

# Medicare Savings Program Enrollees and Eligible Non-Enrollees

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## Summary

Medicare Savings Programs (MSP) provide financial assistance for Medicare premiums, and in some cases pay cost sharing for medical services covered by Medicare, for eligible low-income seniors and adults with disabilities. While not all individuals eligible for MSPs enroll, the rate of MSP participation and the characteristics of enrollees compared with eligible non-enrollees are not well understood. This is largely because most data sources do not include both information on MSP enrollment and all individuals eligible for MSP.

This work fills a gap in the literature by linking household survey data with detailed income and asset information (to identify MSP eligibility) with administrative data (to identify MSP enrollment) to study MSP participation and related characteristics over mid-to-late 2009 and 2010. Specifically, this work addresses the following research questions:

1. What is the rate of participation for the QMB, SLMB and QI programs, and how many individuals are enrolled or eligible but not enrolled for each program?
2. What are the characteristics of the eligible, enrolled, and eligible but not enrolled populations (e.g., age, sex, income, race, general health and disability status, etc.)?
3. Is there variation in the rate of MSP participation by state?

Results show that the rate of MSP participation varies considerably by program, with 53.1 percent of QMB-eligible adults enrolled, 32.2 percent of SLMB eligibles enrolled, and only 15.1 percent of QI eligibles enrolled. Multivariate regression models reveal that QMB and SLMB enrollees, compared with eligible non-enrollees, are more likely to be younger, not married, have less education, be in worse health, lack private health insurance, and enrolled in the SNAP program. And QMB eligibles with SSI benefits were much more likely enrolled, whereas SLMB eligibles with SSI benefits were much less likely enrolled. Results also show significant variation in regression-adjusted QMB/SLMB participation by state, ranging from 25 percent to 78 percent. Finally, among QI eligibles, those with private health insurance coverage are much less likely to enroll, and there is no evidence that other observable characteristics are related with QI enrollment.

# 1 Introduction & Background

Almost 9 million low-income seniors and adults with disabilities receive financial assistance from the federal Medicare Savings Program (MSP) in order to facilitate access to their health benefits under Medicare. MSPs are administered by state Medicaid programs, and all three major programs—the Qualified Medicare Beneficiary (QMB), Specified Low Income Medicare Beneficiary (SLMB) and Qualified Individual (QI) programs—pay for enrollees’ Medicare premiums.<sup>2</sup> The QMB program is the most generous of the three in that it also pays for required cost sharing for medical services covered by Medicare. However, it is known that not all low-income seniors and adults with disabilities who are eligible for MSPs are enrolled in the programs (Congressional Budget Office 2004; Rupp and Sears 2000; Sears 2001). As a result, these individuals may only partially access their Medicare benefits because of inability to pay the required premiums and/or cost sharing for covered medical services. Previous research has demonstrated, for example, that outpatient service utilization among low income beneficiaries increased as the Medicaid cost-sharing contribution increased (Haber et al. 2014), suggesting that MSP enrollment plays an important role in improving access to care.

While incomplete enrollment is taken as given, the size and characteristics of the MSP-eligible but not enrolled population are not well understood. This is in part because household surveys, administered by the U.S. Census Bureau and others, do not collect information on MSP participation; and there are no administrative sources that identify the universe of individuals eligible for MSP enrollment. In order to assess the urgency of increasing enrollment and design policies to that effect if deemed necessary, policy-makers need more information on the magnitude and causes of incomplete enrollment. Before we can understand the causes of under-enrollment, further research is necessary to better describe the population of eligible but not enrolled individuals, both in terms of individual demographic and economic characteristics as well as geographic location.

Due to the gap in data collection most existing studies on the rate of MSP participation rely on statistical matching techniques that combine information on eligibility and enrollment across discrete data sources (Shoemaker et al. 2012; Zuckerman, Shang, and Waidmann 2009). Other studies have linked administrative and survey data but do not distinguish between types of MSP (Rupp and Sears 2000; Sears 2001). Uncertainty about the magnitude of under-enrollment is also a result of the wide range of estimates of MSP participation rates. For example, CBO (2004) estimated that just one-third of eligible Qualified Medicare Beneficiaries (QMBs), and 13 percent of eligible Specified Low-Income Beneficiaries (SLMBs), were enrolled. These estimates differ starkly from those of Sears (2001) who estimated a combined QMB and SLMB take-up rate of 61 percent in 1999, and those of Haber et al. (2003), who estimated a combined take-up rate of 64 percent in 2001.

