Adverse Selection and the Challenges to Stand-Alone Prescription Drug Insurance

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INSURANCE[1]

Abstract

This paper investigates a possible predictor of adverse selection problems in unsubsidized "stand-alone" prescription drug insurance: the persistence of an individual's high spending over multiple years. Using MEDSTAT claims data and data from the Medicare Survey of Current Beneficiaries, we find that persistence is much higher for outpatient drug expenses than for other categories of medical expenses. We then use these estimates to develop a model of adverse selection in competitive insurance markets and show that this high relative persistence makes it unlikely that unsubsidized drug insurance can be offered for sale, even with premiums partially risk adjusted, without a probable adverse selection death spiral. We show that this outcome can be avoided if drug coverage is bundled with other coverage, and briefly discuss the need either for comprehensive coverage or generous subsidies if adverse selection is to be avoided in private and Medicare insurance markets.

Introduction

Providing insurance coverage against expenditures for prescription drugs through unsubsidized but sometimes regulated private insurance markets has proved to be difficult. Medigap policies for elderly provide only limited coverage, and are not taken by many of those over 65. For people under age 65, drug-only coverage is virtually unavailable, and some managed care insurers are putting limits on the bundled coverage they do offer. In this paper, we use claims data to show that adverse selection is an important cause of this behavior. We further argue that private markets without subsidies will not be able to offer stand-alone drug coverage, and Medicare policy makers should be cognizant of this fact.

We then go further to develop a method to show what type of bundling and/or what types and levels of subsidies would be needed to make drug coverage viable. We illustrate these methods with data for both the under-65 and the Medicare populations.

Adverse Selection in Concept and Application to Prescription Drugs

A potential threat to the efficiency and even the feasibility of unsubsidized private market insurance coverage is adverse selection. Adverse selection occurs when potential insurance buyers are better able to predict their expected benefits from insurance than are insurers, or when insurers are forbidden to use information they do have to adjust premiums for risk.

Such special buyer knowledge, should it occur, can have many causes, but adverse selection by new health insurance purchasers is surely more likely if there are health conditions known to the buyer for which above-average expenditures will persist over time (Crippen 2002).

If the seller is not as well informed as is the buyer about the existence of these conditions, or is not permitted to charge higher premiums, a buyer with high and persistent expenditures in one period will be eager to obtain generous insurance coverage of that type of expenditure for the next period at premiums

that do not fully reflect the higher expected benefits. Those with low expected expenses will be less willing to pay high insurance premiums.

While insurers may ask applicants about prior period spending, it will be difficult for them to enforce truthful revelation for prospective purchasers they have not previously insured and for whom they have no prior claims data. If the insurance premium is required to be community rated (or if risk-rating is otherwise limited), so that the insurer is not permitted to use any information to raise premiums above the average in the community, the adverse selection problem will be even worse. (It is this case of community rating which will be of primary interest in our estimations.) In summary, adverse selection in the sale of new coverage is likely to be a more serious problem, other things equal, for conditions and medical product expenditures that persist over time than for conditions and product expenses which are a "bolt from the blue" and generally resolve fairly quickly (by patient recovery or death).

Another vehicle used by buyers to engage in adverse selection is any ability to specify the details of coverage for various types of expenses. Most generally, it is easier for buyers to engage in adverse selection if they can pick and choose amounts and types of coverage, rather than take or leave a predetermined broad-based policy. If a person knows that he or she had high previous period medical expenses on certain medical goods or services, adverse selection is enhanced by the ability to choose coverage that only (or primarily) covers these costs. Since a person's expected utility depends on the total of their medical expenses and not on the type, the purchase of selective coverage would ordinarily not be efficient, but regulation, marketing tactics, and the subsidized provision of incomplete "basic" coverage may open up the market to adverse selection.

