

## **Formal Risk Adjustment by Private Employers**

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## *Abstract*

This paper explores explanations for why few private employers have adopted formal risk adjustment. The lack of data, challenges of using highly imperfect signals, and absence of market power are not compelling explanations. Alternative strategies that reduce selection problems are clearly important. The central argument is that US health markets are not in equilibrium, but rather are changing rapidly. Since many agents - consumers, employers, health plans and providers – do not currently demand formal risk adjustment, it is not surprising that recent adoption has been slow. Recent changes in health plan markets may change the demand and accelerate future adoption.

## **Introduction**

Why is formal risk adjustment currently used so rarely by private employers for paying competing health plans? Keenan et al. (2001) document that while the US public sector has overwhelmingly moved toward individual level risk adjustment, private US employers use formal risk adjustment models to make payments to health plans for less than one percent of their workers. Rice and Smith (1999) document the growing use of formal risk adjustment in other countries, where governments use diverse payment formulas for risk adjustments, sometimes for competing capitated plans. There is considerable evidence that biased selection is not only a potential problem, but an actual problem when employers offer multiple options to their employees (Luft 1982; Hellinger 1995; Cutler and Zeckhauser 2000). Yet private employers have thus far been reluctant to implement formal risk adjustment.

Several articles have identified obstacles for private formal risk adjustment. Lee and Rogal (1997) examine the technical features of different risk adjustment models, conclude that the available models are a substantial improvement over no risk adjustment, and then are unable to explain why formal risk adjustment has been adopted so little. Newhouse (1998) discusses eight challenges to implementing formal risk adjustment but does not attempt to prioritize which ones are more significant explanations for the absence of private risk adjustment. In this issue of *Inquiry*, Glazer and McGuire (2001) provide a framework for evaluating alternative explanations, and speculate about the relative importance of each as an explanation. Other articles in this same issue examine the role of labor markets, employee premium contributions, and market competitiveness forces. Each of the factors seem relevant to the question of why formal risk adjustment is so rare, yet a reasonable conclusion would seem to be that multiple factors, rather than only one or two, may explain the slow rate of adoption.

This paper focuses on five factors that help explain the slow rates of adoption of formal risk adjustment, without making any claim that these are the only explanations. I first consider

the availability of data: employers and plans often complain that lack of data restricts their options. The second factor has received less attention in the literature (although see Newhouse 1998 and Greenwald et al. 1998) and is an important area for my own research, hence I spend some time discussing it here. It is the challenge of correcting for potential distortions in the signals used for formal risk adjustment: employers may feel that the information used for risk adjustment may be not only be imperfect, but may be biased and capable of being manipulated by the health plans or providers. Existing formal risk adjustment models differ in how well they deal with this problem.

I then consider the role of employer size and market concentration in the adoption of formal risk adjustment. This leads to a discussion of other mechanisms that employers and health plans use to offset biased selection, thereby reducing the demand for the adoption of formal risk adjustment. These mechanisms include risk-adjusted employee contributions, supply-side cost sharing, experience rating, actuarial adjustments, and reliance on discounted fee-for-service reimbursement rather than fully prospective payment to plans. Since others have also emphasized these mechanisms (see especially Keenan et al. 2001 and Frank and Rosenthal 2001 in this issue of *Inquiry*), I touch on them briefly here without attempting to assess the prevalence and significance of each.

The final explanation I consider is that the evolving pattern of health care information, and the financing and delivery of health care in the U.S. is changing sufficiently rapidly that it is too early to judge the likely course of formal risk adjustment for private employers. Convincing evidence about biased selection, the growth of health plan choice by large employers, and demonstrations of the feasibility of risk adjustment are all less than two decades old. Some movements to adopt formal risk adjustment are observed in Massachusetts, Minnesota and California, three states with the highest rates of penetration of Health Maintenance Organizations (HMOs). It seems plausible that other regions will follow if HMO penetration rates rise elsewhere.<sup>1</sup>

After reviewing these four basic factors, I examine the demand for formal risk adjustment from the perspective of each of the four broad classes of agents in health care markets: employers, health plans, providers and consumers. Not all of these agents will desire formal risk adjustment, and in many cases there are clear losers from risk adjustment. I conclude with a discussion of how recent changes in health care markets may accelerate the trend toward formal risk adjustment by private employers.

### **Data Availability**

When one talks to employers, or reviews the literature on risk adjustment, the most common explanation for why formal risk adjustment models are not being used is lack of data. Claims information is not reliably coded, or not available from all competing health plans on a comparable basis. Survey-based information is too expensive, and not collected on large, comparable samples with which to develop and calibrate the models before being used for payment. Individual level cost information is not available from managed care plans under capitation, so that data are not available for evaluating or calibrating payments to managed care plans.

While this argument seems to have merit, it is an incomplete explanation. Basic demographic information – age, gender, relationship to employee, and the number of dependents in the contract - has always been available to employers at a low cost if they want to use it for formal risk adjustment. Lack of data may explain why elaborate formal risk adjustment is not being done, but does not explain why simple formal risk adjustment models using basic demographic information - such as has been used by Medicare and Medicaid programs for more than a decade - is rarely used.

