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Medicaid

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The largest growth in entitlement program spending in the United States over the past fifteen years has been in the Medicaid program, which provides health insurance to low-income populations. In 1984, the Medicaid program spent \$38 billion, which was 4.4 percent of the federal budget in that year and 0.97 percent of gross domestic product (GDP) and covered 22 million persons. By 2001, the program was projected to spend \$219 billion, which is 10.8 percent of the federal budget and 2.3 percent of GDP, and to cover 40 million persons. This astronomical growth is particularly striking in light of another important trend over the past fifteen years: a continued steady rise in the fraction of the nonelderly population without health insurance. From 1988 through 1998, this share rose by almost 20 percent, before leveling out in recent years (Employee Benefits Research Institute [EBRI] 2000).

These facts raise a number of interesting and important questions about the purpose and structure of the third largest entitlement program in the United States (trailing only Social Security and Medicare). Medicaid is in fact really four public insurance programs in one. The first provides coverage of most medical expenses for low-income women and children families; this function absorbs only about one-quarter of program dollars but encompasses two-thirds of program enrollees. The second is a program that provides public insurance for the portions of medical expenditures not covered by the Medicare program for the low-income elderly. The third is a program that covers most medical expenses for the low-income disabled.

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The last is a program that pays the nursing home expenditures of many of the institutionalized elderly. These last three functions apply to only one-third of beneficiaries but use three-quarters of program dollars. This panoply of functions has led to uneven program growth and some confusion about the mission of the program and how it integrates with other public insurance institutions.

In this chapter, I will review the structure of the Medicaid program and its economic impact. I start in part 1.1 by reviewing program history, and discussing the evolution and current structure of program rules. In part 1.2, I then turn to a more detailed discussion of the program as it currently exists, presenting a variety of statistics on enrollment and expenditures. Part 1.3 then provides a heuristic overview of the economic impacts of the Medicaid program, and part 1.4 reviews the large empirical literature on the Medicaid program and its impacts on health care utilization, health, labor supply, family structure, and other behaviors. Part 1.5 then discusses current policy issues and how they are informed (or not informed) by the existing literature. Part 1.6 concludes.

1.1 Program History, Rules, and Goals

In this section, I will review the historical evolution and current structure of program rules. In doing so, I will draw primarily on two invaluable sources. The first is the *Green Book* (U.S. Congress, Committee on Ways and Means 2000; hereafter GB), a generally invaluable source for understanding the current operation of this program (and most other social programs as well). The second is the *Yellow Book* (Congressional Research Service 1993; hereafter YB), a source that provides a more detailed investigation of the Medicaid program itself.

1.1.1 Origin and Goals of the Medicaid Program

The Medicaid program was created by the Social Security Amendments of 1965, the same legislation that created the Medicare program of health insurance for the elderly. Medicaid and Medicare replaced two earlier programs of federal grants to states to provide medical care to low-income persons, one for welfare recipients, and the other for the aged. Combined spending on these programs was \$1.3 billion in 1965.

The new Medicaid program continued the tradition of allowing states substantial latitude to design their own programs, subject to federal minimum standards. Eligibility was largely confined to the populations traditionally eligible for welfare—single-parent families, and the aged, blind, and disabled. But there were two important early exceptions, foreshadowing larger exceptions to arise in the 1980s. The first was the “Ribicoff children”: States could choose to cover children who met the financial standards of welfare programs but not the categorical standards (e.g., because

Table 1.1 **The Introduction of Medicaid by State**

	State(s)
1966	
January	HI, IL, MN, ND, OK, PA
March	CA
July	CT, ID, KY, LA, ME, MD, OH, RI, UT, VT, WA, WV, WI
September	MA
October	DE, MI, NY
November	NE
December	NM
1967	
July	IA, KS, MT, NV, NY, OR, WY
September	TX
October	GA, MO, SD
1968	
July	DC, SC
1969	
January	CO, TN
July	VA
1970	
January	AL, AR, FL, IN, MS, NJ, NC
1972	
September	AK

Note: Arizona began a special managed-care Medicaid program in the early 1980s.

they were in a two-parent family). The second was the “medically needy,” populations whose income was above the eligibility standards but who had very high medical bills. States were initially given no upper limit for eligible incomes. States were also given latitude about when to join the program. As table 1.1, from Decker (1994) shows, although a number of states joined immediately in January 1966, states phased in steadily over the next four years, and the last state, Arizona, did not join the Medicaid program until 1982.

The history of federal Medicaid legislation is presented in table 1.2, from YB. This history presents a striking profile of continuous expansions and contractions in program generosity, sometimes within the same legislation. This is exemplified by the 1967 legislation that limited how generous states could be within their medically needy programs, but at the same time established one of the most important features of the Medicaid benefits package, the Early and Periodic Screening, Diagnostic, and Treatment Program (EPSDT) to improve child health. Another feature of this legislation was a move away from state restrictions on who Medicaid patients could see for their care, toward allowing those patients to use any provider of their choice (if the provider was willing to take Medicaid patients). This is striking because it was roughly thirty years later that states began to

Table 1.2 Major Medicaid Legislation, 1965 to 1997

	Description
Social Security of 1965	Established the Medicaid program
Social Security Amendments of 1967	Limited financial standards for the medically needy; established the EPSDT program to improve child health; permitted Medicaid beneficiaries to use providers of their choice
Act of 14 December 1971	Allowed states to cover services in ICFs and ICFs for the mentally retarded
Social Security Amendments of 1972	Repealed 1965 provision requiring states to move toward comprehensive Medicaid coverage; allowed states to cover care for beneficiaries under age twenty-two in psychiatric hospitals
Medicare-Medicaid Anti-Fraud and Abuse Amendments of 1977	Established Medicaid Fraud Control Units
Mental Health Systems Act, 1980	Required most states to develop a computerized Medicaid Management Information System
Omnibus Reconciliation Act of 1980	Boren amendment permitted states to establish payment systems for nursing home care in lieu of Medicare's rules
Omnibus Budget Reconciliation Act of 1981	Enacted three-year reductions in federal matching percentages for states whose spending exceeded growth targets; established Section 1915(b) and 1915(c) waiver programs; extended the Boren amendment to inpatient hospital services; eliminated special penalties for noncompliance with EPSDT requirements and gave states with Medically Needy programs broader authority to limit coverage
Deficit Reduction Act of 1984	Eliminated categorical test for certain pregnant women and young children
Consolidated Omnibus Budget Reconciliation Act of 1985	Extended coverage to all pregnant women meeting AFDC financial standards
Omnibus Budget Reconciliation Act of 1986	Allowed coverage of pregnant women and young children to 100 percent of poverty; established a new optional category of QMBs
Medicare and Medicaid Patient and Program Protection Act of 1987	Strengthened authorities to sanction and exclude providers
Omnibus Budget Reconciliation Act of 1987	Allowed coverage of pregnant women and infants to 185 percent of poverty; strengthened quality-of-care standards and monitoring of nursing homes; strengthened OBRA 1981 requirements that states provide additional payment to hospitals treating a disproportionate share of low-income patients
Medicare Catastrophic Coverage Act of 1988	Mandated coverage of pregnant women and infants to 100 percent of poverty; expanded coverage of low-income Medicare beneficiaries; established special eligibility rules for institutionalized persons whose spouse remained in the community to prevent "spousal impoverishment"
Family Support Act of 1988	Extended work transition coverage for families losing AFDC because of increased earnings and expanded coverage for two-parent families whose principal earner was unemployed
Omnibus Budget Reconciliation Act of 1989	Mandated coverage of pregnant women and children under age six to 133 percent of poverty; expanded EPSDT program requirements; mandated coverage and full-cost reimbursement of federally qualified health centers (FQHCs)

Table 1.2 (continued)

	Description
Omnibus Budget Reconciliation Act of 1990	Phased in coverage of children ages six through eighteen to 100 percent of poverty; expanded coverage of low-income Medicare beneficiaries; established Medicaid prescription drug rebate program
Medicaid Voluntary Contribution and Provider-Specific Tax Amendments of 1991	Restricted use of provider donations and taxes as state share of Medicaid spending; limited disproportionate share hospital payments
Omnibus Budget Reconciliation Act of 1993	Mandated that individuals must spend their assets down to a state-established level before Medicaid pays for nursing facilities and other medical care; established designation of disproportionate share hospitals to facilities in which Medicaid beneficiaries account for at least 1 percent of the hospital's inpatient days
Personal Responsibility and Work Opportunity Act of 1996	Introduced TANF, a cash welfare block grant to states that used the same application as Medicaid; severed the automatic link between AFDC and Medicaid; narrowed the eligibility criteria for disabled children
Balanced Budget Act of 1997	Guaranteed continued Medicaid eligibility for children with disabilities who are expected to lose their SSI eligibility as a result of restrictions enacted in 1996; permitted states to create a new category (with a sliding scale premium) for individuals with incomes up to 250 percent of poverty who would, but for income, be eligible for SSI

move back to this pre-1967 system through the use of managed care contracting. This legislation also highlights directly the three policy levers that are available to policymakers to change the generosity of the Medicaid program: eligibility, the construction of the benefits package, and reimbursement of providers.

1.1.2 Eligibility for Nonelderly and Nondisabled

Eligibility for the Medicaid program has evolved substantially over time. As noted above, eligibility was originally restricted to those receiving cash welfare payments, along with Ribicoff children and the medically needy. These base populations of eligibles are still in place, and they were the main populations covered until the mid-1980s; there were some other special options to cover women without children who met the Aid to Families with Dependent Children (AFDC) income criteria for the expenses of their pregnancy only (Currie and Gruber 1996b), but these groups were very small.

Beginning in 1984, however, the program began to expand eligibility for all children and for pregnant women; that is, among women these expansions applied only to the expenses of pregnancy. Changes in Medicaid policy since 1984 can be broadly categorized into two eras. The first, from 1984

to mid-1987, was a period of incremental increases in Medicaid eligibility for populations that had similar financial circumstances to AFDC families but did not meet the eligibility criterion for other reasons. This began a gradual weakening of the linkage between AFDC coverage and eligibility for Medicaid. This occurred both at the state level—for example, through expansions of the Ribicoff option¹—and at the federal level, through the 1984 Department for Environment, Food, and Rural Affairs (DEFRA) and 1985 Consolidated Omnibus Reconciliation Act (COBRA) legislation.

The second era, from mid-1987 to the present, saw a more dramatic decoupling of Medicaid and AFDC through substantial increases in the income cutoff for Medicaid eligibility. These expansions substantially increased (in most states) the income that a family could have and still qualify for Medicaid, while providing these higher eligibility levels to all family structures, not just to single-parent families. By 1992, states were required to cover all pregnant women and children under the age of six up to 133 percent of poverty (independent of family composition), and were allowed to expand coverage up to 185 percent of poverty. In addition, children born after 30 September 1983 were mandatorily covered up to 100 percent of poverty (once again independent of family composition). Income for these purposes is defined similarly to the AFDC or Temporary Assistance for Needy Families (TANF) program, including all sources of cash income.

The pattern of legislative action over this period was one of initial federal permission for states to expand their programs, followed within a period of several years by federal mandates for all states to cover these groups. This pattern of laws generated substantial variation across the states in eligibility changes, since states initially had different qualification limits through AFDC and other optional programs (such as Ribicoff children), and they took up the new options at different rates. There was also variation within states in the eligibility of children of different ages for the Medicaid expansions, due to different age thresholds in the laws. This variation is illustrated in table 1.3, from Gruber and Yelowitz (1999). This shows the age and percent of poverty cutoffs for expansions to the youngest group of children in each state at three different points in time.² In January 1988, only some states had expanded eligibility, and the income and age cutoffs varied. By December 1989, all states had some expansion in place since federal law mandated coverage of infants up to 75 percent of the poverty line; but some states had expanded coverage up to age seven or

1. In 1984, only twenty-three states offered the Ribicoff program; by 1987, this had expanded to thirty-two states, although some states limited eligibility to somewhat younger children (less than age seventeen, eighteen, or nineteen, instead of the traditional cutoff of age twenty-one).

2. There were also differential expansions to older children as well, adding further richness to the variation in legislation across the states. The age restrictions were couched in terms of either date of birth or calendar date, or both, giving rise to the fractional ages of eligibility in some states at a given point in time.

Table 1.3 State Medicaid Age and Income Eligibility Thresholds for Children

State	January 1988		December 1989		December 1991		December 1993	
	Age	Medicaid	Age	Medicaid	Age	Medicaid	Age	Medicaid
Alabama			1	185	8	133	10	133
Alaska			2	100	8	133	10	133
Arizona	1	100	2	100	8	140	12	140
Arkansas	2	75	7	100	8	185	10	133
California			5	185	8	185	10	200
Colorado			1	75	8	133	10	133
Connecticut	0.5	100	2.5	185	8	185	10	185
Delaware	0.5	100	2.5	100	8	160	18	185
District of Columbia	1	100	2	100	8	185	10	185
Florida	1.5	100	5	100	8	150	10	185
Georgia	0.5	100	3	100	8	133	18	185
Hawaii			4	100	8	185	10	185
Idaho			1	75	8	133	10	133
Illinois			1	100	8	133	10	133
Indiana			3	100	8	150	10	150
Iowa	0.5	100	5.5	185	8	185	10	185
Kansas			5	150	8	150	10	150
Kentucky	1.5	100	2	125	8	185	10	185
Louisiana			6	100	8	133	10	133
Maine			5	185	8	185	18	185
Maryland	0.5	100	6	185	8	185	10	185
Massachusetts	0.5	100	5	185	8	185	10	200
Michigan	1	100	3	185	8	185	10	185
Minnesota			6	185	8	185	18	275
Mississippi	1.5	100	5	185	8	185	10	185
Missouri	0.5	100	3	100	8	133	18	185
Montana			1	100	8	133	10	133
Nebraska			5	100	8	133	10	133
Nevada			1	75	8	133	10	133
New Hampshire			1	75	8	133	10	170
New Jersey	1	100	2	100	8	185	10	300
New Mexico	1	100	3	100	8	185	10	185
New York			1	185	8	185	12	185
North Carolina	1.5	100	7	100	8	185	10	185
North Dakota			1	75	8	133	10	133
Ohio			1	100	8	133	10	133
Oklahoma	1	100	3	100	8	133	10	150
Oregon	1.5	85	3	100	8	133	10	133
Pennsylvania	1.5	100	6	100	8	133	10	185
Rhode Island	1.5	100	6	185	8	185	10	185
South Carolina	1.5	100	6	185	8	185	10	185
South Dakota			1	100	8	133	10	133
Tennessee	1.5	100	6	100	8	185	10	185
Texas			3	130	8	185	10	185
Utah			1	100	8	133	10	133
Vermont	1.5	100	6	225	8	225	17	225

(continued)

Table 1.3 (continued)

State	January 1988		December 1989		December 1991		December 1993	
	Age	Medicaid	Age	Medicaid	Age	Medicaid	Age	Medicaid
Virginia			1	100	8	133	18	133
Washington	1.5	100	8	185	8	185	18	185
West Virginia	0.5	100	6	150	8	150	18	150
Wisconsin			1	130	8	155	10	155
Wyoming			1	100	8	133	10	133

Sources: Yelowitz (1995) and Intergovernmental Health Policy Project (various editions).

Notes: The age limit represents the oldest that a child could be (at a given point in time) and still be eligible. Medicaid column represents the Medicaid income limit for an infant (the maximum for an older child is less).

eight, and coverage ranged as high as 185 percent of the poverty line. By December 1991, state policies were more uniform because the most restrictive federal mandates had taken place, but some variation in poverty cutoffs remained. In the subsequent years, several states expanded the age limits even further, using state-only funds.

Most states continue to base eligibility, even for expansion populations, on the income definitions used for cash welfare programs, formerly known as AFDC and currently as TANF. In order to qualify for welfare, a family must pass three tests: Their gross income must be below a multiple of the state's *needs* standard (this test was applied from 1982 onward only);³ their gross income less certain disregards for work expenses and child care must be below the state's needs standard; and their gross income less certain disregards less a portion of their earnings must be below the state's *payment* standard. The precise structure of these rules is described in the appendix to Currie and Gruber (1994). States are also mandated to extend Medicaid coverage for an additional twelve months to those families whose income rises above TANF cutoffs, although states can impose premiums or other restrictions after six months.