We therefore investigated the persistence over time of high levels of spending for a type of medical care that is often a candidate for selective coverage: outpatient prescription drug expense. The problem of adverse selection is thought to be especially acute in individually chosen, unsubsidized, but regulated and partially community-rated Medigap drug coverage. The failure of basic Medicare to cover outpatient drugs has meant that seniors with incomes above the Medicaid limits seeking such coverage must do so largely in

the currently-unsubsidized private market, either in the form of supplementary Medigap coverage or a managed care plan with such coverage. For the under-65 population, there is at present much less stand-alone drug coverage than in Medicare (probably for the reasons we identify), but the extent of coverage can vary across the options available to employees in larger firms or to purchasers in the individual market.

While there are a number of sources of data for prescription drug benefits for both under-65 and Medicare populations, this study required information on a population's use of benefits for all covered medical services as well as for drugs. We therefore examined two sets of data: (1) a large sample of claims data for drugs *and* other kinds of medical spending for a working age population and (2) data on Medicare beneficiaries from the Medicare Current Beneficiary Survey (MCBS).

We also used a sub-analysis of workers in the five years before Medicare eligibility at age 65, to show the problem of persistence in spending is even worse for them than for adults of other ages because the extent of persistence of drug spending increases with age.

Methods

We first explore the relative importance of persistence in prescription drug expenditures compared to other expenditures. We find, as have others, that a given year's expenses are a better predictor of next year's expenses for drugs than for hospital and physician services (Ettner 1997; Long 1994; van Vliet 1992; Wouters 1991; Coulson and Stuart 1992). Previous studies only examined shorter-time periods, selected populations (e.g., low income seniors), and only of drug spending; we provide new evidence that this persistence occurs over multiple years, and that it is much more pronounced for drug spending than for total (or non-drug) medical spending.

To show the impact of persistence and selective coverage on adverse selection, we then take the analysis two steps further. In the first step, we simulate the equilibrium premiums in insurance markets for drug coverage alone, and for comprehensive (all medical services) coverage. We show that adverse selection

under community rating or with some risk rating is much worse in the former case than in the latter, in two senses. First, the ratio of the market equilibrium premium to the premium that would have prevailed if all (risk averse) people bought coverage is higher for unsubsidized stand-alone drug insurance than for comprehensive coverage: average-risk people would need to pay proportionately much more than their average expenses. So average risk people—even those that are fairly risk averse—would be unlikely to be willing to pay the premiums insurers must charge to cover their costs. Second, the risk premium is smaller for stand-alone drug coverage than for comprehensive coverage, precisely because drug expenses are so predictable. Indeed, for many plausible values of consumer risk premia and some plausible assumptions about insurer premium rating, we show that it is impossible to offer stand-alone drug insurance at premiums that will cover its costs; there is a death spiral for unsubsidized insurance.

In the second step, we illustrate the level of subsidies that would be needed to make stand-alone coverage viable. We then offer some observations on the policy tradeoffs, for Medicare and the private sector, between subsidies and "bundling" of coverage.

Our initial analysis is based on claims data provided by the MEDSTAT Group for a large sample of workers and adult dependents with comprehensive insurance that covered prescription drugs over a five-year-period from 1994 to 1998 inclusive. We then adopt the same approach in dealing with the smaller MCBS data set. As far as we are aware, these are the largest data sets for the respective populations which combine drug and other medical benefits data.

Data and Descriptive Statistics: MEDSTAT Data

We followed the MEDSTAT claims and benefits expenditure experience of those persons who retained coverage over the entire period. (We also looked at those who were in the database for shorter periods of time, but their experience is not described here.) We do not know the details of each person's coverage but the plans are known to be similar in terms of coverage. Our results could be biased if people who remained with these plans over a five-year period were those with unusually high drug expenses. However, since the

coverage for this population is employment-based coverage chosen by and for a group of workers, not an individual worker, and since, as noted, stand-alone drug coverage is not generally available in groups, we think the bias should be small.

Following Eichner, et al. (1998), we first describe persistence by asking what happened over time to the (relative) expenditure levels of those who had unusually high expenses in the first period (1994). We characterize high spenders in 1994 in two ways—as being in the top quintile of 1994 expenses, and as spending more than $5000. (Those with zero expenditures are included in the population.)

