DUAL-ELIGIBLE MEDICAID SPENDING: ARE WE ON THE FLAT OF THE CURVE?

Melissa A. Boyle, Joanna N. Lahey, and Margaret E. Czervionke

CRR WP 2008-16
Released: December 2008
Date Submitted: October 2008

Center for Retirement Research at Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467
Tel: 617-552-1762 Fax: 617-552-0191

The research reported herein was pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement Research Consortium (RRC). The findings and conclusions expressed are solely those of the authors and do not represent the views of SSA, any agency of the Federal government, Boston College, or the RRC. The authors would like to thank Elizabeth Ananat, Norma Coe and participants in the SSA-RRC annual meetings for helpful comments. We are grateful to Christina Causey for excellent research assistance.

© 2008, by Melissa A. Boyle, Joanna N. Lahey, and Margaret E. Czervionke. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

About the Center for Retirement Research

The *Center for Retirement Research at Boston College*, part of a consortium that includes parallel centers at the University of Michigan and the National Bureau of Economic Research, was established in 1998 through a grant from the Social Security Administration. The Center's mission is to produce first-class research and forge a strong link between the academic community and decision makers in the public and private sectors around an issue of critical importance to the nation's future. To achieve this mission, the Center sponsors a wide variety of research projects, transmits new findings to a broad audience, trains new scholars, and broadens access to valuable data sources.

Center for Retirement Research at Boston College
Hovey House
140 Commonwealth Avenue
Chestnut Hill, MA 02467
phone: 617-552-1762 fax: 617-552-0191
e-mail: crr@bc.edu
www.bc.edu/crr

Affiliated Institutions:
The Brookings Institution
Massachusetts Institute of Technology
Syracuse University
Urban Institute

Abstract

For the U.S. Medicare population as a whole, previous studies show that additional medical spending at the margin is ineffective. For the elderly population overall, higher spending on health care does not appear to improve health outcomes or quality of life. The Medicaid literature, however, has shown benefits of increased spending on lower income populations such as single mothers. This suggests that there may be beneficial effects of spending on different segments of the Medicare population, particularly those most at risk - the low-income elderly. We use data from the Medicare Current Beneficiary Survey to examine whether increased medical spending results in differential use of medical services and/or improved health outcomes for low-income elderly who are dually-eligible for Medicare and Medicaid. We utilize state-level variation in Medicaid spending in a difference-in differences framework comparing the dual-eligible population to the near-eligible population just above the means test cutoff to investigate whether additional spending by Medicaid results in differences in health and service use for low-income elderly. Preliminary results suggest that additional spending leads to small increases in drug spending and no other significant increases in utilization or health improvements.

I. Introduction

Since the 1950s, the United States has experienced a more than five-fold increase in health care spending. At this rate, health care expenditures are expected to account for 38% of the nation's GDP by 2075 (Chernew 2003). Many health economists attribute the increase in spending to beneficial technological advances in the health care sector (i.e. Cutler 2003, Finkelstein 2005, Fuchs 1996, and Newhouse 1992). At the same time, there is evidence that for some populations, including Medicare recipients, this spending is being allocated inefficiently and health outcomes do not improve with increased expenditure (Skinner et al. 2001, Skinner and Wennberg 1998, Skinner et al. 2006, Fisher et al. 2003a, Fisher et al. 2003b, Fuchs 2004, Wennberg et al. 2002, Baiker and Chandra 2004*)*. This phenomenon has been referred to as "flat of the curve" medical spending, referring to the fact that additional dollars result in unchanged or "flat" health outcomes.[1]

This paper focuses on a subset of the Medicare population, those who are eligible for both Medicare and Medicaid, and examines the marginal benefit associated with additional Medicaid spending for these "dual eligibles." While the literature overwhelmingly demonstrates that Medicare recipients overall do not benefit from additional spending, the evidence is not as clear for the most vulnerable Medicare-eligibles – low-income elderly who are dually eligible for both Medicare and Medicaid. These individuals tend to have poorer health than the average Medicare recipient, have resulting higher than average medical costs, and are additionally less able to afford the

[1] The "flat of the curve" theory suggests that initially there is a large marginal benefit of medical spending on health outcomes, but as spending increases the marginal benefit decreases (Fuchs 2004). In this theory, there exists an ideal spending rate for which the marginal dollar of medical spending results in one dollar's worth of improved health outcomes. Beyond this spending rate, the increases in spending are no longer efficient in terms of providing improved health conditions. Eventually, additional spending does not affect health outcomes at all. When this occurs, medical spending has reached the "flat of the curve," and increased spending is no longer effective.

cost-sharing required by Medicare (KCMU 2004, Komisar et al. 2005). It is therefore possible that they will respond differently to increases in public health care spending on their behalf. Evidence for younger Medicaid beneficiaries (i.e. pregnant women and children) is mixed and suggests that additional spending may indeed lead to improvements in health (Cohen and Cunningham 1995, Currie and Gruber 1996, and Currie et al. 1995). It is consequently plausible that for elderly with very low incomes, additional Medicaid spending will lead to changes in services use and accompanying health improvements. We therefore examine whether or not additional Medicaid spending is on the "flat of the curve" for dual-eligibles.

II. Medicare, Medicaid, and the Dual Eligible Population

Even though the United States health care system has a large private component, the government funds nearly half of all health care spending (Finklestein 2007). Medicare and Medicaid are the largest of the various publicly funded health insurance programs in the U.S. with combined total costs of $550 billion in 2003 (Heffler et al. 2005). Medicare provides medical care coverage to over 55 million Americans over the age of 65 and disabled individuals of all ages (Holahan and Ghosh 2005). Financed by a federal payroll tax, Medicare comprises one-eighth of the federal budget and two percent of U.S. GDP (Finkelstein 2007). For the majority of its history, Medicare has consisted of two programs, Medicare Part A, and Medicare Part B. Medicare Part A is a form of hospital insurance, which pays for inpatient and outpatient hospital care. Medicare Part B is a supplementary medical insurance which pays for physician services, lab work, x-ray

services and various other benefits (CMS 2005). During the time of our sample, Medicare did not provide any compensation for prescription drug use.[2]

Nearly all citizens over age 65 are covered by Medicare. Over 95% of the elderly are covered by Medicare Part A and 98% of those covered by part A are covered by Medicare Part B (Ettner 1997). However, traditional fee-for-service Medicare covers only half of total health expenditures for the elderly.[3] In addition, Medicare provides only basic benefits, and the recipients are subject to relatively high deductibles and a 20% co-insurance rate for most services (Gross 1999). Further price uncertainty exists because physicians implement "balanced billing" by charging a Medicare patient up to 15% more than the program's reimbursements. Moreover, Medicare does not cover the costs of important health care services such as long term nursing home care. Prior to 2006, Medicare also did not cover the costs of prescription drugs. Due to the costly and unpredictable nature of out-of-pocket expenses, many Medicare recipients rely on supplemental insurance to cover such expenses. Over 75% of elderly Medicare beneficiaries purchase private insurance that supplements Medicare, which is referred to as Medigap (Yelowitz 2000b). Those who meet certain financial criteria can rely on Medicaid to supplement Medicare.