The analyses described below fill gaps in the existing literature by using linked survey and administrative data to estimate program specific participation rates for MSPs and to identify individual and geographic variation across states in those rates. Specifically, we address the following research questions:

1. What is the rate of participation for the QMB, SLMB and QI programs, and how many individuals are enrolled or eligible but not enrolled for each program?
2. What are the characteristics of the eligible, enrolled, and eligible but not enrolled populations (e.g., age, sex, income, race, general health and disability status, etc.)?
3. Is there variation in the rate of MSP participation by state?

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<sup>2</sup> The fourth MSP, the Qualified Disabled and Working Individual (QDWI) program, provides assistance for Medicare Part A premiums among disabled individuals with limited resources who are employed. This work does not study the QDWI program as the number of enrollees is too small with respect to the data and methods used here.

Simple analyses produce summary statistics on each MSP eligibility group, and multivariate analyses examine the determinants of MSP participation. For each eligibility group, we estimated a model of program participation, conditional on eligibility, as a function of individual characteristics and, when possible, state of residence. Marginal effects associated with state of residence is of particular interest because state Medicaid programs administer this federal program, and eligibility, enrollment and outreach efforts and practices that likely influence participation vary by state. Marginal effects associated with individual characteristics can be useful in designing enhanced outreach efforts to reach subgroups with low enrollment rates.

The next two sections describe the data and methodology for the analysis, respectively. We then present results and discuss their implications for policy development.

## 2 Data

This work incorporates two main data sources. The Survey of Income and Program Participation (SIPP) is the source of most of the data elements used in the analysis including the elements necessary to identify the MSP eligible population: income, assets, family structure and state of residence. SIPP respondents are linked with the Medicaid Statistical Information System (MSIS) data, which is an administrative data source that includes detailed enrollment information on the universe of Medicaid enrollees. Information from the SIPP corresponds to respondents' experiences during a particular calendar month, and we link respondents' MSP enrollment data from the MSIS by calendar month (explained in more detail below and in the appendix).<sup>3</sup> All empirical work was completed at the U.S. Census Bureau, Research Data Center.<sup>4</sup> The sections below describe these data sources in more detail, including the critical data fields used to determine MSP eligibility and enrollment.

### 2.1 Survey of Income and Program Participation (SIPP) & MSP Eligibility

This work uses the Survey of Income and Program Participation (SIPP), 2008 panel, which is a longitudinal and nationally representative survey of the civilian non-institutional population. The core SIPP survey collects monthly information from respondents (e.g., income, government program participation) where each interview, or "wave," includes a reference period that reflects the 4 months prior to the interview month. We combine information from the SIPP core interviews at waves 4 and 7 with topical modules on assets from the same waves, which were administered in mid-to-late 2009 and 2010 (calendar years), respectively. (See the appendix for a more complete discussion on the sample reference period.) The final sample of respondents age 18 and older deemed MSP-eligible includes approximately 23,000 person-month observations.<sup>5,6</sup> Statistics presented throughout this report are best interpreted as an average over the latter parts of calendar year 2009 and 2010.

The survey data allow us to identify demographic characteristics associated with high or low rates of MSP participation among eligibles (discussed below). For example, we study characteristics of the MSP eligible population such as race and ethnicity, gender, age, urban/rural residence, marital status, and the presence of dependents in the household. To understand the role of medical need on the MSP enrollment decision of low-income individuals, we combine information from the core survey with the topical

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<sup>3</sup> E.g., information on respondents' MSP eligibility derived from the SIPP corresponding to August 2009 is linked with MSP enrollment for August 2009 from MSIS.

<sup>4</sup> Any opinions and conclusions expressed herein are those of the authors and do not necessarily represent the views of the U.S. Census Bureau. All results have been reviewed to ensure that no confidential information is disclosed.

<sup>5</sup> Reported sample size and population estimates are rounded per Census Bureau disclosure review rules.

<sup>6</sup> The linked SIPP-MSIS sample includes up to eight calendar month observations per unique respondent or "person-month observations" which span May to November 2009 and 2010, respectively. See the appendix for a complete discussion on the reference period for this analysis.

module on medical spending and utilization. Relevant information from this module include: medical out-of-pocket spending, the number of nights spent in a hospital, the number of medical professional visits, prescription drug use, number of dental visits, and self-reported disability status. To understand the role of participation in other means-tested programs on MSP participation, we include monthly public program participation, namely SSI and SNAP.