Claims-based information, such as diagnoses, could potentially be available for formal risk adjustment by private employers if there were a sufficient market demand for it. Medicare has required diagnostic information on inpatient records on indemnity plan discharge records for calculating DRGs since the mid-1980's. DRG payments have been adopted subsequently by a

majority of other payers, and in an analogous way diagnostic information could be required of all plans if such diagnoses were required for risk adjustment.

As reviewed in Keegan et al. 2001 in this issue of *Inquiry*, formal risk adjustment models using diagnostic information have been available for much of the last decade. The Diagnostic Cost Group (DCG) models (Ash et al. 1986, 1989) Adjusted Clinical Groups (ACG) models (Weiner et al. 1991) were the earliest entrants, with others having followed more recently. Even though formal risk adjustment for payment purposes has been slow to appear, uses of these models for risk assessment and rate negotiation are much more prevalent (Keegan et al.). Diagnostic information is increasingly being used for monitoring and quality measurement purposes, so that few plans are likely to be able to resist being able to provide this information in the future. The recent Health Insurance Portability and Accountability Act (HIPAA) of 1996 will further streamline and standardize the claims information plans are required to provide in the future. Lack of data would seem to be as much a symptom of the lack of formal risk adjustment models as the cause.

### **Risk adjustment in the presence of distorted “signals”**

Private employers worry about the “gameability” of formal risk adjustment. The concern here is that the information on which risk adjusted payments are calculated may change as a result of the use of this information for payment. Glazer and McGuire (2000) worry about services being distorted in response to capitation incentives, while the issue here is that the signals themselves may be distorted. This could be in the form of either unintentional, inconsistent reporting of signals used for risk adjustment by different health plans or intentional distortion of signals by health plans. Worrying about this signal distortion problem has been a central concern in my own research developing risk adjustment models.

Inconsistent diagnostic information from diverse health plan organizational forms or benefit plan designs has been a concern of employers and health plans considering risk adjustment (Lee and Rogal 1997; Newhouse, 1998). Concerns about the magnitude of intentional

health plan gaming of a payment system in response to the implementation of formal risk adjustment are a fairness concern of public sponsors such as Medicare and Medicaid (Ingber 1997). If the pattern of diagnoses changes following adoption of formal risk adjustment, sponsors worry about the potential for overpayment and the immediate need for recalibration.

Developers of diagnosis-based risk adjustment models are aware of this concern, and some systems have attempted to mitigate the problem. This is generally done by restricting the use of diagnostic information that is believed to be most vulnerable to gaming. For example, in the belief that the coding of less serious symptoms and conditions is easier to manipulate and harder to verify than coding of more serious conditions, the DCG models intentionally ignores or reduces the payment significance of less serious and more discretionary conditions. The classification systems used by the ACGs and the Clinical Related Groups (CRGs) marketed by 3M do not exclude any diagnoses from the payment formulas because of concerns about this form of “gameability”. It is unclear whether these approaches have eliminated the problem, but its impact has potentially been reduced.

Van de Ven and Ellis (2000) note that the problem of biased signals is not unique to diagnosis-based risk adjustment models. Pharmacy-based risk adjustment models appear to be very sensitive to prescription practice styles and data completeness. Survey-based risk adjustment may have signal bias problems if there is a potential for survey coaching, nonrandom responses, or biased sampling. It is not clear whether these signal distortion problems are central to why formal risk adjustment models are not used more, but these problems have been important in discussions of survey-based risk adjustment (Hornbrook and Goodman 1995; Pope, et al. 1998).

### **Market Power of Purchasers and Plans**

Dunn (1998), Van de Ven and Ellis (2000), and Keenan et al. (2001) review the private U.S. experience with formal risk adjustment, and find it being used by government programs: Medicare, Medicaid, and selected states for their state employees.<sup>2</sup> Among private employers,

they find formal risk adjustment used in relatively few cases, but notable by several business coalitions, such as the Minnesota Buyers Health Care Action Group and the Pacific Business Group on Health. The public programs share in common the feature that because they are public programs, they find it difficult to not offer every qualified health plan as an option for public employees.<sup>3</sup> This contributes to fragmentation of the enrollment among many plans, and a greater risk of selection problems than in private employer sponsored health plans.

Public programs and private employer coalitions have in common the potential for benefiting from market power since the number of lives being covered is large. Large size is an advantage in bargaining with plans since it is more costly for health plans to refuse to participate, even if they oppose formal risk adjustment, for fear of being excluded from serving a significant share of the total market. Yet large size is a disadvantage rather than an advantage if employees are geographically dispersed. In this case, implementing formal risk adjustment requires negotiating and setting rates for many different market areas, and many different health plans. Being geographically dispersed is a key challenge for the Medicare program's risk adjustment program, even though it is very large. It may also explain why the Federal Employee Health Benefit Program has been slow to implement formal risk adjustment, despite considerable evidence of biased selection (Price and Mays 1985; Butler and Moffit 1995).

