**Public Policy and Health Care Choices of the Elderly:
Evidence from the Medicare Buy-In Program**

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Abstract

This study provides evidence on the economic decisions of senior citizens with respect to the largest means-tested program in the United States: the Medicaid program. Virtually all senior citizens have health insurance coverage through Medicare, but poor seniors may also be eligible for Medicaid, which fills in many of the gaps in Medicare coverage. Since 1987, the Medicaid program has undergone a series of changes relating to eligibility. In particular, two new categories of elderly Medicaid recipients, known as Qualified Medicare Beneficiaries (QMBs) and Specified Low-Income Medicare Beneficiaries (SLMBs), were created. This study uses the Survey of Income and Program Participation to explore three issues relating to the expansions. First, how much did the QMB expansions increase Medicaid eligibility? Second, how did increases in Medicaid eligibility affect supplemental insurance coverage? Finally, does increased Medicaid coverage translate into increased health care utilization?

There are five principal findings. First, actual Medicaid eligibility increased dramatically, from 8 percent in 1987 to 12.5 percent in 1995. Second, the expansions for the elderly resulted in dramatically higher Medicaid take-up rates than similar expansions for children. For every 100 elderly who became eligible, 49 took it up. Nearly 30 out of 100 elderly dropped private coverage, however, resulting in crowd out of 60 percent. Third, crowd out was concentrated among the youngest of senior citizens. Fourth, crowd out came from individuals dropping privately purchased health insurance rather than dropping employer-provided retiree health insurance. Finally, Medicaid coverage increased the number of hospitalizations, though the findings on health care utilization are generally inconclusive.

Public Policy and Health Care Choices of the Elderly:
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I.   INTRODUCTION

The U.S. federal government spent more than $352 billion on entitlements for the elderly in

1990.[1] Although 80 percent of the money went to two programs—Social Security and Medicare—a

significant amount was also spent on means-tested welfare programs, such as health insurance through

Medicaid, cash assistance through Supplemental Security Income (SSI), food stamps, public housing, and

energy assistance. Welfare programs for the elderly do not receive as much attention as those for the

young, but combined federal spending on elderly SSI and Medicaid recipients amounted to $11.7 billion

in 1990, approximately 54 percent of the amount spent on cash assistance and health insurance for

younger households on AFDC.[2]

The aim of this study is to provide evidence on the economic behavior of senior citizens with

respect to the largest of these means-tested programs, Medicaid. Virtually all senior citizens have health

insurance coverage through Medicare, but poor seniors may also be eligible for Medicaid, which fills in

many of the gaps in Medicare coverage and offers first-dollar coverage. During the past decade, the

Medicaid program has undergone a series of changes relating to eligibility. In particular, two new

categories of elderly Medicaid recipients, known as Qualified Medicare Beneficiaries (QMBs) and

Specified Low-Income Medicare Beneficiaries (SLMBs), were created. The income and asset limits to

qualify under these programs were less strict than the limits under existing Medicaid categories, and 1.9

million senior citizens were enrolled in the QMB program in 1993.[3] My particular focus will be on three

issues relating to the QMB (and SLMB) expansions. First, how much did the QMB expansions increase

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[1]U.S. House of Representatives, *Overview of Entitlement Programs* (1993), p. 1564.

[2]This amount excludes the cost of nursing homes, which disproportionately benefit the elderly.

[3]Neumann, Bernardin, Evans, and Bayer (1995).

Medicaid eligibility? The QMB expansions added to an existing patchwork of Medicaid rules which varied across states—in states where Medicaid was already generous the QMB expansions may not have made many individuals newly eligible. Second, how did increases in Medicaid eligibility affect supplemental insurance coverage? To address this, I estimate the effects of Medicaid eligibility on Medicaid coverage, private insurance coverage, and total insurance coverage. Finally, does increased Medicaid coverage translate into increased health care utilization? The evidence here may shed light more generally on the degree to which private supplemental plans impose an externality onto the Medicare system by lowering the effective price of health care.

In addressing these questions, this study makes three primary contributions. The first contribution is policy-oriented. Unlike Social Security and Medicare, the Medicaid program is a prime target in deficit reduction. In the recent budget battle of 1996, the House and Senate budget resolutions would have required a $182 billion reduction in the projected growth of Medicaid from 1996 to 2002. It would have been difficult to achieve this level of savings without affecting the 28 percent of Medicaid spending incurred by elderly participants. A likely outcome would have been to scale back Medicaid coverage for low-income Medicare beneficiaries.[4] Even though Medicaid may still be cut, there is very little direct evidence on its economic impact for the elderly.[5]

The second contribution is adding evidence to the growing literature on government provision of health insurance and crowd out of private insurance through a conceptually clean example. Although a recent and controversial literature has addressed the magnitude of the effect of Medicaid expansions for pregnant women and children on private insurance coverage, there are two real-world problems associated with the structure of employer-provided health insurance and the timing of Medicaid

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[4]Kaiser Commission on the Future of Medicaid (1995).

[5]McGarry (1996) and Yelowitz (1996) provide evidence on Medicaid's impact on SSI participation for the elderly.

participation that make crowd-out estimates among the young inherently difficult.[6] First, employer-

provided health insurance is usually sold only to individuals or to entire families without gradations

among types of dependents. Thus a family that wants to cover both parents but not the children (because

the children qualify for Medicaid) may find it impossible to do so with only one employer health

insurance policy. As Cutler and Gruber (1996a) explain, this lack of distinction may increase or decrease

crowd out relative to the case where a policy covered only individuals, and could conceivably result in

crowd-out estimates of more than 100 percent. Second, the Medicaid expansions for younger groups

provide no immediate benefit unless the family actually uses health care services—thus many families

may wait until their child gets sick to enroll. Indeed, both Cutler and Gruber (1996a) and Currie and

Gruber (1996a) find very low Medicaid take-up rates—for every 100 children made eligible for

Medicaid, approximately 25 took it up. If Medicaid take up is underestimated because it provides little

immediate benefit, then crowd-out estimates will be overestimated.[7] Both of these complications mean

that the appropriate benchmark for judging the economic importance of crowd out is not obvious. These

two problems are avoided in the context of the elderly. First, the QMB expansions provided immediate

benefits because they paid for Medicare premiums (worth $550 per year). Second, the distinction

between individuals and families is irrelevant because both elderly family members would be covered by

QMB.

The final contribution is data-oriented. To estimate the effects of QMB, I use longitudinal data

from the Survey of Income and Program Participation (SIPP) covering the years 1987 to 1995. The SIPP

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[6]See Cutler and Gruber (1996a, 1996b, 1996c), Currie (1996), Dubay and Kenney (1996a, 1996b), Shore-Sheppard (1996a, 1996b), and Swartz (1996) for differing methods and magnitudes. It is important to stress that the critiques in this paragraph have nothing to do with the underlying methodology or empirical implementation in the existing studies.

[7]Cutler and Gruber (1996a) take steps to address both of these problems, by calculating "conditional coverage" for uncovered children and by constructing family-level measures of the value of Medicaid. These concerns turn out to be substantively important—their crowd-out estimate rises from 31 percent to 77 percent by incorporating the decisions of other family members, then falls to 49 percent by imputing conditional coverage.

provides detailed questions on health insurance coverage and the ingredients of Medicaid eligibility. I use these questions to impute Medicaid eligibility incorporating all the major categories of elderly Medicaid recipients. The SIPP also offers several questions on the number of hospital visits and doctor visits which allow me to estimate the effect of Medicaid coverage on health care utilization. Finally, the SIPP overcomes many aggregation problems that are present in the Current Population Survey (CPS).

The findings can be summarized as follows. First, Medicaid eligibility increased dramatically, from 8 percent in 1987 to 12.5 percent in 1995. Second, the expansions for the elderly resulted in dramatically higher Medicaid take-up rates than similar expansions for children. For every 100 elderly who became eligible, 49 took it up. Nearly 30 elderly dropped private coverage, however, resulting in crowd out of 60 percent. Third, crowd out was concentrated among the youngest of senior citizens (aged 65–69). Among this younger group, crowd out was 83 percent. Among the oldest in my sample (aged 75 and older), crowd out was much smaller (48 percent). Fourth, as expected, crowd out appears to come from individuals dropping privately purchased health insurance rather than dropping employer-provided retiree health insurance. Finally, there is some evidence that Medicaid coverage increased the number of hospitalizations, though the magnitudes are not precisely estimated.

The remainder of the paper is arranged into four sections. Section II describes the supplemental health care choices facing the elderly. Particular attention is paid to key features of the Medigap and Medicaid policies. The section also presents some basic numbers and magnitudes of Medicaid participation. Section III describes the data construction and identification issues. Section IV presents the results and policy implications. Section V concludes.

II.   HEALTH INSURANCE CHOICES OF THE ELDERLY

A.   Some Background

Health care is an important item in the consumption bundle of the elderly. Approximately 10.5 percent of the elderly household's income is devoted to health care expenses, compared to 3.5 percent for the nonelderly.[8] The average Medicare expenditure for elderly was $3,900 in 1990.[9] Virtually all elderly are covered by Medicare, but Medicare does not completely pay for health care services. The elderly are subjected to typical insurance provisions: premiums, copayments, and deductibles. They also face some price uncertainty, because physicians may charge the patient up to 15 percent more than Medicare's reimbursement rates, a practice known as "balanced billing."[10] In addition, Medicare does not cover the costs of all health care services, such as prescription drugs and nursing homes. Many senior citizens take up additional coverage through private and public supplemental plans, known as "Medigap" and Medicaid, respectively, to fill these holes in Medicare coverage.

Description of Medigap. More than 75 percent of elderly Medicare beneficiaries—about 22 million people—obtain private insurance to help cover out-of-pocket costs. The most common type of Medicare supplemental coverage is an individually purchased Medigap policy. The Medigap market grew steadily between 1988 and 1993, rising from $7.3 billion to $12.1 billion.[11] Starting in 1992, Medigap policies were required to conform to one of ten standardized sets of benefits, referred to as Plans A through J.[12] For example, Plan A covers Medicare coinsurance; Plan C covers Medicare

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[8]U.S. House of Representatives, *Green Book* (1994, p. 879).

[9]U.S. House of Representatives, *Green Book* (1994, p. 874).

[10]Approximately 90 percent of physicians are "on assignment," however, meaning they accept Medicare's payment as the full payment for treating an elderly patient.

[11]General Accounting Office (1995).