Medicaid is aimed at providing adequate health insurance to the impoverished. The program is a joint state and federal program which was enacted in 1967 under amendments to the Social Security Act (Gruber 2000). Although Medicaid is

[2] Under the Medicare Modernization Act (MMA) a third Medicare program, Medicare Part D, was established in 2006. Medicare Part D pays for a portion of prescription drug costs of everyone with Medicare Part A or Part B (CMS 2005).

[3] Under fee-for-service Medicare, Medicare reimburses either the health care providers or the patient a set amount for each service provided. Fee-for-service Medicare is distinct from Medicare Managed Care. Under Medicare Managed Care, Medicare contracts with HMO providers to provide unlimited services to beneficiaries enrolled in the organization for a negotiated a monthly rate, called the capitation rate.

administered at the state level, the federal government pays for a large portion of the costs. Poor states receive proportionately more federal funding than affluent states. The federal government finances between 50 percent of the costs in 11 relatively high-income states and 76 percent of the costs in Mississippi (Holahan 2002). The remaining costs are funded at the state level. Medicaid spending makes up on average 20% of a state's budget, only second to elementary and secondary education (Finkelstein 2007). In general, Medicaid is targeted at various categorically eligible groups: low-income mothers and children, low-income pregnant women, low-income elderly, and the medically needy.[4] Medicaid eligibility for the elderly is closely tied to eligibility for the federal Supplemental Security Income (SSI) Program.[5] Even though dual enrollees only account for around 14% of Medicaid beneficiaries, this population accounts for over 40% of Medicaid costs (Holahan and Ghosh 2005).

Individuals who are entitled to Medicare Part A and/or Part B and are eligible for some form of Medicaid benefit are known as dual eligibles (CMS 2005). Since the U.S population is aging and low-income individuals have higher per capita health costs than other Medicare beneficiaries, public health insurance as it relates to dual eligibles is of particular interest. In 2003, approximately 7.5 million elderly or disabled Americans were dually enrolled in Medicare and Medicaid. Sixty-five percent of these individuals (4.9 million) were elderly (Halohan and Ghosh 2005).

---

[4] In forty-one states, individuals can qualify for full or near-full Medicaid benefits if they are deemed "medically needy" through the Medically Needy (MN) Program within their states of residence. Medically needy individuals meet the majority of the criteria to receive welfare, but have gross incomes above the typical SSI threshold. However, these individuals incur such large medical expenditures that they are deemed Medicaid-eligible.

[5] Currently, an individual with an income below $603 per month and assets below $2000 or a couple with an unearned income of $904 per month and resources below $3000 was eligible to receive federal SSI benefits (SSA 2006).

Dual eligibles with full Medicaid benefits are covered for the services guaranteed by the federal Medicare program and those delineated in the Medicaid program of their state of residence. Examples of services covered by Medicaid but not Medicare include dental services, expanded home care services, and long term care. Before 2006, Medicaid also covered the costs for prescription drugs. Services that are covered by both programs are first paid by Medicare and, if costs remain, are paid by Medicaid up to the state's limit (CMS 2005). Medicaid also covers Medicare co-payments and deductibles for full dual eligibles as well as for individuals with slightly higher incomes who qualify for partial coverage under the Medicare Savings Programs (MSPs).[6]

III. Related Literature

A sizeable literature examines variations in Medicare spending across the country and ultimately concludes that Medicare spending is on the flat of the curve (Skinner et al. 2001, Skinner and Wennberg 1998, Skinner et al. 2006, Fisher et al. 2003a, Fisher et al. 2003b, Fuchs 2004, Wennberg et al. 2002, Baicker and Chandra 2004). The majority of these papers use geographic differences in spending in the last six months of life, which has been shown to be exogenous to other cost of living expenditures or underlying health differences as their source of cost variation.

Wenneberg et al. (2002) report that large disparities in health care spending exist across the nation, even after correcting for differences in cost-of-living. Health care spending tends to be higher than average in metropolitan areas in the Northeast, and additionally it tends to be higher in rural areas in the South. Even though health

[6] MSPs provide partial Medicaid benefits (such as payment of all or part of the individual's Medicare co-pays and deductibles. Benefits vary by income level, but in general individuals must have income below 175% of the FPL and assets less than twice the SSI limit.

expenditures have a propensity to be higher in regions that are characterized by poorer health, the majority of the variation in medical spending is unrelated to variations in demographics. Skinner et al. (2001) estimate that variation in health conditions only account for about 27% of the variation in medical expenditures across regions of the United States. Instead, they find that the majority of the geographical variation in health care expenditures can be attributed to variation in the standards of medical practice within communities - essentially the level of intensity of care.

After controlling for such variations in health, demographics, and cost of living, the majority of studies that examine the impact of higher Medicare spending suggest that this spending is already on the flat of the curve. (Skinner et al. 2001, Skinner and Wennberg 1998, Skinner et al. 2006, Fisher et al. 2003a, Fisher et al. 2003b, Fuchs 2004, Wennberg et al. 2002, Baicker and Chandra 2004). Therefore, higher spending on health care is not equated with more effective care and does not appear to improve health outcomes or quality of life for Medicare beneficiaries; instead the authors suggest that this increased spending is because of choices on the parts of physicians and hospitals that lead to higher spending without a corresponding increase in health outcomes.

In contrast to the literature on Medicare, there is some evidence that additional spending improves health outcomes and/or increases utilization of services for some segments of the Medicaid population, particularly pregnant women and children. Currie, Gruber, and Fischer (1995) focus on the effects of payment generosity on pregnant women enrolled in Medicaid and find that higher Medicaid reimbursements to physicians result in better birth outcomes. Cohen and Cunningham (1995) suggest that more generous physician reimbursement is associated with better access to care for child

Medicaid beneficiaries. Pracht and Moore (2003) examine variation in Medicaid pharmacy reimbursements across states and over time and show that higher reimbursement rates are associated with greater utilization of prescription services by Medicaid beneficiaries. However, in a study that measures Medicaid generosity in terms of Medicaid Managed Care capitation rates, Shen and Zuckerman (2005) find that higher capitation rates only minimally improve health care access and utilization for non-elderly Medicaid recipients.

It remains unclear whether Medicaid spending affects utilization and health for elderly dual-eligibles. The majority of papers that evaluate the impact of generosity on the low-income elderly focus on utilization of long term care services. Both Cutler and Sheiner (1994) and Hoerger, Picone, and Sloan (1996) find that greater scope of coverage and more generous reimbursement rates increase nursing home utilization for Medicaid recipients. Ettner (1994) suggests that Medicaid home care subsidies tend to reduce the use of nursing homes and increase home care use by dual eligibles. Pezzin and Kasper (2002) use an instrumental variables approach and find that generosity in terms of home and community-based long term care services tends to increase Medicaid enrollment for elderly, low income Medicaid-eligible individuals. However, they find that dual enrollment in Medicaid and Medicare does not substantially increase health care utilization, but minimally increases the use of prescription drugs and ambulatory care services.