SIPP respondents' MSP eligibility status is determined using detailed information on income, assets, state of residence and family structure (single or married). Eligibility status is determined monthly, like enrollment status. In addition, using the SIPP's detailed and disaggregated data on income and assets, we are able to accurately apply rules that disregard certain types and amounts of resources. The Federal income eligibility threshold for the QMB program is 100 percent of the Federal Poverty Level, the SLMB income eligibility threshold equals 120 percent of the FPL, and QI eligibility equals 135 percent of the FPL. Income not counted towards the eligibility threshold (disregarded) include the first \$65 of monthly wage income, 50 percent of the remaining wage income, and \$20 per month for all types of income (wage and non-wage income). For example, in 2010, the Federal eligibility standard for the QMB program was income (after disregards) up to the federal poverty level, equal to \$902 per month for a single person and \$1,214 for a couple, and assets below \$6,600 for an individual or \$9,910 for a couple excluding the value of one automobile and respondents' primary home.<sup>7</sup> Therefore respondents in states that adopted the Federal guidelines and meet these criteria would be identified as QMB eligible in a given month during 2010. We also apply state-specific income and/or asset eligibility criteria to respondents in states that adopted more generous thresholds, such as Maine which adopted an income threshold of up to 150 percent of the FPL and has no asset tests for the QMB program. See the appendix for detailed information on the specific income and asset thresholds applied to all states, as well as the limitation section for how MSP enrollees deemed ineligible are handled throughout this analysis.

States, however, have some discretion to adopt additional resource disregards that *indirectly* increase the stated resource thresholds. Many state-specific disregards are too specific to account for using household survey data because resource categories are not measured separately (e.g., relocation assistance). Neglecting state-specific income/asset disregards to evaluate eligibility status could create an upward bias in the estimated rate of participation. In our model-based estimates (discussed below) this would presumably be captured in the appropriate state dummy variables in cases where disregards were not applied to the survey data. That said we do not view this point as a limitation. This is because of the challenges associated with measuring income and assets with survey data, which is likely a larger obstacle to overcome than applying the disregard rules exactly for very specific categories in each state. Note that some of the literature on MSP take-up does not include information on assets at all when determining MSP eligibility (Shoemaker et al. 2012), and that incorporating asset information from household surveys is itself a significant improvement over some previous work in this area.

## **2.2 Medicaid Statistical Information System (MSIS), MSP Enrollment & Data Linkage**

Information on MSP enrollment is taken from the Medicaid Statistical Information System (MSIS) administrative data files, which includes detailed enrollment information on the universe of Medicaid beneficiaries. From these data we construct enrollment information for each calendar month that corresponds to the SIPP sample using the "Dual Status Code" (p.33, Centers for Medicare and Medicaid Services 2014; p.6, Chronic Conditions Warehouse 2015).<sup>8</sup> This is a monthly indicator that identifies MSP enrollment by type of program (QMB, SLMB and QI), and full Medicaid benefit status. In addition, we use the "Maintenance Assistance Status" variable from the MSIS to determine whether MSP enrollment is based on "medically needy" status (p.41, Centers for Medicare and Medicaid Services

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<sup>7</sup> Monthly Federal income thresholds are higher for Alaska and Hawaii. See the appendix for more detail.

<sup>8</sup> Specifically construct MSP enrollment information from the MSIS for May through November, 2009 and 2010. For a particular calendar year SIPP respondents have a maximum of four monthly data points. See the appendix for a discussion on the complexity of the SIPP sample.

2014), whereby many individuals are automatically enrolled in an MSP due to disability status. MSIS “Basis of Eligibility” data will be used to identify the disabled (p.26, Centers for Medicare and Medicaid Services 2014), and the monthly “Plan Type” data fields will be used to identify individuals covered by a Medicaid managed care plan (p.45, Centers for Medicare and Medicaid Services 2014). The MSIS data are then merged with the SIPP surveys at the by calendar month.<sup>9</sup>

### 3 Methodology

Throughout this report we focus on the following four groupings of MSP eligible individuals:

- QMB or SLMB combined
- QMB
- SLMB
- QI

We study the QMB and SLMB eligible populations together in part to increase our sample size and the precision of our estimates for these groups. This is particularly important for identifying variation in MSP participation by state as it significantly increases the size of the MSP eligible population by state. We study QMB and SLMB enrollees separately as well to investigate whether the results are different compared with the when we combine eligibles from both programs. Finally, the QI eligible population is studied separately as state enrollment caps under the QI program may preclude voluntary enrollment among those who are eligible for the program, unlike the QMB or SLMB programs, which may relate with the observed characteristics differently. All variance statistics take into account the SIPP’s complex survey design, and all point estimates incorporate survey weights.