There were 189,000 persons between the ages of 0 and 60 in 1994 who had continuous medical and pharmacy coverage for the period 1994-1998. As shown in Table 1, of those in the top quintile of total spending in 1994, only 46 percent remained in that quintile by 1998. The largest decline occurred in the first year, with a more gradual erosion later.

Table 2 shows the percentages remaining in the top quintile for drug expenditures only and for total expenditures minus drug expenditures. By this measure, persistence is definitely higher for drug expenditures; 60% remained in the top drug spending quintile in 1998, while only 40 percent remained in the top quintile for expenditures other than drugs.

Table 3 shows the percent of those with expenses above $5000 who also had expenses above that level in the next year (a measure used by Eichner, et al. (1998)). Persistence tends to rise with age, and our figures are very close to those in the Eichner study.

Relative Expenditures

We next calculated, for each of the expenditure categories, the ratio of the average expenditure in each year of those who were in the top quintile in 1994 to the average expenditure for the entire population in that year. The higher this number, the more likely is adverse selection. As shown in Table 4, the ratio between

the average or expected expenses of high spenders and the community (average) rate is the same in the initial year (1994) for the two categories of spending but, in all subsequent years, is considerably higher for drug spending only than for total spending. This indicates that, when drug expenses occur, they initially display about as much variation (relative to their mean) as other types of medical expenses, but they have much greater persistence.

Potential Adverse Selection in the MEDSTAT Data

In this section we will use simulation to indicate how serious adverse selection might be and whether it might be serious enough to cause a "death spiral." Then, under the assumption that the person must either buy the indicated coverage or none at all, we assume various levels of risk aversion and estimate what proportion of consumers will continue to be willing to buy coverage, and what the average expense of those willing to buy will be. For the present, we also ignore moral hazard, and assume the level of expense that insurance will cover is the same as the expense the person who declines coverage would pay out-of-pocket.

We approach this problem in two ways, which we label "statistical" and "economic." The methods differ in the technique used to estimate the expected expense for each person. In the statistical (or actuarial) approach, people are classified into cells based on age, gender, and prior spending. The cell mean expense in the previous time period is used as an estimate of expected expense in the final (1998) year. In the economic approach, a regression relating expenses in 1998 to age, gender, and expense in the previous three years is used to generate expected expense.

This expected expense compared to actual expense generates an estimate of the variance of expenses, which is combined with an assumed uniform risk aversion coefficient to generate a value for the risk premium (Phelps 1997). (Adding variation in risk aversion would not appreciably affect results as long as risk aversion is independent of risk.) Note that the more predictable the expense, the lower the variance and therefore the lower the buyer risk premium (and the more likely adverse selection, other things equal). Adding the risk premium to the expected expense yields a "reservation price" for full insurance coverage a

given type of expense for each person. If the reservation price for a person at a given risk level is less than the insurance premium that would be charged, we assume that the person declines coverage.

The key step then is to determine, for a given "policy" described by full coverage of the batch of covered expenses (all expenses; all expenses less drug spending; drug spending only) whether there is a stable equilibrium or whether there is a "death spiral" that drives some or all potential insureds at a given risk level out of the market.

We consider full coverage insurance without patient cost sharing, and initially ignore moral hazard. We also ignore insurer administrative costs and assume that the insurance premium must be community rated but sufficient to cover benefits costs, so that the premium charged for a policy offered to a given set of people is the average expected expense for people in that set. Offering that policy at that premium is then a potential equilibrium if each person in the set has a reservation price for insurance that equals or exceeds the insurance premium. For example, one could begin with the question of whether the community rated premium is below the reservation price of the people in the lowest percentile of expected expenses in the set. If the reservation price falls short of the premium for some of the lower risk percentiles, we then delete those persons from the data set, recompute the premium and check to see if it is below the reservation price of the lowest risk percentile remaining.

A Simple "Statistical" Model

We wish to illustrate how the chances of adverse selection are related to the degree of persistence of spending over time and the relative importance of that influence on expected expense. We begin with a simple benchmark model that gives maximum influence to previous period spending.