We examine the impact of variations in Medicaid spending on dually eligible individuals, with an emphasis on the community-based (i.e. not in nursing homes) population. We evaluate whether additional money spent on this population provides

increases in utilization of services, and if so whether this increase in utilization provides an increase in health outcomes for this group. We employ a difference-in-differences estimation model to identify whether regions with higher Medicaid spending have dually eligible residents with different health care utilization patterns and health outcomes than regions with lower spending. To control for unmeasured differences across areas, we compare a sample of dual eligibles to a control group consisting of low-income individuals who just miss the eligibility requirements for any Medicaid benefits. Using data from the 2000-2004 MCBS and the Medicaid Statistical Information System (MSIS) tables, we find evidence of small increases in utilization, particularly of pharmaceuticals, but little, if any, evidence that regions with greater Medicaid spending experience better health outcomes for dual eligibles. These findings suggest that for those dual-eligible for Medicare and Medicaid, Medicaid spending is on or near the flat of the curve.

IV. Data and Empirical Strategy

As mentioned above, the bulk of the studies on Medicare spending exploit geographic variation in spending during the last six months of life. Although that methodology is highly plausible, it may still be imperfect if expenditures in the last six months of life are not perfectly correlated with geographic differences in other costs, for example, if end of life expenditures crowd out other expenditures. Our paper adds to the literature by using a different source of variation to control for differences in cost of living and underlying health status.

We utilize data from the Medicare Current Beneficiary Survey (MCBS) Cost and Use files for the years 2000-2004. The MCBS is a rotating panel of Medicare

beneficiaries, with an over-sampling of older individuals. These data combine a survey component with Medicare claims records, resulting in a dataset containing demographics for each survey participant, as well as detailed information about the individual's health status, utilization of medical care and medical spending. Health status information includes self-reported health measures as well as various activities of daily living assessments. Utilization variables include, among other things, information on doctor visits, hospital admissions, prescription drug utilization and home health care visits. Spending information is broken down by type of medical service (for example, prescription drugs) and also by payer (for example, Medicaid).

In addition to the MCBS data, we use the Medicaid Statistical Information System (MSIS) tables compiled by CMS. These tables provide annual state-level information on Medicaid spending and eligibility based on claims information submitted to CMS by the individual states. These tables allow us to compute annual statistics on state-level Medicaid spending per dual-eligible resident.

Our estimation strategy is similar to that used by Shen and Zuckerman (2005) in their study of non-elderly Medicaid recipients. We employ a difference-in-differences estimation strategy to compare elderly dual-eligibles to a control group comprised of other low-income Medicare recipients just above the means test cutoff for Medicaid benefits. Because of the significant differences between the elderly and younger individuals receiving Medicare because of disability, we limit our sample to individuals age 65 and over. We drop individuals from Alaska and Hawaii, because of the very small number of surveyed individuals from those states. We estimate the following equation:

$$(1)\quad health_{ist} = \beta_0 + \beta_1 eligible_{it} + \beta_2 spending_{st} + \beta_3 spending_{st} * eligible_{it} + \beta_4 \mathbf{X}_{it} + \delta_t + \mu_{ist,}$$

where $health_{ist}$ is a variety of measures of health service utilization and health outcomes (including doctor, hospital and home health care visits in the past year, prescriptions filled in the past year, self-reported health, ADL measures and an indicator for death during the survey year), $eligible_i$ is an indicator variable equal to 1 if an individual is eligible for full Medicaid benefits and 0 if the individual is not eligible for any form of Medicaid benefits, and $spending_{st}$ is a measure of annual Medicaid spending (in thousands of dollars) per dual-eligible in the individual's state of residence. $\boldsymbol{X}_{it}$ is a vector of individual characteristics including gender, age, race, marital status, education and Census division, residence in an urban location, a 209(b) state[7] or a state with a Medically Needy program. $\boldsymbol{X}_{it}$ also includes a cost-of-living index to control for variability in living expenses, including medical expenses, across states. Finally, δ_t is a set of year dummies and μ_{ist} is a random error term.

Because of potential endogeneity issues associated with Medicaid enrollment (i.e. individuals with greater medical need are more likely to enroll), our treatment group consists of individuals who are deemed eligible for - rather than those who report enrolling in - Medicaid. Single individuals are coded as eligible if income is below 75% of the federal poverty line ($9310 for a single individual in 2004), and married individuals are coded as eligible if income is below 82% of the federal poverty line.[8]

[7] 209 (b) states are those which have more restrictive criteria for Medicaid eligibility than for SSI (in all other states, the criteria for both programs are the same). The eleven 209 (b) states are: Connecticut, Hawaii, Illinois, Indiana, Minnesota, Missouri, New Hampshire, North Dakota, Ohio, Oklahoma and Virginia.

[8] In reality, the determination of Medicaid eligibility is a complicated process which varies by state and accounts for assets and medical needs. Because the MCBS data does not contain sufficient asset

Medicaid users are coded as eligible if their incomes are below 100% of the federal poverty line. Medicaid users with higher incomes are dropped from the sample as they are more likely to be Medically Needy and have catastrophically high medical costs thereby introducing reverse causality bias (from poor health and high expenses to Medicaid eligibility) into our estimation strategy.

Our control group consists of relatively low-income elderly Medicare-eligibles, whose incomes are above the cutoff for any receipt of Medicaid benefits. This includes individuals with incomes between 175% and 350% of the federal poverty line.[9] We analyze community-based individuals separately from those who are residents of a long-term care facility[10] because of differences in the reported survey outcomes for these groups, and also because individuals in nursing facilities often qualify for Medicaid through the Medically Needy program, after spending down their assets below a certain cutoff. Thus, it is more difficult to determine which nursing home patients are Medicaid-eligible based on survey data, a fact which could bias the results for that population.

Summary statistics are reported in Table 1. For the community-based sample, dual-eligibles are in somewhat poorer health than their Medicare-only counterparts and have a slightly higher mortality rate in the survey year. Use of ambulatory care services is relatively comparable across the two groups, but Medicaid-eligibles have a higher use of home health care services and prescription drugs, and have more annual hospital stays.

---

information to allow us to duplicate this process, we follow a precedent set by previous authors (e.g. Pezzin and Kasper 2002) and restrict our treatment group to those with incomes low enough that they will almost certainly qualify for full Medicaid benefits.

[9] Individuals with incomes between 82% FPL and 175% FPL who are likely to be eligible for partial Medicaid benefits, and those with incomes above 350% FPL are dropped from the sample. Tests using a control group with incomes between 135% and 350% FPL, and alternatively between 175% and 500% FPL yield results that are qualitatively the same and quantitatively very similar.

[10] The majority of these individuals are in nursing homes and assisted living facilities, although some are in mental institutions or had very long hospital stays.

The dual-eligible population consists of more females, more single individuals, and more non-white individuals than the slightly wealthier non dual-eligible control group. Facility residents are much more similar across the treatment and control groups. With the difference-in-differences estimation strategy, these differences in the treatment and control populations are of a concern only if they vary in unobservable ways that are systematically different across states with high and low Medicaid spending. Since there are not significant systematic observable differences, this does not appear to be a major concern.