[12]Several states did not adopt all ten standardized plans. Pennsylvania and Vermont adopted seven; Delaware adopted six; and Minnesota, Wisconsin, and Massachusetts had alternative simplification programs in effect when the requirement was enacted (General Accounting Office 1995).

coinsurance and inpatient deductibles; and Plan J covers these cost-sharing components as well as several services not covered by Medicare, such as prescription drugs. Insurance companies are not required to offer all ten plans, and many do not. Table 1 summarizes the key features of these standardized Medigap plans, and presents the annual premiums for a 65-year-old in 1992. The premiums vary substantially based on the plan's features—they range from $476 for Plan A, which only covers coinsurance, to $1,887 for Plan J, which provides the most comprehensive coverage.

A final feature to consider is medical underwriting. During the six months after a person turns age 65 and enrolls in Medicare Part B, federal law guarantees the opportunity to purchase a Medigap policy. After that, Medigap insurers are permitted to refuse to sell policies because of an applicant's health history or status, and insurers do exercise this option.[13] In a General Accounting Office survey of the twenty-five largest Medigap insurers (who represent 65 percent of Medigap business), eleven used medical underwriting to decide to whom to sell their policies, five sold some policies without checking health histories, and the remaining nine offered their policies without checking applicants' health history (General Accounting Office 1996). The largest insurer, Prudential Insurance Company of America, offered seven of the ten policies without medical underwriting to members of the American Association of Retired Persons (AARP).

Description of Medicaid. Elderly people can receive assistance from Medicaid through several alternative pathways. The elderly receive varying benefit coverage depending on how they qualified for assistance. The three major ways to qualify are through the QMB, SSI, and Medically Needy (MN) programs. Although the exact parameters to qualify vary by program, state of residence, and time period, all three programs share certain characteristics. First, all are restricted to elderly who are poor, by having limits on income and assets. The income limits for the various programs range from as low as 27 percent of the federal poverty line (FPL) to as high as 120 percent of the FPL. The asset limits range from $2,000

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[13]In 1995, the rejection rates ranged from 1 percent to 54 percent.

TABLE 1
Comparison of Standardized Medigap Plans (A–J) to the QMB Program, Calendar Year 1992

Plan	Cost for 65-Year-Old	Basic Benefit	Hospital Deductible	Skilled Nursing-Home Copay	Deductible for Doctor	Foreign Travel	At-Home Recovery	Excess Doctor Charges	Preventive Screening	Outpatient Prescription Drugs
A	$476	Yes	No	No	No	No	No	No	No	No
B	668	Yes	Yes	No	No	No	No	No	No	No
C	804	Yes	Yes	Yes	Yes	Yes	No	No	No	No
D	734	Yes	Yes	Yes	No	Yes	Yes	No	No	No
E	751	Yes	Yes	Yes	No	Yes	No	No	Yes	No
F	1,012	Yes	Yes	Yes	Yes	Yes	No	100%	No	No
G	896	Yes	Yes	Yes	No	Yes	Yes	80%	No	No
H	1,153	Yes	Yes	Yes	No	Yes	No	No	No	Basic
I	1,480	Yes	Yes	Yes	No	Yes	Yes	100%	No	Basic
J	1,887	Yes	Yes	Yes	Yes	Yes	Yes	100%	Yes	Extended
QMB	0	Yes	Yes	Yes	Yes	No	No	100%[a]	No	No

Source: Breland (1995).

[a]Physicians cannot bill QMBs for any payments for Medicare-covered services, hence they cannot practice "balance billing."

to $10,000. Second, each program has some deductions from income (for work expenses, medical expenses, and standard deductions) and has high marginal tax rates on earned and unearned income (usually 50 percent or higher). Third, collecting Medicaid benefits is an all-or-nothing decision for each program, known as the "Medicaid notch." This means that a household with income slightly higher than the income eligibility limit receives nothing, while one with income slightly lower than the limit receives full Medicaid services. Finally, each program provides some services or coverage that Medicare does not.

The parts of Medicaid which have undergone the most dramatic changes are the QMB and SLMB programs. The QMB program requires states to pay for Medicare premiums and cost-sharing requirements for poor elderly Medicare beneficiaries, while SLMB requires payment of Medicare premiums only. For QMB, states must pay for Medicare Part A deductibles ($736 per hospital spell in 1995), Part B deductibles ($100 per year), monthly Part B premiums ($46.10 per month), and the 20 percent coinsurance rate per doctor visit. In addition, physicians are prohibited from charging QMBs more than what Medicare reimburses—that is, they may not practice balanced billing. Finally, a person joining QMB keeps his "option value" on the previous Medigap policy. If he qualifies, he may suspend supplemental Medigap for up to two years without paying premiums.

This QMB coverage itself represents a valuable benefit to an elderly individual. In 1993, the national average actuarial value of the QMB program was $950, and the minimum benefit was $439 (the annual Medicare Part B premium for a QMB who received no services during the year). Out-of-pocket costs would be reduced by more than $2,300 per year for a beneficiary who has a typical hospitalization and skilled nursing facility stay during the year.[14] Returning to Table 1, the bottom row shows that QMB has many of the same features as the Medigap Plan F policy, which had an annual premium of $1,012 in 1992 (and did not pay for monthly Medicare Part B premiums).

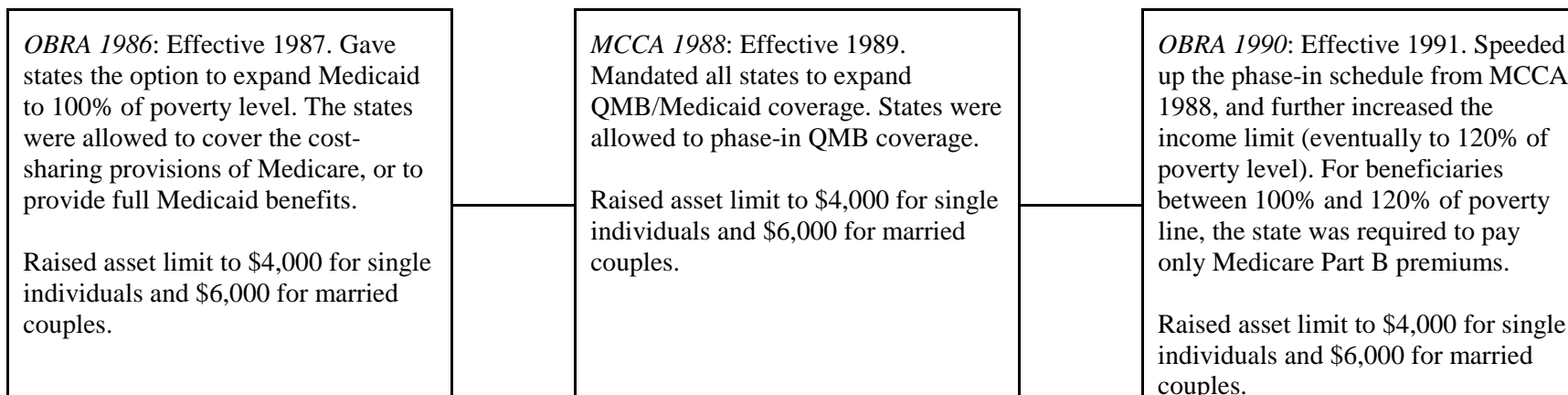
[14]General Accounting Office 1994.

Table 2 illustrates a time line for the QMB and SLMB legislation, and the income limits for QMB and SLMB eligibility over time as specified by various federal mandates (the date of implementation for the mandates is January 1). Starting in 1987, the states were given additional options to expand Medicaid to the elderly. These changes serve as the primary source of variation in the Medicaid program to identify its importance on health care coverage and utilization. The Omnibus Reconciliation Act of 1986 (OBRA) gave states the option to extend Medicaid up to 100 percent of the poverty line for elderly who qualified for Medicare Part A coverage. Moreover, the asset limit to qualify was $4,000 for a single individual and $6,000 for a married couple, double the limit of the SSI program. OBRA 1986 also gave states the option to provide full Medicaid benefits (rather than just cost-sharing for Medicare) to those elderly who had income below a state-established standard, though few states chose to do this. The Medicare Catastrophic Coverage Act of 1988 (MCCA) made the Medicare buy-in option mandatory, and phased in QMB eligibility over time. In addition, five states (Hawaii, Illinois, North Carolina, Ohio, and Utah) were permitted to phase in the mandate on a different schedule. Finally, OBRA 1990 increased the income limit to 110 percent of the poverty line in 1993, and to 120 percent in 1995.

Table 3 documents the QMB income limits (expressed as a percentage of the poverty line) from voluntary state adoptions between 1987 and 1992. Between 1987 and 1990, several states implemented the QMB expansions prior to the federal mandates described in Table 2. These states typically adopted an income limit of 100 percent of the poverty line and an asset limit ranging from $4,000 to $6,000. These states included California, the District of Columbia, Florida, Hawaii, Maine, Massachusetts, Mississippi, New Jersey, Pennsylvania, and South Carolina. These voluntary adoptions create additional variation to identifying the effect of the Medicaid eligibility.

Another way to qualify for Medicaid is through the SSI program. Elderly people who are poor enough to qualify for cash assistance under the federal SSI program are generally eligible for Medicaid as

TABLE 2
Timeline of Expansions in the QMB Program

OBRA 1986: Effective 1987. Gave states the option to expand Medicaid to 100% of poverty level. The states were allowed to cover the cost-sharing provisions of Medicare, or to provide full Medicaid benefits.

Raised asset limit to $4,000 for single individuals and $6,000 for married couples.

MCCA 1988: Effective 1989. Mandated all states to expand QMB/Medicaid coverage. States were allowed to phase-in QMB coverage.

Raised asset limit to $4,000 for single individuals and $6,000 for married couples.

OBRA 1990: Effective 1991. Speeded up the phase-in schedule from MCCA 1988, and further increased the income limit (eventually to 120% of poverty level). For beneficiaries between 100% and 120% of poverty line, the state was required to pay only Medicare Part B premiums.

Raised asset limit to $4,000 for single individuals and $6,000 for married couples.

Phase-in schedule from federal mandates for QMB program, expressed as a percentage of the poverty line					
	1989	1990	1991	1992	1993–94	1995
45 states and DC	85	90	100	100	110	120
HI, IL, NC, OH, UT	80	85	95	100	110	120

Source: Intergovernmental Health Policy Project, various editions.

TABLE 3
Implementation of the QMB Program over Time (income limit expressed as percentage of the FPL)

State	1987	1988	1989	1990	1991	1992
Alaska	100	100	100	100	100	100
Arkansas	—	85	85	90	100	100
California	100	100	100	100	100	100
Colorado	—	85	85	90	100	100
Connecticut	100	100	100	100	100	100
D.C.	100	100	100	100	100	100
Florida	90	100	100	100	100	100
Hawaii	—	—	100	100	100	100
Illinois	—	—	80	85	95	100
Kentucky	—	—	100	100	100	100
Louisiana	—	—	85	100	100	100
Maine	—	100	100	100	100	100
Massachusetts	100	100	100	100	100	100
Mississippi	—	—	100	100	100	100
New Jersey	100	100	100	100	100	100
North Carolina	—	—	80	85	95	100
Ohio	—	—	80	85	95	100
Utah	—	—	80	85	95	100
Schedule for all other states	—	—	85	90	100	100

Source: Intergovernmental Health Policy Project, various editions.

