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Adverse Selection and Health Savings Accounts

Mr. Chairman and Members of the Committee:

I have been asked to comment on the problem of adverse selection, both generally and as it might apply to consumer directed health plans, such as Health Reimbursement Arrangements (HRA), and the new Health Savings Accounts (HSA).

Adverse Selection is a term borrowed by economists from the insurance industry to describe a possible problem in the functioning of insurance markets. Insurance is valuable to people because it allows them to make a fixed premium payment in exchange for reducing risk. Adverse Selection is caused not by imperfect information about future expenditures but by *asymmetric information*: buyers or sellers of insurance may have private information about risk. There is potential for adverse selection any time either buyers or sellers have significant informational advantages.

George Akerlof (1970) first illustrated the problems of private information advantages in the used car market, the market for "Lemons." Cars are either good or bad, and only the owners—having driven them for some time—can tell the difference. Buyers cannot tell the difference, and will therefore be unwilling to pay a "Cream Puff" price for a car that might be a Lemon. Cream Puff owners are unwilling to sell at less than Cream Puff prices, but Lemon owners are. Then only Lemons are sold, and the used car market unravels in what is sometimes called a 'death spiral'. This is great economic theory because it is simple, intuitive, and seems to be supported by casual experience. Best of all, it would seem to apply to a wide range of markets. It is tempting to start seeing Adverse Selection everywhere. On the other hand, this simple, stylized model ignores important details of real markets.

Michael Rothschild and Joseph Stiglitz (1976) extended the argument to the case of insurance. In this case, consumers have private information about risk status that they withhold from insurers. High risk consumers cannot be distinguished from Low risk consumers. The authors identify a simple market solution to this information problem that effectively identifies and separates High and Low risks. The insurer offers 2 plans to all customers. One is a high cost, high coverage plan and the other is a low cost, low coverage plan. Premiums and coverage levels are carefully chosen so that High risks choose the High coverage plan and Low risks the Low coverage plan. Risk types are fully revealed, and the only deviation from a world of *symmetric information* is that the Low risk types are forced to accept less coverage.

A possible alternative outcome involves Pooling of risk types into a single plan. Both risk types receive the same coverage and pay the same premium, which reflects the

average risk in the pool. Risk types are not revealed in this outcome. Low risk types subsidize High risk types and there is potential for an outside firm to engage in "cream-skimming" by offering a plan that only Low risks will prefer. In this case, the pooling outcome does not occur. Pooling outcomes can and do exist in the group market, where the possibility of cream-skimming by outside firms is limited by employer subsidies, tax subsidies, and the fact that, on average, group insurance is cheaper than non-group insurance per dollar of coverage. Factors that can limit worker mobility between firms increase the potential for a pooling outcome, and Crocker and Moran (2003) show that more generous and comprehensive coverage is feasible with decreased mobility.

The separating outcome, in which each risk type is correctly identified and rated, troubles some analysts because superficially it seems to defeat the risk-pooling function of insurance. This is a mistake, since health care expenditures are wildly unpredictable even given detailed information about demographics and medical condition. Because all risk types face substantial uncertainty about actual expenditures, insurance with premiums that accurately reflect those risks will always be desirable. The separating outcome is a possible market solution to severe informational asymmetry.

Some Limitations of the Model

The model above assumes that consumers have the informational advantage. This might not be true. After all, insurers have data on perhaps millions of consumers as well as a reserve of medical expertise not available to the average consumer. New customers might have an advantage over insurers, but for the cost of a physical the insurer can

obtain a great deal of information to reduce its disadvantage. It seems likely that both sides of the market have private information of some type.

Also, the private information consumers have might be of little practical use. To be useful the information must be specific about near-term expenditures. I believe that part of the reason that adverse selection seems obviously true is that we often mistake vague worries about family history for reliable information. We probably have less useful information than we think.

The model assumes that there is a single year of coverage and no chance for learning over time. Yet many consumers stay with same insurance company for years, and claims data are a gold mine of information on current usage and diagnoses of acute and chronic conditions that should help insurers identify a consumer's risk type.

Evidence of Adverse Selection in various Insurance Markets

As used and as useful as this model is, there is something of a divergence between the theory and its application to real markets, and this has led to widespread misinterpretation of statistical evidence. There is a crucial difference between selection based on private information (unobservable information) and selection based on public information (observable information, including demographics and income). Theoretical models that lead to adverse selection are concerned with private informational advantages.