We first classify observations on adults by age and gender and, within each age-gender cell, by deciles of 1997 spending. We assume that actuaries have good information, and therefore develop an estimate of 1998 expenses for each cell which perfectly predicts actual average expenses. For each decile age-gender

cell, we therefore calculate 1998 average spending, and assume that this quantity is the estimate of expected expense for everyone in the cell.[2] (We have also estimated models with disaggregation into unit percentiles with similar results.) We assume that consumers use this mean as their estimate of expenses they expect in 1998. We also assume that the variance of within-cell spending about the cell mean provides an estimate (used by consumers) of the expected variance of spending for individuals in each cell. To calculate the risk premium, we must make an assumption about risk aversion.

We use various assumed values for the "coefficient of risk aversion" (Phelps 1997). If, for example, we use a coefficient of risk aversion of 0.0002, we calculate the risk premium RP according to the formula:

RP = 0.5 (0.0002)(variance of spending).

We then define the reservation price P by: P=RP + (expected expenses).

If all persons were expected to purchase insurance, the 1998 competitive (breakeven) community-rated premium would be the mean of 1998 benefits B. (Other administrative costs are ignored here.) Charging that premium would only be a competitive equilibrium if every person had a reservation price greater than the mean. Suppose, however, that P for the lowest risk decile is less than B. All of these risks will decline coverage and an insurer would anticipate experiencing expenses that are the mean of expenses for persons in the other nine deciles, an amount larger than B. We then determine whether P for the second lowest decile is higher or lower than this mean. If not, the premium will have to increase further, and the process continues until we reach a decile at which the value of P for that decile is greater than the mean expense or premium for the remaining population of purchasers. If the only group for which this is true is the highest decile of 1997 expenses, we can say that there has been a "death spiral" in which all but the highest risks have been driven from the market.

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[2] We assume that both insurers and insureds have the same average estimate.

Table 5 shows the decile of spending above which insurance is purchased in equilibrium for a range of plausible values for risk aversion.[3] For example, if r = 0.0002, the equilibrium for total spending occurs in the seventh decile. This means that somewhat more than half of the population (those in deciles 1 to 6) would not buy insurance to cover all medical care costs because the premium exceeds their reservation prices, but a sizeable minority would be willing to purchase. In contrast, according to this method the equilibrium premium for drug-only coverage occurs in the tenth (highest) decile. This means that only the very highest risks (if anyone) would buy drug coverage. Altering the assumed degree of risk aversion affects the proportion of the population which would buy comprehensive coverage, but there is no plausible level of risk aversion at which most people buy stand-alone drug coverage.

An Economic Model

The alternative estimation approach begins with a regression of 1998 expenses on a constant term and expenses in the previous three years for everyone in a given age-gender cell. Table 6 presents some statistics from these regressions. As expected, the adjusted R squared is much higher for the drug only regression (0.6) compared to the other two regression (0.19 and 0.13); drug expenses are much more predictable. Also, the coefficients on previous period spending are larger and more precisely estimated for drug only spending than for the other two measures of spending.

We next calculate the standard error of the prediction from the regression, and use this as an estimate of the variance of expenses. For various values of risk aversion, we then calculate the (proportional) risk premium. For example, for total expenses and r = 0.0001, the proportional risk premium is 0.745. This implies that, rather than go without insurance, the person would be willing to pay a premium 1.745 times as high as expected expense (equivalent to a maximum loading as a percentage of premium of 43%). In contrast, the proportional risk premium for drug-only coverage is much lower, at 0.054. The reason for

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[3] Phelps (1997) labels 0.0002 a "moderately high" value of risk aversion, but Pauly and Herring (2000) found it necessary to use a higher level (0.00095) to generate realistic results in a simulation of adverse selection for comprehensive group insurance.

severe adverse selection in drug-only coverage is therefore the combination of high predictability and low willingness to pay much more than expected expenses.

We apply the same proportional risk premium to each person's expected expenses to generate an estimate of the reservation price. We then arrange individuals in order based on expected expenses and follow the same procedure as in the previous case.