Although these broad rules describe eligibility, there is some state discretion, and increasingly so since the mid-1990s through state waivers to AFDC, and then through the decentralization of welfare with the transition to the TANF program. The current panoply of rules is described in more detail in Ku, Ullman, and Almeida (1999). It is worth noting that, even if states tighten eligibility for cash assistance using their new discretion under TANF, states are required to continue to provide Medicaid to those who meet the AFDC criteria for eligibility in place in July 1996 (although the enforceability of this requirement is unclear). Categorical eligibility for AFDC/TANF and the expansions for pregnant women and chil-

3. From 1982 to 1984, this multiple was 1.5; from 1985 onward, the multiple was 1.85.

dren provide the vast majority of eligibility for Medicaid for those who are not elderly or disabled; there are a few other minor optional state programs described in YB.

Traditionally, eligibility for AFDC (and hence Medicaid) was conditioned on asset holdings of less than \$1,000 per family. As part of the legislation that allowed states to expand their income cutoffs for Medicaid eligibility, the federal government also authorized states to remove their asset tests for determining eligibility. States were quick to drop asset testing once they had the chance, so that by the middle of 1989 fewer than ten states still had asset tests.

1.1.3 Eligibility for the Elderly and Disabled

For the elderly and disabled, there are four primary routes to Medicaid eligibility. The first is through the Supplemental Security Income (SSI) program. The SSI program is a purely means-tested transfer program to the elderly with countable income (which excludes income elements such as the first \$20 of Social Security payments per month) below a certain threshold (\$545 for an individual and \$817 for a couple, in 2002), and with countable assets (which exclude the value of the home, automobiles, and substantial personal effects) below \$2,000 for an individual and \$3,000 for a couple. States are generally required to make all those elderly who qualify for SSI eligible for Medicaid, unless they had more restrictive rules in place for eligibility before 1972; in that case, they can apply these more restrictive rules rather than the federal SSI cutoffs. States can also extend eligibility to somewhat higher-income groups if they make supplemental payments under their state SSI programs.

The second route to eligibility for the elderly is the Medically Needy program, which is designed to cover individuals who meet the family structure requirements for welfare and whose gross resources are above welfare levels, but whose high medical expenditures bring their net resources below some certain minimal level. States who take up this option may establish Medically Needy thresholds that are no more than 133 percent of the state's needs standard; states may also include asset limits that are no more restrictive than those used for cash welfare (generally the asset limit for SSI is used). Individuals can then "spend down" to these thresholds by subtracting their medical expenditures from their gross income; if they do, Medicaid will pay the remainder of their expenditures.⁴ Currently, thirty-five states have a Medically Needy program (GB). Although this option is available to all populations, it is used rarely by the nonelderly and nondisabled, but very frequently by the elderly, for whom the large costs of nursing home care can easily cause low countable incomes.

4. The time frame over which such spend-down occurs varies across the states. See Norton (1995, 2000) for a richer discussion of spend-down rules.

A third route to eligibility is the “300 percent rule”, which allows states to cover those who have low assets and income that does not exceed 300 percent of the SSI payment level. In states for which this is the only route to Medicaid coverage of nursing home costs (seventeen states as of 1993, according to YB), this means that if income exceeds this limit, these costs are not covered regardless of their level.

A fourth route to eligibility for home- and community-based services (HCBS; as opposed to institutionally provided care) is through the rapidly growing number of state waivers in this area. As described in detail for each state at www.hcfa.gov/medicaid/hpg4.htm, these waivers provide mechanisms for states to experiment with alternatives to institutional care, in an effort to reduce spending on caring for the elderly and disabled. There are seven explicit services that may be provided in HCBS waiver programs (case management, homemaker/home health aide services, personal care services, adult day health, habilitation, and respite care), and other services may be requested by states (such as nonmedical transportation, in-home support services, special communication services, minor home modifications, and adult day care). To receive approval to implement HCBS waiver programs, state Medicaid agencies must assure the Health Care Financing Administration (HCFA) that, on an average per capita basis, the cost of providing home- and community-based services will not exceed the cost of care for the identical population in an institution; but to date there is little evaluation of the net impact of these waivers on either noninstitutional or (more relevantly) total program costs. There are currently 240 such waivers in effect, with all states having at least one.

For all of these routes, for the elderly, there are complicated rules corresponding to the treatment of income at the point of application versus ongoing enrollment. In particular, since 1988, there has been a detailed set of rules in place to protect against spousal impoverishment for those elderly who have a spouse remaining in the community. These rules, which are described in detail in YB, essentially allow those with spouses in the community to disregard substantial sums of income in considering eligibility for Medicaid.

For the disabled, an additional element is that Medicaid coverage has been extended to those who work their way off the SSI rolls. This coverage is available for a limited period of time and up to a limited income level.

Finally, there is an additional category of *partial* Medicaid eligibility for other groups of elderly and the disabled. The Qualified Medicare Beneficiary (QMB, or “quimbee”) program provides that for those aged and disabled persons who are receiving Medicare whose incomes are below the federal poverty level, and whose assets do not exceed twice the allowable amount under SSI, states must pay Medicare part B premiums (the payment, currently \$45.50 [1999] per month, that finances part of the cost of physician care for the elderly) and any required Medicare coinsurance

and deductible amounts. The Specified Low-Income Medicare Beneficiaries (SLMB, or “slimbees”) program mandates payment of part B premiums only for those elderly/disabled with incomes between 100 and 135 percent of the poverty line, and a portion of these premiums for those between 135 and 175 percent of the poverty line. Expansions to this program were phased in along with the expansions to younger populations in the late 1980s and early 1990s, as described in more detail by Yelowitz (2000a). Other groups of former disability recipients are also entitled to Medicaid payment of their Medicare costs; see GB and YB for more details.

A group of particular interest, particularly in the wake of the 1996 welfare reform legislation, is legal immigrants. Current law stipulates that legal immigrants arriving in the United States after 22 August 1996 are ineligible for Medicaid benefits for five years; after that period, coverage is a state option. Coverage is mandated for those arriving earlier than that date who became disabled since arriving.

1.1.4 Services

Although states have substantial leeway along the two other key dimensions of Medicaid policy, eligibility and reimbursement, they have much less discretion when it comes to covered services, at least traditionally. All categorically needy (as opposed to medically needy) enrollees are mandatorily entitled to

- inpatient hospital services
- outpatient hospital services
- rural health clinic services
- federally qualified health center services
- other laboratory and X-ray services
- nursing facility services for individuals twenty-one or older
- EPSDT services for individuals under age twenty-one
- family planning services
- physicians’ services
- home health services for any individual entitled to nursing facility (NF) care
- nurse-midwife services
- services of certified nurse practitioners and certified family nurse practitioners

States do have the option of providing a more restrictive package of benefits to the medically needy, with the minimum standards including only prenatal and delivery services for pregnant women; ambulatory services for individuals under age eighteen and those entitled to institutional services; home health services for individuals entitled to NF services; and, if the state covers the mentally disabled in intermediate care facilities (ICFs), they must cover all the services provided to the categorically eligible.

There is also a wide range of optional services, although they in general do not amount to a very large share of total medical spending. The most important of these (in terms of total program costs) are prescription drugs, which are covered in every state, although a minority of states cover them only for the categorically needy and not the medically needy (YB). Other services covered by all or virtually all states include clinic services, optometrists' services and eyeglasses, dental services, prosthetic devices, eyeglasses, nursing facility services for those under age twenty-one, intermediate care facility/mentally retarded services, and transportation services. Although there is a long list of optional services, the fact that the most expensive ones are covered by virtually every state implies that there is substantial uniformity of the package of services covered from state to state.

There is some state leeway on services through utilization controls and service limitations. States can impose limits on length of inpatient hospital stay, on the number of visits to various sites of outpatient care, and on the number of prescriptions and quantity of drugs per prescription, and many states take advantage of these limitations (although with fairly high limits that are likely to be infrequently binding). States also have some limited discretion to impose cost sharing on enrollees, with some major exceptions: those under age eighteen, services related to pregnancy; hospital, NF, and ICF services if the individual is required to spend all his or her income (aside from a personal needs allowance) on the service; emergency, family planning, or hospice services; and those enrolled in health maintenance organizations (HMOs). These cost-sharing amounts are nominal, however.

1.1.5 Reimbursement

States do have substantial discretion along the third major dimension of Medicaid policy-making, provider reimbursement. States have always had discretion in setting physician reimbursement. Before 1980, however, states were required to use Medicare rules for reimbursing hospitals and nursing facilities. The Boren amendment of 1980 allowed states to move to their own methodologies for reimbursing these providers, so long as rates were "reasonable and adequate." In the wake of a long history of lawsuits brought under the Boren amendment that reimbursement rates were not reasonable, the amendment was repealed as part of the Balanced Budget Act of 1997, which mandated only that states must provide public notice of their proposed rates for reimbursing hospitals, nursing facilities, and ICFs and the methods used to establish those rates.

For hospitals, almost all states used the freedom conferred on them by the Boren amendment to move away from traditional retrospective, cost-based reimbursement (a move made by the Medicare program itself under the Prospective Payment System implemented in 1983). Most states moved to a purely prospective system of rates that either pay a fixed amount per

day or pay for the entire stay for a given diagnosis, while some states use a hybrid of retrospective and prospective reimbursement. Some states also negotiate rates with hospitals through a bidding process, whereby the states restrict enrollees' choice of hospital and negotiate with hospitals for the right to provide services to Medicaid enrollees. In 1990, the American Hospital Association estimated that, on average, Medicaid reimburses hospitals for roughly 80 percent of their costs (YB).

Another important component of hospital reimbursement policy is Disproportionate Share payments (DSH). The Omnibus Budget Reconciliation Act (OBRA) of 1981 mandated that states Medicaid reimbursement systems "take into account the situation of hospitals which serve a disproportionate number of low-income patients with special needs." This definition was state-determined until 1988, and then federally mandated as relating to a hospital's load of both Medicaid and other low-income patients. As discussed in more detail presently, this program provided a loophole that allowed states to effectively increase the federal share of financing of hospital payments, and starting in 1992 state DSH payments were capped.

Nursing facility reimbursement is also done on a largely prospective basis, usually using per diem rates; once again, states have substantial discretion here, and there are wide variations in reimbursement rates. Some states also adjust payments for the case mix of patients residing in the facility. Medicaid reimbursement rates appear to be roughly 80 percent as generous as those of the private sector (YB). For an excellent review of Medicaid policy and other issues in long-term care, see Norton (2000).

Physician reimbursement is also largely determined by the states, and, as a rule, reimbursement is fairly low relative to private plans and to Medicare. States generally use a fee schedule, whereby physicians are reimbursed for their charges up to a set amount, based on diagnosis and treatment. Fees vary enormously for individual services, as well as (although to a lesser extent) for the overall package of services: In 1989, the range of fees across states for an office visit was from \$10 to \$104, and for total obstetric care with a vaginal delivery the range was from \$344 to \$1,316; the range for the value of the total package of services was a factor of 3.3 (YB). The average state pays roughly 70 percent of what is paid under the Medicare program for comparable treatments. The gap with private payers is even larger; for vaginal childbirth, for example, Medicaid paid 43 percent of the amount paid by private payers, and the increment for cesarean delivery was only 23 percent as large (Gruber, Kim, and Mayzlin 1998).

The method of reimbursing the other primary source of ambulatory care, hospital outpatient departments, is varied as well, with most states using prospective systems but with a larger component of retrospective cost-based reimbursement than is used on the inpatient side. Importantly, all providers are required to accept Medicaid payment rates as payments in full, except where the nominal cost-sharing noted above is allowed.

Finally, an important and complicated area of Medicaid reimbursement policy is for prescription drugs. As described in Scott-Morton (1997), under OBRA 1990 the Medicaid program established a “most-favored-nation” provision under which pharmaceutical producers could charge Medicaid no more than they charged to other payers. As predicted by theory, this led to a rise in pharmaceutical prices by weakening the incentives for price competition. Other specific details of Medicaid state reimbursement policy for drugs are provided in YB.

States are also entitled to “buy into” private coverage for Medicaid when it is cost-effective to do so. This situation might arise, for example, if a person eligible for Medicaid is provided group health insurance; Medicaid could in principle pay the employee’s share of the group premiums in that case, lowering costs below the total cost of Medicaid coverage.

1.1.6 Waiver Options/Managed Care

An area of growing importance for state Medicaid policy is that of waiver options, which allow states to experiment in limited ways outside of the structure provided by federal guidelines. Since the early stages of Medicaid, states have been allowed to enroll their caseload in managed care organizations such as HMOs. OBRA 1981 established two new options, “freedom of choice” and “home- and community-based care” waivers. The former allows states to place some restrictions on the provider choice set for enrollees, such as using primary care case management programs through which enrollees must see a gatekeeper physician before seeking specialty services, or using selective contracting of the type noted above with hospitals. The latter option allows states to innovate with alternatives to institutionally based care; originally, these innovations had to be demonstrated to be cost-neutral, but since OBRA 1990 there are limited funds available for waivers that increase costs. Of course, projections of cost neutrality are tenuous at best, and to date there is little retrospective evidence on the actual cost efficacy of these alternatives.

The past decade has seen an explosion in state use of managed care as a means of controlling Medicaid program costs. Between 1993 and 2001, enrollment in Medicaid managed care increased by over 450 percent, and by 2001, 58 percent of Medicaid beneficiaries were enrolled in some form of managed care. Medicaid managed care programs generally fall into two categories: those where the health plan assumes full financial risk for the services that it provides to enrollees (“risk-based” programs), and those where an individual health provider is paid a monthly amount by the state for managing health care services (the gatekeeper approach previously noted). The Balanced Budget Act of 1997 further increased use of managed care by removing the requirement of a federal waiver for enrolling the majority of Medicare beneficiaries in managed care, allowing states to contract with “Medicaid only” HMOs, and allowing states to lock beneficiaries in the same plan for up to twelve months (GB).

Despite its phenomenal growth, there has been relatively little work on managed care in Medicare. Currie and Fahr (2000) nicely review the literature in this area. There are conjectures that the impacts of managed care on health might be positive (through increased gatekeeping and facilitation of primary care) or negative (through supply limits on care), but there is little evidence to support either view. The best work here is probably Levinson and Ullman's (1998) study of managed care on birth outcomes in Wisconsin. They found that enrollment in managed care by Medicaid mothers was associated with increased use of prenatal care but no changes in birth outcomes. A more general finding of past work is that Medicaid managed care organizations (MCOs) select on health in their enrollment decisions. Consistent with this, Currie and Fahr find that areas with higher managed care penetration have higher enrollment of low-cost groups (whites and older children) and lower penetration of high-cost groups (blacks and younger children). The impact of managed care on the Medicaid program is clearly an area deserving of further work.

1.1.7 Administration and Financing

The Medicaid program is administered by state agencies under the general oversight of the HCFA, Department of Health and Human Services (DHHS). Within HCFA, Medicaid operations have been centered since 1990 in a separate Medicaid Bureau. States must designate a single administrative agency for program operations. This can be either the welfare or social services department, the health department, a combination health/social services department, or a separate entity that is Medicaid-specific.

A key component of Medicaid enrollment is the application process for determining eligibility. Medicaid applications can be lengthy and cumbersome. As a result, a number of states have established streamlined application processes for pregnant women and children, along several dimensions. The most important is "presumptive eligibility," which allows potential enrollees to receive services after an interim determination by providers that the woman or child is eligible. States have also shortened applications, expedited eligibility processes, and outstationed case workers in health care sites to ease the application process. By early 1998, forty states had dropped asset tests for eligibility, forty-four had shortened application forms, and twenty-seven had presumptive eligibility for pregnant women (National Governors Association [NGA] 1998).

Medicaid also has a significant quality control component that is described in great detail in YB. There are also detailed certification processes for providers, particularly for nursing homes, to ensure quality care, as described in YB.

Medicaid services and associated administrative costs are jointly financed by the federal government and the states. The federal share of state payments for services is an uncapped entitlement that is determined through the federal medical assistance percentage (FMAP), which is cal-

culated annually based on a formula designed to provide a higher percentage of federal matching payments to states with lower per capita incomes. On average, the federal government pays roughly 57 percent of the costs of the Medicaid program, with the percentage varying between 50 and 83 percent across states. One source of controversy is whether state per capita income is the right measure of state need in determining the federal cost share; in a series of studies, the Government Accounting Office (GAO) concluded that a measure based on state property values and the share of the population in poverty would better capture both need and the state's own ability to finance care (YB). Federal funding for Medicaid is an entitlement, created by Title XIX of the Social Security Act, and so does not require reauthorization by the Congress.