#### 3.1 Summary Statistics

First we estimate and report the size of the MSP enrolled and non-enrolled eligible populations by type of MSP. Subsequently we study the characteristics of these subpopulations, as well as results from tests for differences across the two groups. Characteristics include demographic information, which is included in the multivariate analysis, as well as statistics on medical service utilization and out-of-pocket spending. We add the latter to provide additional context about the subpopulations, however we do not include this information in the multivariate analysis as MSP participation likely influences medical care utilization and out-of-pocket spending, and would likely obscure our estimates on the determinants of MSP participation. Finally, for contrast, we also report statistics on the characteristics of those not enrolled in any MSP.

#### 3.2 Multivariate Analyses

Table 1 summarizes the multivariate models, which are discussed in more detail below. In particular, it summarizes how to interpret the model-based output from the models. Below we provide a more detailed discussion on the methods used in this work for the interested reader.

To more comprehensively study factors that associate with MSP participation we estimate multivariate logistic models among individuals identified as eligible for a given MSP, where enrollment in a particular MSP is the binary dependent (i.e., left hand side) variable.<sup>10</sup> Models take the following general form:

$$y_{it} = g(\alpha_0 + \mathbf{X}_{it}\boldsymbol{\delta}, \epsilon_{it}), \quad (1)$$

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<sup>9</sup> E.g., information on MSP eligibility derived from the SIPP corresponding to August 2009 is linked with MSP enrollment for August 2009 from MSIS. See the appendix for a complete discussion on the reference periods. See the appendix for more detail on the sample reference period.

<sup>10</sup> Logistic models are appropriate in this context as they are used specifically for categorical dependent variables, including the special case where the dependent variable is binary (takes a value of 0 or 1).

where

- $y_{it}$  equals 1 if MSP eligible respondent  $i$  is enrolled in a given MSP program, and 0 otherwise, at a given SIPP interview month  $t$  (four models: QMB or SLMB, QMB, SLMB and QI);
- $X_{it}$  is a matrix of characteristics for MSP eligible respondent  $i$  (age, race and ethnicity, sex, marital status, education, household composition, family income, government program participation (SSI and SNAP), private health insurance, health status, calendar year (2009 or 2010), and state of residence for pooled QMB & SLMB models only);
- $\alpha_0$  is an intercept term;
- $\epsilon_{it}$  is an error term; and
- $g(\cdot)$  is the logistic function.

Each model is estimated among respondents identified as eligible for a particular MSP program status, and we estimate four different models corresponding to QMB or SLMB eligibles, and QMB, SLMB and QI eligibles, in turn.

Using the model's parameter estimates we then estimate and report "average marginal effects" (AME) using the characteristics of all respondents. The reported AME results are interpreted as the difference in the probability of MSP enrollment corresponding to a given characteristic, compared to that characteristic's reference category. For example, an estimated AME equal to  $-0.052$  corresponding to married status equal to married, where the reference category is not married, suggests that married individuals are 5.2 percentage points less likely to enroll in an MSP compared with those who are not married.<sup>11</sup>

Note that while the sample includes up to 8 monthly observations per person, covering mid-to-late 2009 and 2010, we include an explanatory variable that controls for the survey year. This allows us to formally test whether the rate of MSP participation changed over time. A change may be anticipated insofar as the Medicare Improvements for Patients and Providers Act of 2008 (MIPPA) included efforts to increase MSP participation (U.S. Government Accountability Office 2012). Outreach efforts started in January, 2010 and continued through 2011. And the reference period for wave 4 was before these efforts, while the reference period for wave 7 was after 2009 (which is the reference or omitted year in the model). Positive/negative estimates corresponding to the dummy variables in later years suggest that the *rate* of MSP participation increased/decreased with respect to 2009, all else equal.

Using results from the QMB and SLMB combined model we also report regression-adjusted MSP participation rates by state. That is, we use the model parameters estimate the average of counterfactual predicted values,  $\frac{1}{N} \sum_{i=1}^N \hat{y}_{it}$  where we assume all SIPP respondents are residents of a given state. This is of particular interest as MSP take-up is likely unequal across states, and it is important to understand which states, all else equal, have higher or lower levels of MSP participation.