V. Results

In Tables 2 and 3, we report the results from estimating equation (1). Table 2 reports OLS coefficients from estimating the effect of dual-eligible Medicaid spending on various measure of health care utilization. For the community-based population (panel A), we examine the impact on the number of inpatient stays, doctor visits, prescriptions filled, and home health care services provided. We also examine the impact of higher Medicaid spending on the total amount spent (by all payers, including the individual's out-of-pocket expenditures) on prescription drugs. While increased spending has no significant impact on whether an individual has any inpatient stays or doctor visits, it does have a small effect on the number of doctor visits, conditional on having any visits at all. As column (4) demonstrates, there is a significant and positive impact of additional spending for the treated population on the logged number of outpatient visits. For a one standard deviation increase in per capita Medicaid spending (a $4,184

increase),[11] this implies a 3.24% increase in the number of outpatient visits for those with a positive number of visits.

In addition, as shown in columns (5) and (6), there is a positive and significant impact of higher per-eligible Medicaid spending on dual-eligibles' prescription utilization. A one-standard deviation increase in per capita Medicaid spending is associated with receipt of 1.4 more prescriptions for the average dual-eligible individual, a 4% increase. The same increase in Medicaid spending leads to a $43.76 increase in total prescription spending for the average dual-eligible beneficiary, although this increase is not precisely estimated.

Finally, states with higher Medicaid spending per dual eligible experience higher utilization rates of home health care services for this population. A one standard deviation increase in Medicaid spending results in receipt of five additional home health care visits, an increase of approximately 13%.

Panel B of Table 2 reports the effect of dual-eligible Medicaid spending on various measure of health care utilization for the facility population. For this subset of the sample, additional spending does not have a statistically significant effect on utilization according to any of the tested measures.

Table 3 reports probit marginal effects from estimating the impact of dual-eligible Medicaid spending on the various health outcome measures. These include two self-reported health variables - an indicator equal to 1 if self-reported health is excellent, very good or good, and 0 if self-reported health is fair or poor, and an indicator equal to 1 if health is much better, better or the same as last year, and 0 if health is worse or much worse. Also included are an ADL measure equal to 1 if health limits social activity and 0

[11] Average spending per dual eligible across all states is $10,856.81 with a standard deviation of $4,183.77.

otherwise and an indicator equal to 1 if the individual died during the survey year. Although the signs of the coefficient of interest (the coefficient on *spending*eligible*) virtually all indicate some health benefit from living in states with higher per capita Medicaid spending, all of these coefficients are statistically insignificant.

VI. Discussion and Conclusions

As rising health care costs and the aging of the U.S. population put pressure on public health care budgets, it becomes increasingly important to evaluate the efficiency of public health insurance programs. The most vulnerable of the U.S. elderly are served by the nation's two largest public health care systems, which together comprise one-third of total U.S. health care spending (Heffler et al. 2005). A large body of literature has shown that for Medicare beneficiaries on average, additional spending at the margin has no impact on health. At the same time, some literature on the Medicaid program indicates a benefit of additional health care spending for younger beneficiaries implying that for the low-income population, U.S. medical spending may not yet have reached the flat of the curve. For impoverished Medicare beneficiaries who are dually eligible for Medicaid, it is therefore important to determine whether higher spending at the margin will produce health improvements. Answering this question will assist in the determination of whether to provide more generous insurance to existing beneficiaries, or to alternatively allocate funds to providing Medicaid assistance to a larger segment of the elderly population.

In order to examine this policy question, we employ a differences-in-differences strategy to compare the outcomes of vulnerable Medicare recipients who are dual-eligible for Medicaid with those who are slightly above the Medicaid eligibility cut-off in regions

with higher and lower Medicaid spending. This methodology, although imperfect, provides an alternative control for variations in spending from previous literature, which either attempts to include controls for observable cost differences, such as cost of living indices, or focuses on end-of-life spending as its source of variation.

We find a small positive impact on prescription drug utilization and use of home health care services, but no increases among other utilization outcomes. We also find minimal evidence that increased spending improves health according to most of our tested measures. From these results we conclude that medical spending for those who are dual-eligible for Medicare and Medicaid is nearing the "flat-of-the-curve." The prescription results provide suggestive evidence regarding the effectiveness of the low-income subsidy for Medicare Part D, administered by the Social Security Administration, suggesting that utilization will increase but health may not improve. The remaining results are in line with other findings for the Medicare community as a whole and differ from results that find increases in health outcomes for pregnant women and children with increased Medicaid spending, suggesting that for most ambulatory services, additional spending does not impact service use or health outcomes for low-income elderly.

Works Cited

Baicker, Katherine and Amitabh Chandra. "Medicare Spending, the Physician Workforce, and Beneficiaries' Quality of Care." *Health Affairs* 23 (2004): 184-197.

Centers for Medicare and Medicaid Services (CMS). "Dual Eligibility: Overview." 2005. <http://www.cms.hhs.gov/DualEligible/>.

Chernew, Michael E., Richard A. Hirth, and David M. Cutler. "Increased Spending on Health Care: How Much Can the United States Afford?" *Health Affairs* 22.4 (2003): 15-25.

Cohen, Joel W. and Peter J. Cunningham. "Medicaid Physician Fee Levels and Children's Access to Care." *Health Affairs* 14.1 (1995): 255-262.

Currie, Janet and Jonathan Gruber. "Saving Babies: The Efficacy and Cost of Recent Changes in the Medicaid Eligibility of Pregnant Women." *The Journal of Political Economy* 104.6 (1996): 1263-1296.

Currie, Janet, Jonathan Gruber, and Michael Fischer. "Physician Payments and Infant Mortality: Evidence from Medicaid Fee Policy." *The American Economic Review* 85.2 (1995): 106-111.

Cutler, David. *Your Money or Your Life: Strong Medicine for America's Health Care System.* Oxford University Press, 2003.

Cutler, David M. and Louise M. Sheiner. "Policy Options for Long-Term Care." *NBER Working Paper Series* 4302 (1994).

Ettner, Susan L. "The Effect of the Medicaid Home Care Benefit on Long-term Care Choices of the Elderly." *Economic Inquiry* 32.1 (1994): 103-127.

Ettner, Susan L. "Medicaid Participation among the Eligible Elderly." *Journal of Policy Analysis and Management* 16.2 (1997): 237-255.

Finkelstein, Amy. "The Aggregate Effects of Health Insurance: Evidence from the Introduction of Medicare." *Quarterly Journal of Economics* 122.1 (2007): 1-37.

Fisher, Elliott S., David E. Wennberg, et al. "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care." *Annals of Internal Medicine* 138.4 (2003a): 273-287.

Fisher, Elliott S., David E. Wennberg, et al. "The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care." *Annals of Internal Medicine* 138.4 (2003b): 288-298.

Fisher, Elliott S., John E. Wennberg, et al. "Associations among hospital capacity, utilization, and mortality of US Medicare beneficiaries, controlling for sociodemographic factors." *Health Services Research* 34.6 (2000): 1351-62.

Fuchs, Victor R. "Economics, Values, and Health Care Reform." *The American Economic Review* 86.1 (1996): 1-24.

Fuchs, Victor R. (2004). "Perspective: More Variation in Use of Care, More Flat-Of-The-Curve Medicine." *Health Affairs* Web Exclusive: W104.