State Medicaid spending has been rising very rapidly since the late 1980s, as is documented in more detail presently. One controversial source of this spending increase has been provider donations or taxes to the state. Essentially, states had providers of Medicaid services either pay taxes or donations to the state, and then bill the cost of these actions to the Medicaid program by selectively raising reimbursement through DSH. Since the donations or taxes accrue 100 percent to the state, but increased DSH costs are borne partially by the federal government (according to the FMAP for that state), this mechanism caused a net transfer from federal to state governments. The exact mechanics of these schemes is described in more detail in YB. This became a very popular source of funding for the Medicaid program in the early 1990s, a period when the federal government was mandating expanded eligibility for pregnant women and children, and contributed to an explosion of both DSH and overall program costs. Subsequent legislation has limited the use of these mechanisms, both by directly ruling out some types of structures and by capping the magnitude of DSH payments.

1.1.8 Children's Health Insurance Program

The largest single expansion of insurance entitlement since the establishment of the Medicaid program was the Children's Health Insurance Program (CHIP) in the Balanced Budget Act of 1997. This program allows states to extend eligibility to children with incomes above Medicaid limits, either through further expansions of Medicaid or through newer, more flexible programs. The ultimate structure of the program represents an interesting compromise between groups that advocated expansion of the existing Medicaid program and those that wanted simple lump-sum grants to the states to spend on health care.

This program is a capped federal expenditure, amounting to \$4.3 billion in each of its first four years, and a total of \$40 billion over ten years. These funds are allotted to states initially in proportion to their share of the low-income uninsured population, and eventually in proportion to both this and the total number of low-income children (so as to not penalize states that make progress on increasing insurance coverage). The FMAP for this

program is equal to 1.3 times the states' FMAP for Medicaid, to entice states to expand coverage through this option.

State benefits packages under CHIP can be more limited than under Medicaid, but they must meet (or be actuarially equivalent to) the coverage standards through either the Blue Cross/Blue Shield option of the Federal Employees Health Benefits Program (FEHBP), a health benefits plan that is offered to state employees, or the HMO plan with the largest commercial enrollment in the state. States with existing "state only" programs that expanded beyond Medicaid limits using state funds could continue to use their existing benefit packages. Cost sharing must remain nominal below 150 percent of the poverty line, but above that point copayments and premiums can amount to as much as 5 percent of family income.

This program leaves a substantial amount of discretion for the states in how to spend their allotment, reflecting the compromise previously noted. States were required to submit state plans to be reviewed by HCFA before they could receive their initial allotments. As of 1 August 1999, all fifty states and the District of Columbia had developed plans for children's health insurance expansions under CHIP—and all but three had received federal approval (Ullman, Hill, and Almeida 1999). CHIP will in principle dramatically increase eligibility for children; the average income threshold for children across the states will rise from 121 percent of the federal poverty line to 206 percent. Of the fifty-one CHIP plans submitted, eighteen expand Medicaid, seventeen create programs separate from Medicaid, and sixteen do both; ten of the states with "new" programs actually have Medicaid look-alike programs that cap enrollment, impose expanded cost-sharing requirements, or both (Ullman, Hill, and Almeida).

1.2 Program Statistics

1.2.1 Expenditures and Enrollment

Medicaid expenditures over time are shown in table 1.4. Expenditures in 1966 totaled \$1.7 billion and by 2001 were expected to rise to over \$219 billion. Program growth was fastest from 1988 through 1994, when the program virtually tripled over a seven-year period; as previously noted, this is a period marked by both substantial eligibility expansions and state gaming of the DSH system to pay for the expansions. There has been a slight rise in the federal share since the early years of the program; the federal share rose from 54 percent on average in 1970 to 57 percent in 2001.

Enrollment growth has also been rapid, as shown in table 1.5. The total number of recipients has risen from 17.6 million in 1972 to 37.9 billion in 2001. The most rapid growth has been in the disabled, and the largest absolute growth has been in dependent children under age twenty-one. The current division of spending across these groups is shown as well at the bottom of table 1.5.

Table 1.4 Medicaid Expenditures

Fiscal Year	Total		Federal		State	
	(\$ millions)	% Increase	(\$ millions)	% Increase	(\$ millions)	% Increase
1966 ^a	1,658	—	789	—	869	—
1967 ^a	2,368	42.8	1,209	53.2	1,159	33.4
1968 ^a	3,686	55.7	1,837	51.9	1,849	59.5
1969 ^a	4,166	13.0	2,276	23.9	1,890	2.2
1970 ^a	4,852	16.5	2,617	15.0	2,235	18.3
1971	6,176	27.3	4,361	29.3	4,074	45.4
1972 ^b	8,434	36.6	4,361	29.3	4,074	45.4
1973	9,111	8.0	4,998	14.6	4,113	1.0
1974	10,229	12.3	5,833	16.7	4,396	6.9
1975	12,637	23.5	7,060	21.0	5,578	26.9
1976	14,644	15.9	8,312	17.7	6,332	13.5
TQ ^c	4,106	n.a.	2,354	n.a.	1,752	n.a.
1977	17,103	16.8 ^d	9,713	16.9 ^d	7,389	16.7 ^d
1978	18,949	10.8	10,680	10.0	8,269	11.9
1979	21,755	14.8	12,267	14.9	9,489	14.8
1980	25,781	18.5	14,550	18.6	11,231	18.4
1981	30,377	17.8	17,074	17.3	13,303	18.4
1982	32,446	6.8	17,514	2.6	14,931	12.2
1983	34,956	7.7	18,985	8.4	15,971	7.0
1984	37,568	7.5	20,061	5.7	17,508	9.6
1985 ^e	40,917	8.9	22,655 ^f	12.9	18,262 ^f	4.3
1986	44,851	9.6	24,995	10.3	19,856	8.7
1987	49,344	10.0	27,435	9.8	21,909	10.3
1988	54,116	9.7	30,462	11.0	23,654	8.0
1989	61,246	13.2	34,604	13.6	26,642	12.6
1990	72,492	18.4	41,103	18.8	31,389	17.8
1991	91,519	26.2	52,532	27.8	38,987	24.2
1992	118,166	29.1	67,827	29.1	50,339	29.1
1993	131,775	11.5	75,774	11.7	56,001	11.2
1994	143,204	8.7	82,034	8.3	61,170	9.2
1995	156,395	9.2	89,070	8.6	67,325	10.1
1996	161,963	3.6	91,990	3.3	69,973	3.9
1997	167,635	3.5	95,552	3.8	72,083	3.1
1998	177,364	5.8	100,177	4.8	77,187	7.1
1999 ^g	189,547	6.9	108,042	7.9	81,505	5.6
2000 ^h	203,714	7.5	116,117	7.5	87,597	7.5
2001 ⁱ	219,014	7.5	124,838	7.5	94,176	7.6

Source: Budget of the U.S. Government, fiscal years 1969–2001, and HCFA.

Notes: n.a. indicates not available. Totals may not add due to rounding.

^aIncludes related programs that are not separately identified, although for each successive year a larger portion of the total represents Medicaid expenditure. As of 1 January 1970, federal matching was only available under Medicaid.

^bIntermediate care facilities (ICFs) transferred from the cash assistance programs to Medicaid effective 1 January 1972. Data for prior periods do not include these costs.

^cTransitional quarter (beginning of federal fiscal year moved from July 1 to October 11).

^dRepresents increase over fiscal year 1976 (i.e., five calendar quarters).

^eIncludes transfer of function of state fraud control units to Medicaid from Office of Inspector General.

^fTemporary reductions in federal payments authorized for fiscal years 1982–84 were discontinued in fiscal year 1985.

^gCurrent law estimate.

Table 1.5 Unduplicated Number of Medicaid Recipients by Eligibility Category, Fiscal Years 1972–95 (in thousands)

Fiscal Year	Total	Age 65	Blindness	Disabled	Dependent Children	Adults with Dependent Children	Other Title XIX ^a
1972	17,606	3,318	108	1,625	7,841	3,137	1,576
1973	19,622	3,496	101	1,804	8,659	4,066	1,495
1974	21,462	3,732	135	2,222	9,478	4,392	1,502
1975	22,007	3,615	109	2,355	9,598	4,529	1,800
1976	22,815	3,612	97	2,572	9,924	4,774	1,836
1977	22,832	3,676	82	2,636	9,651	4,785	1,852
1978	21,965	3,376	82	2,636	9,376	4,643	1,852
1979	21,520	3,364	79	2,674	9,106	4,570	1,727
1980	21,605 ^b	3,440	92	2,817	9,333	4,877	1,499
1981	21,980	3,367	86	2,993	9,581	5,187	1,364
1982	21,603	3,240	84	2,806	9,563	5,356	1,434
1983	21,554	3,371	77	2,844	9,535	5,592	1,129
1984	21,607	3,238	79	2,834	9,684	5,600	1,187
1985	21,814	3,061	80	2,937	9,757	5,518	1,214
1986	22,515	3,140	82	3,100	10,029	5,647	1,362
1987	23,109	3,224	85	3,296	10,168	5,599	1,418
1988	22,907	3,159	86	3,401	10,037	5,503	1,343
1989	23,511	3,132	95	3,496	10,318	5,717	1,175
1990	25,255	3,202	83	3,635	11,220	6,010	1,105
1991	28,280	3,359	85	3,983	13,415	6,778	658
1992	30,926	3,742	84	4,378	15,104	6,954	664
1993	33,432	3,863	84	4,932	16,285	7,505	763
1994	35,053	4,053	87	5,372	17,194	7,586	763
1995	36,282	4,119	92	5,767	17,164	7,605	1,537
1996	36,118	4,285	95	6,126	16,739	7,127	652
1997 ^c	34,872	3,955		6,129 ^d	15,266	6,803	524
1998	40,649	3,964		6,638	18,309	7,908	655
1999	37,500	4,700		7,000	17,500	7,600	700

Source: Health Care Financing Administration, U.S. Department of Health and Human Services; [http://www.hcfa.gov/stats/hstats98/blusta98.htm#Table 11] and [http://www.hcfa.gov/medicaid/MCD97T09.htm].

^aThis category is composed predominantly of children not meeting the definition of “dependent” children, that is, “Ribicoff children.”

^bBeginning in fiscal year 1980, recipients categories do not add to the unduplicated total due to the small number of recipients that are in more than category during the year.

^cFiscal year 1977 began in October 1976 and was the first year of the new federal fiscal cycle. Before 1977, the fiscal year began in July.

^dFor fiscal years 1997–99, blind and disabled categories are combined.

In recent years, enrollment growth has slowed for nonelderly or disabled adults and their dependents. This slowdown has been noticeable because of the correspondence in timing with the enormous reduction in welfare caseloads of recent years, leading to the possibility that a costly side effect of welfare reform is reduced health insurance coverage. Ku and Garrett (2000) investigate the determinants of Medicaid caseloads over time and conclude

Table 1.6 Medicaid Payments by Eligibility Category, Fiscal Years 1975, 1980, 1985, 1990, 1995, and 1998 (in billions of constant 1998 dollars)

	Age 65 and Older	Blind or Disabled	Children	Adults	Other	Total
1975	13.7	9.9	6.9	6.5	1.5	38.4
1980	17.7	15.4	6.3	6.6	1.2	47.3
1985	21.4	20.4	6.7	7.2	1.2	57.0
1990	27.1	30.7	11.5	10.8	1.3	81.7
1995	39.1	52.9	19.2	14.5	1.6	128.6
1998	40.6	60.4	20.5	14.8	6.0	142.3
Average annual % change 1975–98	5.1	8.6	5.1	3.8	6.4	6.1

Source: U.S. Congress, Committee on Ways and Means (2000).

that the recent declines are primarily attributable to both the improved economy and welfare reforms. Garrett and Holahan (2000) show that many welfare leavers lose their Medicaid coverage despite laws that allow them to extend Medicaid for one year after exiting welfare. In particular, they find that, among children whose families have been off welfare for six months, only one-fifth are uninsured. Of the children whose families have been off welfare for a year or more, however, almost one-third are uninsured.

Table 1.6 shows the division of Medicaid program spending by enrollment category, in 1998 and over time. Spending rose most rapidly for the blind and disabled, and least rapidly for adults. In recent years, spending growth has also been particularly rapid for children.

Table 1.7 shows the division of Medicaid program spending by service category, in 1997 and over time. Roughly one-fifth of program spending is on inpatient hospital expenses, and roughly another quarter is on skilled nursing facilities. Another 8 percent is on intermediate care facilities for the mentally retarded. Only 6 percent of program spending is on physicians' services, and another 5 percent is spent on other ambulatory care delivered in hospital outpatient departments and in clinics. The other major categories of spending are home health care and prescription drugs, each with 10 percent of program spending.

In terms of spending growth, the most rapidly growing categories since 1975 have been outpatient hospital expenses and home health expenses. In the 1990s in particular, home health, skilled nursing facility, and prescribed drug expenditures have grown the most rapidly, while hospital inpatient expenditures have been kept relatively in check, perhaps due to increasing use of prospective reimbursement strategies.

1.2.2 Eligibility and Takeup

A key issue with all social insurance programs is limited takeup among those eligible, and Medicaid is no exception, an issue discussed at length

Table 1.7 Medicaid Payments by Service Category, Fiscal years 1975, 1981, 1990, 1995, and 1997 (in billions of constant 1997 dollars)

Service Category	1975		1981		1990		1995		1997		Average Annual % Change 1975–97
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
Inpatient hospital	11.4	31	14.5	30	22.8	28	30.4	24	25.1	20	3.8
General	10.2	28	12.9	26	20.6	26	27.7	22	23.1	18	4.0
Mental	1.2	3	1.6	3	2.1	3	2.6	2	2.0	2	2.4
Skilled nursing facilities	7.3	20	7.2	15	9.9	12	30.6	24	31.9	26	7.2
Intermediate care facilities	1.1	3	5.4	11	9.1	11	10.9	9	9.8	8	10.8
Other	5.7	15	8.1	17	12.0	15	n.a.	n.a.	n.a.	n.a.	n.a.
Physician	3.7	10	3.8	8	5.0	6	7.8	6	7.0	6	3.1
Dental	1.0	3	1.0	2	0.7	1	1.1	1	1.0	1	-0.1
Other practitioner	0.4	1	0.4	1	0.5	1	1.0	1	1.0	1	4.7
Outpatient hospital	1.1	3	2.5	5	4.1	5	7.0	6	6.2	5	8.5
Clinic	1.2	3	0.7	1	2.1	3	4.5	4	4.3	3	6.4
Lab and X ray	0.4	1	0.3	1	0.9	1	1.2	1	1.0	1	4.7
Home health	0.2	1	0.8	2	4.2	5	9.9	8	12.2	10	21.3
Prescribed drugs	2.5	7	2.8	6	5.5	7	10.3	8	12.0	10	7.8
Family planning	0.2	1	0.2	1	0.3	0	0.5	0	0.4	0	3.3
Early and periodic screening	n.a.	n.a.	0.1	0	0.2	0	1.2	1	1.6	1	n.a.
Rural health clinic	n.a.	n.a.	0.0	0	0.0	0	0.2	0	0.3	0	n.a.
Other care	0.7	2	1.1	2	3.0	4	9.7	8	11.0	9	14.0
Total	37.8	100	46.6	100	80.4	100	126.5	100	124.9	100	5.9

Source: www.hcfa.gov/medicaid/msis/2082-5.htm.

Note: N.a. indicates data not available.