As a final exercise we investigate correlates of MSP participation among MSP eligibles with Medicaid coverage. Here we combine QMB, SLMB and QI eligibles and include controls for which program a respondent is eligible, where SLMB is the reference category. The relationship between the observed characteristics and MSP enrollment among Medicaid enrollees should be very different compared with the general MSP eligible population. E.g., those with access to full Medicaid benefits would have little incentive to enroll via a MSP program, especially compared to those with less than full Medicaid benefits.

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<sup>11</sup> This interpretation is appropriate as all of the independent (or explanatory) variables are binary (take a value of 0 or 1). Note that this example corresponds to results reported in Table 4, column 1.



### 3.3 Limitations

One data inconsistency arises related with the information on income, assets, MSP eligibility and enrollment. Specifically, the MSP eligibility simulation may indicate that a given enrollee is ineligible for any program. Similarly, the eligibility simulation may deem an enrollee eligible for a different program than the one in which they are enrolled. These possibilities are most likely explained by reporting error or survey data editing for income and/or assets, or changes in income since the initial MSP eligibility determination and enrollment, and is complicated by the narrow range for income eligibility of the SLMB and QI programs. In the face of these inconsistencies we made two adjustments to insure we do not exclude individuals who are actually eligible for a particular MSP when estimating take-up models. First, we expanded the income thresholds by 10 percent of the FPL scale, and we expanded the asset thresholds where applicable by 10 percent (monetary values). I.e., for the QMB eligibility we raised the income thresholds by 10 percent, and for the SLMB and QI programs we expanded the thresholds up and down by 5 percent in each direction. Second, for MSP enrollees deemed eligible for a different MSP program than the one in which they are enrolled we change their eligibility status to be consistent with their enrollment data. Remaining enrolled adults deemed ineligible from the analysis are excluded. One implication is that the eligibility categories are no longer mutually exclusive. As a result the estimated size of the eligible but not enrolled population for each program will have some overlapping individuals that are counted twice when studying each program separately. However, we do not consider this a major limitation, especially for the multivariate analysis which does not attempt to quantify the size of the eligible but not enrolled populations, but instead seeks to identify the factors associated with higher and lower rates of enrollment.

A second possible limitation may be the overall quality of the SIPP income and/or asset data, and its implications for our MSP eligibility simulations and participation rate estimates. While investigating the quality of the SIPP income and asset data *vis-à-vis* other household surveys is beyond the scope of this work, previous research that carefully evaluate these data suggests any implications for the MSP eligible population is minimal (at least compared with other surveys). For example, Czajka and Denmead (2012) show that while the SIPP collects much less earnings overall than the Current Population Survey, Annual Social and Economic Supplement (CPS ASEC), the SIPP collects more earnings near the bottom of the distribution than the CPS ASEC.<sup>12</sup> They also show that the SIPP collects more self-employment income, especially among the poor. And earlier work by Czajka, Jacobson, and Cody (2003) show that the SIPP collects about half of the overall wealth (net worth) reported in the Survey of Consumer Finances (SCF), which is considered the gold standard household survey for wealth measurement.<sup>13</sup> However, this discrepancy is shown to be almost entirely an issue among very high wealth households. They also find that SIPP collects about the same, if not more, liabilities than the SCF. Together these studies suggest that the known issues surrounding income and asset measurement in the SIPP are much less likely to have important implications for the MSP eligible population, whose assets are low and income is near the poverty line (by definition).

A final possible limitation concerns the reference period for assets, which correspond to the time of interview, unlike income information which is collected monthly. However, given that wealth often takes time to accumulate we consider this a minor limitation.

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<sup>12</sup> The Current Population Survey is a monthly cross-sectional survey representative of the civilian, non-institutionalized population sponsored by the Bureau of Labor Statistics and the U.S. Census Bureau and is the primary source for data for labor force statistics (U.S. Census Bureau 2017). The survey's Annual Social and Economic Supplement is the data source used to produce official U.S. poverty statistics (e.g., Barnett and Vornovitsky 2016).

<sup>13</sup> The Survey of Consumer Finances is a triennial cross-sectional survey representative of U.S. families, sponsored by the Federal Reserve Board and Department of Treasury (Federal Reserve Board of Governors 2017). It is a leading source of survey data on assets (including pensions) and liabilities.