"categorically eligible" beneficiaries. The link to the federal program provides a nationwide floor on eligibility for the elderly of about 75 percent of the poverty line for a single individual. Some states supplement the federal SSI payment, however, raising this floor even higher. Assets under SSI are limited to $2,000 for a single individual and $3,000 for a married couple. Medicaid services for SSI beneficiaries include payment of Medicare premiums, cost-sharing, and additional services covered under state Medicaid programs such as prescription drugs, vision care, and dental care.

In most states, SSI participation automatically entitles the recipient to Medicaid coverage. In thirty-one states (and Washington, D.C.) this coverage is automatic, and in another seven it is granted if the recipient completes a second application with the state agency that administers the Medicaid program. In several states, Medicaid eligibility is not automatic. Twelve states, known as Section 209(b) states, have Medicaid requirements that are more restrictive than the SSI requirements, in that they impose more restrictive income or asset requirements or require an additional application.

The final way to qualify for Medicaid is through the MN program. Medically needy individuals have income levels above cash assistance levels (e.g., SSI's limit), but incur expenses for health care services that exceed a defined level of income and assets. In twenty-nine of the thirty-seven states that offered MN in 1991, elderly people who required nursing home assistance qualified for MN because the high cost of nursing home care depleted their financial resources. The asset limits for MN are usually the same as SSI, though several states have limits that are higher or lower.

B.   Some Preliminary Numbers

Changes in Medicaid Eligibility, 1987–1995. There is no individual-level data set that allows me to separately track the three groups of Medicaid beneficiaries described above over time.[15] To get a sense

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[15]Even if microdata did separate the Medicaid categories out, there might be serious questions about the ability of the respondents to differentiate between Medicaid categories. Neumann, Bernardin, Evans, and Bayer (1995) examine a one-time supplement to the Medicare Current Beneficiary Survey (MCBS), which explicitly asked about QMB coverage and awareness. Among those in the MCBS who were eligible, only 7 percent had heard of

of the underlying time trends in QMB coverage, and Medicaid participation more generally, Figure 1

presents Medicaid caseload numbers from administrative data for the fiscal years 1991 to 1995.[16]

Roughly 3.5 to 4.0 million elderly (around 12.5 percent of all elderly) participate in Medicaid. QMB

enrollment rose from 655,000 in 1991 to 1,139,000 in 1995, and represented 90 percent of the growth in

elderly Medicaid enrollment. In 1995, there were more QMB beneficiaries than MN beneficiaries, and

the size of QMB (in terms of beneficiaries) was around 70 percent of that of elderly SSI recipients with

cash assistance.

The next two figures, constructed from the SIPP data described later in Section III, show changes

in Medicaid eligibility from 1987 to 1995. For each elderly individual in the SIPP, I imputed eligibility

for QMB, SSI, and MN based on his characteristics (e.g., income, assets, medical expenses) and the

Medicaid rules in his state. Figure 2a presents the trends for the separate programs. SSI eligibility

gradually declined over the period, from 7 percent to 4.9 percent, and MN eligibility remained quite

stable at 2.5 percent. Over the same time, however, QMB and SLMB eligibility rose dramatically, from 1

percent of all elderly in 1987, to 11.5 percent in 1995. Since many individuals may qualify for Medicaid

under more than one program, the sum of the three does not represent the actual change in Medicaid

eligibility. Figure 2b shows the overall change. As expected, the rise in Medicaid eligibility was less

dramatic than the previous figure would suggest. From 1987 to 1995, Medicaid eligibility increased by

more than 50 percent, from 8 percent to 12.5 percent of all elderly. During the same time, Medicaid

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QMB, but 40 percent were enrolled in it. Based on links to administrative data, the authors found that 19 percent of QMB participants responded that they were not participating in QMB.

[16]These data come from the Health Care Financing Administration's Form 2082 (U.S. Department of Health and Human Services, various editions). This administrative data avoids some of these inaccuracies associated with individual responses, though Form 2082 is notorious for its inaccuracies. For example, some states classify their elderly QMBs into different categories. Even in 1995, long after the federal QMB mandates were implemented, some states reported zero QMBs. Nonetheless, the underlying trends are suggestive, even if the exact levels are not. I was unable to obtain these Medicaid breakdowns for fiscal years prior to 1991.
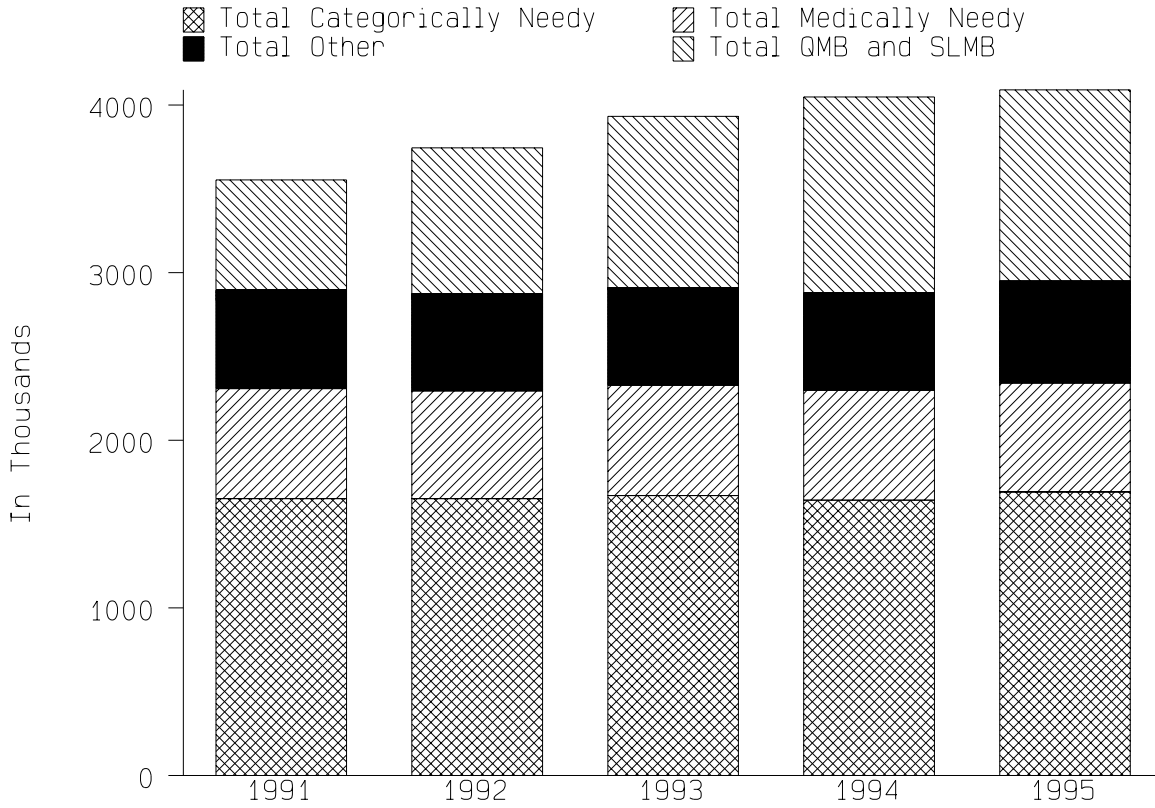
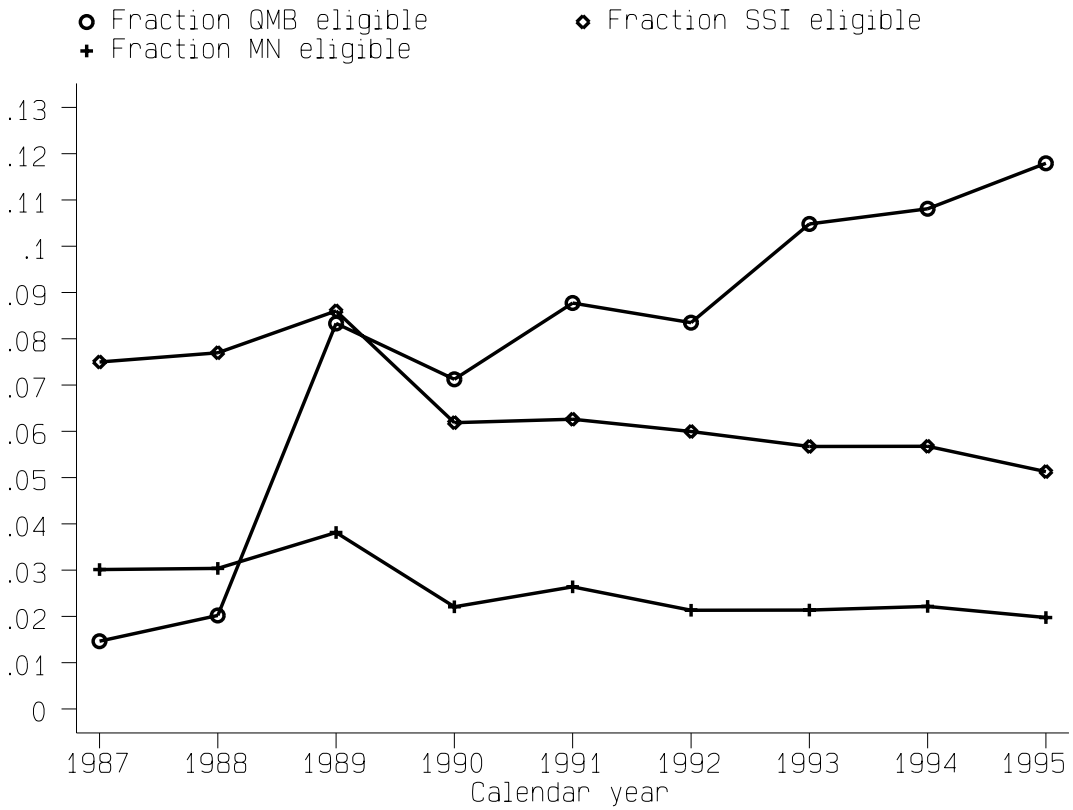Figure 1: Elderly Medicaid Beneficiaries
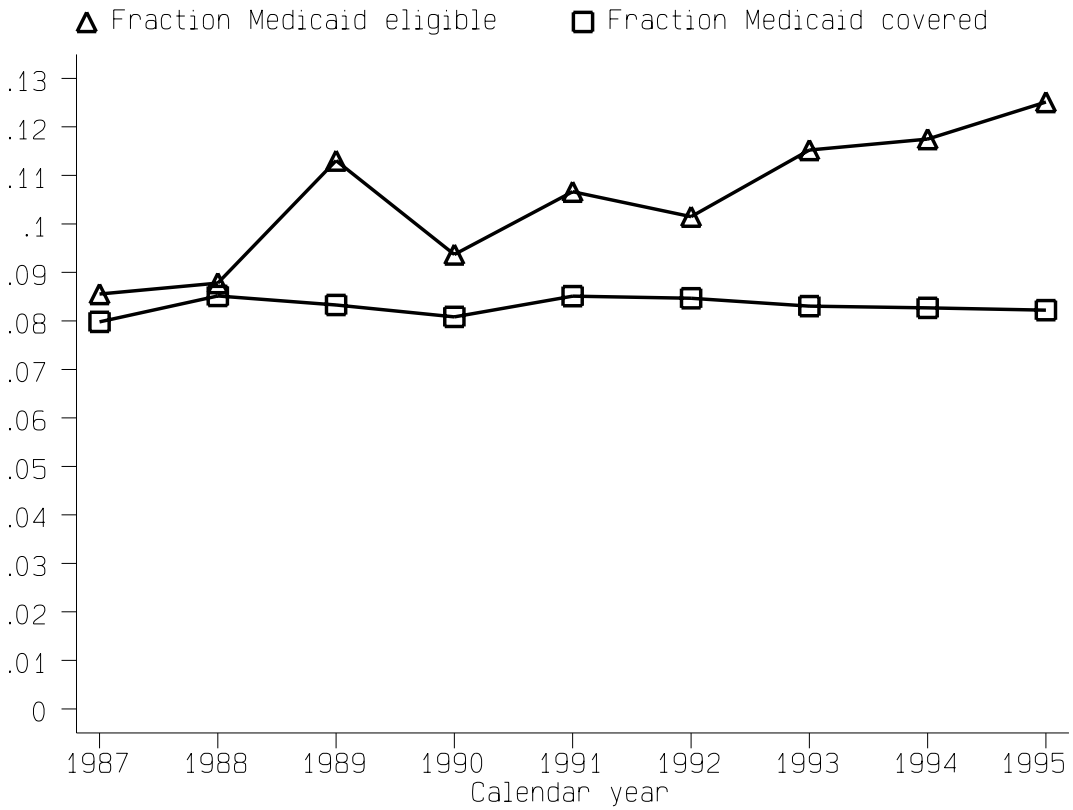
Figure 2a: Expansions in Medicaid eligibility