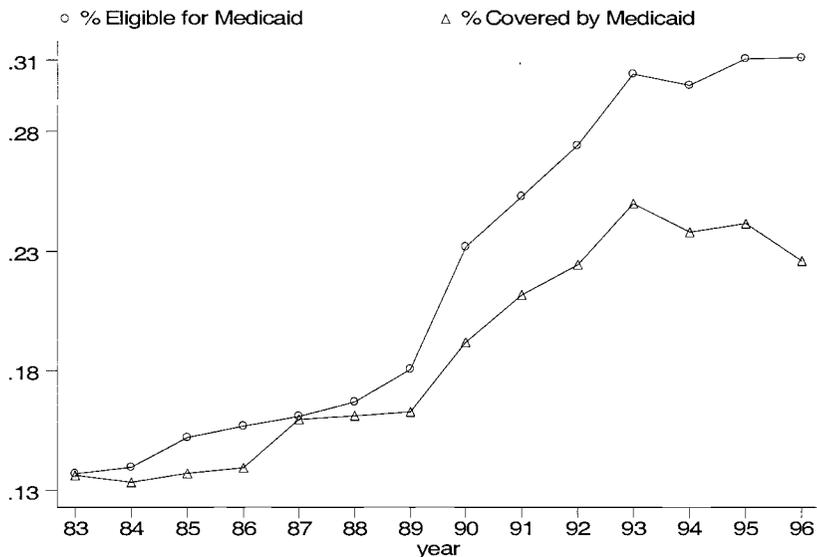


Fig. 1.1 Eligibility and coverage of children 0–15

presently. Eligibility, as described above, is determined through a complicated set of screens on income, family structure, and in some cases assets. In a series of papers with Janet Currie and Aaron Yelowitz, I have developed an eligibility calculator for children and pregnant women for the Medicaid program based on data from the Current Population Survey (CPS). This program has been recently updated to 1996 and improved for children in Dafny and Gruber (2000).⁵

Figure 1.1 graphs our estimates of national eligibility, and Medicaid coverage rates, for children aged zero to fifteen; these data are from the CPS as well. Take-up is close to full in the early 1980s, before the expansions of Medicaid, but falls considerably over time as Medicaid expands.⁶ By 1996, 31 percent of children are eligible for Medicaid, but only 22.6 percent are enrolled, for an average take-up rate of 73 percent. But the falling take-up rate over time highlights the difference between average and marginal take-up rates of expansions, which is discussed in more detail presently.

This figure masks enormous state heterogeneity in eligibility policy, which is illustrated in table 1.8, which shows estimated eligibility by state

5. In particular, we make two major limitations to eligibility relative to the approach used in the model previously. First, we do not assume that children can avail themselves of the medically needy option, since this requires extensive medical spending over several consecutive months and is unlikely to be a realistic consideration for the typical child. Second, we incorporate in only a limited way the child care deduction for earned income, reflecting the limited take-up of this deduction in practice.

6. The large jump in coverage in 1987 is due to a CPS redesign in March 1988 (which collected the coverage data for 1987).

Table 1.8 **Estimated Eligibility by State (average among children up to age fifteen)**

State	1983 Eligibility	1996 Eligibility	Difference
United States	0.131	0.292	0.161
Alabama	0.084	0.284	0.200
Alaska	0.173	0.150	-0.023
Arizona	0.087	0.472	0.385
Arkansas	0.084	0.289	0.205
California	0.223	0.22	0.099
Colorado	0.076	0.192	0.116
Connecticut	0.124	0.309	0.185
Delaware	0.070	0.188	0.118
District of Columbia	0.304	0.473	0.169
Florida	0.102	0.323	0.221
Georgia	0.095	0.287	0.192
Hawaii	0.213	0.672	0.459
Idaho	0.0455	0.225	0.1795
Illinois	0.148	0.231	0.083
Indiana	0.090	0.153	0.063
Iowa	0.161	0.200	0.039
Kansas	0.073	0.228	0.155
Kentucky	0.103	0.346	0.243
Louisiana	0.087	0.345	0.258
Maine	0.134	0.267	0.133
Maryland	0.104	0.318	0.214
Massachusetts	0.109	0.214	0.105
Michigan	0.226	0.304	0.078
Minnesota	0.107	0.514	0.407
Mississippi	0.113	0.319	0.206
Missouri	0.123	0.232	0.109
Montana	0.045	0.338	0.293
Nebraska	0.051	0.225	0.174
Nevada	0.043	0.157	0.114
New Hampshire	0.037	0.267	0.23
New Jersey	0.135	0.221	0.086
New Mexico	0.060	0.589	0.529
New York	0.204	0.321	0.117
North Carolina	0.054	0.243	0.189
North Dakota	0.097	0.148	0.051
Ohio	0.129	0.220	0.091
Oklahoma	0.115	0.305	0.190
Oregon	0.101	0.298	0.197
Pennsylvania	0.164	0.314	0.150
Rhode Island	0.149	0.209	0.060
South Carolina	0.131	0.251	0.120
South Dakota	0.054	0.212	0.158
Tennessee	0.112	0.266	0.154
Texas	0.063	0.283	0.220
Utah	0.168	0.178	0.010
Vermont	0.183	0.458	0.275
Virginia	0.083	0.256	0.173
Washington	0.058	0.434	0.376
West Virginia	0.120	0.494	0.374
Wisconsin	0.146	0.210	0.064
Wyoming	0.023	0.202	0.179

for 1983 and 1996, on average among children aged zero to fifteen. Eligibility varied substantially across the states in both 1983 and 1996, and there were quite differential changes in eligibility across states as well. For example, over this period, eligibility rose by over 50 percent in New Mexico, by 45 percent in Hawaii, and by 39 percent in Arizona; but eligibility rose by only 1 percent in Utah and 6 percent in Rhode Island, and actually fell by 2.3 percent in Alaska.

Unfortunately, there are no estimates of eligibility for Medicaid and take-up of the program by the elderly and disabled. These would be complicated dynamic calculations, because many elderly or disabled who are not currently eligible could become so by spending down enough of their resources to qualify.

1.3 Review of Issues

1.3.1 How Does Public Health Insurance Affect Health?⁷

Ultimately, the question of most interest for analysis of the Medicaid program is how it affects the health of the target population, and at what cost. To understand the effects of Medicaid policy on health, however, it is important to trace through the channels by which these legislative rules are translated to actual health improvements. In this section I provide a brief overview of these channels through a general structure that applies to all elements of the Medicaid program. In the next section, I review what we know about each of them, within the context of each of the different functions of the Medicaid program.

The process by which Medicaid determines health is depicted in figure 1.2. The first step in evaluating the effect of Medicaid policy on outcomes of interest, such as health, is to examine the effects on the eligibility of persons for the Medicaid program. How rules get translated to actual eligible populations is a function of where the eligibility levels cut in the distribution of income and other characteristics such as family structure. Determining population eligibility is particularly difficult for the disabled, since disability is a somewhat ambiguous concept in this context.

The next step is the translation of Medicaid eligibility into Medicaid coverage. An important feature of social insurance programs is that individuals do not always take up the benefits for which they are eligible. For example, Blank and Card (1991) estimate that take-up of unemployment insurance benefits only about two-thirds, and Blank and Ruggles (1996) find similar take-up rates for the AFDC and Food Stamps programs. Thus, only some of the previously uninsured will take-up the benefits to which they are entitled.

7. This discussion parallels and draws extensively on Gruber (1997).

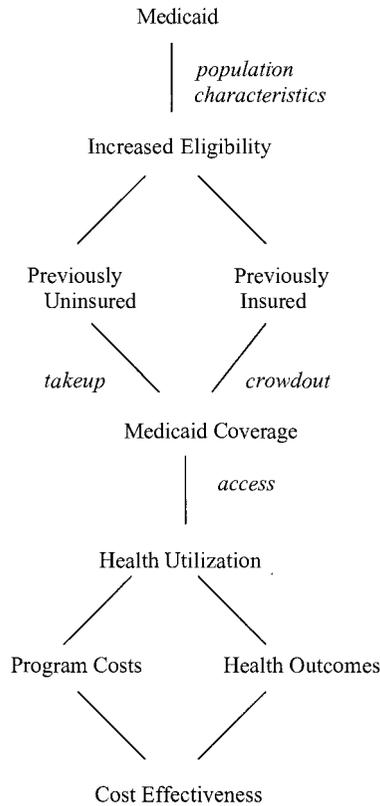


Fig. 1.2 How Medicaid determines health

The previously uninsured are not the only group that takes up benefits, however. In fact, the majority of those made eligible for the expansions actually had private insurance already. Some of those individuals will find it attractive to drop that private insurance and join the Medicaid program, “crowding out” their private insurance coverage.

Moreover, once covered by Medicaid, individuals will not automatically increase their utilization of medical care. Many physicians do not treat publicly insured patients, possibly because public insurance programs generally reimburse at rates far below private fee levels. A number of observers have alleged that there is a shortfall in the supply of physicians willing to serve Medicaid patients. The American Medical Association (AMA; 1991) reports that 26 percent of physicians described themselves as “non-participants” in the Medicaid program, and only 34 percent reported that they participated “fully” and were accepting new Medicaid patients. This problem is exacerbated by the fact that many of the patients who would be made eligible for public insurance are concentrated in areas

that are underserved by physicians (Fossett and Peterson 1989; Fossett et al. 1992).⁸

Finally, increases in the utilization of care will not necessarily improve health. Many economists emphasize that medical care may actually be of limited relevance for health, relative to the other behavioral and environmental factors affecting the health of low-income persons. A number of studies suggest that much of the medical care provided to both adults and children is inappropriate and may have little health benefit. There is a large literature that suggests that insured persons are in better health than the uninsured, but this literature has generally failed to fully surmount the problem of omitted joint determinants of insurance and health status. Clever studies that use exogenous variation in insurance coverage or medical access (Lurie et al. 1984; Bindman et al. 1991) document positive effects of insurance on adult health, but a randomized trial (Newhouse 1993) suggested that increasing the generosity of insurance coverage had little health benefit.

Whether or not increases in utilization improve health outcomes, there is a definite link between increased utilization and increases in Medicaid program costs. Thus, the final step in assessing the efficacy of Medicaid policy is to compare the costs of utilization increases to any health benefits, to compute the cost-effectiveness of the program.

1.3.2 Take-up and Crowdout

Given the importance of translating Medicaid eligibility into participation, it is worth reviewing in some more detail the mechanics of this step. The economics of program participation among the existing uninsured parallels a number of analyses of take-up of programs such as AFDC. Moffitt (1983) provides an excellent exposition of the economics of that take-up decision. To summarize, in this model, individuals are trading off the income gained from participation against the stigma costs of participating. They must also incorporate the high implicit taxes on working in the range of program eligibility, so that the underlying wage rate is a key determinant of participation. If the return to work is high enough, or stigma is high enough, eligibles will not participate.

Cutler and Gruber (1996a) lay out the economics of crowdout, following Peltzman's (1973) seminal analysis of crowdout of private education by public education expenditures. Consider a person or family eligible for Medicaid, deciding on their insurance choice. For simplicity, they assume that insurance is sold individually and that policies differ only in the comprehensiveness of medical care that is covered. For example, more gener-

8. For example, Fossett et al. (1992) compared Chicago neighborhoods with 50 percent of the population on welfare to neighborhoods with 10 percent of the population on welfare and found that there were twice as many physicians practicing in the wealthier areas (on a per child basis).

ous plans offer a greater range of providers or cover a wider set of medical services. People choose between more generous insurance and other goods, as shown in figure 1.3. People valuing insurance highly (i.e., those demanding the highest quality providers) will choose a policy such as D, whereas those valuing insurance less highly will choose a point such as E.

Now the government introduces free public insurance with generosity M. On paper, Medicaid is a very valuable policy—almost everything is covered, and there is little or no cost sharing. For many reasons, however, the value of Medicaid is below that of private policies. Because of low Medicaid reimbursement rates, providers are often reluctant to treat Medicaid patients, thus reducing the value of coverage. In addition, individuals may not want to be enrolled in public programs because of the stigma associated with public programs or the difficulty in enrolling. Finally, the value of Medicaid may be low because individuals may have difficulty shifting from Medicaid back into private coverage if they have preexisting medical conditions. We thus show the value of the Medicaid package as below the value of most private policies.

Individuals cannot purchase a supplement to Medicaid (for example, an

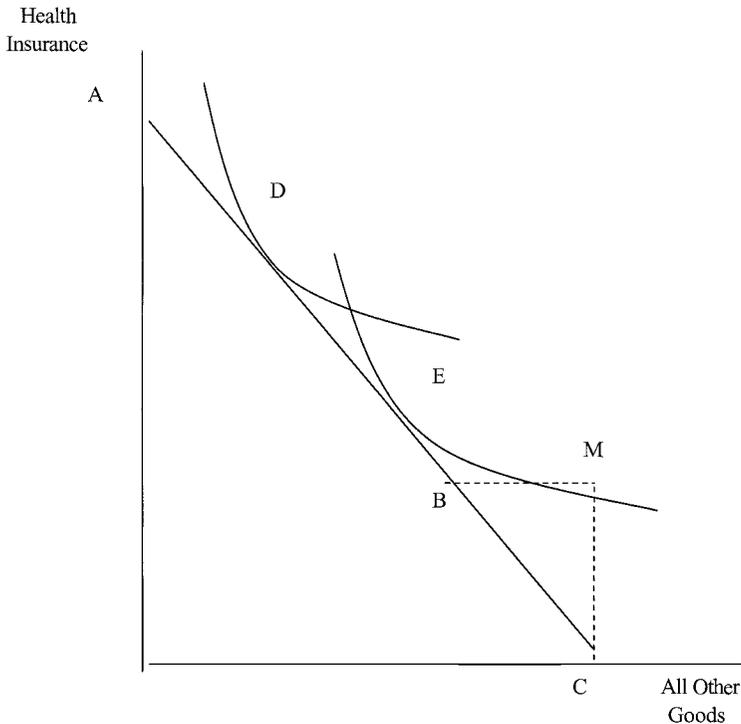


Fig. 1.3 Choice between insurance coverage and other goods

option to see higher-quality doctors by paying more on the margin). Thus, individuals who choose the public sector must consume insurance of exactly the amount M ; if they want any higher-quality insurance, they return to the original budget constraint. The budget constraint with Medicaid is therefore $ABMC$. In response to this public coverage, people with low values of private insurance (such as E) will choose to enroll in the public sector, while individuals with a high valuation of insurance (such as D) will choose to retain their private insurance.

The key empirical prediction of this model is readily apparent in figure 1.3: As the value of public coverage rises, relative to the underlying demand for insurance quality, then individuals will be more likely to drop their private insurance and enroll in Medicaid. Given the absence of information on desired insurance coverage for individuals, most work in this area tests a weaker prediction of this model: On average, individuals made eligible for public insurance will reduce their private insurance coverage, relative to groups not eligible for public insurance. A complication to this analysis is that most private health insurance is provided through employment, rather than being purchased individually, so that workers may not receive the savings from forgoing employer-provided coverage. Although empirical evidence suggests that health insurance costs are passed back to workers (Gruber 1994; Sheiner 1994), this research has not established whether this passback occurs in response to individual or group choices of insurance. If individual workers do not receive the savings from choosing not to purchase insurance, they will perceive moving to Medicaid as a reduction in health insurance but not as an increase in other consumption. Fewer people will drop private insurance coverage in this case.

In the absence of complete wage shifting, employers may encourage workers to drop coverage in other ways. One way to do this is to reduce the generosity of the benefits offered, or in the limit, to simply stop offering insurance to the workers; in either case, these limitations on the private option will make the public option relatively more attractive. Alternatively, employers can reduce the share of the premium that they pay. When employees pay more of the premium, the link between Medicaid receipt and additional income may be more direct (since it does not operate through the veil of shifting to wages). In addition, because there is a tax subsidy for employer spending on insurance but not for individual spending, increasing the share of the premium that employees pay directly effectively raises the price of private insurance relative to Medicaid.

Because of IRS nondiscrimination rules, however, neither of these actions can be used selectively for those workers eligible for public insurance. If insurance is offered, it must be offered to all full-time workers (Cutler and Madrian 1998). As a result, all of these actions increase the total cost of insurance for employees that do not qualify for public coverage, since they lose the tax subsidy for some insurance purchases, or (if employers drop coverage) they must purchase insurance in the more expensive individual market.

On net, therefore, the link between health insurance and employment may increase or decrease the amount of crowdout. If worker-specific shifting is not possible, then crowdout may be reduced, as employees do not realize the savings from moving to the public sector. If employers increase cost sharing or reduce coverage for all workers, however, more workers may decide to drop coverage than are immediately eligible for Medicaid.

A key issue for thinking about take-up and crowdout is the cash equivalent value of Medicaid coverage. Estimating this value is a daunting challenge, and there has been little work in this area since the important study of Smeeding (1982). He summarizes the various approaches to valuing in-kind benefits such as Medicaid and concludes that the economic value of Medicaid benefits to recipients is less than half of the market value. But this conclusion is based on a number of assumptions about preferences for medical care that are difficult to verify empirically. There is clearly no consensus at this point on the value of Medicaid to recipients in dollar terms.