In a paper published in 2001, Igal Hendel and I built a statistical model to test for the presence and importance of asymmetric information in health care markets. The

question is whether there is evidence of private information that can produce adverse selection. The test we used is based on the link between insurance choices and subsequent consumption of health care. We distinguish between mutually observable information, such as demographics and income, and information which is private to the consumer. The unobserved information links insurance choices and health care expenditures, as those consumers more likely to need health care purchase more generous insurance coverage. Intuitively, the test is based on whether the link between insurance choice and health care consumption can be explained by the observed information. If observables account for the link, then we can rule out the importance of private information in the joint insurance/health care decision.

Much to our surprise, we found that the link between health insurance choices and health care consumption is mostly explained by income and other demographics[1]. As is normally the case, expenditures do vary predictably with income and demographics, but most of the variation in expenditures is purely random and unpredictable. Our research shows no evidence of private information leading to adverse selection in the health insurance market.

Evidence from related insurance markets can be used to assess the importance of private information. Two recent studies examine adverse selection in the auto insurance market. Chiappori and Salanié find no evidence of adverse selection among new drivers in the French market (2000). Dionne, Gouriéroux, and Vanasse (1998) and find that there

[1] One simple numerical measure of the private information is what we might call a "signal to noise ratio", or the ratio of the estimated variance of private information to the estimated variance of the purely random component. The higher the ratio, the more important private information is. The ratio is .27 if we artificially exclude all demographic variables and .004 if we include those variables. By this measure, the amount of true private information is trivial.

is no adverse selection in the Quebec market once observable demographics are controlled for.

The life insurance market is similar in many respects to the health insurance market. There is much at stake for consumers, the underlying risk is partly health-related, and there exist both group and individual submarkets. Cawley and Philipson (1999) use data on actual premiums and quantities as well as consumer perceptions about risk. They find that, contrary to predictions of the basic model, there is a negative relationship between risk and the amount of insurance purchased (people who believe they are at risk purchase less insurance). They also find evidence of bulk discounting: the cost per dollar of coverage becomes cheaper for higher coverage. Both of these findings are inconsistent with private information on the consumer side. The authors suggest that, in this case, the insurers have the information advantage.

Some studies claim to find adverse selection. My own paper cited above is sometimes cited incorrectly as having found evidence of adverse selection, when in fact the opposite is true. This classification is consistent with common but incorrect usage. The confusion in this case and in many others is the distinction between true adverse selection as it is used in theory (selection based on private information) and adverse selection as it is loosely used by policy makers in practice.

For example, an excellent recent paper by Cohen (2003) claims to find evidence of adverse selection in the Israeli auto insurance market. Cohen finds a positive relationship between insurance coverage choices and the frequency of subsequent accidents. A peculiar feature of that market is that insurers do not use driving histories to set premiums for new customers. The so-called private information in this market is only

private because insurers ignore available information that is commonly used in other countries. Even so, the insurance market still functions reasonably well.

The papers cited here should cast some doubt on the severity of the problem. A failure to find evidence of informational advantages leading to adverse selection in a given market does not mean, of course, that it cannot or does not occur; rather, it means that the problems that do exist are swamped by other factors or that the problem has been managed by consumers and insurers in some other way.

To return to the original example of adverse selection, the used car market is supposed to break down due to severe adverse selection, and yet it is clear there is a robust market for such cars. Obviously when buying a used car a consumer must consider the Lemons problem. But buyers and sellers have arranged institutions to control the problem. Warranties, inspections, seller reputation and the prospect of repeat dealing are examples of how markets deal effectively with a potentially serious problem. People are clever, and they adjust in order to make things work. So the market that inspired concerns about adverse selection is in fact a fairly good example of market success. Ebay is another example of a market that should suffer from informational problems, and yet it continues to grow. Buyer and seller reputation play an important role here.

I maintain that 'death spiral' concerns are exaggerated, and that informational advantages are often either small or two-sided, with both buyers and sellers having private information. Many cases of so-called adverse selection are due to deliberate neglect of available information. In health insurance markets, several factors mitigate the problem of residual private information. Benefits managers adjust premiums and benefits to maintain stable enrollment. There are also non-price remedies available. For example,

my own benefits plan includes a low cost, higher cost-sharing option. Enrollment in this plan is for a minimum of two years, and this provision prevents employees from frequent switching from high to low coverage.