Geographically concentrated, large employers, state governments, and business coalitions are able to act as price setters, not price takers. Implicit is the assumption that health plans are not perfectly competitive, so that they have some ability to absorb premium reductions once formal risk adjustment is implemented. Frank, Glazer and McGuire (2000) provide one mechanism for health plans to accommodate a reduction in capitation payments: changes in the quantity and quality of services offered. Encinosa (1998) discusses risk adjustment in an imperfectly competitive setting, but focuses on plan level economies of scope and scale rather than employer market power. Shen and Ellis (2001) implicitly assume there are barriers to entry that lead to profits from favorable selection through pure dumping of unprofitable enrollees.



Each of these papers provides a basis for believing that the supply of health plans can be less than perfectly price elastic.

Reflecting the pattern of government programs, the few private employers who have already adopted formal risk adjustment have generally been large and had employees concentrated in one region. This geographic concentration increases the market power of the sponsor, and facilitates the negotiation of risk-adjusted premiums. Many large US employers tend to have employees that are geographically dispersed over more than one area. Because few HMOs are available nationwide, if HMOs are offered at all, geographic dispersion may necessitate offering multiple HMOs and having small numbers of enrollees in each plan. Implementing risk adjustment in one region may be infeasible or perceived as unfair without being able to implement risk adjustment in all regions, yet implementing it in all regions will be costly. This problem has plagued the Federal Employees Health Benefit Program (FEHBP), which has not implemented formal risk adjustment despite a long history of evidence of serious biased selection (Price and Mays 1985; Butler and Moffit 1995).

While there is some evidence that large, geographically concentrated employers have been somewhat quicker to implement formal risk adjustment, this explanation also suggests that adoption would be quicker if there were a standardized risk adjustment formula, so that health plans could compete on risk adjusted premiums rather than non-risk-adjusted premiums. Just as smaller hospitals and health plans were able to adopt DRGs for payment and information management once it was selected by the Medicare program, formal risk adjustment will become easier once the large public programs standardize the modeling framework to be used. It would then become feasible for health plans to quote a price for a representative person, which is then multiplied by some adjustment for the average healthiness of the plan enrollments, rather than quoting fixed premiums that do not automatically adjust based on actual enrollments.

#### **Alternative Strategies to Deal with Risk Selection.**

The use of formal risk adjustment models for plan payments is only one strategy for reducing the inefficiencies and unfairness associated with risk selection. Other mechanisms are available, some of which are discussed in Bowen (1995), Swartz (1995), and other papers in this issue of *Inquiry*. This section discusses five strategies that private employers can take to offset risk selection and make formal risk adjustment less important.

#### *Actuarial adjustments*

The most important alternative to formal risk adjustment is the use of actuarial adjustments. In principle, actuaries could do everything that a formal risk adjustment model would do, and adjust premium bids for observable information such as age, sex, geography, family relationship, health status and occupation. In practice, actuaries use informal rather than formal risk adjustment as we define it here.<sup>4</sup> Keegan et al. (2001) in this issue of *Inquiry* provides a useful glimpse into the methods used, and highlights how they may substitute for formal risk adjustment.

#### *Risk-adjusted employee premium contributions*

In addition to helping employers risk adjust their payments to health plans, actuaries also help employers set the premium contributions paid by employees for their health insurance. This strategy is discussed in this issue of *Inquiry* in Keenan et al. (2001) and in Feldman, Dowd, and Maciejewski (2001). The key point is that even if formal risk adjustment is not used to pay health plans, employers may reduce selection incentives by risk-adjusting employee contributions to the premium. For example, employers may wish to increase their contribution to health plans that are attracting relatively sicker enrollees, and lower them for plans attracting the healthy. Cutler and Reber (1998) provide an example of how the failure to risk adjust employee contributions led to worsening risk selection problems at Harvard University.

#### *Supply- and demand-side cost sharing*

Rather than risk adjusting the employee contribution, supply- or demand- side cost sharing are other approaches that have been suggested (Ellis and McGuire 1986), and see some

use among private employers. Whereas risk adjustment uses ex ante information to calculate payments to health plans, risk sharing arrangements use ex post information. The most natural type of information for risk sharing is paying for a proportion of actual expenditures. For example, the employer could pay a fixed proportion of total health spending. This cost sharing compensates plans that attract sicker than average enrollees and neutralizes the incentive to risk select.<sup>5</sup> Note that demand side cost sharing has the same consequence, although it imposes risk burdens on individuals who are less able to bear the risk than employers. Newhouse (1996) discusses plan level cost sharing extensively, and it is discussed in the context of risk adjustment in Van de Ven and Ellis (2000). Risk sharing often emerges in complex ways, through outlier provisions, or through contracts with health plans that include profit sharing or stoploss features.

#### *Experience rating*

Experience rating, which is common among medium to large employers, shares incentive features in common with both risk adjustment and risk sharing. Under pure experience rating, a health plan premium is based on an employer's own past expenditures, extrapolated forward to reflect trends. Actuaries typically help employers to adjust to a plan's own expenditure history, so as to remove some of the impact of individual outliers when doing the calculations. Small employers are often asking to be experience rated with similar firms, since their own experience is too stochastic. In medium or small group market, experience rating is sometimes done for various rate classes. This tends to increase premiums to compensate plans for higher than expected experience of a group. The disadvantage of experience rating over risk adjustment is that it does not distinguish whether spending is higher than average because the underlying risks are higher or because of pricing or utilization differences for which an employer does not want to compensate a plan. In a dynamic setting, experience rating may not create an incentive for health plans to control costs, since excess costs in a given year are partially or fully recaptured through increased rates in future years.