1.3.3 Medicaid and Labor Supply

The impact of the Medicaid program on labor supply is also potentially important, as is illustrated by the excellent exposition in Yelowitz (1995). As noted earlier, a key feature of several public assistance plans is that, in addition to cash benefits, individuals qualify for Medicaid coverage of their medical expenses. This coverage can amount to quite a valuable benefit, particularly since the work opportunities available to potential AFDC and SSI participants are low-wage, low-skilled jobs without health coverage.⁹ As a result, the linkage of Medicaid to public assistance participation both encourages nonworkers to sign up for the programs and taxes work among potential recipients. That is, there is a form of “welfare lock”: Individuals are reluctant to leave government programs because they will lose their health insurance.

This effect is illustrated in figure 1.4, from Yelowitz (1995); see also Winkler (1991). This figure shows the welfare receipt and work decisions of a single woman with children, who can receive AFDC if her income is below $H_{\text{breakeven}}$. This woman trades off utility from leisure and from consumption of goods that is financed from wage income or from welfare payments. The recipient faces a constant post-tax wage w^0 . However, she is assumed to be unable to obtain a job with health insurance.¹⁰

At zero income, this woman receives a certain amount of cash welfare income from AFDC, as well as in-kind benefits, such as food stamps and

9. I use AFDC to summarize the effects of AFDC/TANF, since all of the work cited in this area refers to the older program.

10. Equivalently, she may be able to obtain a job with insurance, but only at a compensating differential that exactly equals her valuation of that insurance. Short, Cantor, and Monheit (1988) find that 43 percent of people who left welfare were covered by private health insurance. Since only those with the best opportunities leave welfare, the likelihood of finding a job with insurance for the average welfare recipient, should he or she leave the program, is quite low.

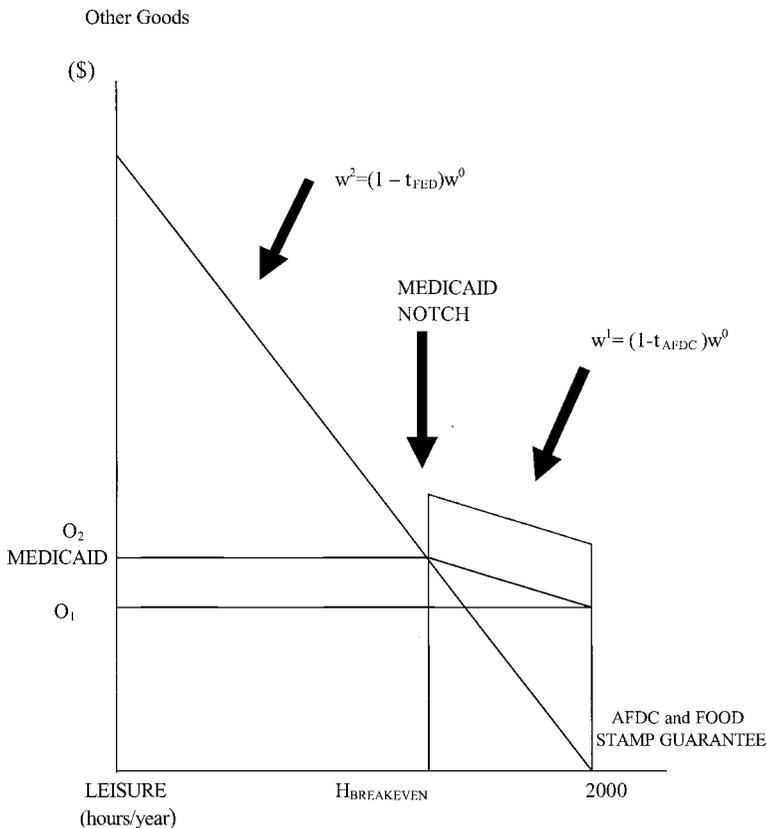


Fig. 1.4 “Welfare lock” effect on single women with children

Medicaid. As she earns labor income, her AFDC and non-Medicaid in-kind benefits are taxed away at a high marginal rate, so that her after-tax wage is $w^1 = (1 - \tau_{AFDC}) \cdot w^0$.¹¹ Once she works more than $H_{\text{breakeven}}$, the hours of work where the entire welfare benefit is taxed away, she loses her AFDC eligibility and hence her Medicaid benefits. This creates a dominated part of the budget set, known as the “Medicaid notch.” This notch provides a major disincentive to working her way off welfare. As Yelowitz documents, for a mother with two children in Pennsylvania in January 1991, the woman would have to earn more than \$5,000 additional dollars off welfare to break even with her income on AFDC at point $H_{\text{breakeven}}$. Of course, although removing the notch (e.g., by allowing those to keep Medicaid if they leave the welfare rolls) will improve incentives to leave welfare,

11. This marginal rate is 67 percent for the first four months, and 100 percent thereafter (after a basic exemption and some deductions for work and child care expenses).

this could reduce incentives for work among those with incomes slightly above this notch, so the net effect of the notch on total labor supply is unclear.

Reducing welfare lock through public insurance expansions can also have additional effects on labor market equilibrium, through adjustments of private insurance coverage and wages. If there is crowding out of private insurance through Medicaid expansions, then public insurance expansions will not only reduce welfare lock, but will also potentially reduce “job lock” (insurance-induced immobility across private-sector jobs) as well. By providing extra-workplace insurance coverage for workers or their dependents, Medicaid frees up workers to move to more productive positions. In addition, there may also be effects on wages and hiring, since employer insurance costs have been shifted to the government. If the costs of insurance are not shifted to wages, then the expansions provide a subsidy to the hiring of the low-wage workers who are likely to be eligible for the program and who will therefore not take up costly employer-provided insurance.

1.3.4 Medicaid and Family Structure

Another potentially important set of impacts of the Medicaid program for families is on family structure, along at least two dimensions. The first is the marriage decision, as described in Yelowitz (1998b). Traditionally, in order to qualify for Medicaid, women had to be single mothers on the AFDC program. Given that the potential marriage partners for many welfare mothers may not have health insurance to provide for the woman and her children, this could result in the woman’s remaining single in order to qualify for Medicaid.

The second is for fertility, through two channels. First, Medicaid coverage of pregnancy may lower the financial barriers to childbirth. Unless discount rates are incredibly high, it seems unlikely that coverage for pregnancy could actually cause women to have more children. But Leibowitz (1990) did find that more generous insurance coverage in the RAND Health Insurance Experiment led to shifts in the timing of childbirth. Second, by covering the costs of children’s medical care, Medicaid may lower the present discounted value costs of having a child. Of course, this analysis is complicated because both the family’s financial situation and the restrictions and benefits of the Medicaid program may change substantially over the eighteen years that the child may be covered by Medicaid, so it may be difficult to project the actual value of the program in lowering future medical costs.

1.3.5 Medicaid and Saving

As discussed in Gruber and Yelowitz (1999), there are three channels through which increased Medicaid generosity might affect saving and con-

sumption decisions: precautionary accumulation, redistribution, and asset testing. First, by reducing medical expenditure risk for eligible families, the Medicaid program lowers their need for precautionary saving. This will raise consumption and lower wealth holdings. This point is explicitly demonstrated by Kotlikoff (1988). He presents simulations of a life-cycle model with uncertainty that demonstrate that asset accumulation will be much lower in an economy with public insurance available than in one where individuals self-insure their medical expenses through savings.

This negative effect on wealth holdings may be offset, however, by the second effect: Medicaid is explicitly redistributive and consequently increases the resources of persons who become eligible for the program. For those who were previously uninsured, this increase occurs through a reduction in their expected medical outlays. For those who had private insurance but chose to drop it in order to sign up for the Medicaid program, there is a reduction in expected outlays for both out-of-pocket spending and insurance payments. This redistributive transfer is transitory; it only lasts as long as the family is eligible for Medicaid, on both income and demographic grounds. Thus, to the extent that families are operating in a forward-looking life-cycle framework, the transfer will be saved and spread over future periods when there is higher out-of-pocket medical spending risk, offsetting the precautionary saving effect. On the other hand, to the extent that families are not perfectly forward-looking or that they are qualifying for Medicaid because they are transitorily poor, some of this transfer will be spent today.

The third and final channel is one that is highlighted by Hubbard, Skinner, and Zeldes (1995): asset testing. Over the entire population, asset tests should lower savings; but this effect might be expected to be small, to the extent that a large share of the population does not consider Medicaid to be a relevant option. Of potentially more interest is the interaction of asset tests with eligibility. On the one hand, following the Hubbard-Skinner-Zeldes logic, in a world with an asset test individuals who are made eligible on income grounds but not on asset grounds may reduce their savings to qualify for the program. In this case the presence of an asset test will exacerbate the savings reduction (and consumption increase) from expanding Medicaid, since the newly eligible individuals must reduce their savings to qualify (on top of the precautionary effect discussed earlier).

On the other hand, if an asset test is in place, newly eligible individuals with reasonably high savings may not consider this program a realistic option, so that the expansions will not affect their savings. Under this model, asset tests may mitigate the savings and consumption effects of expansions, since there is no precautionary saving effect or redistributive effect for newly eligible persons who are high savers (and who consider the program irrelevant). Finally, asset tests may have no effect, in that they are not binding or difficult to enforce. Thus, the net interactive effect of asset tests and

eligibility is unclear. As a result, on net across these three effects, there is an ambiguous prediction for the effect of Medicaid eligibility on saving.

For the elderly, the impact of Medicaid on saving operates in a similar way, with all three effects. Here, however, we might expect the impact to be heightened since the potential spending risk on nursing homes is so much larger, and since even low-income elderly families can have substantial financial assets.

1.4 Evidence on Medicaid's Impacts

There is a large empirical literature that investigates the impact of Medicaid on insurance coverage, health care utilization and outcomes, labor supply, family structure, saving, and long-term care utilization and quality. I will review each of these literatures in turn.

1.4.1 Introduction: Identification of Medicaid Impacts

To introduce these literatures, it is worth reviewing the key issue in evaluating empirically the effects of Medicaid on behavior: how to separate (or identify) Medicaid's effects relative to confounding influences that might be correlated with changes in Medicaid. Consider, for example, a simple regression in a cross section of individuals of some behavior (e.g., health care utilization) on a dummy for whether the individual is covered by Medicaid. There are three confounding influences on a causal interpretation of the Medicaid coefficient in this type of regression. First, as highlighted earlier, take-up of Medicaid among eligibles is an individual decision that could be correlated with other behaviors, such as tastes for medical intervention. For example, individuals who are in poorer health will use more medical care and will be more likely to enroll in Medicaid. Thus, the exogenous regressor here is Medicaid eligibility, not Medicaid coverage, since the latter will produce estimates that suffer from selection bias.

Second, however, an individual indicator for Medicaid eligibility may itself lead to biased estimates, for three reasons. One is omitted variables bias. Eligibility is a function of a variety of factors about individuals that might also be correlated with their underlying behavior, such as income, family structure, or age. In principle, these factors can be controlled for in multivariate regression. But, in practice, eligibility is a complicated non-linear function of these factors and how they interact with a state's policy regime, so it will be difficult to fully control for their influence. Moreover, differences in the financial circumstances of particular places and times (e.g., a recession in a particular state) might be correlated with both aggregate eligibility and the outcome variables of interest. Another factor is endogeneity: A sick child may cause lower parental income (if a parent is forced to leave work to care for the child, for example), leading to a spurious positive correlation between Medicaid eligibility and utilization. Fi-

nally, there may be substantial measurement error in the eligibility indicator, given the limitations of standard survey data sets (e.g., the reporting of only annual income instead of the monthly income used by program administrators to assess eligibility).

A solution to this second class of confounding influences is to find an instrument that is correlated with individual eligibility for Medicaid but not otherwise correlated with the outcome variables of interest. A natural instrument that meets these conditions is one that varies only with the legislative environment in the state and year in which the individual lives. In a series of articles on the impacts of Medicaid expansions for pregnant women and children on utilization and health, Janet Currie and I introduced an instrument to serve this purpose, which we called *simulated eligibility*. To create this instrument, we first select a *national* random sample of children of each age and of women of childbearing age in each year. We then assign that same sample to each state in that year and use the eligibility program described earlier to compute average state-level eligibility measures for this sample. This measure can be thought of as a convenient parameterization of legislative differences affecting children in different state, year, and age groups—a natural way to summarize the generosity of state Medicaid policy as it affects each group in terms of the effect it would have on a given, nationally representative, population.

This instrumental variables strategy addresses the econometric difficulties noted above. First, by using instruments that are arguably exogenous to the dependent variable, it purges the model of endogeneity bias. Second, by using the fraction of the nationally representative population eligible in each woman or child's state/year/age group, this approach abstracts from any individual-level omitted variables correlated with both eligibility and outcomes. Third, to the extent that the measurement error in the instrument is uncorrelated with the measurement error in the individual eligibility measure, this also surmounts the measurement error problem. Finally, by using a national random sample to construct the instrument, the instrument is purged of any effects of state- and year-specific economic conditions that might be correlated with both eligibility and utilization.

Even with this careful econometric approach, however, there is a third major concern: legislative endogeneity. That is, the state policy parameters themselves may be a function of the dependent variable, leading to a correlation between even simulated (legislated) eligibility and outcomes. This problem is fundamentally impossible to solve, but it can be addressed in two ways. First, by including state and year fixed effects, models can control for any correlated fixed differences across places or over time in legislative tastes and in outcomes. Second, for the case of the children's expansions, it is actually possible to include as well as full set of state · year interactions, controlling for year-specific differences in tastes across states, since the children's expansions covered different groups of children very

differently across the states. Moreover, this “endogenous legislation” scenario is unlikely to be very problematic in the context of the Medicaid expansions in that much of the permanent variation in eligibility is coming from federal mandates on states of differing initial eligibility generosity, rather than state-specific expansions beyond the federal mandates. As Cutler and Gruber (1996a) note, 90 percent of the children and 70 percent of the pregnant women made eligible between 1987 and 1992 qualified for Medicaid under federally imposed minimum guidelines.

An alternative identification strategy, pursued by Currie and Thomas (1995), is to use fixed effects, examining the impact of Medicaid on medical care for children who gain and lose coverage. This approach has the advantage of not relying on legislative exogeneity, but the disadvantage that the changes in circumstances that lead children on and off the Medicaid rolls may also be correlated with their health and tastes for health care utilization. Interestingly, their findings mirror the instrumental variables findings discussed below.

1.4.2 Medicaid and Public Insurance Coverage

As noted earlier, take-up of Medicaid by program eligibles is much less than full. This is not surprising, given the large literature that documents partial take-up of other social insurance programs (e.g., Blank and Card 1991; Blank and Ruggles 1996). Indeed, the average take-up rate for Medicaid is comparable to the take-up rates of two-thirds found for other social insurance programs.

For thinking about the impact of expanding Medicaid, however, what is relevant is not just the *average* take-up rate, but also the *marginal* take-up rate among the newly eligible. In fact, take-up problems are likely to be even larger for the Medicaid expansions, relative to other social insurance programs, due to the nature of the population that is being newly covered. This point is highlighted in table 1.9, from Gruber (1997). This table presents data for the 1984 population of children and women age fifteen to forty-four. I divide this population into three groups: those eligible for Medicaid in 1984; those who were not eligible in 1984, but who would be eligible by 1992 rules; and those who would not be eligible by 1992 rules. When I project future eligibility, I inflate 1984 incomes to 1992 levels using the CPI.

Table 1.9 shows two reasons why we might expect relatively low take-up of the Medicaid expansions. First, the population covered by the expansions was much less disadvantaged than was the population already eligible for Medicaid at the start of the period. Most important, they were relatively unlikely to be receiving public assistance through AFDC. Limited contacts with the social welfare system may make these persons unaware of the benefits to which they were newly entitled. Second, much of the population that was covered by the expansions already had insurance coverage from other sources before being made eligible for Medicaid. Indeed, *two-*

Table 1.9 Characteristics of Medicaid Eligibles

Characteristic	Eligible in 1984	Made Eligible between 1984 and 1992	Not Eligible in 1992
Share of population (%)	16	28	56
Demographics			
Female headed (%)	63	30	13
Head is high school dropout (%)	45	25	12
Head works (%)	51	88	95
Family in poverty (%)	79	19	2
Mean family income (\$)	10,276	18,517	38,263
Family receives AFDC (%)	47	5	1
Insurance coverage (%)			
Private	23	69	88
Public	52	7	2
Uninsured	29	26	11

thirds of those made eligible for Medicaid already had private insurance coverage. Thus, the demand for taking up Medicaid may be much lower even when it is conditional on being aware of one's eligibility.