Table 7 shows the results in terms of the percentile of the distribution of expected expenses at which people buy coverage, under the assumption of pure community rating. The results are striking: despite some adverse selection, comprehensive total coverage can be sold if people are moderately risk averse. But even at the highest level of risk aversion, almost no one buys stand-alone drug coverage. As in the previous method, only the highest risks buy unsubsidized stand-alone drug coverage. With the lowest value of risk aversion ($r = 0.0001$) there is also a fairly severe problem of adverse selection even with more comprehensive coverage. With higher levels of risk aversion, however, death spirals do not occur for more comprehensive coverage, and 70 to 99 percent or more of the population would choose in equilibrium to obtain this insurance rather than go without. The proportion of lower risks which drops out is, of course, higher if drug expenses are included in the comprehensive coverage than if they are left uncovered.

We investigated what would happen if insurers were able or permitted to use modified community rating in which premiums varied by purchaser age and gender (which are easy to determine), but not by prior-period medical care spending. We assume that premiums are set equal to average benefits in gender-five-year age cells. (Even our large data set does not allow precise estimates of spending for single-year-age cells.) As one would expect, Table 8 shows that permitting some risk rating reduces the predicted amount of adverse selection and leads to a larger proportion of the population buying coverage. (In this model, high risks never find premiums to be "unaffordable," since there is no moral hazard and no income effects on the risk premium.) However, even with modified community rating, stand-alone drug coverage cannot be profitably marketed; there are still death spirals under all assumptions about risk aversion.

What happens to these estimates if we add the possibility that the expenses consumers will make without insurance may be less than those they make when they have coverage? That is, what happens if we take account of moral hazard, which seems to characterize outpatient drug spending (Newhouse, et al. 1993; Hillman, et al. 1999)?

If some of the expenses made by insured persons are caused by moral hazard, and therefore have values to consumers that are less than their costs, insurance coverage will be less attractive than in the no-moral-hazard case (Pauly 1971). More people will decline coverage; and adverse selection will be worse.

We simulate the effect of moral hazard by assuming that 20 percent of insured drug spending is attributable to moral hazard. Under conventional economic assumptions, the value of this additional spending will be half of its cost; the effect of moral hazard therefore is to reduce the total value of drug insurance by 10 percent. We estimate the effect of such a "moral hazard cost" on insurance choices in Table 9. As indicated, the combination of moral hazard and adverse selection reduces the proportion estimated to buy comprehensive coverage even further.

Finally, we specifically examine the MEDSTAT experience of the age group closest to Medicare: those aged 55 to 59 in 1994 (who were 60 to 64 at the end of the period). As already noted in Table 3, the year-to-year correlation of spending is highest in the oldest age group. Table 10 shows that, as before, adverse selection prevents the purchase in market equilibrium of drug-only coverage. Compared to Table 7, the market share of coverage that bundles drug spending with other medical expenses (total expenses) is smaller for this age group than for the overall population at low values of risk aversion, but is higher at higher values of risk aversion.

These simulation-based estimates of the proportion of the population remaining in the market are obviously not definitive, but they do strongly suggest that, for reasonable assumptions about parameter values, it would be very difficult for a market to offer unsubsidized stand-alone drug coverage, even in the under-65 market. Of course, the presence of a substantial tax subsidy coupled with offering of group insurance

coverage may make such a policy feasible in the employment-based group insurance market. Even here, there would likely be problems if stand-alone insurance were offered in a multiple-choice setting. What is most important in this analysis, however, is the comparison of market equilibria between all-inclusive coverage and drug only coverage. Drug-only coverage causes much more severe adverse selection even if it does not go into a total death spiral. Based on these findings, it should then be unsurprising that drug-only coverage is rare among the non-elderly. Not only that, but in multiple choice employment settings, it turns out to be very rare for an employer to offer plans that do and do not offer drug coverage. While offerings vary in other dimensions, employers tend to choose either all plans with drug benefits, or no plans with drug benefits.