Figure 2b: Trends in total eligibility and coverage

coverage remained roughly constant at around 7.8 percent.[17] From the time-series variation in this figure, it may be tempting to conclude that the QMB expansions were ineffective at raising Medicaid coverage, but it is important to remember that other national factors such as the Medigap standardization were changing over time, and these other factors could have independent effects on Medicaid participation.

Individual Transitions onto Medicaid. Before moving onto more formal analysis, it may be instructive to examine the evolution of private coverage when a senior citizen moves onto Medicaid. How many had private coverage before Medicaid, and how many drop it? To answer this, I used the longitudinal structure of the SIPP to construct a sample of individuals who enter Medicaid. Overall, 1,306 elderly individuals transitioned onto Medicaid. For this sample, I computed private health insurance coverage rates for the two-year window bracketing the transition.[18] As Figure 3a shows, a majority start off with private coverage, and that private coverage declines slightly in the 12-month period prior to Medicaid receipt (though the coverage rates at 4, 8, and 12 months prior to Medicaid receipt are not significantly different from each other). Of course, the private coverage rate is lower than for the entire sample because those who eventually transition onto Medicaid are more disadvantaged before Medicaid receipt. Private coverage drops off sharply at the time of Medicaid receipt. Compared to the prior 12 months, private coverage falls by 21 percentage points (and is statistically significant with a standard error of 2.9 percentage points). Private coverage remains lower after the transition, but it does not fall all the way to zero.

The most obvious reason why private coverage does not approach zero is that some Medicaid spells are very short. Indeed, only two-thirds of the sample who were enrolled in Medicaid at month 0

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[17]The reason why the take-up rate is so high in the early years is that *imputed* Medicaid eligibility is a noisy measure of *actual* eligibility. Not all of those who report Medicaid coverage are imputed as eligible in the SIPP simulations. In reality, the take-up rate among imputed eligibles is around 50 percent.

[18]The sample sizes become smaller as we move further away from the Medicaid transition at month 0. This usually occurs when the SIPP panel ends rather than through sample attrition. The number of observations varies between 437 and 1,306 individuals in each month.
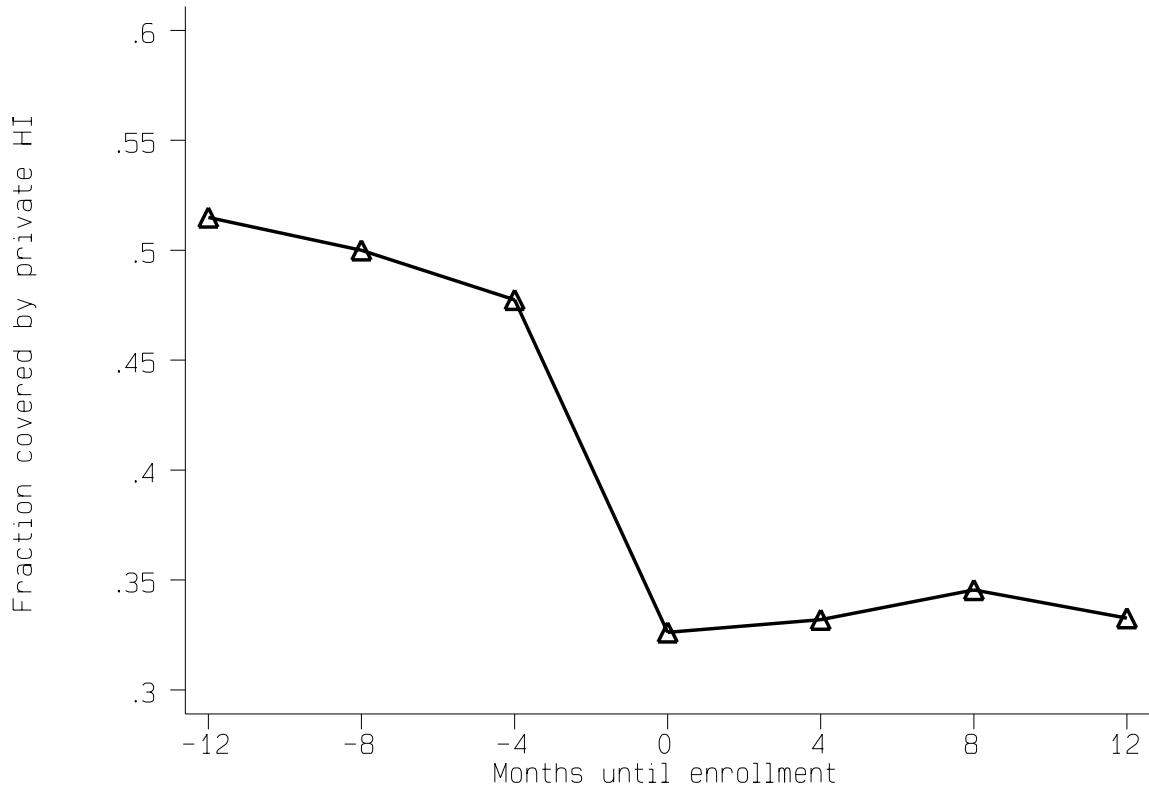
Figure 3a: Private coverage before/after Medicaid enrollment

continued to be enrolled in month 4. Figure 3b shows a similar graph for elderly who continued to be

enrolled in Medicaid at month 4, and Figure 3c for those who were not enrolled at month 4. Both graphs

now follow individuals for 16 months rather than 12 months after their transition. For individuals who

were enrolled in Medicaid in both month 0 and month 4, private coverage again falls off and stays lower.

It still does not fall all the way to zero. It remains above 20 percent. In contrast, Figure 3c shows a

dramatically different path for those who were on Medicaid at month 0 and off at month 4. Private

coverage drops dramatically, but then bounces back.[19] This bounce suggests that even with medical

underwriting, senior citizens still have access to private supplemental plans.

III.   DATA CONSTRUCTION AND IDENTIFICATION

A.   SIPP Description

For the empirical analysis, I use the Survey of Income and Program Participation (SIPP). Each

household in the SIPP is interviewed at 4-month intervals (known as "waves") for approximately 32

months. The SIPP is a panel survey in which a new panel is introduced each year. For the basic analysis

on insurance coverage, I use all interviews from the 1987, 1988, 1990, 1991, 1992, and 1993 SIPP panels

(the 1989 panel was cut off after only one year). The 1987 and 1988 panels began with a sample of

12,500 households. The 1990 through 1993 panels interviewed approximately 14,300, 14,000, 19,600,

and 19,890 households, respectively. The SIPP provides information on the economic, demographic, and

social situations of surveyed household members. Although the SIPP asks about health insurance

coverage and Medicaid eligibility in every month, it is well-known that many respondents tend to give

the same answer for every month within a 4-month interval. I therefore restrict the analysis to the last