In fact, previous research documents quite low take-up rates for Medicaid. Cutler and Gruber (1996a), for example, find a take-up rate of only 23 percent for children; Currie and Gruber (1996a,b) estimate take-up rates of 23 percent for children and 34 percent for women of childbearing age. This finding suggests that there is only weak translation of the tremendous eligibility expansions into Medicaid coverage. Of course, take-up findings are more difficult to interpret in the context of Medicaid than of other programs, since some of those who don't take up coverage are actually simply in good health and will take it up when they get sick. But this is still to some extent a failure of take-up, to the extent that those families do not take their children for well-child visits. This issue is discussed further below when computing the extent of Medicaid crowdout.

A recent paper by Currie and Grogger (2000) explores the implications of policies that might affect take-up for use of medical care, in particular prenatal care for pregnant women. They find that state administrative efforts to increase the ease of enrollment in Medicaid have had little impact on use of medical care. This suggests either that enrollment barriers are not the cause of low take-up or that state efforts to mitigate those barriers have not been sufficient to date.

1.4.3 Medicaid and Crowdout

The fact that such a large share of the newly eligible population under the Medicaid expansions had access to private insurance raises the prospect that many of the new enrollees on the program may have been crowded out of private insurance purchases. The crowdout of private in-

insurance mechanisms by public interventions has been the subject of a long literature, but the first paper to specifically consider the interaction of private and public health insurance was by Cutler and Gruber (1996a).

The approach used by Cutler and Gruber is to exploit the tremendous variation in Medicaid eligibility across states, within states over time, and even within states at a point in time (from age notches in eligibility). They use the CPS data and eligibility imputations previously described to estimate models of the effect of Medicaid eligibility on private insurance coverage over the 1987–92 period. They control for state and time fixed effects, thereby using only within-state changes in policy to identify the effects of Medicaid on private insurance, and they use the simulated instruments approach described above.

A key feature of their approach is the recognition that there may be *within-family spillovers* in insurance coverage decisions. That is, it may be inappropriate to model a child's private insurance coverage as a function of that child's eligibility only. This is because private health insurance is generally sold only for individuals or families, without gradations among types of dependents. Thus, a family that wants to cover both parents but not the children (because the children may qualify for Medicaid) may find it impossible to do so with only one policy. Similarly, there is often no saving from enrolling some dependents in a policy but not others. This lack of distinction among dependents may increase or decrease the amount of crowdout. To the extent that families value coverage of all members and some members cannot qualify for public coverage, crowdout is likely to be smaller than an individual-by-individual calculation would suggest. On the other hand, if the Medicaid subsidy is large, families may drop coverage of all members, even those who do not qualify for public insurance directly. In either case, accounting for within-family spillovers is key.

Cutler and Gruber account for the effect of Medicaid eligibility on the family's insurance coverage decisions by modeling each family member's insurance coverage as a function of the "Medicaid replacement rate": the share of expected family medical spending that is made eligible for Medicaid. The results of this exercise are summarized in table 1.10, from Cutler and Gruber (1996a). They estimate that the Medicaid expansions brought 1.5 million children and 700,000 women onto the Medicaid rolls. At the same time, they were responsible for 600,000 children, 800,000 women, and 300,000 other family members dropping their private insurance coverage in order to take advantage of free Medicaid coverage. The greater than 100 percent crowdout for women, and the effect on other family members, is a by-product of within-family spillovers.

But the estimated increase in the Medicaid rolls is an underestimate of the true increase in the availability of Medicaid to these populations. The Medicaid expansions explicitly *did not* give continuous coverage to women. Rather, they created a form of conditional coverage: Women are

Table 1.10 Effect of Medicaid Expansions on Insurance Coverage

Type of Coverage	Change in Coverage (millions)	
	Medicaid	Private
Children	1.5	-0.6
Women 15-44	0.7	-0.8
Other adults	n.a.	-0.3
Total	2.2	-1.7 (-77%)
Conditional coverage of women	0.9	n.a.
Conditional coverage of children	0.4	n.a.
Total	3.5	-1.7 (-49%)

Source: Cutler and Gruber (1996a).

Notes: N.a. indicates data not available. Shows change in Medicaid and private coverage of women and children due to the expansions. Each cell is number of persons (in millions).

covered, but only for some expenses. As a result, women who are eligible for Medicaid in the event of pregnancy but who report themselves to be uninsured actually have some partial (conditional) insurance coverage. In particular, these women will have their hospital bills for delivery covered, since hospitals have developed detailed systems to insure that uninsured persons who are eligible for Medicaid get signed up for the program.

In the same vein, Medicaid also provides a form of conditional coverage for uninsured children. The fact that these children are not continuously covered by Medicaid suggests that they are not availing themselves of the insurance for the purpose of their primary medical care. Once again, however, when these children need hospital services, they may be signed up for Medicaid, so that they have conditional coverage for their hospital spending.

Cutler and Gruber value conditional coverage for women as the share of average annual medical spending that is accounted for by hospital expenses for pregnancy (25 percent), and for children as the share of annual total spending that is at the hospital (44 percent). Doing so, shown in the next set of rows in table 1.10, increases the estimated coverage increase to 3.5 million people. Accounting for conditional coverage, the bottom-line estimate is that 50 percent of the increase in Medicaid eligibility was associated with a reduction in private insurance coverage.

This is a sizable effect, suggesting the importance of this issue for Medicaid policy design. Nevertheless, these results also suggest that at least half of those enrolling in Medicaid were previously uninsured, so that there was a large net improvement in health insurance coverage in the United States as a result of the expansions.¹²

12. Cutler and Gruber (1996b) estimate that in fact as much as 80 percent of the newly enrolled Medicaid population was previously uninsured. The difference between the 50 percent and 80 percent figures is the population that dropped private insurance due to the expansions but did not enroll in Medicaid (e.g., women who are waiting for pregnancy to enroll).

This article has led to a fairly sizable literature on crowdout. Subsequent papers have attempted a variety of different approaches to identifying the impacts of Medicaid on private insurance coverage, and have generally produced much more mixed evidence on the importance of crowdout. Dubay and Kenney (1997) used an alternative strategy of examining how the coverage of low-income women and children changed over time, relative to control groups such as single men. They estimate much smaller crowdout effects. However, this approach to controlling for omitted time series imposes the assumption that there is no other reason why private coverage might be independently falling more for single men than these other groups, such as group-specific impacts of the early 1990s recession. This seems a much stronger restriction than Cutler and Gruber's implicit restriction that within-state changes in policy are not correlated with within-state changes in underlying insurance coverage. Three other articles that use a similar identification strategy to Cutler and Gruber (Rask and Rask 2000; Currie 1996; and Shore-Sheppard, 1999) also find large crowdout effects.

Another criticism of the Cutler and Gruber approach has been that crowdout is fundamentally a longitudinal phenomenon, yet Cutler and Gruber use repeated cross-sections to assess its presence. Several recent articles use longitudinal data to assess crowdout, looking at the private insurance coverage of the same children before and after they become Medicaid eligible by legislation (Yazici and Kaestner, 1998; Thorpe and Florence 1999; Blumberg, Dubay, and Norton 2000). These articles find little evidence of crowdout. This alternative approach also has its limitations: The samples used are often much smaller than with repeated cross sections, leading to much less precision (and the resultant inability to rule out large crowdout effects); these studies do not consider the impact of within-family spillovers, which Cutler and Gruber found to be important; and they consider only the short-run impacts of becoming eligible, whereas repeated cross sections assess the steady-state effects. Nevertheless, these longitudinal studies pose a fundamental challenge to the notion of very large crowdout effects and suggest the value of further work in this area, particularly with large longitudinal samples.

There are also a variety of questions about the *mechanisms* of crowdout that are yet to be addressed by the literature. For example, does crowdout result from firms' deciding not to offer insurance, or from workers' opting not to take up coverage for which they are being charged (and to use free Medicaid instead)? Cutler and Gruber find no evidence of an effect of Medicaid eligibility on employer decisions to offer insurance, however; all of the crowdout effect appears to come through employee take-up decisions. At the same time, they find some suggestive evidence that employers are increasing premium sharing in response to the expansions, in order to induce lower take-up of workplace coverage and a shift to the public program. Shore-Sheppard, Buchmueller, and Jensen (2000) also find no im-

pact on employers' offering decisions, and they find some evidence that the crowdout is occurring through employee take-up.

At the most fundamental level, understanding crowdout requires understanding the process by which firms set wages, and in particular how finely firms could increase the wages of particular workers who leave the firm to join the Medicaid program. Gruber (2000) reviews the literature on wage shifting and concludes that there is strong evidence of full shifting of insurance costs to wages on average, but little evidence on this critical question of how *finely* shifting can be done.

1.4.4 Effects of Medicaid Entitlement on Utilization of Health Care and Health Outcomes¹³

A natural motivation for increasing the eligibility of the low-income population for public insurance is to improve their health. But, as highlighted above, there are a number of reasons why increased health *insurance* does not guarantee improved health *outcomes*. Thus, simply documenting that the Medicaid expansions increased insurance coverage is not enough to prove that they improved health. In this section, I therefore review studies that focus directly on the effects of the expansions on medical care utilization and health outcomes. These studies focus in particular on use of preventative care and on directly measurable outcomes such as mortality and fetal health (e.g., low birthweight).¹⁴

A number of studies have assessed the effects of Medicaid by comparing the utilization and health of persons with Medicaid coverage to those of the uninsured. These studies have shown that uninsured persons have lower utilization levels, a less efficient distribution of utilization across sites of care, and worse health outcomes (e.g., Kasper 1986; Short and Lefkowitz 1992; Mullahy 1994). But since the uninsured are likely to differ from the insured in both observable and unobservable respects, it is difficult to draw causal inferences from these types of comparisons. Furthermore, insurance coverage itself may be a function of health status, leading to endogeneity bias in estimates of the effects of insurance on health and on the utilization of medical care.

A natural alternative approach to analyzing the effect of Medicaid on utilization and health is to contrast the experience of a single state before and after a Medicaid program expansion. This approach has been the focus of three important studies of prenatal care use and infant outcomes: Piper, Riley, and Griffin (1990), Hass et al. (1993), and Epstein and New-

13. This subsection draws heavily on Gruber (1997).

14. This focus is dictated by the empirical difficulties with using measures of acute care (since, if Medicaid affects health, it will have a feedback effect on use of acute care) and self-reported health (since increased contacts with the medical system may worsen perceptions of health through improved medical information). See Currie and Gruber (1996b) for a more detailed discussion of these issues.

house (1998). Piper, Riley, and Griffin analyzed the effect of the extension of Medicaid coverage to low-income married women in Tennessee in 1985; Hass et al. examined the effect of expanding insurance to women with incomes under 185 percent of the poverty line in Massachusetts in 1985; and Epstein and Newhouse look at expansions from the poverty line to 185 percent of the poverty line in Medicaid eligibility among women in South Carolina and California.¹⁵

All of these studies have a common finding: There was no consistent effect of insurance expansions on either use of prenatal care or infant outcomes. Piper, Riley, and Griffin (1990) suggest one reason for this finding: More than two-thirds of the women who were eligible for Medicaid enrolled after the first trimester of pregnancy; almost 30 percent enrolled in the last thirty days before birth.¹⁶ The extent of late enrollment grew after the expansion of Medicaid, suggesting that the newly eligible were enrolling even later. Ellwood and Kenney (1995) use more recent data to refute this contention, however, finding that, among women who were newly enrolled for their pregnancy, the expansion population was as successful as the AFDC population in enrolling the first trimester. Even in the Ellwood and Kenney data, however, only about one-half of the newly enrolling women were enrolled during the first trimester. A large literature on the effectiveness of prenatal care suggests that it is receipt of care in the first trimester that is key for improving fetal health (Institute of Medicine 1985). Thus, it is perhaps unsurprising that there was no effect on outcomes of these expansions.

While informative, these studies suffer from two potentially important problems. First, they are unable to control for correlated time series trends in the use of prenatal care and birth outcomes. There are a number of other changes in the circumstances of low-income households in the 1980s that might lead to lower use of prenatal care or worse outcomes, such as the erosion of the real earnings of low wage earners (Katz and Murphy 1992). These could interfere with uncovering the true effect of the Medicaid expansion. Second, the experience of one state's program may not be broadly prescriptive for the effects of national Medicaid policy.

An alternative approach involves using the experience of not just one or two states, but all of the states, to assess the effects of changing Medicaid policy. By comparing more broadly states that do and do not increase Medicaid generosity over time, one can also control for correlated time series trends. This is the approach taken by Currie and Gruber (1996b) for the case of prenatal care utilization and infant outcomes, and Currie and

15. The Massachusetts expansion was not technically a Medicaid policy, but rather a state-only program for the uninsured; but it foreshadowed the expansions that would be implemented under the Medicaid programs several years later.

16. Howell and Ellwood (1991) study this question for an earlier period (1983), and they find that roughly 50–60 percent of women whose deliveries were paid for by Medicaid were enrolled in Medicaid in the first trimester.

Gruber (1996a) for the case of child health care utilization and health outcomes. In both cases, the authors use individual-level data on health care utilization, either from the National Longitudinal Survey of Youth (NLSY) on prenatal care utilization, or from the National Health Interview Survey (NHIS) on child health care utilization. They combine this with aggregate data on mortality outcomes from the *Vital Statistics*. In all cases, the data are a time series of national cross sections, providing information on a number of states over time.

The measure of utilization for pregnant women is whether these women delayed their prenatal care until after the first trimester of pregnancy. In fact, in contrast to the pre-post studies described earlier, there is a large improvement in prenatal care utilization associated with Medicaid eligibility. Making someone eligible for Medicaid lowers the odds of her delaying prenatal care by almost 50 percentage points, which is essentially a 100 reduction in the odds of delaying care. Currie and Gruber (1996a) also find a sizeable effect of Medicaid on use of preventive care by children: Being made eligible for Medicaid is associated with a drop in the probability of going without a visit over a year of almost 10 percent; this is almost one-half of the baseline probability of going without a visit.

Dubay et al. (2000) take a somewhat different approach from that of Currie and Gruber, examining time series trends in prenatal care utilization by socioeconomic groups more and less likely to be affected by the expansions. But they also find significant impacts of the expansions in terms of reducing the extent of delayed initiation of prenatal care. Thus, there appears to be clear evidence of benefits of the expansions in terms of medical care utilization.

Kaestner, Joyce, and Racine (1999) and Dafny and Gruber (2000) explore the impact of the Medicaid expansions not just on the level of hospitalizations of children, but also on the nature of those hospitalizations. Dafny and Gruber find, like Currie and Gruber (1996a), that increased Medicaid eligibility of children leads to more hospitalizations overall. But both articles find that eligibility leads to fewer “avoidable” hospitalizations, or those hospitalizations that are likely to be avoided by early contact with a primary care physician. This suggests that Medicaid coverage increases not just utilization but also the efficiency with which care is used.

One interesting feature of the expansions is their effect not only on mean utilization but also on the distribution of utilization. Currie and Gruber (1996a) and Currie (1996) explore the differential impact of the expansions by race, education, and immigrant status. In all cases there are some equalization impacts, with the utilization effects being particularly large for blacks, low-education groups, and immigrants.

Currie and Gruber (2001) further investigate the impact of the Medicaid expansions on the treatment of women at childbirth. They use information from birth certificate data on utilization of obstetric procedures during

childbirth, such as fetal monitoring and cesarean section delivery. They divide the population of women into two groups: teen mothers and high school dropouts (“low education”) and all others (“high education”). Mothers in the former group are quite likely to have been uninsured before enrolling in Medicaid, whereas mothers in the latter group were much more likely to have been privately insured. For the low-education mothers, they find sizable and significant positive effects of eligibility for Medicaid on the treatment of childbirth for the lower-education group; there is a uniform increase in the likelihood that women receive each of the procedures documented on birth certificates.¹⁷

But they also note that even if there is little net increase in insurance coverage for other mothers, this does not mean that there is no effect on their procedure use. Medicaid reimburses hospitals at a much lower level than do most private insurance plans. Thus, crowdout represents a shift from more to less generous insurance coverage for women, which may affect their procedure use even as their overall insurance coverage status does not change. Indeed, for these mothers, they find the effect opposite to that for low-education mothers: a significant reduction in the use of three of the five obstetrical procedures studied, and no effect on the other two. Overall, in fact, procedure use was basically unchanged in every case. That is, while Medicaid costs were rising substantially, social costs of treatment were unchanged: Women were obtaining the same treatment as before on average, with an equalizing trend toward more intensive treatment for low-education groups and less intensive treatment for higher-education groups.