Gruber, Jonathan. "Medicaid." *NBER Working Paper Series* 7829 (2000).

Guadagnoli, Edward, Paul J. Hauptman, et al. "Variation in the Use of Cardiac Procedures after Acute Myocardial Infarction." *New England Journal of Medicine* 333.9 (1995): 573-578.

Gross, David J., Lisa Alecxih, et al. "Out-of-Pocket Health Spending by Poor and Near-Poor Elderly Medicare Beneficiaries." *Health Services Research* 34.1 (1999): 241-254.

Heffler, Stephen et al. "U.S. Health Spending Projections for 2004-2014." *Health Affairs.* Web exclusive, Feb 23 2005. 74-85.

Hoerger, Thomas J., Gabriel A. Picone, and Frank A. Sloan. "Public Subsidies, Private Provision of Care and Living Arrangements of the Elderly." *The Review of Economics and Statistics* 78.3 (1996): 428-440.

Holahan, John. "Variations among States in Health Insurance Coverage and Medical Expenditures: How much is too much?" *Assessing New Federalism.* Urban Institute Discussion Paper 02-07 (2002) < http://www.urban.org/publications/310520.html>.

Holahan, John and Arunabh Ghosh. "Dual Eligibles: Medicaid Enrollment and Spending for Medicare Beneficiaries in 2003." *Kaiser Commission on Medicaid and the Uninsured*. Washington, D.C. , Henry J. Kaiser Family Foundation (2005).

Kaiser Commission on Medicaid and the Uninsured (KCMU). "Dual Enrollees: Medicaid's Role for Low-Income Medicare Beneficiaries." Washington, D.C., Henry J. Kaiser Family Foundation (2004).

Komisar, Harriet L., Judith Feder, and Judith D. Kasper. "Unmet Long-Term Care Needs: An Analysis of Medicare-Medicaid Dual Eligibles." *Inquiry* 42.2 (2005): 171-82.

Newhouse, Joseph and the Insurance Experiment Group. *Free for All? Lessons from the RAND Health Insurance Experiment.* Cambridge, Mass.: Harvard Press, 1993.

Pezzin, Liliana E. and Judith D. Kasper. "Medicaid Enrollment among Elderly Medicare Beneficiaries: Individual Determinants, Effects of State Policy, and Impact on Service Use." *Health Services Research* 37.4 (2002): 827-847.

Pracht, Etienne E. and William J. Moore. "Interest Groups and State Medicaid Drug Programs." *Journal of Health Politics Policy and Law* 28.1 (2003): 9-40.

Rupp, Kalman and James Sears. "Eligibility for the Medicare Buy-in Programs, Based on a Survey of Income and Program Participation Simulation." *Social Security Bulletin* 63.3 (2000): 13.

Shen, Yu-Chu and Stephen Zuckerman. "The Effect of Medicaid Payment Generosity on Access and Use among Beneficiaries." *Health Services Research* 40.3 (2005): 723-744.

Skinner, Jonathan, Elliott S. Fisher, and John E. Wennberg. "The Efficiency of Medicare." *NBER Working Paper Series* 8395 (2001).

Skinner, Jonathan and John E. Wennberg. "How Much is Enough? Efficiency and Medicare Spending in the Last Six Months of Life." *NBER Working Paper Series* 6513 (1998).

Skinner, Jonathan S., Douglas O. Staiger, and Elliott S. Fisher. (2006). "Is Technological Change In Medicine Always Worth It? The Case of Acute Myocardial Infarction." *Health Affairs* 25.2 (2006): w34-47.

Social Security Administration (SSA). "Press Office Fact Sheet." 2005 <http://www.ssa.gov/pressoffice/factsheets/colafacts2006.htm>.

Wennberg, J. E., E. S. Fisher, and J.S. Skinner (2002). "Geography and the Debate Over Medicare Reform." *Health Affairs*. Web Exclusive: W96.

Yelowitz, Aaron S. "Public Policy and Health Insurance Choices of the Elderly: Evidence from the Medicare Buy-in Program." *Journal of Public Economics* 78.3 (2000a): 301-324.

Yelowitz, Aaron S. "Using the Medicare Buy-in Program to Estimate the Effect of Medicaid on SSI Participation." *Economic Inquiry* 38.3 (2000b): 419-441.

Table 1. Summary Statistics

A. Community-Based Elderly

	Above-Average States		Below-Average States	
	Dual-Eligibles	Non Dual-Eligibles	Dual-Eligibles	Non Dual-Eligibles
Health	.6394	.8035	.6062	.7999
Health Compare	.7299	.7930	.6950	.7825
Activity Limit	.5040	.2963	.5124	.3017
Died	.0539	.0397	.0628	.0381
IP Stay	.4225	.2848	.4526	.2787
	(1.0816)	(.7791)	(1.0557)	(.7925)
OP Visits	5.6966	5.5609	5.4164	5.3604
	(6.7567)	(6.1884)	(6.1599)	(6.5402)
Prescriptions	33.7094	26.0199	33.1139	26.1900
	(31.6806)	(23.9685)	(29.6918)	(24.5644)
Prescription Spending (all payers)	1536.87 (1656.39)	1485.51 (1877.82)	1492.17 (1542.00)	1523.49 (1789.86)
Any Drug Spending	.8989	.9281	.9160	.9255
Medicaid spending per Dual-Eligible	14051.66 (3642.43)		8028.994 (2047.26)	
Home Health Care Services	39.7585 (194.2631)	11.4022 (76.7477)	37.3413 (123.1382)	11.3293 (75.7300)
Male	.2703	.4751	.3124	.4522
White	.7019	.9315	.5846	.9204
Married	.3218	.6017	.3264	.6096
Urban	.6635	.7465	.6199	.7273
Age	77.1612	76.3447	77.0688	76.0334
	(8.1985)	(7.0915)	(8.0459)	(7.2516)
Ed1	.3608	.0979	.4442	.0797
Ed2	.2288	.1516	.2234	.1394
Ed3	.2555	.3638	.1816	.3233
Ed4	.1053	.2580	.1059	.3124
Ed5	.0281	.0832	.0237	.0904
Ed6	.0214	.0455	.0212	.0548
Income	5822.36	26456.80	6147.91	26881.30
	(741.30)	(6521.52)	(2637.50)	(6628.74)
Observations	2116	8346	3116	8534

Standard deviation in parentheses. “Above average states” have above average Medicaid spending per dual eligible; “Below average states” have below average Medicaid spending per dual eligible; Education categories are:1=primary school, 2=some high school, 3=high school diploma, 4=some college, 5=bachelor’s degree, 6=advanced degree.