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[19]It is unlikely that SIPP coding errors in Medicaid are responsible for the transitions in Figure 3c, because there is no reason to expect the drop down in private coverage at month 0 if this were the case. Moreover, 18 percent of the sample in Figure 3c subsequently rejoin Medicaid during months 8 through 16. This explains why private coverage falls slightly after month 4.
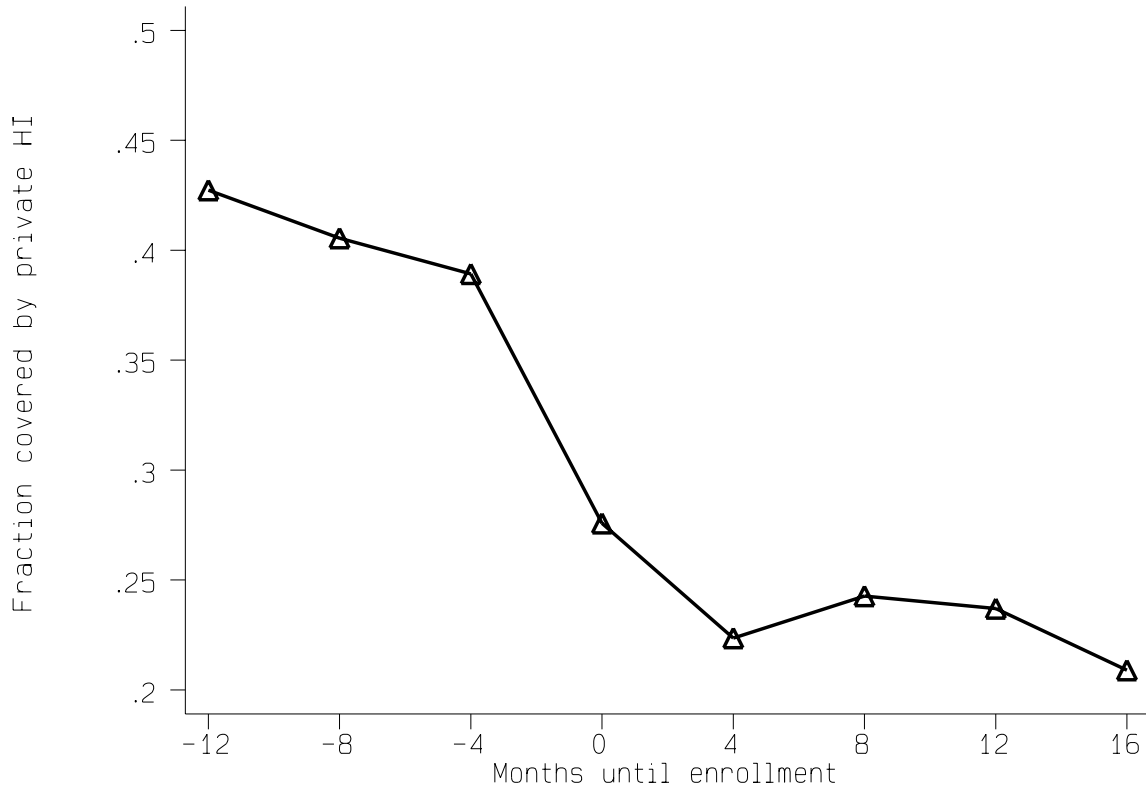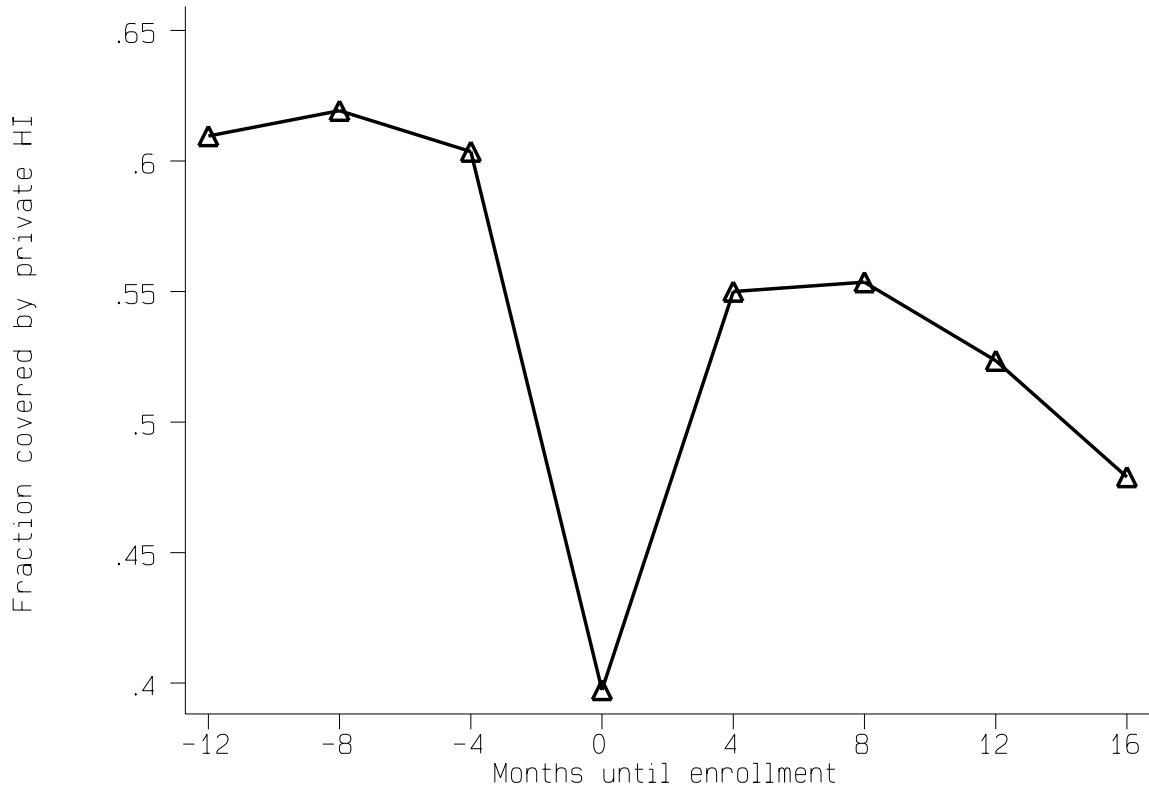
Figure 3b: On Medicaid at t=0 & t=4

Figure 3c: On Medicaid at t=0, off at t=4

month within a 4-month interval. I include individuals once they reach the age of 65. I also restrict the

sample to households located in the forty-two uniquely identified states in the SIPP, because I must

impute Medicaid eligibility based on state rules. Finally, I restrict the sample to individuals who provided

answers to asset questions in the SIPP topical modules, because I use these to impute eligibility.[20] These

deletions are illustrated in Appendix Table 1.

The SIPP has several advantages for analyzing welfare programs relative to the Current

Population Survey (CPS) in determining Medicaid eligibility. Eligibility is less prone to measurement

error in the SIPP because income sources are asked monthly rather than annually. In addition, the SIPP

asks questions on liquid assets, automobiles, medical expenses, and life insurance which are used to

compute eligibility, while the CPS does not. I am able to better impute state rules at a particular point in

time. Measuring health insurance coverage, the dependent variable, is also easier in the SIPP. The SIPP

asks about Medicaid, private health insurance coverage, and lack of insurance on a monthly basis, while

the CPS asks about it on an annual basis.[21] Finally, the SIPP provides several questions on health care

utilization, which I will discuss in Section IV.

Overall, the sample consists of 217,112 observations on 31,661 unique individuals. Table 4

presents summary statistics. The first seven rows provide breakdowns of insurance coverage taken at the

monthly level, along with the precise definitions of the variables. Virtually all elderly report Medicare

coverage. Approximately 8 percent of the elderly have Medicaid coverage. This is lower than the

participation rate derived from administrative data (12.5 percent), because many elderly Medicaid

recipients are institutionalized in nursing homes, which the SIPP does not sample.[22] Seventy-seven

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[20]These questions were asked in wave 4 for the 1988, 1991, and 1993 panels. They were asked in wave 7 for the 1987, 1990, and 1992 panels.

[21]Although the March CPS asks for health insurance coverage during the previous year, comparisons with other surveys indicate that some respondents are, in fact, providing information about their current insurance status. See Swartz (1986), U.S. Department of Commerce (1990), and Winterbottom et al. (1995) for more discussion.

[22]Medicaid provided payments on behalf of 1.4 million nursing home recipients in 1993, who represented 34 percent of all elderly Medicaid recipients.

TABLE 4
Summary Statistics

	Mean (SD)	Other Comments
Medicare coverage	.970 (.168)	"Was — covered by Medicare during the month?"
Medicaid coverage	.083 (.276)	"Was — covered by Medicaid during the month?"
Private health insurance coverage	.771 (.419)	"Was —'s health insurance coverage from a plan in —'s own name (primary policy holder), or was — covered as a family member on someone else's plan?"
Insured	.845 (.361)	Medicaid, private health insurance, or both.
Medigap	.341 (.474)	Private health insurance *not* obtained from current employer or union, through a former employer, through the CHAMPUS or CHAMPVA programs.
Retiree health insurance where employer pays all costs	.093 (.290)	Private health insurance obtained from current or former employer or union, where employer pays all of costs.
Retiree health insurance where employer pays some or none of costs	.215 (.410)	Private health insurance obtained from current or former employer or union, where employer pays some or none of costs.
Medicaid eligible	.106 (.308)	= f(earned income, unearned income, cars, life insurance, liquid assets, medical expenses, SSI rules, MN rules, and QMB rules)
Currently married	.558 (.496)	= 1 if yes
Widowed	.330 (.470)	= 1 if yes
Divorced, separated, never married	.110 (.313)	= 1 if yes
White	.890 (.312)	= 1 if yes
Black	.091 (.287)	= 1 if yes
Other	.018 (.135)	= 1 if yes
Education ≤ 8	.253 (.435)	= 1 if yes
9 ≤ education ≤ 11	.176 (.380)	= 1 if yes
Education = 12	.326 (.468)	= 1 if yes
Education > 12	.243 (.429)	= 1 if yes
Hispanic	.047 (.212)	= 1 if yes
Female	.592 (.491)	= 1 if yes
Veteran	.246 (.431)	= 1 if yes
Monthly income	1,879 (1,672)	Total income expressed in constant 1987 dollars
Liquid assets	42,257 (90,901)	Liquid assets, 1987 dollars
Medical expenses	63 (121)	Monthly, out-of-pocket medical expenses, 1987 dollars
Life insurance	6,838 (21,126)	Face value of life insurance policy, 1987 dollars
Age	73.27 (5.85)	range = [65,85]

Notes: Sample consists of 217,112 observations on 31,661 individuals drawn from the 1987–1993 SIPP panels, covering the calendar years 1987 to 1995. Respondent's answer taken from fourth reference month of each SIPP panel wave.

percent of the sample is covered by some form of private coverage. In total, 85 percent have

supplemental coverage. A small portion of the sample is covered both by Medicaid and private insurance.

The next three rows show some of the sources of private coverage—privately purchased Medigap and

employer-provided retiree health insurance. These do not add up to the total amount of private coverage

because some individuals are covered under a spouse's plan.[23] The remainder of the table presents some

demographic variables that are included in the analysis, as well as some information on income, liquid

assets, and medical expenses which go into calculating Medicaid eligibility. The details of computing

Medicaid eligibility are discussed in the appendix.