Currie and Gruber (1996b) also find significant improvements in infant health from the Medicaid expansions. They estimate that each 10 percentage point increase in Medicaid eligibility lowered infant mortality by 0.03 percentage points, so that the 30 percent rise in eligibility over the 1979 to 1992 period was associated with a 8.5 percent decline in the infant mortality rate. There is a smaller and marginally significant effect on low birth weight. The authors go on to draw a distinction between two types of Medicaid policies during the 1979–92 period: “targeted” eligibility changes through 1987, which were addressed to very low-income populations including AFDC recipients; and the “broad” expansions after 1987, which were addressed to somewhat higher-income groups. As that paper highlights, these different types of policies affected quite different populations; in particular, the persons covered by the broad expansions had higher incomes and were more likely to be privately insured. As a result, the take-up of the targeted expansions was three times as high as take-up of the broad expansions.

17. This echoes findings for the state of Massachusetts expansions in Hass, Udarhelyi, and Epstein (1993), who showed that this eligibility increase was associated with a rise in the rate of cesarean section delivery. On the other hand, Epstein and Newhouse (1998) do not find consistent effects of expansions in California and South Carolina on cesarean section rates.

The authors then note that there were correspondingly different effects on outcomes from these two types of policies. There were very sizable effects of the targeted expansions on mortality, but only an insignificant effect of broad expansions: A 30 percentage point increase in targeted eligibility would have been associated with a 11.5 percent decline in infant mortality, compared to a 2.9 percent decline under the broad policy changes. There is also a very sizable reduction in the incidence of low birth weight associated with the targeted expansions (7.8 percent for a 30 percentage point eligibility increase), but there is no effect on low birth weight from the broad expansions.

Medicaid reduces the mortality of older children as well. Currie and Gruber (1996a) find that for every 10 percentage point increase in the fraction of children eligible for Medicaid, mortality drops by 0.013 percentage points; the 15.1 percentage point rise in eligibility between 1984 and 1992 is therefore estimated to have decreased child mortality by 5.1 percent.

There is less consistency in the literature, however, on the health benefits of the Medicaid expansions. Kaestner, Joyce, and Racine (1999) find no impact of Medicaid on self-reported health status and bed days, comparing income groups more and less likely to be eligible for expansion-based eligibility across states. One difficulty with this approach is that changes in subjective measures of health are hard to evaluate when access to care is changing; if insurance coverage leads to more contacts with physicians that reveal underlying health problems, this can lead to both worse self-assessed health status and more bed days. Dubay et al. (2000) do use objective data on birth weight, and they find little impact of the expansions on the incidence of low birth weight, despite the improvements in prenatal care adequacy noted above. These findings are consistent with the conclusion that the broader Medicaid expansions to pregnant women higher up the income scale of the late 1980s and early 1990s had minimal measured impacts on health.

A natural means of evaluating these findings is to consider the cost to the Medicaid program per life saved. This can be calculated by modeling administrative spending for each state or year on the Medicaid program as a function of changes in eligibility, and comparing these cost changes to any outcome improvements. For infants, the cost is roughly \$1 million; in fact, when Currie and Gruber once again disaggregate into the targeted and broad policy changes, they find that the cost under the targeted changes (\$840,000) was much lower than under the broad expansions (\$4 million). For children, the cost per life saved is \$1.6 million. As Currie and Gruber (1996b) discuss, these costs are low relative to typical estimates of the value of an adult life (\$3–7 million) and relative to what the government spends to save child lives in other contexts.

A final area of interest with respect to the Medicaid entitlement is the impact of restrictions on services. As discussed earlier, most of the major

health care services are covered by virtually all states. But there is some interesting variation in copayments and limits on the availability of prescription drugs. Stuart and Zacker (1999) find that elderly and disabled Medicaid recipients who reside in states with copayments for drugs have significantly lower rates of drug use than their counterparts in states without copayments; the primary channel for this effect appears to be through the likelihood of filling any prescription during the year, not the conditional number filled. Soumerai et al. (1994) found that limits on the use of antipsychotic drugs in New Hampshire lead to less use of these drugs and more spending on acute mental health services. These sets of results are provocative and suggest the value of additional work that carefully assesses the costs and benefits of prescription drug limitations under Medicaid.

1.4.5 Impact of Medicaid Reimbursement Policy on Utilization and Health Outcomes

The discussion thus far has focused on policies that increase the demand for medical care. But for a number of reasons it may be supply side policies that are more effective. As noted above, there is a shortage of physicians willing to serve the Medicaid population. This suggests that increased demand for services generated by expansions of the Medicaid program could go largely unmet, undercutting any potential gains.

One natural supply side tool is Medicaid fee policy. The low fees paid by state Medicaid programs represent a major potential deterrent to physician willingness to see Medicaid patients. Holahan (1991) reports that the ratio of Medicaid fees to private fees was approximately 0.5 for most procedures surveyed, and 0.56 for total obstetrical care with vaginal delivery. And the Physician Payment Review Commission (1991) found that thirty-eight states identified low fees as the major cause of low physician participation rates. A large body of research suggests that increasing the ratio of Medicaid fees relative to private-sector fees will increase physician participation in the Medicaid program (Hadley 1979; Sloan, Mitchell, and Cromwell 1978; Held and Holahan 1985; Mitchell 1991). Mitchell and Schurman (1984) and Adams (1994) find that the participation of OB/GYNs is especially responsive to fee increases.

More recent work, however, suggests that physician responsiveness to fees may be somewhat more limited than was implied by the previous literature. Baker (1997) finds that higher fees are associated with more access to public and hospital clinics, but not to physician's offices. Decker (1992) finds that higher fees are not associated with increased physician willingness to see Medicaid patients but are associated with a shift from general practitioner to specialist visits. These findings do not forcefully dispute the raw contention that Medicaid fee increases raise access to ambulatory care, but they do suggest that more work is needed on the mechanisms by which higher fees have these impacts.

Of course, higher physician fees are not guaranteed to improve outcomes, due to the physician segregation noted above; only if fee increases generate improvements in access in the places where Medicaid recipients live will there be health improvements. Direct evidence on this question is provided by Gruber, Adams, and Newhouse (1996), who examined access to physicians after a large fee increase in Tennessee. They find that there was a sizable, but insignificant, fall in the average distance of Medicaid patients from a physician. Decker (1992) also finds that higher fees lead physicians to spend more time with their Medicaid patients.

Currie, Gruber, and Fischer (1995) examine directly the effect of the relative fees paid to physicians by the Medicaid program on infant mortality, using matched measures of state/year infant mortality rates, physician fee indexes, and physician and total medical spending. They find that, over the entire 1979–92 period, there is a significant but small impact of higher fees in terms of lowering infant mortality; doubling the fee ratio would lower mortality by 5.2 to 7 percent. But they find that the cost was low as well, with the physician cost per life saved ranging from \$260,000 to \$1.3 million depending on the specification. They also find some evidence of a countervailing “offset” effect on hospital spending, with hospital spending falling by a substantial amount to offset the increased physician costs. This is consistent with the findings in Gruber, Adams, and Newhouse (1996), who find that after the state of Tennessee increased its physician fees, physician spending rose, but hospital spending fell. Gray (1999), using microdata on birth outcomes matched to physician fee information, produces an even larger effect of fees on outcomes. Overall, raising physician fees seems a much more efficient route to improved outcomes than the broad expansions.

Higher physician fees can affect not only the access of Medicaid patients to the physician, but also how patients are treated by physicians. A large literature on the impact of Medicare reimbursement on treatment intensity suggests that higher Medicare reimbursement leads to *lower* intensity, as physician income effects dominate substitution effects. But the typical doctor who sees Medicaid patients has a relatively small share of his practice made up of Medicaid patients, so it is plausible that income effects might be weaker in this context. Indeed, Gruber, Kim, and Mayzlin (1999) find that higher Medicaid fee differentials for cesarean section delivery are associated with higher rates of cesarean delivery among Medicaid patients; they estimate that as much as one-half of the sizable differential in cesarean delivery rates between Medicaid and private-pay patients is due to lower Medicaid reimbursement levels.

Of course, physicians are not the only health care providers reimbursed by Medicaid. However, the literature on Medicaid reimbursement in other arenas is much more sparse. There was some work in the late 1980s on Medicaid hospital reimbursement, but virtually no work since. These stud-

ies (Holahan 1988; Zuckerman 1987) found that Medicaid-only prospective payment systems were successful in lowering costs in the short run but not in the long run. Rather, to control costs in the long run, it was important to embed Medicaid reimbursement within a systemwide reimbursement structure that regulates all payers. Holahan also reports some evidence that states with lower per diem reimbursements under Medicaid feature lower access of Medicaid patients to hospitals, particularly among nongovernmental hospitals, so that lower rates led to a net shift of Medicaid patients to government hospitals. He also finds sharp one-time gains from the selective contracting program in California that negotiated rates with hospitals, but he once again raises questions about whether price negotiation will continue to work over the long term.

A provocative recent study by Duggan (1999) examines the impact of DSH payments on hospital behavior in California. He finds that these transfers have little impact on the treatment of low-income populations: Private hospitals simply absorb the payments in higher profits (for for-profit hospitals) or higher retained net worth (for not-for-profit hospitals); and public hospitals saw no net increase in available funds because local governments cut their public subsidies one for one with the rise in federal subsidies. Consistent with these results, he finds no impact of larger DSH payments on the birth outcomes of women in California.

The lack of work on Medicaid hospital reimbursement, given the enormous volume of literature on Medicare hospital reimbursement, is striking. Variations across states, and within states over time, in Medicaid reimbursement policies offer the potential for rich investigation of how hospitals respond to reimbursement differences. Moreover, there is no work on the health impacts of these hospital responses. Although state reimbursement rules may be difficult to obtain, this is clearly an interesting area for future work.

1.4.6 Medicaid and Long-Term Care

Another literature of particular interest is the work on Medicaid reimbursement of nursing homes, access to care by Medicaid patients, and quality of care delivered. This literature is nicely reviewed in Norton (2000).

There are two important issues raised in this literature. The first is how Medicaid policy affects access to, and demand for, nursing home stays by the elderly. A key issue here is that the market for nursing home stays may not be in equilibrium. A number of articles argue that due to government regulation, nursing homes are at full capacity and face excess demand from Medicaid patients who pay nothing out of pocket for care (Scanlon 1980; Nyman 1989). Other research has also found that Medicaid patients have less access to nursing homes than their private-pay counterparts, which is consistent with the excess demand interpretation. This also has the important implication that the frail elderly may spend more time in hospitals

when they are Medicaid financed, offsetting some of the savings to the Medicaid program from lower nursing home reimbursement rates. Gruenberg and Willemain (1982) found that the length of stay in Massachusetts hospitals was longer for Medicaid patients waiting for placement in a nursing home, and Ettner (1993) also found evidence that Medicaid patients have more nursing home access problems than private patients. She found that Medicaid patients in areas with relatively low bed supply and in areas with greater demand from private patients were more likely to be on a waiting list for admission to a nursing home.

On the other hand, some work finds that more generous Medicaid subsidies to nursing home care increase overall nursing home utilization (not just relative utilization of those on Medicaid), which is not consistent with excess demand. Hoerger, Picone, and Sloan (1996) and Cutler and Sheiner (1994) both find that elderly persons are more likely to use a nursing home when Medicaid eligibility is looser and Medicaid reimbursement is more generous. Cutler and Sheiner also find that these state policies appear to draw persons into nursing homes who would otherwise live with their children; this suggests that the benefits of more generous Medicaid systems may largely accrue to children who would otherwise have to support their elderly parents. And Hoerger, Picone, and Sloan find that increased Medicaid home health expenditures are not associated with reduced use of institutional care, but simply with reduced use of care from other family members; this is consistent with the experimental evidence from the channelling experiment of the 1970s, which found that more generous home care did not reduce the use of institutional care (Norton 2000).

The second issue is how Medicaid reimbursement affects the quality of nursing home care. Gertler (1989) and Nyman (1985) make an important theoretical observation about Medicaid fee policy toward nursing homes. Nursing homes compete for private patients over both price and quality, and Medicaid patients will accept minimum quality since the care is free. Common quality is assumed to be provided across patient types; that is, quality is a “public good.”¹⁸ Moreover, as noted above, nursing homes are assumed to be at full capacity and face excess demand from Medicaid patients who pay nothing out of pocket for care. As Medicaid raises its reimbursement in this model, nursing homes on the margin will want more Medicaid patients, which means they will need fewer private-pay patients. They therefore raise price and lower quality to their private-pay patients to reach equilibrium. As a result, since common quality is provided, higher Medicaid reimbursement leads to lower quality care.

Gertler (1989) provides evidence to support this hypothesis, using an in-

18. This is the key assumption of the model, and an interesting question for future investigation is whether this assumption is truly warranted in the nursing home setting; there is substantial evidence from physician and hospital settings that patients with different payer sources are treated differently.

put-based measure of quality across a sample of nursing homes. He finds that higher Medicaid reimbursement is indeed associated with lower quality of care along this metric. Gertler (1992) uses data for New York state to estimate that a 10 percent increase in Medicaid expenditures leads to 4.1 percent increase in Medicaid patient care and a 3.4 percent reduction in nursing home expenditures on services provided to patients. This suggests both substantial public-sector costs and private quality costs to attempting to improve the access of low-income patients to nursing homes.

This test has been recently updated in Grabowski (2001). This study improves on previous tests along three dimensions: by using national, rather than state-specific data; by using the substantial and exogenous variation in average Medicaid reimbursement available across the states; and by using an outcome-based measure of quality (facility-acquired pressure sores). In fact, Grabowski finds that Medicaid reimbursement is *positively* associated with quality, in contrast to previous evidence and to the theory laid out above. Moreover, this positive association is found both in the early 1980s and in more recent years, and in both a sample of New York homes and the national sample. These findings cast significant doubt on the validity of the previous empirical literature and suggest the value in understanding where this model breaks down; a natural candidate may be the untested assumption that quality is a common good in nursing homes.

1.4.7 Medicaid, Labor Force Participation, and Welfare Participation

As discussed earlier, the fact that low-income households can obtain fairly high-quality insurance through the Medicaid program by being on cash welfare, but are unlikely to obtain that coverage in the low-wage labor market, provides a substantial disincentive to leaving welfare (“welfare lock”). Given the existence of welfare lock, one potential advantage of decoupling Medicaid from the AFDC program is that it could allow individuals to leave AFDC without fear of losing insurance for their children or for the costs of pregnancy. The result would be lower costs of the AFDC program, as well as potential tax revenues from the earnings of these new workers. The magnitude of the welfare lock problem, however, is uncertain: Given the harsh job prospects for low-income populations, even with health insurance they may be reluctant to leave the welfare rolls.

The magnitude of welfare lock has been the subject of a number of studies, as reviewed in Gruber (2000). There have been three basic empirical approaches used in this literature. The first is to use differences in individual characteristics to predict who is likely to be “locked” into the AFDC program by Medicaid due to high medical spending, and then to assess differential participation rates by this imputed value of Medicaid. Ellwood and Adams (1990) follow this approach using administrative Medicaid claims data to examine exits from AFDC, and Moffitt and Wolfe (1992) model participation as a function of imputed value in the SIPP. The results

are fairly similar, showing sizable decreases in the likelihood of exiting AFDC as the imputed value of Medicaid rises.

The second approach is to abstract from individual health and to use variation in the characteristics of state Medicaid programs to identify the value of Medicaid to the potential AFDC participant.¹⁹ Blank (1989) was the first to pursue this approach, estimating models of AFDC participation and hours of work on average state Medicaid expenditures and the presence of a state Medically Needy program, which provides Medicaid to non-AFDC families if their income net of medical expenditures falls below a certain floor. She finds no effect of either policy variable on AFDC participation. Winkler (1991) also finds no effect of average expenditures on AFDC participation, but he does find an effect of average expenditures on labor force participation, a finding echoed by Montgomery and Navin (1996), albeit with a much smaller estimate. But there is no effect of Medicaid expenditures on participation in Montgomery and Navin's work after state fixed effects are included in the regression models.