Table 1. Summary Statistics

B. Facility Residents

	Above-Average States		Below-Average States	
	Dual-Eligibles	Non Dual-Eligibles	Dual-Eligibles	Non Dual-Eligibles
Health	.3481	.4020	.3357	.3955
Health Compare	.5455	.5151	.5970	.5163
Activity Limit	.5566	.5103	.6335	.5178
Died	.2192	.2418	.2368	.2233
IP Stay	.6033	.7380	.8287	.8114
	(.9809)	(1.2760)	(1.3619)	(1.3417)
Facility Spending (all payers)	37985.81	34396.17	29928.90	28816.59
	(21635.16)	(20433.01)	(16065.61)	(15827.28)
Medicaid Spending per Dual-Eligible	14051.66		8028.994	
	(3642.43)		(2047.26)	
Male	.1993	.2922	.2409	.2754
White	.8545	.9542	.7804	.9652
Married	.1159	.2242	.1587	.2084
Urban	.7355	.7884	.6198	.7519
Age	84.7627	85.9572	84.6727	85.7990
	(8.2341)	(6.9118)	(8.8583)	(6.7737)
Ed1	.4232	.1623	.5001	.0871
Ed2	.2021	.1826	.4398	.1376
Ed3	.2400	.3449	.3797	.3287
Ed4	.0821	.2000	.2398	.2809
Ed5	.0316	.0725	.1166	.1180
Ed6	.0211	.0377	.0780	.0478
Income	6179.97	23495.89	6577.17	23117.04
	(2293.21)	(5900.71)	(2124.52)	(5376.50)
Observations	552	397	718	403

Standard deviation in parentheses. “Above average states” have above average Medicaid spending per dual eligible; “Below average states” have below average Medicaid spending per dual eligible; Education categories are:1=primary school, 2=some high school, 3=high school diploma, 4=some college, 5=bachelor’s degree, 6=advanced degree.

Table 2. Effect of Dual-Eligible Medicaid Spending on Health Care Utilization

A. Community-Based Elderly

	(1) IP Stay	(2) Ln(IP Stay)	(3) OP Visit	(4) Ln(OP Visit)	(5) Prescriptions	(6) Ln(Prescriptions)	(7) Prescription $	(8) Home Health Services
Eligible	0.14109**	0.05231	0.05962	-0.10043*	0.80350	-0.00532	-140.97568+	2.81343
	(0.04680)	(0.06288)	(0.30015)	(0.04599)	(1.22142)	(0.04903)	(73.94084)	(6.68454)
Spend per Dual	-0.00153	-0.00231	0.04251*	-0.00110	0.00165	-0.00126	-1.49066	-0.04232
	(0.00258)	(0.00383)	(0.01708)	(0.00290)	(0.06803)	(0.00296)	(4.86051)	(0.20452)
Spend x Eligible	-0.00210	0.00333	0.00949	0.00775*	0.33116**	0.01316**	10.45785	1.30162+
	(0.00403)	(0.00550)	(0.02612)	(0.00385)	(0.10804)	(0.00409)	(6.65457)	(0.70156)
Male	0.05163**	0.03982*	-0.51575**	-0.04684**	-4.96836**	-0.19921**	-240.69316**	-4.12458**
	(0.01252)	(0.01825)	(0.09067)	(0.01469)	(0.36122)	(0.01575)	(26.28309)	(1.31828)
White	0.02178	-0.02771	0.83421**	0.05227*	2.31451**	0.05271*	207.63946**	-6.73957*
	(0.01967)	(0.02711)	(0.12928)	(0.02236)	(0.55099)	(0.02284)	(34.40430)	(2.72727)
209b	0.01329	0.02105	-0.37157**	-0.01919	-0.11773	0.01260	43.61202	-0.83419
	(0.01894)	(0.02442)	(0.12859)	(0.02015)	(0.54792)	(0.02300)	(39.38663)	(1.70377)
Married	-0.03992**	-0.00509	0.11594	-0.00168	-2.42971**	-0.08493**	-12.43321	-5.60312**
	(0.01332)	(0.01927)	(0.09540)	(0.01516)	(0.38795)	(0.01625)	(27.26595)	(1.31127)
Urban	-0.05128**	-0.01189	0.20694*	0.17153**	-0.87997*	-0.04823**	-18.13976	-0.19110
	(0.01432)	(0.01932)	(0.09521)	(0.01565)	(0.42973)	(0.01726)	(28.46103)	(1.28077)
Observations	21990	4073	21990	15815	21990	20289	21990	21990

Robust standard errors in parentheses. Coefficients are estimated using OLS. *IP Stay* is number of inpatient stays in survey year. *OP Visit* is number of outpatient doctor visits in survey year. *Prescriptions* is number of one-month equivalent prescriptions filled in survey year. *Prescription $* is total spending by all payers on individual's prescriptions in survey year. *Home Health Services* is number of home health visits provided in survey year. *Eligible* =1 if income is below 75% FPL for singles, below 82% FPL for married individuals. *Spend per dual* is Medicaid spending (in thousands) per dual-eligible individual in a given state in the survey year. *Male, white, married and urban* are 0-1 indicator variables. *209b* is a 0-1 indicator for residence in a 209(b) state. Control group (i.e. non-eligibles) consists of individuals between 175% FPL and 350% FPL. Regressions also include age, education, Census division, and year dummies, cost of living adjustment and indicator for state medically needy program. + significant at 10%; * significant at 5%; ** significant at 1%.

Table 2. Effect of Dual-Eligible Medicaid Spending on Health Care Utilization

B. Facility Residents

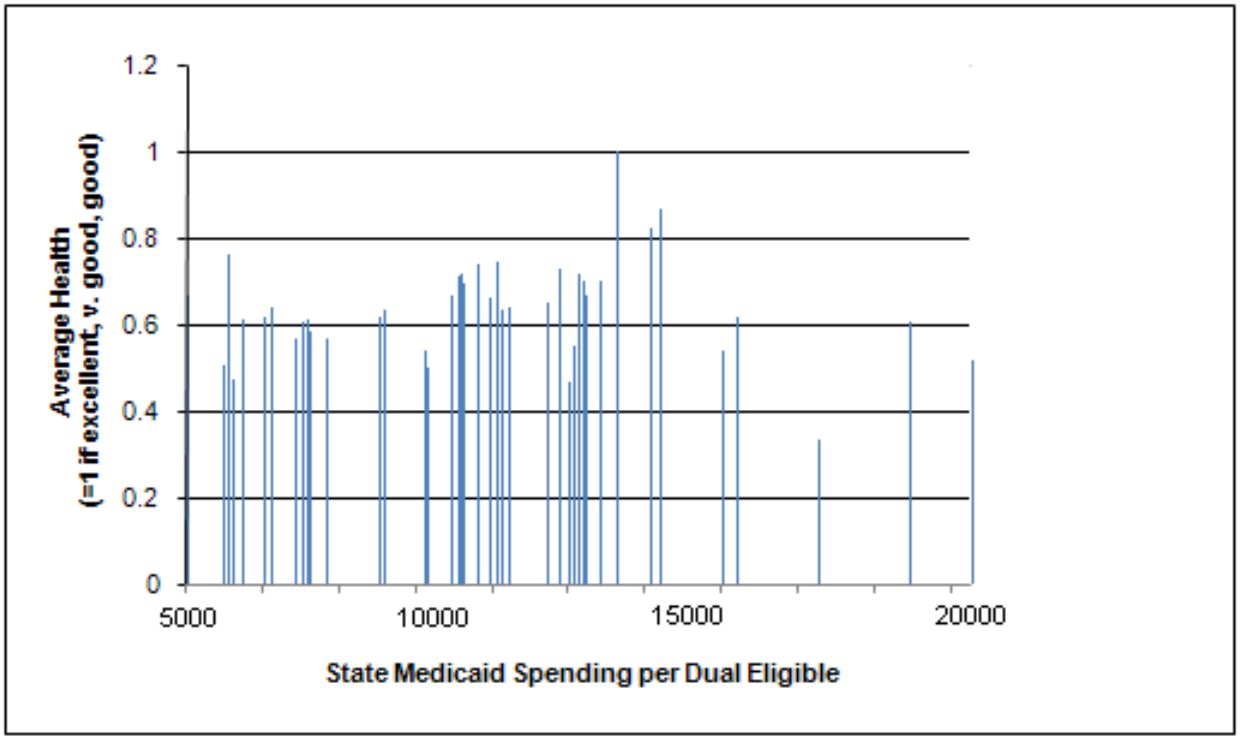
	(1)	(2)	(3)
	IP Stay	**Ln(IP Stay)**	**Facility Event Spending**
Eligible	-0.39452*	-0.11256	978.37
	(0.17128)	(0.13480)	(2,738.41)
Spend per Dual	-0.00756	0.00071	684.15**
	(0.01594)	(0.01319)	(251.08)
Spend x Eligible	0.01285	-0.00583	193.36
	(0.01427)	(0.01145)	(246.57)
Male	0.02745	0.00361	-1,121.51
	(0.08061)	(0.05449)	(1,247.77)
White	-0.33999**	-0.22542**	-2,255.84+
	(0.10036)	(0.05984)	(1,359.91)
209b	0.07328	0.02059	2,801.46*
	(0.09439)	(0.06572)	(1,104.31)
Married	-0.15554+	-0.16690**	2,014.16+
	(0.08133)	(0.05696)	(1,214.91)
Urban	-0.11158	-0.08586	2,544.50**
	(0.07850)	(0.05358)	(960.54)
Observations	1820	725	1820