### *Restricted health plan offerings*

A last alternative to formal risk adjustment is for employers to choose health plan offerings that minimize selection problems. Offering only one health plan is one frequent approach.<sup>6</sup> Offering only health plans that use discounted fee-for-service options such as preferred provider organizations (PPOs) and point-of-service (POS) plans that control costs through discounts rather than active care management may also reduce the ability of plans to select the healthy. Also, if an employer offers multiple options, it could require that all the options be offered by one health plan. This option, explored in Encinosa and Selden (2001) in this issue of *Inquiry*, undermine the profitability of selection, since a health plan may be willing to subsidize losses on one product with profits from another line of business, and it is the overall profitability of the employer's entire set of options that may form the basis negotiation and pricing.

### **Evolution in Information and Health Care Markets**

The last and perhaps most important theme of this paper is that the prevalence of formal risk adjustment can change, and its adoption may become widespread, as have other health care payment methods in the past. If formal risk adjustment becomes sufficiently important to consumers, employers, health plans, and providers, then health care markets potentially could evolve to the point where risk adjustment models are based on abundant, high-quality data, and health plans compete through risk-adjusted rather than unadjusted premiums. Recent trends in the growth of capitated managed health plans, multiple plan offerings, and the use of risk adjustment by Medicare and in states with the highest penetration rates of managed care suggest this possibility.

The current pattern of the use of formal risk adjustment reflects the historical evolution of our current health plan payment system and clearly does not reflect an equilibrium. Table 1 documents the magnitude of some of the broad changes in the US health care system, over the period from 1980 to the present. The growth of health spending from 9.5% to 14 .0 percent of

Gross Domestic Product has motivated greater concern for cost controls. Whereas only 4.9 percent of the privately insured population were in HMOs in 1980, in 1996 the percentage is 30.1 percent (US Department of Labor, 1997). Community rating, which had been prevalent in the 1960's, had nearly disappeared by 1990: as one indication, it was used by only 20.1 percent of all employees in the Federal Employee Health Benefit Program in 1987 (Office of Personnel Management, 1988). Particularly notable is that even large employers have seen a reduction in their role as the "sponsor" of their employees. Whereas in 1980 97% of all medium and large employers offered medical care insurance, by 1996 only 76 percent did (U.S. Department of Labor, 1997). Over the same period, the percentage of medium and large employers requiring their employees to make a contribution toward their own health insurance premium grew from 26 percent to 69 percent (U.S. Department of Labor, 1997). Instead of being willing to offer generous insurance coverage regardless of its costs, today's medium and large firms seem to be more concerned about offering health coverage that is cost effective. Other trends are not easily shown in a tabular form. Prior to 1978, out-of-pocket spending and medical spending accounts were not tax deductible, and hence demand side cost sharing created a greater incentive to control costs. Computerized claims in the 1980's were only just beginning to create meaningful information systems, and health plans did not yet have available today's high-powered methods for identifying, recruiting, managing, or retaining the most profitable enrollees.

No one would argue that the U.S. health care system is in a steady state. The system continues to evolve. The important question is: Where is it headed? The current system appears to be evolving toward managed care, capitation and increased health plan choice. The full tax deductibility of health care spending weakens the incentive effect of demand-side cost sharing, and encourages the use of supply-side incentives, notably capitated payments. Schone and Cooper (2001) analyze 1996 Medical Expenditure Panel Survey data and find that 55 percent of workers had plan choice in that year, with about a quarter of all workers obtaining choice through the employment of a spouse or other family member rather than directly through their own

employer. This finding is consistent with Marquis and Long (1999) who report that 43 percent of all workers were in establishments that offered a choice of health plans in 1997.<sup>7</sup> This percentage may never reach 100 percent, yet the longer term trend has been upward: 20 years ago very few employers offered health plan choices.

While Keegan et al. (2001) document that there is currently very little use of formal risk adjustment to pay health plans, they also highlight the recent trend by employers to use formal risk adjustment models for closely related purposes of risk assessment and premium negotiation. As they gain experience in these uses, and have the information necessary readily available for payment, it may be easy for them to shift to using formal risk adjustment for payments. A second motivation is that health plans are increasingly using formal risk adjustment models to capitate payments to provider units, as well as potentially for selection activities such as identifying, recruiting, managing, and retaining the most profitable enrollees in capitated systems. Employers may feel it necessary to move to formal risk adjustment so as to counteract the incentives for health plans to engage in these activities.

Changes in hospital payment formulas provide an interesting analogy of how payment mechanisms are sometimes transformed very quickly. Diagnosis Related Groups (DRGs) were in use in only one state in 1984 before implemented by the Medicare program. Seven years later were used to reimburse hospitals by Blue Cross plans in 26 states (Glazer and McGuire 1994). While a variety of per diem and fee systems are still used to pay hospitals, there is no question that DRGs dominate this market today.