Medicare Drug Spending

We assembled a three-year panel (1997-99) of Medicare beneficiaries from the MCBS. Low income persons also eligible for Medicaid were excluded. The number of observations is 2945 in each year. We regressed 1999 spending for each person on spending in the prior two years along with additional control variables. As before, the explanatory power of prior spending is much greater for drug spending than for total spending ($\overline{R}^2 = 0.34$ for drug spending and 0.18 for total spending), and there is a statistically significant effect of prior spending on total spending.

Table 11 shows (using the same methods as earlier) that stand-alone drug spending is generally infeasible for the Medicare population, even at breakeven premiums. However, bundled coverage could induce voluntary purchasing if risk aversion is moderate.

Needed Medicare Subsidy

Ignoring moral hazard and the possibility of risk rating, we estimated the subsidy to stand-alone drug coverage needed to get 80 percent of the Medicare population to voluntarily buy such coverage. (This calculation does not take account of the availability of coverage through Medicaid or other programs; it is

intended to be illustrative of the orders of magnitudes involved.) We do this by setting the subsidy equal to the difference between the willingness to pay of the group at the 80th percentile and the breakeven premium for the 80 percent highest risks. Table 12 shows that the estimated subsidy is large as a percentage of the premium for this group. Adding the administrative loading costs would doubtless raise the absolute and relative subsidies needed.

Conclusion

This analysis leads us to strongly suspect that drug-only coverage cannot be sold in competitive insurance markets at premiums that cover its cost. Even for middle class people, its sale would require a substantial subsidy.

These results are also very germane to discussions of publicly funded reinsurance of large medical expenses that provoke adverse selection (and intrusive underwriting screening to avoid adverse selection) in private insurance (Swartz 2002). The results imply that this problem is likely to be especially severe for drug expenses, even more so than for larger expenses associated with other types of medical care which display less persistence over time. One might therefore conclude that reinsurance that would provide the most appropriate incentives and relief to insurers would take into account *both* the amount and the persistence of large claims.

Another main result is that all-inclusive insurance policies will be less subject to adverse selection than drug only coverage for the same population. Having said this, however, we cannot conclude that unregulated competitive markets will necessarily be able to furnish such coverage. People in the lowest ranks of expected drug spending could have higher expected utility from coverage that excludes drugs than from coverage that includes it. That is, coverage that excludes drugs may drive out all-inclusive coverage (that, of course, includes drugs). As long as it is permitted to sell such coverage, and ignoring other economies or jointness advantages of comprehensive coverage, we conclude that "drug excluding" coverage would tend to drive out "drug including" coverage. However, it is instructive that, even in

unregulated under-65 markets, the phenomenon of "drug excluding" coverage is now rather uncommon. In any case, unsubsidized drug-only coverage that would supplement a policy that covers other expenses would barely survive, even if cost offsets are assumed to be zero.

Current discussions of drug coverage for the Medicare population often envision stand-alone but fairly generously subsidized coverage for much of the population. The adverse selection we have identified will be a challenge that must be taken into account, but one that those subsidies (in the short run) and integrated coverage (in the long run) may help to overcome. Indeed, the long-term policy choice is between generous subsidies to stand-alone coverage and less heavily subsidized but more carefully designed comprehensive insurance. How much subsidy is needed and how much redesign would help are questions which should definitely be investigated further.

Table 1

Percent of those initially in the highest quintile who remained in highest quintile after 1994*

	1995	1996	1997	1998
Inpatient, Outpatient, and Drug Expenditures	54	50	48	46

*100% of sample in highest quintile in 1994

Table 2

Percent of those remaining in highest spending quintile after 1994*

	1995	1996	1997	1998
Inpatient and Outpatient Expenditures	47	43	42	40
Drug Expenditure Only	76	69	63	60

*100% of sample in highest quintile in 1994

Table 3

% spending more than $5000 in second year, by age, comparison of results

Age	Our Data	Eichner, et al.
0-17	20.59	19.21
18-35	19.46	20.79
36-45	24.14	25.07
46-55	25.78	28.6
56-65	29.64	26.6