B.   Identification Issues and Instrumental Variables Strategy

The results on insurance coverage are estimated from a linear probability model.[24] The three

equations to be estimated are:

(1) $\text{MEDICAID}_i = \beta_0 + \beta_1\text{MCELIG}_{ijt} + \beta_2X_i + \beta_3\text{STATE}_j + \beta_4\text{DEMOG}_k + \beta_5\text{TIME}_t + \epsilon_{1i}$

(2) $\text{PRIVATE}_i = \delta_0 + \delta_1\text{MCELIG}_{ijt} + \delta_2X_i + \delta_3\text{STATE}_j + \delta_4\text{DEMOG}_k + \delta_5\text{TIME}_t + \epsilon_{2i}$

(3) $\text{INSURED}_i = \gamma_0 + \gamma_1\text{MCELIG}_{ijt} + \gamma_2X_i + \gamma_3\text{STATE}_j + \gamma_4\text{DEMOG}_k + \gamma_5\text{TIME}_t + \epsilon_{3i}$

where MEDICAID_i, PRIVATE_i, and INSURED_i are indicator variables equal to 1 if the ith individual

was covered by Medicaid, private health insurance, or any form of supplemental coverage, respectively,

and MCELIG is an indicator variable equal to 1 if the ith individual was imputed to be eligible for

Medicaid under the QMB, SSI, or MN programs. X_i is a vector of other individual characteristics that

may affect health care coverage (such as age and its square, gender, ethnicity, education, and veteran

status). STATE_j is a set of dummy variables indicating the state of residence (j=1,...,42), DEMOG_k is a

[23]For single individuals, total private coverage is 69 percent while the sum of Medigap and retiree health insurance is 62 percent. The remaining gap is due to coverage from CHAMPUS, CHAMPVA, and military health insurance. For married individuals, the numbers are 84 and 58 percent.

[24]A linear probability model is used for ease of computation and for consistency of the instrumental variables procedure. Heckman and MaCurdy (1985) show that this procedure produces consistent estimates. The standard errors are corrected for repeated observations on the same individual and for heteroskedasticity.

set of dummy variables indicating one of twenty-four demographic groups,[25] and $TIME_t$ is a set of

dummy variables for calendar year (t=87,...,95). The coefficients β, δ, and γ will be estimated, and ϵ is

an error term. Because Medicaid eligibility should increase Medicaid coverage, it is expected that $\beta_1 > 0$.

In addition, Medicaid eligibility may crowd out private coverage. Unlike previous studies which

examined Medicaid expansions for pregnant women and children, the QMB expansions should result in a

crowd-out estimate between 0 and 1. Thus, $0 > \delta_1 > -\beta_1$.

By including $STATE_j$ and $TIME_t$, the specification controls for unobserved state-specific or

time-specific factors that may affect health insurance coverage. If these omitted variables are correlated

with MCELIG and affect Medicaid or private coverage, then the coefficients β_1, δ_1, and γ_1 will be biased

without their inclusion. In 1990, for instance, Congress established federal minimum standards for

marketing and selling Medigap policies.[26] If this nationally uniform reform in the Medigap insurance

market reduced Medicaid participation (because the private health insurance alternative to Medicaid

became more attractive), then the coefficient on MCELIG may also capture this effect without the time

dummies. Inclusion of state dummies may control for variation in access to or quality of health care

facilities.

There are still three problems with the OLS specification, which may bias the coefficient

estimates. The first, and arguably the most important, is measurement error in Medicaid eligibility. Even

though eligibility in the SIPP improves upon measures constructed from other data sets, there is still

much room for error. As Figure 2b illustrated, some individuals classified as ineligible do report

Medicaid coverage. Moreover, asset holdings or medical expenses may change over time, yet I only

observe them once per person over a two-year period in the SIPP. Measurement error in Medicaid

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[25]The demographic groupings are arranged by race, marital status, educational attainment, and age. Race is white or nonwhite, martial status is married or unmarried, education is completed high school or not, and age is 65 to 69, 70 to 74, or 75 and over.

[26]General Accounting Office 1991.

eligibility will bias its coefficient toward zero. The second issue is omitted variable bias. Medicaid

eligibility is a function of many factors, and equations (1) through (3) control for some, but not all, of

their interactions. For example, determining Medicaid eligibility involves complex interactions of

income, liquid assets, nonliquid assets, and medical expenses.[27] Finally, Medicaid eligibility may be

endogenous. For example, some individuals who work beyond the age of 65 will receive health insurance

from their employer and enough earnings to make them ineligible for Medicaid. To address each of these

concerns, I follow the methods of Cutler and Gruber (1996a) and Currie and Gruber (1996a, 1996b), by

creating a simulated measure of Medicaid eligibility as an instrument for individual Medicaid eligibility.

In particular, for each calendar year of the SIPP, I divide the sample into twenty-four groups based on

four individual characteristics: married or unmarried, white or nonwhite, completed high school or not,

and ages 65–69, 70–74, and 75 plus. For each of these groups, I compute the fraction of the *national*

sample eligible for Medicaid given a particular state's rules for QMB, SSI, and MN. Following the

notation of Cutler and Gruber (1996a), this simulated measure SIMELIG is simply a given state's

Medicaid rules applied to the national sample. The motivation behind dividing the sample by these

exogenous margins is that the instrument should be far less noisy. For example, changes in QMB policy

are likely to have a much greater impact on eligibility for older, nonwhite, less educated widows than on

younger, white, more educated married couples.

The first stage is therefore:

(4) $\quad$ $\text{MCELIG}_{ijt} = \theta_0 + \theta_1 \text{SIMELIG}_{jtk} + \theta_2 X_i + \theta_3 \text{STATE}_j + \theta_4 \text{DEMOG}_k + \theta_5 \text{TIME}_t + \epsilon_{4i}$

The construction of the instrument motivates the inclusion of the interaction term, DEMOG. The goal is

to learn about the effect of legislative changes in Medicaid eligibility—by including these demographic

---

[27]The results in Appendix Table 3 show that the coefficient estimates hardly change by including these
controls, however.

controls, the variation remaining in SIMELIG which explains MCELIG comes from the *interaction* of

state rules with the demographic variables, rather than from differences in demographics.[28]

IV. RESULTS

A. Findings on Insurance Coverage

Although it is clear that expanding Medicaid eligibility should increase Medicaid participation,

the magnitude of the effect is not. As many studies have noted, the take-up rate among eligibles for many

means-tested transfer programs is far from 100 percent.[29] The three most widely accepted explanations

for this observation are welfare stigma, lack of program awareness, and transaction costs. Virtually all

studies that examine take up consider younger populations, and either the Aid to Families with

Dependent Children (AFDC) or Food Stamp programs. There are several reasons to think that the take-up

problems may be more severe among the elderly, and others to think that it should be less severe. Many

low-income senior citizens probably did not participate in welfare programs when they were young and

may lack basic transportation and access to services, both of which should decrease take up. Because of

these concerns, the Social Security Administration has conducted outreach efforts. Some states took

active efforts to inform QMB recipients about their eligibility, distributing press releases, brochures, and

fact sheets, setting up toll-free telephone "hot-line" numbers, and issuing public service announcements.

Some private organizations (such as the AARP) also publicized QMB coverage. These efforts could

increase take up. In addition, the expected benefit from participating in Medicaid is much higher for an

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[28]Appendix 2 presents the results of this first stage. The coefficient on SIMELIG is 0.905 with a standard error of 0.062. The fact that the coefficient is less than 1 reflects measurement error in the national sample. An analysis of variance shows that 84 percent of the variation in SIMELIG is subsumed by the DEMOG dummies, 2.3 percent by the STATE dummies, and 2.2 percent by the TIME dummies. The remaining 11 percent of the variation in SIMELIG is used to identify the coefficient on Medicaid eligibility.

[29]See Blank and Card (1991), Moffitt (1983), and Moffitt (1992) for discussions.

elderly person than for a younger person, because Medicaid pays for Medicare's cost-sharing provisions and the elderly person is more likely to be in poor health.

Table 5 presents the results on insurance coverage. In all regressions the standard errors are corrected for repeated observations on the same individual. The first three columns present results from the OLS specification, and the final three from the instrumental variables (IV) specification. The OLS results show a marginal take-up rate of 35 percent, and it is very precisely estimated.[30] The demographic variables enter largely as expected: being Hispanic or less educated dramatically increases the likelihood of participating in Medicaid, while being a veteran lowers it. There appears to be little effect of gender or age on Medicaid participation. The second column presents the effect of Medicaid eligibility on private supplemental coverage. Crowd out appears to be complete: the propensity to drop private coverage is essentially equal and opposite in sign to that on Medicaid take up. The third column shows that, on net, supplemental insurance coverage fell.

The IV estimates, which overcome some of the problems of the OLS specification, offer a somewhat different picture. They show that the coefficient on Medicaid eligibility (particularly in the Medicaid coverage equation) was biased toward zero due to measurement error. The fourth column of Table 5 shows a higher take-up rate, 49 percent, and a somewhat lower propensity to drop private coverage, 30 percent. This take-up rate of Medicaid for senior citizens is approximately twice as large as the estimates that Currie and Gruber (1996a) and Cutler and Gruber (1996a) find for young children. The estimate of crowd out, 60 percent, is similar in magnitude to the estimate of Cutler and Gruber (1996a). On net, the QMB expansions raised insurance coverage among the elderly: for every 100 seniors made eligible, 19 more had supplemental coverage.

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[30]When other components of Medicaid eligibility (income, liquid assets, life insurance, and automobiles) are included in the OLS specification, the coefficient and standard error estimates on Medicaid eligibility hardly change. The corresponding take-up rate is 36 percent with a standard error of 0.7 percent.

TABLE 5
Effects of the QMB Expansions on Medicaid Takeup, Crowd Out of Private Health Insurance,
and Overall Supplemental Insurance Coverage

	OLS			IV		
	Medicaid Coverage	Private Health Insurance Coverage	Insured	Medicaid Coverage	Private Health Insurance Coverage	Insured
Medicaid eligible	.351	-.368	-.041	.491	-.295	.192
	(.007)	(.006)	(.006)	(.065)	(.070)	(.069)
Hispanic	.124	-.203	-.074	.103	-.214	-.108
	(.010)	(.010)	(.010)	(.014)	(.014)	(.014)
Female	.002	.037	.035	.000	.036	.032
	(.003)	(.005)	(.004)	(.003)	(.005)	(.005)
Age	.000	.013	.014	.000	.013	.013
	(.002)	(.004)	(.003)	(.002)	(.004)	(.004)
$Age^2/100$	-.000	-.010	-.010	-.000	-.010	-.010
	(.001)	(.002)	(.002)	(.002)	(.002)	(.002)
Veteran	-.022	.029	.006	-.018	.032	.013
	(.003)	(.005)	(.005)	(.003)	(.005)	(.005)
$9 \le$ Education ≤ 11	-.037	.086	.051	-.029	.089	.063
	(.004)	(.006)	(.005)	(.005)	(.007)	(.006)
Education = 12	-.134	.266	.144	.028	.381	.420
	(.026)	(.032)	(.031)	(9.590)	(15.263)	(15.099)
Education > 12	-.143	.308	.177	.021	.424	.456
	(.027)	(.032)	(.031)	(9.531)	(15.241)	(15.024)
Adj. R^2	.301	.253	.061	—	—	—
Mean of dependent variable	.083	.771	.845	.083	.771	.845

Notes: Also included, but not shown in the regressions, are dummy variables for STATE (42 categories), TIME (9 categories), DEMOG (24 categories, married/unmarried; white/nonwhite; age 65–69/70–74/75+; completed high school/not), and a constant term. The standard errors in all columns are corrected for repeated observations on the same individual. Sample consists of 217,112 observations on 31,661 individuals drawn from the 1987–1993 SIPP panels. Simulated eligibility measure constructed from TIME*DEMOG category.