A similar story followed Medicare's adoption of the Resource-Based Relative Value Scale (RBRVS) implemented for payment for physicians and other clinical services in 1992. Although relative value scales (RVS) had been in use within many organizations since 1969, with the California RVS being the one most widely used, there were still enormous variations across states, and a failure to standardize payments or set prices for entire systems of fees. The RBRVS was phased-in for Medicare during a five-year period, and subsequently expanded to numerous

other specialties such as dentistry, mental health, and chiropractic care. Today RBRVS based payment systems are used widely. A 1999 survey of 222 payers by the American Medical Association found that RBRVS was used by 87 percent of the Blue Cross/Blue Shield plans, 69 percent of managed care organizations, 55 percent of Medicaid plans and 44 percent of other non-Medicare plans (Gallagher, 2001). The same survey found that over 75 percent of the respondents were also using RBRVS for various practice management activities.

In light of these dramatic changes over the past two decades, it is natural to ask: How have the prospects for formal risk adjustment changed? In the next section I examine this question in the context of also asking the question: who demands risk adjustment?

### **Who Demands Risk Adjustment?**

For risk adjustment to be implemented, there must be a sufficient demand for it given its costs. Who demands it, and who bears its costs? Frank and Rosenthal (2001) in this issue of *Inquiry* is the only other study I am aware of that attempts a systematic effort to answer this question for each of the four agents in private health care markets - consumers, sponsors, health plans, and providers.

#### *Sponsors*

In the U.S., employers bear an important role as sponsors of the health insurance of their employees, that is, they are able to redistribute the burdens of health care costs from older and sicker individuals to the young and healthy. Medicare and Medicaid are the sponsors of those who are publicly insured, but employers play this role for privately insured. One view of individual and small employers is that they are too small to permit this redistribution – sponsorship – to take place. Hence adequate firm size is one prerequisite for risk adjustment. If employees demand risk adjustment, then they can implement it only by convincing their employers to do so. Employers will be able implemented formal risk adjustment only if they can convince their health plans to accept the risk-adjusted payments.

Employers are the natural group to imagine demanding formal risk adjustment. Employers should want to risk adjust their health plan payments if they pay flat capitated amounts to multiple, competing, non-experience rated health plans. Yet employers don't have to write contracts in this way, and many do not. The most rapidly growing insurance contracts in the US are PPOs and POS plans. Such plans only weakly manage care, predominantly use discounted fees and selective contracting, and may have relatively weak ability to distort services or act so as to avoid unprofitable enrollees. Employers in the US choosing to offer true managed care plans rely upon many diverse contracting mechanisms: negotiating with plans, using actuaries, selectively adding and dropping individual plans, and discontinuing new enrollments in poor performers. Employers who **do not** currently demand formal risk adjustment include those who fully self-insure; employers who contract with a single health plan for multiple offerings; and small employers who are pure price takers when it comes to setting premiums for their employees. So the starting point is that employers who could potentially demand risk adjustment are those remaining: large employers, not fully self-insuring, contracting with multiple offerings from more than one contracting health plan (company). The exact number of employees working for such firms is difficult to estimate, but it is clear that any estimate would be for substantially more than the current 1% of privately insured.

### *Health Plans*

Consider next the health plans. Which health plans demand risk adjustment? It would seem obvious that capitated health plans offering a single insurance product attracting an unfavorable (unprofitable) selection of enrollees from a sponsor should demand risk adjustment. Keenan et al. (2001) in this issue of *Inquiry* highlight that there are other mechanisms that plans may be able to use to offset for risk differences. Most indemnity plans either have the employer self-insure or transfer most of the risk back onto the sponsor through experience rating. This may help explain why the largest and most traditional insurance companies, such as the various Blue



Cross/Blue Shield plans, seem to have been the slowest to embrace risk adjustment as a mechanism for correcting their unfavorable selection.

One group of health plans that one would **not** expect to demand formal risk adjustment are managed care plans that have been successful at either managing costs or selectively enrolling profitable enrollees under a non-capitated system. As Newhouse (1998) put it, the data are not all in on the extent to which non-Medicare managed care plans have benefited from selective enrollment, although there is growing recent evidence (Gauthier, Lamphere and Barrand 1995; Hellinger 1995; Dunn 1998; Cutler and Reber 1998) that selection problems can be severe in this setting.

As with employers, larger health plans would seem most able to demand risk adjustment in their contracts with multiple employers. Smaller health plans will most likely have to act as price takers, unable to insist on formal risk adjustment. In addition, having a larger market share would seem essential for a health plan to demand risk adjustment. My own discussion with health plans has revealed that Medicare HMOs disagree over whether risk adjustment is good or bad for them, and one would expect the same to hold for health plans of the privately insured groups.

### *Providers*

Which providers demand risk adjustment? One answer would be providers contracting on a capitated basis with health plans that receive an unfavorable selection of enrollees. If health plans act so as to enroll profitable consumers as predicted by Frank, Glazer and McGuire (2000), then among providers, it is providers of services to the chronically ill, particularly certain specialists, who should most eagerly embrace risk adjustment. Yet these are also the providers that health plans wish to avoid. Rather than embracing risk adjustment so as to improve the fairness of payments for those with chronic illness, health plans may substitute away from specialists that may attract unprofitable enrollees.