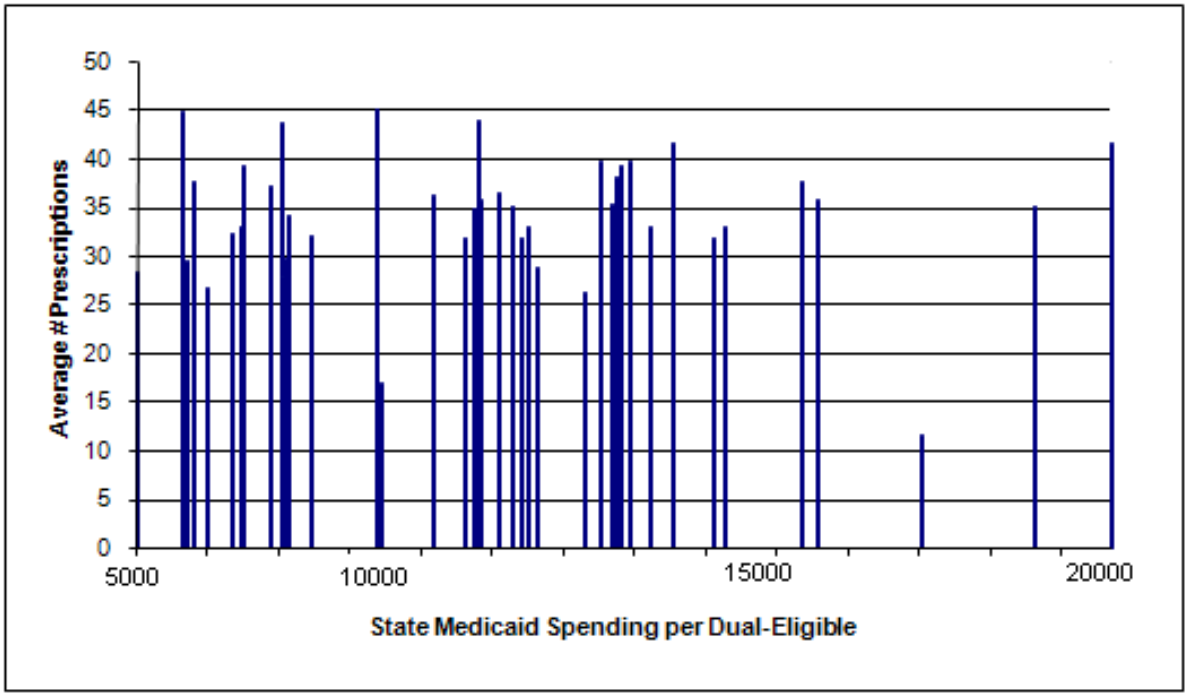
Robust standard errors in parentheses. Coefficients are estimated using OLS. *IP Stay* is number of inpatient stays in survey year. *Facility Event Spending* is spending on services by all payers while individual is in a nursing home or assisted living facility. *Eligible* =1 if income is below 75% FPL for singles, below 82% FPL for married individuals. *Spend per dual* is Medicaid spending (in thousands) per dual-eligible individual in a given state in the survey year. *Male, white, married and urban* are 0-1 indicator variables. *209b* is a 0-1 indicator for residence in a 209(b) state. Control group (i.e. non-eligibles) consists of individuals between 175% FPL and 350% FPL. Regressions also include age, education, Census division, and year dummies, cost of living adjustment and indicator for state medically needy program. + significant at 10%; * significant at 5%; ** significant at 1%.

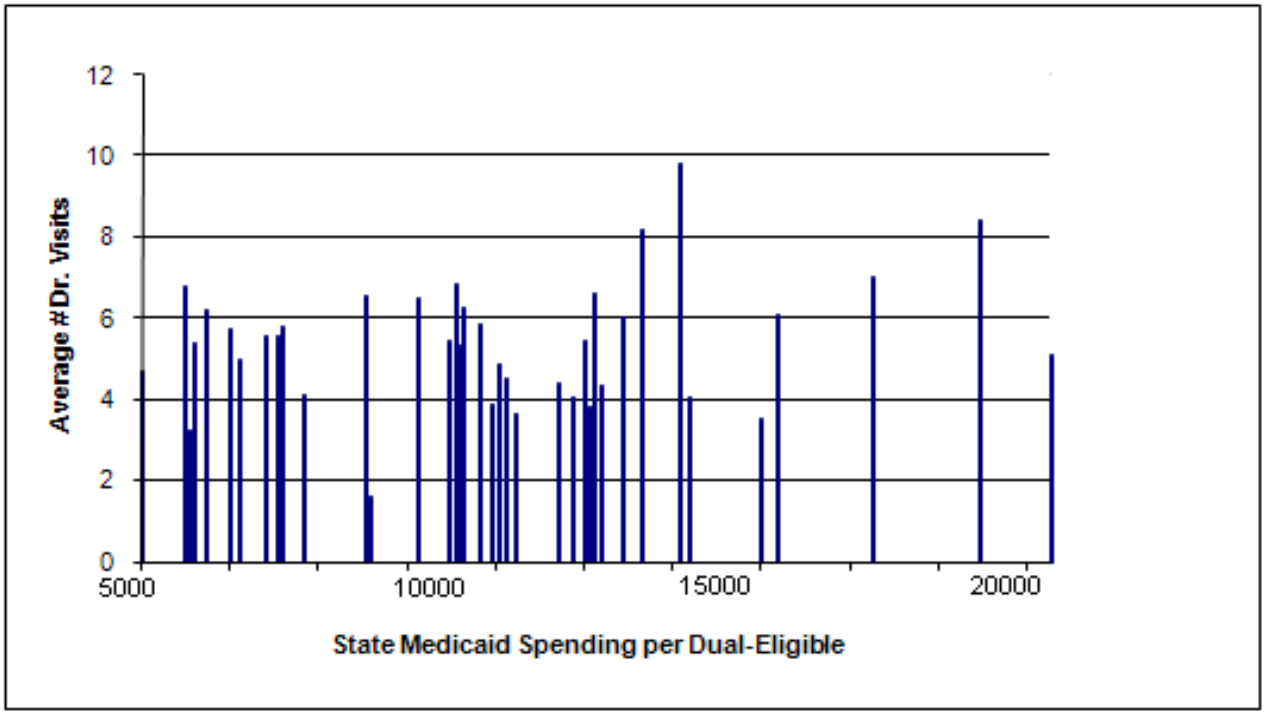
Table 3. Effect of Dual-Eligible Medicaid Spending on Health Outcomes