Table 6 probes these results further by examining the potential sources of crowd out. This table, and all subsequent ones, present only the IV estimates because of the problems in interpreting the OLS estimates. The table breaks out private coverage into three categories: Medigap policies, retiree health insurance where the employer pays all of the costs, and retiree health insurance where the employee pays some or all of the costs.[31] It is expected that the first of these, Medigap insurance, would be the most likely avenue for crowd out. There are three reasons for this. First, the senior citizen pays for Medigap himself, while the other categories of private coverage are at least partially paid for by the employer. Second, a person who takes up Medicaid through the QMB program can suspend his or her Medigap policy for up to two years without facing medical underwriting. Finally, employer plans may cover some services that the ten standardized Medigap plans and the QMB program do not cover. The estimates in Table 6 bear out this hypothesis. The propensity to drop Medigap coverage is 24 percent, while the propensity to drop retiree coverage is less than 4 percent (and not statistically different from zero).

Table 7 estimates the coefficients on insurance coverage separately for two age groups, those aged 65 to 69, and those aged 75 and older. There are two motivations for separating by age group. First, the decision to purchase or drop Medigap coverage may be most elastic when one first joins the Medicare program and is shopping for a supplemental plan. Once an individual selects a Medigap plan, he or she may not pay much attention to new alternative sources of coverage that arise. Second, the demand for some health care services (such as prescription drugs) may increase with age, which would make the QMB alternative a less perfect substitute for Medigap coverage. Estimates in the first three columns of Table 7 show substantial crowd out for those under the age of 70. For every 100 made eligible for Medicaid, 58 took up Medicaid coverage and 48 dropped private coverage (thus crowd out is 83 percent). The net increase in insurance coverage was only 4 percentage points, and is not significantly different

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[31]Although the SIPP does not explicitly label the insurance categories in ways that I present here, these categories can be inferred from a combination of SIPP questions. See Table 4 for precise definitions of these categories.

TABLE 6
Where Does Crowd Out Come From?

		IV	
	Medigap	Retiree Health Insurance Where Employer Pays All Costs	Retiree Health Insurance Where Employer Pays Some or None of Costs
Medicaid eligible	-.236	-.034	-.004
	(.062)	(.038)	(.060)
Hispanic	-.099	-.028	-.051
	(.012)	(.006)	(.011)
Female	.002	-.065	-.150
	(.006)	(.003)	(.005)
Age	.030	-.009	-.021
	(.005)	(.003)	(.004)
Age^2/100	-.016	.005	.010
	(.003)	(.002)	(.003)
Veteran	-.034	.021	.072
	(.007)	(.004)	(.007)
$9 \leq$ education ≤ 11	.017	.017	.042
	(.007)	(.004)	(.006)
Education $= 12$	-1.243	.661	1.455
	(15.828)	(14.291)	(18.128)
Education > 12	-1.271	.694	1.530
	(16.276)	(14.327)	(18.123)
Mean of dependent variable	.341	.093	.215

Notes: Also included, but not shown in the regressions, are dummy variables for STATE, TIME, DEMOG, and a constant term. The standard errors in all columns are corrected for repeated observation on the same individual. Sample consists of 217,112 observations on 31,661 individuals drawn from the 1987–993 SIPP panels. Simulated eligibility measure constructed from TIME*DEMOG category.

TABLE 7
Who Takes Up QMB?

	IV, Ages 65–69			IV, Ages 75+		
	Medicaid Coverage	Private Health Insurance Coverage	Insured	Medicaid Coverage	Private Health Insurance Coverage	Insured
Medicaid eligible	.576	-.481	.041	.479	-.234	.270
	(.121)	(.132)	(.134)	(.100)	(.112)	(.106)
Hispanic	.031	-.148	-.105	.170	-.281	-.109
	(.023)	(.025)	(.025)	(.024)	(.025)	(.024)
Female	-.002	.058	.055	.006	.016	.015
	(.007)	(.009)	(.009)	(.006)	(.008)	(.008)
Age	-.001	.009	.007	-.004	-.005	-.010
	(.004)	(.006)	(.006)	(.005)	(.007)	(.007)
$Age^2/100$	.002	-.005	-.003	.002	.000	.003
	(.003)	(.005)	(.005)	(.003)	(.004)	(.004)
Veteran	-.015	.036	.020	-.016	.023	.007
	(.008)	(.011)	(.011)	(.005)	(.009)	(.009)
$9 \leq$ Education ≤ 11	-.027	.091	.061	-.031	.074	.048
	(.010)	(.013)	(.013)	(.008)	(.010)	(.010)
Education $= 12$	-.069	.144	.071	-.121	.144	.046
	(.039)	(.043)	(.043)	(.033)	(.035)	(.035)
Education > 12	-.076	.185	.106	-.128	.189	.084
	(.041)	(.045)	(.045)	(.035)	(.037)	(.037)
Mean of dependent variable	.070	.791	.855	.097	.743	.828

Notes: Also included, but not shown in the regressions, are dummy variables for STATE, TIME, DEMOG, and a constant term. The standard errors in all columns are corrected for repeated observation on the same individual. There are 72,525 observations for ages 65–69, and 86,047 observations for ages 75-plus. Simulated eligibility measure constructed from TIME*DEMOG category.

from zero. In contrast, both the propensity to take up Medicaid and drop private coverage are lower for older seniors. For every 100 seniors aged 75 and over made eligible, 48 took up Medicaid but only 23 dropped private coverage. Total insurance coverage was raised by 27 percentage points.

B.   Robustness Checks on the Insurance Results

In addition to the results presented in previous tables, I reestimated equations (1) through (3) in several different ways to address some potential concerns with the specification. These permutations are presented in Appendix Table 3. First, I reestimated the model excluding the 1987 SIPP panel because the private health insurance questions were less detailed than later waves. In particular, it is not possible to ascertain whether an individual has coverage under both his own plan and his spouse's plan. The 1987 SIPP also does not ask about military health insurance, though this is excluded from the analysis anyway. The Medicaid take-up rate obtained by excluding the 1987 panel is 58 percent, compared with a baseline of 49 percent from the full sample. The propensity to drop private coverage is slightly lower, 26 percent rather than 30 percent. Second, the construction of SIMELIG relies on twenty-four separate demographic categories. Some of these categories have small cell sizes, which raises the possibility that the instrument may not be valid because the same individuals who are used to construct the instrument are also used in the estimation sample. An extreme case would be if there was only one individual in each cell, in which case actual eligibility is exactly equal to SIMELIG, and the OLS and IV results would be identical. I reestimated the model excluding DEMOG cells with fewer than 5,000 observations.[32] This eliminates twelve of the twenty-four cells. The second row of results shows that the Medicaid take-up rate is slightly lower, 47 percent, and the propensity to drop coverage is somewhat higher, 37 percent, resulting in a crowd-out estimate of 78 percent. Third, I included a richer set of family structure variables: the relationship of the elderly individual to the head of household, the number of families in the household,

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[32]The first-stage estimate of SIMELIG, corresponding to Appendix Table 2, is now .954 with a standard error of .085.

the number of children (aged 0 to 17), the number of nonelderly adults, and the number of elderly adults.

These controls are included because the elderly member may be covered by some other private source of

health insurance. The third row shows that the coefficient estimates barely change by including these

additional controls. Fourth, I reestimated the model including interactions of state and year (resulting in

378 categories = 42 states multiplied by 9 years). By including STATE*YEAR interactions, changes in a

state's economy or health insurance market are accounted for. There is still variation in the instrument

SIMELIG because it is constructed from state, time, and demographic group. Both the Medicaid take-up

rate and the propensity to drop private coverage rise (60 percent and 35 percent, respectively) relative to

the baseline specification, though crowd out is roughly the same as before. Finally, I included additional

controls for Medicaid eligibility in the regression: a quartic in total income, liquid assets, the face value

of life insurance, and the value of automobiles. These variables are used to compute Medicaid eligibility,

and may have independent effects on health insurance coverage. The final row shows that the estimates

are extremely similar to the baseline case.

In summary, the basic results on insurance take up and crowd out appear to be very robust to

changes in the specification. Neither changing the sample's time frame, nor including additional

covariates, nor eliminating cells with small sample sizes result in substantively different conclusions than

Table 5.

C.   Findings on Health Care Utilization

The expansions in the QMB program can also be used to examine the effects on health care

utilization. Although the results show crowd out is substantial, crowd out is far from complete. For every

100 seniors made eligible for Medicaid, an additional 19 gained supplemental insurance coverage. In

principle, moving to QMB coverage may increase or decrease health care utilization, depending upon

one's initial insurance status.[33] For those who were initially uninsured, the QMB program should increase

health care utilization, because it lowers the price of health care by paying for Medicare's premiums and

deductibles. For those who initially had private insurance coverage, but drop it in favor of the free QMB

coverage, utilization may fall if the private policy was more generous than the QMB coverage.

The goal is to now estimate:

$$(5) \qquad UTIL_i = \lambda_0 + \lambda_1 MEDICAID_{ijt} + \lambda_2 X_i + \lambda_3 STATE_j + \lambda_4 DEMOG_k + \lambda_5 TIME_t + \epsilon_{5i}$$

where UTIL is a measure of health care utilization, MEDICAID represents Medicaid coverage (not

eligibility), and the other variables are defined as before. It is well-known that insurance choices may be

endogenous to health care utilization: the instrument for Medicaid coverage will again be simulated

Medicaid eligibility.[34]

The SIPP does not ask health-related questions in the core questionnaire, but it offers several

health-related questions in its topical modules. The battery of health questions are asked once or twice

per panel, in waves 3 or 6. They were asked in wave 3 in the 1991 and 1993 panels, wave 6 in the 1987

and 1992 panels, and in both waves in the 1988 and 1990 panels. The analysis draws upon two objective

questions on health care utilization: the number of nights the respondent spent in the hospital in the past

twelve months, and the number of times the respondent saw a medical doctor or assistant in the past

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[33]Pauly (1986) discusses the externalities that supplemental policies may impose on the Medicare program by changing the first dollar price of Medicare coverage.