The third approach that has been taken to this question extends the notion of using state parameters by exploiting the variation that comes from the Medicaid expansions. As Yelowitz (1995) notes, these expansions served to decouple Medicaid eligibility from AFDC receipt, thereby providing precisely the variation needed to separately identify the role of Medicaid from that of other factors in determining welfare participation. A key feature of these expansions was variation across the states in the timing and generosity of increased income limits. Indeed, there was even variation within states at a point in time, due to different age cutoffs for eligibility of children across the states. This allows Yelowitz to form plausibly identical groups of families, some of which (the "treatments") were able to leave AFDC and retain their Medicaid coverage, and others of which (the "controls") were not. And he finds significant effects of being in the treatment group on both AFDC participation and labor force participation: He estimates that increasing the income cutoff for eligibility by 25 percent of the poverty line decreases AFDC participation by 4.6 percent and increases labor force participation by 3.3 percent. More recent work by Meyer and Rosenbaum (1999), however, suggests that the Yelowitz findings may be fragile, as they find no large effects from a different specification over a later set of years. Ham and Shore-Sheppard (1999) also find small effects of Medicaid entitlement on transitions both off and on to welfare.

A related approach is taken by Decker (1994). She examines the effect of the introduction of the Medicaid program in the late 1960s and early 1970s on AFDC participation in that era. Since the Medicaid program was phased

19. Features of the state Medicaid program are included in the set of variables used to predict Moffitt and Wolfe's (1992) index, but the papers discussed here use *only* state features for identification.

in across the states over a period of several years, she is able to assess whether states that adopted Medicaid saw a subsequent increase in their AFDC rolls, relative to states that did not. In fact, she finds a very strong effect, with the introduction of Medicaid leading to a 6.4 percentage point (24 percent) rise in the odds that a single female head participates in AFDC.²⁰

In a series of subsequent studies, Yelowitz has explored the effect of Medicaid on participation in other public assistance programs. The first is SSI; as Yelowitz emphasizes, this program is actually larger in dollar terms than is AFDC, and the same type of welfare lock problem arises in this context. For elderly SSI recipients, this problem arises because the Medicaid coverage that they receive on SSI pays for their noncovered Medicare expenditures. Using an expansion of Medicaid for the elderly, Yelowitz (2000b) finds a nontrivial welfare lock for this population as well. For the disabled, who get Medicaid if on SSI, Yelowitz (1998a) follows the second approach noted above, using variation across states in the Medicaid spending to proxy for the program's generosity. He finds that the growth in Medicaid generosity over 1987–93 can explain almost all of the substantial growth in the SSI disabled caseload. Finally, Yelowitz (1996) asks whether increased eligibility for Medicaid raises utilization of the food stamps program, both through reducing labor supply and increasing awareness of public assistance programs. Using the same estimation approach as Yelowitz (1995), he finds that Medicaid eligibility does increase food stamp participation and that this increase occurs through both channels.

Thus, to summarize, this literature suggests that health insurance is a very important determinant of public assistance participation. This has two important welfare implications. First, it suggests that reduced public assistance expenditures may offset a share of the increased costs of expanding health insurance availability. Yelowitz (1995) estimates that expanding eligibility for Medicaid to all women and children with incomes below 185 percent of the poverty line in 1989 would have saved the government \$410 in expenditures per female-headed household per year. Second, there may be nonfinancial costs to the increase in welfare dependence that results from welfare lock. A number of analysts have suggested a hysteresis-type model of welfare behavior, with exposure to the welfare system increasing future utilization by both a mother and her children as adults (Murray 1984). Existing evidence on welfare dependence is mixed, with some recent studies concluding that there is little intergenerational transmission of welfare (Zimmerman and Levine 1993). But this possibility highlights the benefits of moving welfare recipients off the public assistance rolls through reducing welfare lock.

20. For this era, however, her results indicate that this increase is primarily due to increased take-up among those already eligible for AFDC, *not* to reduced labor supply in order to make oneself eligible; the labor supply effects are imprecisely estimated, however.

Reducing welfare lock through public insurance expansions can also have additional effects on labor market equilibrium, through adjustments of private insurance coverage and wages, as discussed earlier. But there is no empirical work to date on the effect of the expansions on job mobility, wages, or employment determination.

1.4.8 Medicaid and Family Structure

As discussed earlier, Medicaid can also have effects on family structure, along two channels. The first is marriage: By tying receipt of Medicaid to receipt of cash welfare that requires being nonmarried (in the main), public policy provides a disincentive to marriage. Yelowitz (1995) once again uses the structure of the Medicaid expansions of the 1988–91 period to explore this issue, by assessing whether women who were made eligible for the insurance in the state of marriage were then more likely to get married. He finds a small but significant effect on marriage propensities from the Medicaid expansions through this channel.²¹

The second is fertility: As noted above, Medicaid expansions can in principle increase fertility by lowering the cost of bearing and raising children. Indeed, Joyce, Kaestner, and Kwan (1998) do find that Medicaid entitlement for pregnancy expenses for low-education women was associated with a 5 percent increase in the fertility rate for white women; this arises partly through reduced abortions (see the discussion that follows). This is a striking finding and provides confirmation that insurance coverage can matter for fertility decisions. This paper does not, however, address two important questions about this finding. First, does this represent a permanent upward shift in fertility rates, or simply a shift in the timing of when children are born (i.e., children are born earlier than they otherwise would, which appears to be a rise in the fertility rate in a cross section)? Second, how much of this impact is due to coverage of pregnancy per se, as opposed to correlated expansions in the coverage of children that may have a larger impact on the net cost of raising a child?

Another channel through which Medicaid can affect fertility is abortion decisions. Medicaid financing of abortion has been a contentious issue for many years, and there has been significant variation in reimbursement policy. Several recent papers (Haas-Wilson 1994; Blank, George, and London 1996; Levine, Trainor, and Zimmerman 1996; Kane and Staiger 1996) have found that restricting Medicaid funding of abortions significantly reduces teen and aggregate abortion rates. At the same time, the last two of these

21. As Yelowitz notes, there is in fact a countervailing influence here. For some women who were married to their husbands just to get health insurance, the increased income cutoffs would allow them to divorce their husbands but maintain coverage. He is able to distinguish this effect from the marriage incentive effect described above by separating changes in income cutoffs from changes in coverage of traditional families. He finds that both effects are present but that the positive marriage incentive effect predominates.

papers also find little impact on teen births. This suggests that restrictions on abortion access lead to fewer pregnancies (through more preventative measures by teens), offsetting the reduction in abortion access. Joyce and Kaestner (1996) find that Medicaid eligibility itself is associated with reductions in the abortion rate among white women, which is consistent with the impacts on fertility documented above.

1.4.9 Medicaid and Saving

The final area of work on Medicaid and economic behavior is on saving, in two areas. Gruber and Yelowitz (1999) explore the impact of the Medicaid expansions for children and pregnant women on saving and consumption. They find that the expansions led to both lower saving and higher consumption, confirming in two data sets that the type of precautionary saving effects discussed in Kotlikoff (1988) or Hubbard, Skinner, and Zeldes (1995) are empirically important. In particular, they find that in 1993 the Medicaid program lowered the wealth holdings of eligible households by 16.3 percent. They also find that the expansions of this program over the 1984–93 period lowered wealth holdings by 7.2 percent. And they use the fact that the expansions were accompanied by the removal of asset testing for Medicaid eligibility in many states to document that asset testing is also an important determinant of savings: The reduction in savings for those becoming eligible for Medicaid in a regime where there is asset testing is twice as large as for those becoming eligible in a regime without asset testing.

The other area in which the impacts of Medicaid on saving have been investigated is in terms of nursing home coverage. Theory would suggest that there could be potentially quite large impacts on savings of Medicaid entitlement to nursing home coverage, since nursing home care is very expensive, so that precautionary savings may be large. Norton and Kumar (1998) investigate whether the spousal impoverishment provisions of the Medicare Catastrophic Care Act of 1988, which (as noted earlier) allowed families to shield significant assets with a community-based spouse, led to higher savings. Using data on community or institutionally based chronically impaired couples, they find no higher savings after this act among couples with a community-based spouse and singles without such a spouse.

Moreover, very few persons spend down to Medicaid eligibility after entering the nursing home. Although roughly 40 percent of new admissions are covered by Medicaid, and there is a perception in the popular press that spend-down is widespread, less than 20 percent of persons who are private-pay at admission actually spend down after admission (Norton 2000).

Evidence on whether the elderly transfer assets to others to avoid the implicit Medicaid “tax” is mixed. Norton (1995) uses data from two different samples of the elderly to predict the distribution of time until spend-down

according to a model of spend-down absent of behavioral effects. These distributions were then compared to the actual distribution of the time until spend-down for nursing home residents. Contrary to expectations, it appears that the elderly avoid Medicaid eligibility. This result cannot be explained away by sample selection, demographics, or uncertainty about prices.

1.5 Implications and Unanswered Questions

As is clear from the foregoing discussion, there is a large and rich literature exploring the impacts of Medicaid on individual behavior and outcomes. This literature has a number of important policy implications. But, in thinking through policy directions, it also becomes apparent that there are a number of unanswered questions about Medicaid's impacts as well.

1.5.1 Eligibility Policy

The first area of policy that is informed by this literature is Medicaid eligibility policy as a tool for dealing with the large and growing number of uninsured individuals in the United States. One straightforward alternative for increasing insurance coverage is to continue to expand our public insurance safety net. This was the approach taken by the CHIP expansion. The problem with this approach is that the CHIP program will be spending its dollars primarily on those children around 200 percent of poverty, and this is a population that is heavily privately insured already. For example, among those children between 200 and 250 percent of poverty, only 14 percent are uninsured, and almost 80 percent already have private health insurance. A key lesson from the recent literature on Medicaid is that crowdout may be a significant concern under these types of conditions. As a result, there could be relatively low "bang for the buck," with most public dollars going to those already insured and switching to the public program.

On the other hand, the flexibilities built into CHIP are likely to help mitigate crowdout. By making the benefits package less generous than Medicaid, and by introducing premiums and copayments for services, state CHIP programs make it less attractive to drop one's private health insurance to join the public program. Clearly, as public insurance is expanded further and further up the income scale, given the strong correlation between income and private insurance coverage, more and more limitation of this form is called for.

An important priority for research is to assess whether the flexibilities in CHIP have a real impact on crowdout. Some casual evidence suggests that they might. Before CHIP, the states of Florida and Minnesota had public insurance programs for children funded out of state monies only, and these programs provided insurance that was much more restrictive than Medicaid, particularly with regard to premiums for enrollment, where were non-

trivial. Two evaluations of these programs suggested much lower crowdout than the estimates for the national program, in that fewer than 10 percent of the enrollees had private insurance before joining the program.²² While only suggestive, these findings may provide a key insight into how to combat crowdout, which is to make the public option less attractive. Of course, what is missing from these analyses is any information on the impact of these policies on the take-up of the plan by those who were previously uninsured. If such policies reduce crowdout but reduce take-up by the previously uninsured even more, they may not be an attractive barrier for combating crowdout. Clearly, more research is needed on how the structure of public insurance programs influences both take-up and crowdout.

Although expansions of insurance up the income scale seems an obvious way to reach more uninsured, the CHIP legislation largely ignored a more needy and obvious population: those who are already eligible for Medicaid but do not take it up. Indeed, most estimates suggest that there are on the order of 4 million children who are eligible for Medicaid but do not take up coverage. Moreover, as previously noted, there is tremendous underuse of prenatal care services by women who are Medicaid eligible, particularly during the first trimester. The reasons for this limited take-up are unclear and reflect some mix of poor information about eligibility and stigma about enrollment in a public insurance program.

Regardless of the cause, however, this is a very high bang-for-the-buck population. Of those children not on Medicaid already, but with incomes below 150 percent of the poverty line, 53 percent are uninsured. This suggests that the highest priority for government policy is to expand coverage of this group through outreach initiatives, even if they are somewhat costly. In other words, in thinking about expanding insurance coverage in the low-income population, it is probably best to think about filling the cup from the bottom: Start by maximizing the coverage of the lowest-income population with few other insurance alternatives, and then move to higher-income groups that often have access to private coverage.

For largely political reasons, the expansions of health insurance through both Medicaid and CHIP have focused on children and pregnant women. But there is little coherent argument for covering an eighteen-year-old woman up to 200 percent of poverty, while a nineteen-year-old woman receives no public coverage unless she is pregnant or on welfare. This is particularly true given the low use of prenatal care by lower-income women; if they had continuous insurance coverage, they would perhaps be more likely to seek care as soon as they got pregnant.

One particularly helpful approach that has been proposed is to extend

22. It is important to note that this does *not* imply crowdout of less than 10 percent, since some of those crowded out may not join the program (e.g., through within-family spillovers), and since some of those joining the program might have lost their private insurance even if there were no crowdout (e.g., through natural turnover).

coverage to the parents of Medicaid and CHIP children. This would have the additional advantage of increasing take-up by these children, since once the parents are eligible it might increase their awareness of the entire family's entitlement.

In summary, public insurance remains a powerful tool for reducing high and rising numbers of uninsured in the United States. But the efficiency of different public insurance routes may differ dramatically. Public policy could most usefully focus on the neediest populations first, such as those eligible for and not taking up coverage and other demographically noneligible groups, before moving on to higher-income groups of traditionally eligible populations where private coverage is fairly common.

1.5.2 Supply Side

An area that has received less attention, but which may be equally important, is Medicaid reimbursement policy. Work on physician reimbursement suggests that more generous fee schedules can lead to more access to physicians for Medicaid patients, and ultimately to better health outcomes.

Of particular interest within the reimbursement arena is an assessment of the trade-offs between physician and hospital reimbursement levels. Although the evidence cited earlier suggests real costs to low physician reimbursement, there is much less evidence suggesting significant costs to lower Medicaid reimbursement of hospitals. Clearly, an important priority for future work is to think about the trade-offs between the reimbursement levels set for these different types of providers.

1.5.3 Long-Term Care

In terms of government spending, the most important area for Medicaid reform is long-term care. This is the largest share of Medicaid program spending, and it will clearly grow rapidly with the aging of the population. The literature on Medicaid long-term care, while limited, suggests three policy-relevant conclusions. First, if policymakers attempt to control costs by reducing Medicaid reimbursement levels, they may not sacrifice quality of care (and indeed may actually raise quality). Second, however, lower reimbursement levels will lower the access of Medicaid patients to nursing home care. Third, the beneficiaries of more access of Medicaid patients to nursing home care appear to be the children of these patients with whom they were living before admission.

These findings suggest that there is a crowdo-out-like effect of increasing Medicaid reimbursement: It raises access for Medicaid patients, but at the cost of lower quality for private patients. The recent removal of the Boren amendment, and the resultant flexibility for states to experiment more with nursing home reimbursement, may provide more evidence on this front. The last finding also suggests that if children are the beneficiaries of Medicaid entitlement, perhaps they should bear more of the costs. As Cutler

and Sheiner (1994) note, in Germany, the income of children is counted toward the resource base for paying for nursing home care for elderly parents. Such a system in the United States may more tightly tie the costs of Medicaid entitlement to the beneficiaries.

But there is clearly room for much more work on this important area, as a host of unanswered questions remain. First, the importance of excess demand for nursing homes remains unclear; whereas some studies find evidence of excess demand, others find that Medicaid generosity increases lead to more total nursing home care, which is inconsistent with excess demand. Second, more work is needed on the substitutability of home and community care for institutional care of the elderly. The available research, mostly from a social experiment run in the 1970s, suggests that there is little substitutability; more generous home care does not reduce the incidence of institutional care. But this evidence is old and may no longer be relevant in the rapidly changing world of home care. More work in this area would be very useful as Medicaid assesses its spending priorities. Third, it is important to assess how states are reacting to their new freedoms with respect to nursing home reimbursement, and what impacts this has on Medicaid patient access. Finally, there is almost no work on the impact of policies on the actual outcomes of the institutionalized elderly. Can Medicaid improve the health or well-being of the elderly through subsidizing institutionalization, or is the program simply taking the elderly off their children's hands and warehousing them in an institution until death?

1.6 Conclusions

The rapid growth of Medicaid, in the face of a continuing rise in the number of uninsured, suggests that changes to this program, and related eligibility expansions such as CHIP, will continue to be a dominant policy issue in the coming years. These changes can be well informed by the large and growing literature on the Medicaid program. But many unanswered questions remain. The significant advantage of the Medicaid program for future research is the exciting natural laboratory provided by variation across states in their program provisions, particularly along the lines of eligibility and provider reimbursement. Future work can usefully continue to exploit this laboratory in answering the remaining questions needed to intelligently move forward with Medicaid policy.

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