program lowers premiums and reduces incentives for cream-skimming. Even if the scheme were to cover 100% of expenditures for the top 1% of spenders, for example, insurers would still have strong incentives to avoid those in the 98th percentile. This design also treats all enrollees below the threshold similarly, thus limiting the degree of risk pooling possible (since healthier people cannot be charged a higher "tax").

A second important design choice is how much to base risk adjustment on prospective versus retrospective information. Premium payments and subsidies could be calculated solely prospectively, based just on health information known prior to the plan year. A theoretical argument for using prospective risk adjustment is that net subsidies can be adjusted to reflect the same information that insurers have at the time of setting premiums. If risk adjustment were perfect, payments could be adjusted such that insurers would have equal expected profit across all applicants, eliminating cream-skimming incentives. However, several factors argue in favor of supplementing prospective risk adjustment with retrospective-based payments. First, because prospective methods are in practice imperfect, retrospective payments can be used to reduce remaining cream-skimming incentives. This is particularly important when plans have data on enrollees' previous costs and may risk select based on this information as well as diagnoses (especially if regulators base risk adjustment only on diagnoses and not on costs).[7] Second, use of purely prospective information may in some settings lead to under-provision of certain types of health care, especially for unanticipated conditions associated with high future expenditures (in order to encourage the enrollee to switch out of the plan), though unfortunately empirical literature on this question is still weak. Third, retrospective information protects insurers against adverse selection by individuals with private information. A classic example is pregnancy: upcoming pregnancies are difficult for insurers to predict accurately, yet women planning pregnancies will have incentives to shift into plans offering generous pregnancy coverage. With purely prospective risk adjustment, plans may under-provide insurance for pregnancy-related care (such as by failing to contract with the best children's hospitals, etc.). With these pros and

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[7] Even when regulators have prior year cost data they may choose not to include it in the risk adjustment formula, since in markets with significant inertia in plan enrollment, reimbursing based on prior year claims could raise moral hazard problems. The extent of this is not well known in practice, and it may be less of a concern in markets with substantial plan switching, such as in early experience with Medicare Part D prescription drug plans (Hsu et al., 2008).

cons of using retrospective versus prospective information, it is unlikely that a plan using solely retrospective information (such as typical reinsurance) will perform better than one that uses both.[8]

There remain, however, some important challenges in implementing risk adjustment schemes. First, in imperfectly competitive markets (Robinson, 2004), insurer selection incentives may be altered but not removed. Furthermore, insurers with market power may be able to extract public subsidies as profit without reducing premiums charged to sicker individuals. This may be less of a concern, however, if the risk adjustment scheme is funded via insurers, taxing them in proportion to the level of disproportionately low risks enrolled, rather than from general revenue. Second, to avoid instability in substitute markets, it may be necessary to expand the risk adjustment scheme to the small-group market (or Connector-style government pools), which raises complexity and political hurdles. Third, the information requirements for risk adjustment are substantial. This is not insurmountable, as suggested by the use of risk adjustment in Medicare Advantage, but will limit the speed and simplicity of implementation.

VI. CONCLUSION

One of the key challenges facing individual and small-group insurance markets is addressing the threat that risk selection poses to the provision of stable, high-value insurance policies that provide risk protection both against high expenses today and persistently high

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[8] See e.g., Newhouse (1996), Keeler, Carter and Newhouse (1998), and Dudley et al. (2003). Glazer and McGuire (2002) further discuss the use of both types of information in achieving "optimal risk adjustment" that balances various welfare concerns of selection, skimping, etc. There is a large and growing literature considering many such complexities, and proposing solutions to various concerns with risk adjustment schemes. E.g., while some have argued that risk adjustment and reinsurance need to be implemented in the context of government-regulated standardized insurance policies, others have argued that this is unnecessary: subsidies could be based on benchmark plans and then individuals could be free to apply their subsidies to any plan.

expenses in the future. Many of the strategies in use today fail to adequately address this breakdown in risk pooling, and some even exacerbate it.

A promising avenue for reform is the broader use of flexible risk adjustment schemes to improve the functioning of insurance markets, promote market stability, and limit insurer cream-skimming. Addressing these problems is particularly important in a regulatory environment that uses community rating to limit premiums. A sophisticated risk adjustment scheme could provide greater benefits at lower cost than many alternate proposals. With these advantages, it is perhaps surprising that we do not see even more risk adjustment schemes in place. This is partly due to the fact that until recently risk adjustment was widely viewed as too immature for widespread use (e.g., Newhouse, 1994; Newhouse et al., 1997; Keenan et al., 2001). It is perhaps also due to the regulatory and institutional environment in many markets. The costs of developing such a system clearly decline with scale, so there may also be room for productive public support in creating standards and infrastructure. Regardless of the mechanism chosen, reforms intended to increase insurance coverage and the value of care delivered will be much more successful if they are implemented in conjunction with policies that address these fundamental selection issues.

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