Potential for Adverse Selection in Consumer-Directed Plans

Archer MSAs have been available to small businesses for several years in a very restrictive way. Health Savings Accounts (HSAs) were introduced as part of the Medicare Prescription Drug, Improvement and Modernization Act of 2003. With HSAs, consumers and their employers are able to contribute pre-tax dollars into these accounts to use for out-of-pocket medical expenses. To qualify, consumers must be covered by a health plan with a relatively high deductible of between $1,000 and $5,000 for an individual and between $2,000 and $10,000 for a family. Preventive care is excluded from this restriction and can receive first-dollar coverage.

These plans offer consumers and employers greater flexibility in plan options, and there is potential to improve the delivery of health care and increase insurance enrollment by lowering costs. Part of the reason for rising health costs is that insured patients will over-consume health care because they often pay only a small portion of health expenditures. HSAs seek to reduce this inefficiency by combining higher cost-sharing with a tax-preferred saving account. Catastrophic coverage is the most important component of any insurance plan because it protects us from financial ruin. Coverage for small, predictable expenditures is largely a result of a tax code that encourages us to pay for such expenses through an insurer instead of out-of-pocket.

There is some confusion about what HSA balances represent. Accumulated balances are wealth that reasonable people will use wisely. As such, there would seem to be little concern that individuals with large balances will overspend. In general, the perceived cost of using $1 from the account will reflect the cost of replacing that $1 the following year, which depends in part on the individual's tax rate. For example, if the tax rate is 30%, then the cost of replacing the dollar is $.70. In effect, these plans are low cost, less-comprehensive plans with deductibles to limit risk. Unused balances can eventually be withdrawn as retirement income. Because of this provision, even very large balances will not be spent carelessly.

Concerns have been raised that these plans benefit the wealthy and offer another tax shelter. This is true, but *all* rules that allow income to be sheltered from taxes benefit the wealthy, since they face higher marginal tax rates. An employee's share of employer-provided insurance is already paid using pre-tax dollars. Retirement savings receive the same tax treatment, but putting money in an HSA is preferable to putting it in an IRA because HSA offers the option of using balances for health care.

One commonly-made argument against HSAs has been that they will lead to a segmentation of health insurance markets that will exacerbate the standard adverse selection problem, leading either to increased risk segmentation in a separating outcome or to the premium 'death spiral' in which exit of the healthy from comprehensive plans raises premiums to the point that the market for such insurance collapses.

At an intuitive, common sense level, I believe concerns that HSAs will distort markets are greatly exaggerated. So far as risk segmentation is concerned, HSAs are similar to existing high-deductible or other plans with high levels of cost-sharing, and

benefits managers know how to manage enrollment among a variety of plans by adjusting premiums and plan benefits.

There are two possibilities that we should consider. First, adding an HSA option to menu of plan offerings is like adding a less-comprehensive plan to the menu. This may be in addition to or in place of an existing low-coverage option. Again, this is nothing new, and should be manageable. I believe it is more likely that introducing the HSA might drive out the alternative low-coverage plan, leaving a choice between more comprehensive options and the new HSA.

Second, a firm that offers a single plan option might be replacing a traditional fee-for-service plan or an HMO with an HSA. That is, the comprehensive plan in the pooling outcome is replaced with an HSA. This case might cause greater concern because this would leave employees with no alternative. However, employers can vary the generosity of the HSA by changing premiums and the employer contribution to the account.

A move to an HSA might reflect a trend toward offering lower levels of coverage in the face of rising health care costs. Worker compensation consists of a combination of cash wages and benefits, and will be determined by worker productivity. Tax policy, regulations, and employee preferences determine the precise mix between wages and benefits. Cutting benefits makes firms less competitive in attracting and retaining workers, so firms must have a good reason for cutting benefits. The availability of a new style of plan does not seem to be such a reason unless the firm believed the new plan was more efficient.

Health economics is a very challenging field, and the models and language involved tend to induce headaches. After all the analysis, markets will provide the final

test: If HSAs work, then they will become popular. If they do not work, then they will disappear. After all, traditional plans will continue to be available, and decisions are usually biased against change. If firms find that HSAs are not a good match for their employees, they will drop HSAs. HSAs will likely become a useful alternative to less-comprehensive insurance or managed care, and they are worth a try.

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