### *Consumers*

What are the characteristics of consumers who will want formal risk adjustment? In an *ex ante* sense, all consumers should want risk adjustment, since it ensures improved access to quality, affordable care, and serves as a form of insurance against bad health outcomes. Yet by the time consumers are adults making health plan choices, they do not live in an *ex ante* world. *Ex post*, once consumers realize that they are healthier than the average, theory predicts that those without chronic conditions will get better access and treatment without risk adjustment than they would with risk adjustment. Healthier consumers benefit from health plan competition to attract them, perhaps in the form of benefits optimized for their tastes, and services distorted in favor of attracting healthy, profitable enrollees. Given the extreme skewness of medical spending, a majority of consumers *ex post* may prefer that there not be risk adjustment.<sup>8</sup>

There is one more interaction in labor markets working against risk adjustment (examined further in Encinosa and Selden (2001) in this *Inquiry* issue). In the absence of risk adjustment, capitated health plans have incentives to skimp on care to high cost, unprofitable enrollees (Ellis 1998). This skimping is undesirable to employers to the extent that they embrace their role of sponsor, wanting to redistribute services to the ill. But this form of skimping is also attractive to employers to the extent that they really do not wish to employ employees with very high health costs. By avoiding risk-adjusted capitation payments to health plans, employers can delegate to the health plans the role of avoiding high cost illness. Risk adjustment undermines this incentive, since fully risk-adjusted health plans no longer have incentives to avoid high cost, chronically ill enrollees. Employers, now aware of the full health costs of their high cost employees, will have greater incentive to selectively employ the healthy.

I write the preceding paragraph knowing that many readers will disbelieve that employers may act on such incentives to actively recruit the healthy and avoid the high cost ill. (Such behaviors are often illegal.) Yet there is considerable growing evidence that many employers do just this. A sizable and growing number of employers simply do not offer any health insurance (Table 1), which is the limiting case of this type of behavior. Other employers self-insure so as to

limits coverage for preexisting conditions. Buchmueller (1995) documents the fact that individuals with poor health or with chronic illnesses have lower probability of finding employment in firms with health insurance coverage. Dranove, Spier and Baker (2000) predict and then present evidence suggesting that employers compete so as to get employees and their spouses to be covered on the working spouse's health plan. It is not just for-profit health plans that are competing to avoid paying for health costs, but also the for-profit employers.

## **Conclusions**

In the preceding section, I identified many reasons why different agents may not demand risk adjustment. I began by discussing five explanations for why formal risk adjustment has been rarely used in the U.S. by private employers: the lack of data, need for market power, availability of alternative strategies, difficulties of using potentially distorted signals, and the existing historical structure of health care markets. Given these obstacles, what is the hope for risk adjustment in the future?

There are a number of good reasons for thinking that the U.S. private employer market will move toward risk adjustment. First, the Medicare and Medicaid programs appear destined to lead the way. Despite considerable opposition from many of the health plans, including some plans that are exiting or cutting benefits, the Medicare program has moved forward with implementing diagnosis based risk adjustment. Since January 2000, the Principal Inpatient Diagnostic Cost Group (PIP-DCG) model has been used to pay ten percent of the payments to Medicare's capitated health plans. This percentage is scheduled to increase to 100 percent by 2007, and eventually be based on an all encounter payment model, such as the DCG/HCC model. Numerous states Medicaid programs have already or are planning to move toward diagnosis-based risk adjustment as well. It seems likely that this movement by federal and state agencies will result in a bandwagon effect, similar to DRGs.

A second factor is that the availability and quality of claims information is gradually improving. The Health Insurance Portability and Accountability Act (HIPAA) of 1996 will accelerate the trend toward electronic medical records, integrated with administrative claims processing, standardized across various health plans, that has already started to replace the existing claims processing systems, which still include large volumes of paper claims and unstandardized claim forms. This information is increasingly being used not for formal risk adjustment, but for assessing and managing quality of care. Adequate risk adjustment will be an essential component of these activities as well.

Increased use of claims information for management and quality monitoring purposes will also reduce the variability in the quality of this information. This would directly reduce the problem of unintended signal distortion. If all plans were to be capitated, then they would all have similar incentives to increase the intensity of diagnostic coding. Once formal risk adjustment models are correctly recalibrated, then diagnosis-based risk adjustment models will not suffer from the signal distortion that is identified above. By analogy, when DRGs were introduced for hospital payment in the mid 1980s, available evidence suggests that "DRG creep" increased the intensity of diagnostic coding by on the order of 9 percent (Newhouse 1996). Although this introduced transitional problems for the fairness of the DRG system, it did not undermine its feasibility for payments. A similar experience should be expected for "DCG creep" in the Medicare program.

Escalating health costs will most likely encourage the use of managed care, capitation and sub-capitation contracts. This will tend to increase the problems of risk selection. The improved information systems used for management of patient care also will facilitate more sophisticated selection strategies, allowing health plans to more precisely identify whom the winners and losers will be. Newhouse (1996) has suggested that there will be an information race between health plans and sponsors, with each trying to better predict whom the high cost enrollees are so as to avoid losing money. Given that health plans are already moving toward risk

adjustment for case management, and can potentially use this information to help attract or deter enrollees selectively, employers may soon choose to follow so as to avoid unwanted selection.