	A. Community-Based Elderly				B. Facility Residents			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Health	**Health Compare**	**Activity Limitation**	**Died**	**Health**	**Health Compare**	**Activity Limitation**	**Died**
Eligible	-0.11048**	-0.07772**	0.11157**	0.02244*	0.01472	0.12438	-0.07351	0.04552
	(0.02088)	(0.02085)	(0.02281)	(0.01011)	(0.06971)	(0.07635)	(0.07407)	(0.05885)
Spend per Dual	0.00073	0.00117	-0.00086	-0.00089	0.01085+	0.00830	0.00903	0.00035
	(0.00125)	(0.00121)	(0.00138)	(0.00055)	(0.00603)	(0.00678)	(0.00652)	(0.00539)
Spend X Eligible	0.00003	0.00217	0.00180	-0.00072	-0.00372	-0.00527	0.00117	-0.00579
	(0.00157)	(0.00163)	(0.00184)	(0.00067)	(0.00574)	(0.00631)	(0.00610)	(0.00490)
Male	0.00234	0.01473*	-0.04170**	0.01765**	0.03083	-0.02628	0.03705	0.07799**
	(0.00627)	(0.00615)	(0.00705)	(0.00279)	(0.03053)	(0.03219)	(0.03204)	(0.02733)
White	0.01330	-0.03434**	-0.02487*	0.00473	0.09448**	0.01123	0.07042+	0.00229
	(0.00904)	(0.00839)	(0.01035)	(0.00350)	(0.03437)	(0.03857)	(0.03687)	(0.03087)
209b	-0.03191**	-0.01958*	0.03282**	0.00277	-0.04156	-0.02897	0.00867	-0.01142
	(0.00949)	(0.00923)	(0.01060)	(0.00393)	(0.03341)	(0.03710)	(0.03598)	(0.02868)
Married	0.00612	-0.00263	-0.02196**	-0.00367	-0.09269**	-0.02393	-0.09383**	0.04043
	(0.00650)	(0.00640)	(0.00733)	(0.00274)	(0.03141)	(0.03507)	(0.03369)	(0.02968)
Urban	0.00775	0.00049	0.00692	-0.00023	0.03161	-0.02015	-0.08411**	-0.01919
	(0.00696)	(0.00688)	(0.00786)	(0.00288)	(0.02786)	(0.02983)	(0.02960)	(0.02429)
Observations	21885	21937	21922	21984	1786	1690	1779	1803

Robust standard errors in parentheses. Coefficients are probit marginal effects. *Health* is equal to 1 if self-reported health is excellent, very good or good, and 0 if self-reported health is fair or poor. *Health Compare* is equal to 1 if health is much better, better or the same as last year, and 0 if health is worse or much worse. *Activity Limitation* is equal to 1 if health limits social activity and 0 otherwise. *Died* is equal to 1 if the individual died during the survey year. *Eligible* is defined as below 75% FPL for singles, below 82% FPL for married individuals. *Spend per dual* is Medicaid spending (in thousands) per dual-eligible individual in a given state in the survey year. *Male, white, married and urban* are 0-1 indicator variables. *209b* is a 0-1 indicator for residence in a 209(b) state. Control group (i.e. non-eligibles) consists of individuals between 175% FPL and 350% FPL. Regressions also include age, education, Census division, and year dummies, cost-of-living adjustment, and indicator for state medically needy program. + significant at 10%; * significant at 5%; ** significant at 1%.


1.2
1
0.8
0.6
0.4
0.2
0
Average Health
(=1 if excellent, v. good, good)
5000
10000
15000
20000
State Medicaid Spending per Dual Eligible


50
45
40
35
30
25
20
15
10
5
0
Average # Prescriptions
5000
10000
15000
20000
State Medicaid Spending per Dual-Eligible


12
10
8
6
4
2
0
Average # Dr. Visits
5000
10000
15000
20000
State Medicaid Spending per Dual-Eligible

RECENT WORKING PAPERS FROM THE
CENTER FOR RETIREMENT RESEARCH AT BOSTON COLLEGE

Public Long-Term Care Insurance and the Housing and Living Arrangements of the Elderly: Evidence from Medicare Home Health Benefits
Gary V. Engelhardt and Nadia Greenhalgh-Stanley, November 2008

The Impact of Changing Earnings Volatility on Retirement Wealth
Austin Nichols and Melissa M. Favreault, November 2008

The Housing Bubble and Retirement Security
Alicia H. Munnell and Mauricio Soto, with the assistance of Jean-Pierre Aubry, November 2008

How Much Do State and Economic and Other Characteristics Affect Retirement Behavior?
Alicia H. Munnell, Mauricio Soto, Robert K. Triest, and Natalia A. Zhivan, August 2008

Will People Be Healthy Enough to Work Longer?
Alicia H. Munnell, Mauricio Soto, and Alex Golub-Sass, August 2008

An Assessment of Life-Cycle Funds
Mauricio Soto, Robert K. Triest, Alex Golub-Sass, and Francesca Golub-Sass, May 2008

Participant Perceptions and Decision-Making Concerning Retirement Benefits
Colleen E. Medill, February 2008

A Micro-Level Analysis of Recent Increases in Labor Participation Among Older Workers
Kevin E. Cahill, Michael D. Giandrea, and Joseph F. Quinn, February 2008

The Trajectory of Wealth in Retirement
David A. Love, Michael G. Palumbo, and Paul A. Smith, February 2008

The Rising Age at Retirement in Industrial Countries
Gary Burtless, February 2008

The Implications of Career Lengths for Social Security
Melissa M. Favreault and C. Eugene Steuerle, February 2008

All working papers are available on the Center for Retirement Research website (http://www.bc.edu/crr) and can be requested by e-mail (crr@bc.edu) or phone (617-552-1762).