Table 4

Ratio of Top Quintile Average Spending to Overall Average Spending

Year	1994	1995	1996	1997	1998
Total Spending	3.9	2.5	2.3	2.2	2.2
Drug Spending	3.9	3.5	3.2	3.0	2.8

Table 5

"Statistical" Demand Simulation with Community Rating: Lowest Decile at which Insurance is

Purchased, by Type of Coverage at Level of Risk Aversion

	CRA=.0001	CRA=.0002	CRA=.0003	CRA=.009
Total	9th decile	7th decile	5th decile	1st decile
Total-Drug	9th decile	5th decile	5th decile	1st decile
Drug Only	10th decile	10th decile	10th decile	10th decile

Table 6

Regression Coefficients and "t" Statistics
Dependent Variable: Spending in 1998

Adj. R-Squared		*Coefficient*	*t*
0.6081	*drug 97*	.7788105	252.104
	drug 96	.1420874	30.871
	drug 95	.0477469	9.038
	drug 94	.05911	14.364
0.1887	*total 97*	.3428897	116.631
	total 96	.134076	40.740
	total 95	.1210086	32.510
	total 94	.0962468	30.061
0.1316	*inout 97*	.3010067	102.155
	inout 96	.111741	34.359
	inout 95	.0954854	26.032
	inout 94	.082087	26.149

Table 7
"Economic" Demand Simulation with Pure Community Rating: Lowest Percentile at which Insurance is Purchased, by Types of Coverage and Level of Risk Aversion

	CRA=.0001	CRA=.0002	CRA=.0003	CRA=0.0009
Total	95th percentile	27th percentile	12th percentile	3rd Percentile
Total-Drug	83rd percentile	15th percentile	6th percentile	1st Percentile
Drug Only	99th percentile	99th percentile	99th percentile	98th Percentile

Table 8

"Economic" Demand Simulation with Modified Community Rating: Lowest Percentile at which

Insurance is Purchased, by Type of Coverage and Level of Risk Aversion

	CRA=0.0001	CRA=0.0002	CRA=0.0003	CRA=0.0009
Total	92nd percentile	7th percentile	3rd percentile	1st percentile
Total-Drug	55th percentile	4th percentile	1st percentile	1st percentile
Drug Only	99th percentile	99th percentile	99th percentile	98th percentile

Table 9

"Economic" Demand Simulation With Moral Hazard and Pure Community Rating

	CRA=0.0001	**CRA=0.0002**	**CRA=0.0003**	**CRA=0.0009**
Total	98th percentile	39th percentile	17th percentile	4th percentile
Total-Drug	97th percentile	19th percentile	9th percentile	1st percentile
Drug Only	99th percentile	99th percentile	99th percentile	99th percentile

Table 10

"Economic" Demand Simulation for Persons 60-64 with no Moral Hazard and Pure Community

Rating: Lowest Percentile at which Insurance is Purchased, by Type of Coverage and Level of Risk

Aversion

	CRA=0.0001	**CRA=0.0002**	**CRA=0.0003**	**CRA=0.0009**
Total	99th percentile	70th percentile	1st percentile	1st percentile
Total-Drug	99th percentile	1st percentile	1st percentile	1st percentile
Drug Only	99th percentile	99th percentile	99th percentile	98th percentile

Table 11

"Economic" Demand Simulation with Pure Community Rating for Medicare Population: Lowest

Percentile at which Insurance is Purchased by Type of Coverage and Level of Risk Aversion

	CRA=0.0001	**CRA=0.0002**	**CRA=0.0003**	**CRA=0.0004**
Total	89th percentile	1st percentile	1st percentile	1st percentile
Drug Only	99th percentile	99th percentile	99th percentile	64th percentile

Table 12

Estimated Subsidy Necessary to Induce 80 Percent of Medicare Sample to Purchase Comprehensive

Stand-Alone Prescription Drug Coverage, by Level of Risk Aversion

CRA	Subsidy for 80% Purchase	
	$	**% of Premium**
.0001	908	91
.0002	883	89
.0003	857	86
.0004	704	71

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