[34]Early work by Rothschild and Stiglitz (1976) theoretically demonstrates how adverse selection can affect insurance market efficiency. There are numerous empirical studies that use randomized trials, natural experiments, or instrumental variables methods to examine the effect of health insurance coverage on younger populations. These studies attempt to estimate the effect of moral hazard (e.g., how changes in the price of health care affect health care demand), while purging the estimates of adverse selection. Manning, Newhouse, et al. (1987) use randomization from the RAND health insurance experiment to estimate health care demand elasticities. Eichner (1996) uses changes in health care prices during a health-plan year due to accidents and injuries that occur in the beginning of the year to estimate health care demand. Currie and Gruber (1996a, 1996b) use Medicaid expansions for children and pregnant women to examine changes in access to and utilization of health care. There is also some empirical evidence for older groups, though the identifying variation is not as transparent. See McCall, Rice, Boismier, and West (1991) and Huang, Cartwright, and Hu (1989) for two examples.

twelve months. Although these measures are admittedly crude measures of the intensity of health care use, they are the only satisfactory measures that the SIPP contains.

Table 8 presents results on 37,688 observations on 29,026 individuals who were present for the health utilization topical module.[35] The IV estimates imply that taking up Medicaid coverage is associated with two additional visits to the doctor, and one additional hospitalization (though the coefficient on doctor visits is very imprecisely estimated). The fact that Medicaid coverage appears to increase health care utilization suggests an externality onto the Medicare system.

V.   CONCLUSIONS

This study has examined the consequences of Medicaid expansions for the elderly. The results show that take-up rates for the expansions were around 50 percent, but more than half of those who took up Medicaid coverage also dropped private supplemental coverage. These results, then, provide a confirmation in a different setting of Cutler and Gruber's (1996a) findings on crowd out for pregnant women and children. Crowd out was concentrated among the youngest of senior citizens, who are likely to find Medicaid coverage a better substitute for private supplemental coverage, and who may be most responsive to different supplemental options at the time they become eligible for Medicare.

The results also show some evidence that supplemental insurance coverage increases health care utilization. The evidence here is less precisely estimated, however, because of the crude measures of health care utilization present in the SIPP. This is one potential direction for future work—some health care data sets such as the National Health Interview Survey or the Medicare Current Beneficiary Survey offer richer measures of health status and health utilization.

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[35]For purposes of illustration, the OLS results are presented on health care utilization in the first two columns.

TABLE 8
Effects of the QMB Expansions on Health Care Utilization

	OLS		IV	
	Number of Hospital Visits	Number of Doctor Visits	Number of Hospital Visits	Number of Doctor Visits
Medicaid Coverage	.172	2.445	1.027	2.140
	(.031)	(.240)	(.560)	(4.661)
Hispanic	-.007	-.123	-.161	-.068
	(.032)	(.285)	(.108)	(.854)
Female	-.106	.506	-.113	.508
	(.023)	(.138)	(.024)	(.141)
Age	.004	.287	-.001	.289
	(.021)	(.187)	(.022)	(.188)
Age^2/100	.001	-.155	.004	-.156
	(.014)	(.124)	(.015)	(.124)
Veteran	-.022	.230	.005	.220
	(.022)	(.165)	(.028)	(.229)
$9 \leq$ Education ≤ 11	.014	-.247	.063	-.265
	(.018)	(.163)	(.039)	(.322)
Education $= 12$	.145	-.583	.143	-2.229
	(.116)	(.980)	(.158)	(1.439)
Education > 12	.144	-.483	.156	-2.134
	(.117)	(.981)	(.168)	(1.502)
Adj. R^2	.008	.012	—	—
Mean of dependent variable	.289	6.024	.289	6.024

Notes: Also included, but not shown in the regressions, are dummy variables for STATE, TIME, DEMOG, and a constant term. The standard errors in all columns are corrected for repeated observation on the same individual. Sample consists of 37,688 observations on 29,026 individuals drawn from the 1987–1993 SIPP panels who provided responses to the health questions. The health questions are drawn from wave 3 of the 1988, 1990, 1991, and 1993 panels, and wave 6 of the 1987, 1988, 1990, and 1992 panels. The sample only includes those waves. Simulated eligibility measure constructed from TIME*DEMOG category.

APPENDIX
Imputing Medicaid Eligibility

A senior citizen may be eligible for Medicaid under the QMB program, the SSI program, or the MN program. This appendix provides details on how eligibility is computed.

QMB Eligibility

To compute QMB eligibility, we first calculate the household's "counted" income under the QMB rules. After a $65 monthly deduction, one-half of earned income is excluded in determining eligibility. In addition, $20 of any source of income is also excluded. Thus, counted income is:

(1)   QMBCOUNT   = max{½*max{WAGEINC-65,0}+(TOTINC-WAGEINC)-20, 0}

where TOTINC is the household's total monthly income, and WAGEINC is the income from wages and salary.

Next, we compute whether the household is asset eligible. The QMB rules allow the first $1,500 from a life insurance policy and the first $4,500 from the value of the automobiles to be excluded in computing asset levels. A married couple has an asset limit of $6,000 while a single individual has a limit of $4,000. A household is eligible if:

(2)   QMBASSET   = 1   if (LIQUID+max{LIFEINS-1500,0}+max{CARVAL-4500,0}) <
                                4000+2000*1(MARRIED)
                     = 0   otherwise.

where LIQUID measures the household's liquid assets, LIFEINS is the face value of the life insurance policies held by the household, CARVAL is the value of the automobiles held by the household, and 1(MARRIED) is an indicator variable equal to 1 if the individual is married.

Finally, QMB eligibility is determined as:

(3)   QMBELIG   = 1   if QMBCOUNT<QMBPCT*POV and QMBASSET=1
                     = 0   otherwise.

where QMBPCT is the fraction of the poverty line that the QMB expansions go up to (shown in Tables 2 and 3, and originally drawn from Intergovernmental Health Policy Project, various editions), and POV is the monthly poverty line in dollars.

SSI Eligibility

SSI eligibility is computed in almost the same way as QMB eligibility, except that some of the parameters differ. SSI counted income and asset eligibility are now defined as:

(4)   SSICOUNT   = max{½*max{WAGEINC-65,0}+(TOTINC-WAGEINC-SSIINC)-20, 0}

(5)   SSIASSET   = 1   if (LIQUID+max{LIFEINS-1500,0}+max{CARVAL-4500,0}) <
                                2000+1000*1(MARRIED)
                     = 0   otherwise.

The only differences between equations (4)/(5) and equations (1)/(2) are that SSI income is now excluded from unearned income, and the asset limits are $2,000 and $1,000 for married couples and single individuals, respectively. SSI eligibility is defined as:

(6)   SSIELIG $= 1$ if SSICOUNT$<$(FED$_i$+STATE$_i$) and SSIASSET$=1$
                    $= 0$ otherwise.

where FED$_i$ and STATE$_i$ are the monthly federal SSI benefit and state supplement (if applicable) for married households or single individuals (i=married or single). The data on federal and state benefit levels is taken from the U.S. House of Representatives, *Overview of Entitlement Programs*, 1996.

Medically Needy Eligibility

The last avenue onto Medicaid is the MN program. A person is counted as eligible if:

(7)   MNELIG $= 1$ if (TOTINC-MEDEXP)$<$MNLIM$_i$ and LIQUID$<$MNASSET$_i$
                   $= 0$ otherwise.

where MEDEXP represents the individual's monthly medical expense, and MNLIM$_i$ and MNASSET$_i$ are the income and asset limits (which vary by i=married or single). MNLIM and MNASSET equal zero if a state does not have a Medically Needy program. The MN income limits are taken from publications by the National Governor's Association (various editions), and the asset limit is taken from the U.S. House of Representatives, *Medicaid Source Book: Background Data and Analysis (A 1993 Update)*, 1993.

From equations (3), (6), and (7), Medicaid eligibility is computed as:

(8)   MCELIG $= \max\{$QMBELIG, SSIELIG, MNELIG$\}$.

APPENDIX TABLE 1
Construction of SIPP Sample for Tables 4, 5, 6, and 7

	Valid data in reference month 4	HH contains elderly member at some point during panel	Individual lives in uniquely identified state	Individual's age greater than 64	Individual can be linked to asset questions
1987 Panel, Waves 1–7					
No. of observations	217053	41057	38874	24607	22582
No. of people	35935	6811	6501	4222	3566
1988 Panel, Waves 1–6					
No. of observations	189810	33768	32168	20555	19930
No. of people	35792	6367	6130	3993	3685
1990 Panel, Waves 1–8					
No. of observations	444106	84113	81455	50571	47611
No. of people	68812	12938	12542	7917	6740
1991 Panel, Waves 1–8					
No. of observations	284463	53504	51868	32932	32262
No. of people	43949	8220	7957	5124	4696
1992 Panel, Waves 1–9					
No. of observations	438754	83953	81341	51579	48846
No. of people	61250	11716	11360	7322	6229
1993 Panel, Waves 1–8					
No. of observations	393178	75290	73006	46841	45881
No. of people	61244	11575	11222	7338	6745

Final number of observations   217112

Final number of people   31661

APPENDIX TABLE 2
Results from First-Stage Regression for Tables 5, 6, and 8

	Medicaid Eligibility
Simulated eligibility	.905
	(.062)
Hispanic	.145
	(.010)
Female	.012
	(.004)
Age	.001
	(.003)
Age^2/100	-.000
	(.002)
Veteran	-.031
	(.003)
9 ≤ Education ≤ 11	-.052
	(.005)
Education = 12	-.037
	(.035)
Education > 12	-.055
	(.035)
Adj. R^2	.160
Mean of dependent variable	.106

Notes: Also included, but not shown in the regressions, are dummy variables for STATE, TIME, DEMOG, and a constant term. The standard errors in all columns are corrected for repeated observation on the same individual. Sample consists of 217,112 observations on 31,661 individuals drawn from the 1987–1993 SIPP panels.

APPENDIX TABLE 3
Coefficient on Medicaid Eligibility from Alternative Specifications

	IV		
	Medicaid Coverage	Private Health Insurance Coverage	Insured
1. Exclude 1987 SIPP Panel.	.579 (.067)	-.259 (.078)	.301 (.078)
2. Exclude DEMOG cells with fewer than 5,000 observations.	.471 (.070)	-.372 (.096)	.111 (.090)
3. Include additional family structure variables.	.490 (.067)	-.284 (.072)	.204 (.073)
4. Include STATE*YEAR interactions.	.598 (.078)	-.348 (.079)	.234 (.072)
5. Include controls for income, assets, life insurance, and automobiles.	.499 (.069)	-.263 (.074)	.233 (.072)

Notes: Each row represents a separate regression. The notes from Table 5 apply to these regressions. See the text for a description of the additional variables included beyond those in Table 5.

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