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## References

- Ash A, F. Porell, L. Gruenberg, et al. 1986. *An Analysis of Alternative AAPCC Models Using Data from the Continuous Medicare History Sample*. Report prepared for the Health Care Financing Administration. Health Policy Research Consortium, Brandeis/Boston University, September, 1986.
- Ash A.S., F. Porell, L. Gruenberg, et al. 1989. Adjusting Medicare Capitation Payments Using Prior Hospitalization. *Health Care Financing Review* 10(4):17-29.
- Bowen, B. 1995. The practice of risk adjustment, *Inquiry* 32(1), 33-40.
- Buchmueller, T.C. 1995. Health risk and access to employer provided health insurance. *Inquiry*, 32(1): 75-86.
- Butler, S.M. and R.E. Moffit. 1995. The FEHBP as a model for a new Medicare program, *Health Affairs* 14 (Winter), 47-61.
- Cutler, D.M. and S.J. Reber. 1998. Paying for health insurance: the tradeoff between competition and adverse selection, *Quarterly Journal of Economics* 113(2), 433-466.
- Cutler, D. M. and R. Zeckhauser, 2000. Insurance markets and adverse selection, in A.J. Culyer and J. P. Newhouse, (eds.) *Handbook of Health Economics*, North Holland.
- Dranove, D., K.E Spier, and L. Baker. 2000. 'Competition' among employers offering health insurance. *Journal of Health Economics*, 19:121-140.
- Dunn, D.L. 1998. Applications of Health Risk Adjustment: What Can be Learned from Experience to Date? *Inquiry* 35(2): 132-147.
- Dunn, D.L., A. Rosenblatt, D.A. Taira, E. Latimer, et al., 1996 *A Comparative Analysis of Methods of Health Risk Assessment*. Study prepared for the Society of Actuaries, Washington DC.
- Employee Benefit Research Institute. 1998. Employment-Based Health Care Benefits and Self Funded Employment-Based Plans: An overview. *Facts from EBRI*. September. At <http://www.ebri.org/facts/1098fact.pdf>
- Ellis, R.P., 1998, Creaming, Skimping, and Dumping: provider competition on the intensive and extensive margins, *Journal of Health Economics* 17(5), 537-555.
- Ellis, R.P. and T.G. McGuire, 1986, Providers behavior under prospective reimbursement: cost sharing and supply, *Journal of Health Economics* 5(2), 129-151
- Encinosa, W. 1998. Risk adjusting in imperfectly competitive markets. Agency for health care policy research, unpublished Paper.
- Encinosa, W., and T. Selden, 2001. Designing Employer Health Benefits for Heterogeneous Workforces: Risk Adjustment and its Alternatives. *Inquiry*, this issue.
- Feldman, R., B.E. Dowd, and M. Maciejewski. 2001. A Demand-Side View of Risk Adjustment. *Inquiry*. (This issue).

- Frank, R.G., J. Glazer, and T. G. McGuire. 2000. Measuring Adverse Selection in Managed Health Care. *Journal of Health Economics*. 19(6): 829-854 .
- Frank, R.G., and M.B. Rosenthal. 2001. Plan Choice, Risk Bearing, and Experience Rating: Explaining Health Plans' Demand for Formal Risk Adjustment. *Inquiry*, this issue.
- Gallagher, P. E. (Ed.) 2001. *Medicare RBRVS: The Physicians' Guide*. American Medical Association. Chicago IL.
- Gauthier, A.K., J.A. Lamphere and N.L. Barrand. 1995. Risk selection in the health care market: a workshop overview, *Inquiry* 32, 14-22.
- Glazer J. and T.G. McGuire, 1994. Payer competition and cost shifting in health care. *Journal of Economics and Management Strategy*. 3(1): 71-92.
- Glazer, J., and T. G. McGuire, 2001. Private employers don't need formal risk adjustment. *Inquiry*, this issue.
- Glazer, J., and T.G. McGuire. 2000. Optimal Risk Adjustment in Markets with Adverse Selection: An Application to Managed Care. *American Economic Review* 90(4): 1055-1071.
- Health Insurance Association of America. 1998. *Source Book of Health Insurance Data*.
- Hellinger, F.J. 1995. Selection bias in HMOs and PPOs: a review of the evidence, *Inquiry* 32, 135-142.
- Hornbrook, M.C. and M. J. Goodman. 1995. Assessing Relative Health Plan Risk with the Rand-36 Health Survey. *Inquiry* 32:56-74.
- Keenan, P., and T.G. McGuire. 2001. The prevalence of risk adjustment, Unpublished paper.
- Lee, C. and D. Rogal. 1997. *Risk adjustment: a key to changing incentives in the health insurance market, a special report*, Robert Wood Johnson Foundation, Alpha Center, Washington, March.
- Luft, H.S. 1982. Compensating for biased selection in health insurance, *Milbank Quarterly*, 64, pp. 566-591.
- Newhouse, J.P. 1996. Reimbursing health plans and health providers: efficiency in production versus selection, *Journal of Economic Literature* 34(3), 1236-1263.
- Newhouse, J.P. 1998. Risk adjustment: where are we now? *Inquiry* 35(2), 122-131.
- Pope, G.C., K.W. Adamache, R.K. Khandker, and E.G. Walsh. 1998a. Evaluating Alternative Risk Adjusters for Medicare. *Health Care Financing Review*.
- Price, J.R., and J. W. Mays. 1985. Selection and the competitive standing of health plans in a multiple choice, multiple insurer market. in R. M. Scheffler and L. F. Rossiter, (eds.) *Advances in Health Economics and Health Services Research: Biased Selection in Health Care Markets*, Vol 6..



- Rice, N. and P. Smith, 1999. *Approaches to Capitation and Risk Adjustment in Health Care: An International Survey*. York, England: Centre for Health Economics, University of York.
- Rogal, D.L., A.K. Gauthier. 1998. Are health-based payments a feasible tool for addressing risk segmentation? *Inquiry* 35, 115-121.
- Schone, B.S., and P.F. Cooper. 2001. Assessing The Impact Of Health Plan Choice, *Health Affairs*, 20(1): 267-275.
- Shen, Y., and R.P. Ellis. 2001. Cost-minimizing risk adjustment and selection. Boston University working paper, February.
- Swartz, K. 1995. Reducing risk selection requires more than risk adjustments, *Inquiry* 32, 6-10.
- Swartz, K. 1999. The Death of Managed Care as We Know It. *Journal of Health Politics, Policy and Law* October 24(5):1201-1205.
- US Department of Labor. various years., *Employee Benefits in Medium and Large Firms*. Bureau of Labor Statistics.
- US Office of Personnel Management, 1988. *Insurance Report: Federal Employees Health Benefits Program and Federal Employees Group Life Insurance Program*.
- Van de Ven, W.P.M.M. and R.P. Ellis. 2000. Risk Adjustment in competitive health plan markets, in A.J. Culyer and J.P. Newhouse, (ed.) *Handbook in Health Economics*, North Holland.
- Weiner, J.P. B. Starfield, D. Steinwachs, L. Mumford. 1991. Development and Application of a Population Oriented Measure of Ambulatory Care Case Mix. *Medical Care*, 29:452-472.

**Table 1**  
**Broad Trends in US private health markets**

	<b>Circa 1980</b>	<b>Circa 1990</b>	<b>Circa 2000</b>
Percent of GDP spent on Health Care	9.5	11.5	14
Percent of US population in HMO's <sup>a</sup>	4.0	13.5	30.1
<u>Medium and large businesses</u>			
Percent offering medical care insurance <sup>b,c</sup>	97	92	76
Percent of employees making a contribution to premium <sup>b,c</sup>	26	47	69
Percent in traditional FFS <sup>b,c</sup>	>90	74	27
Percent of employees in HMOs <sup>b,c</sup>	<10	17	33
Percent of employees in PPOs <sup>b,c</sup>	<5	10	41
Percent of Federal Employee Health Benefit Program employees in community rated plans <sup>d</sup>		20.1	

Notes:

- a 1999 Bureau of Labor Statistics, 2000, Health, United States, Table 131.
- b 1989 US Department of Labor, Bureau of Labor Statistics, *Employee Benefits in Medium and Large Firms*.
- c 1997 US Department of Labor, Bureau of Labor Statistics, *Employee Benefits in Medium and Large Firms*.
- d 1987 US Office of Personnel Management, *Insurance Report: Federal Employees Health Benefits Program and Federal Employees Group Life Insurance Program*, 1988.

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<sup>1</sup> Swartz (1999) argues that managed care, and hence capitated health care more generally, may be entering a state of decline.

<sup>2</sup>The Veterans Health Administration (VHA) also uses a risk adjustment formula for allocating funds within the VHA system to its twenty-two integrated service networks, however this allocation is concerned with the appropriate allocation of funds within a single organization to different provider groups, not the correction for biased selection, and hence would not fall within the definition of formal risk adjustment of payments to a health plan used here.

<sup>3</sup> Feldman and Dowd (2001) document different state policies on this in this issue.

<sup>4</sup> For a useful exploration of formal risk adjustment models by actuaries, see Dunn et al. (1996).

<sup>5</sup> The Ellis and McGuire (1986) framework assumes that providers (or plans) can respond to individual-specific payment incentives. Another possibility is that providers respond primarily to overall incentives, in which case small employers will have little or no impact on overall incentives facing health plans if they should risk adjust.

<sup>6</sup> Large employers often go further and self insure just one choice of plan. But self insurance does not in and of itself avoid risk selection problems. If competing plans are allowed by self insuring firms, biased selection can still emerge. According to a recent study by the Employee Benefit Research Institute (EBRI, 1998) about 50 million people receive their health insurance through employer-sponsored self-insured group health plans sponsored by their employer. This represents 33% of all individuals in private, employment-based health plans.

<sup>7</sup> Large parts of the U.S. are sufficiently sparsely populated that it may never be feasible to maintain multiple competing networks of providers or worry about choice of health plans to contain costs or ensure quality, so this percentage may never grow.

<sup>8</sup> It is true that even healthy people demand the option value of access to high quality care should they become ill with a high cost chronic condition. But when consumers have any choice, there is at most a one-year lock-in period in today's private insurance markets, and consumers do have

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different expected health costs within this one year horizon. For the most part, insurance choices are dominated by decisions using ex post rather than ex ante information.