## 4 Results

### 4.1 Summary Statistics

Table 2 reports the estimated size of the MSP enrolled and non-enrolled eligible populations, rates of participation, and sample size by program and age group. Note that all statistics in Table 2 are rounded according to the U.S. Census Bureau, Research Data Center non-disclosure rules; consequently subpopulation estimates do not add up to larger group totals (e.g., adults 18 to 64, 65 and older, and 18 and older). Among all adults age 18 and over an estimated 6.26 million were eligible for the QMB program and slightly over half participated (53.3 percent or 3.34 million), leaving approximately 2.92 million eligible non-enrollees. The SLMB program, which covers a much narrower income-eligible group or about 1.89 million adults, had a somewhat lower participation rate—almost one third of eligibles enrolled (32.2 percent or 610 thousand adults), where 1.28 million did not enroll. The QI program had the smallest number of eligibles (1.2 million), and the lowest enrollment rate at 15.1 percent, leaving 1.02 million eligible non-enrollees. Note that the QI program participation rate does not take into account state-specific spending limits, which may be binding in some states and decrease participation. Finally, Table 2 does reveal some differences by age, where participation was somewhat higher for adults age 18 to 64 compared with older adults age 65 and older.

Table 3 reports summary statistics on the characteristics of each MSP eligible population (QMB or SLMB, QMB, SLMB, and QI) by enrollment status, as well the non-eligible population for contrast. The first two columns report results among adults deemed eligible for either the QMB or SLMB program. Adults enrolled in either program, compared with the eligible non-enrolled, are: younger (42.3 percent of the enrolled are age 18 to 64, compared with 28.5 percent of the non-enrolled), less likely to be white, non-Hispanic (52.2 percent compared with 62.4 percent) or married (17.1 percent compared with 23.4 percent), less educated (34.7 percent of enrollees had less than High School education compared with 26.9 percent of non-enrollees), and have lower assets. QMB or SLMB enrollees were also much more likely than non-enrollees to receive SSI benefits (38.6 percent compared with 11.6 percent) or SNAP benefits (43.4 percent and 12.3 percent, respectively).

Health insurance status also differed markedly across QMB and SLMB enrollees and eligible non-enrollees (Table 3). Only 12.2 percent of QMB or SLMB enrollees reported private health insurance, compared with over a third of eligible non-enrollees (36.1 percent). And very few eligible non-enrollees had Medicaid coverage (16.6 percent), where (most) all MSP enrollees were identified as Medicaid enrollees. (That the latter does not always equal 100 percent reflects minor inconsistencies in the MSIS administrative enrollment data on dual status and general Medicaid enrollment.) The majority of QMB and SLMB enrollees (69.8 percent) have full Medicaid benefits, also known as “QMB Plus” and “SLMB Plus” beneficiaries, and almost half of enrollees (49.4 percent) had disability as their basis of Medicaid eligibility.

Finally, there are noteworthy distinctions in health status, medical care utilization and out-of-pocket spending across QMB or SLMB enrollees and eligible non-enrollees (Table 3). Approximately two-thirds of enrollees (67.8 percent) reported an activity of daily living (ADL) or an instrumental activity of daily living (IADL) limitation, a commonly used proxy for disability status, compared with 55.1 percent of eligible non-enrollees. On average enrollees reported more medical provider visits per year (10.2 visits compared with 8.0), slightly less annual dentist visits (0.9 visits compared with 1.1), yet higher prescription drug use through the year (90.0 percent compared with 80.0 percent), and much lower annual out-of-pocket spending (\$410 compared with \$941).

Differences in the characteristics of QMB and SLMB enrollees and eligible non-enrollees described above generally hold when focusing on the QMB or SLMB programs, in turn (Table 3, columns three through six). One exception is that among SLMB eligible adults, the enrolled were more likely to be white, non-Hispanic (72.1 percent) than eligible non-enrollees (64.8 percent). Another exception is that

those enrolled in the SLMB program were less likely to be SSI beneficiaries (5.3 percent) compared with eligible non-enrollees (9.0 percent).

There is much less evidence of differences in the characteristics across the QI enrolled and eligible non-enrolled groups (Table 3). QI enrollees have somewhat lower levels of education than eligible non-enrollees, where 32.1 percent of enrollees have less than a High School education compared with 24.1 percent of eligible non-enrollees. And almost half (48.1 percent) of eligible non-enrollees have private health insurance coverage compared with about a quarter (24.8 percent) of QI enrollees. And about a quarter of QI enrollees (24.3 percent) had Medicare by virtue of a disability. Finally, QI enrollees were less likely to report excellent/very good health, had less dentist visits, were more likely to use prescription drugs, and had lower medical out-of-pocket spending.

#### 4.2 Multivariate Analyses

Table 4 reports average marginal effects (AME) based on logistic regression models. As all of the independent variables are binary, the results are interpreted as the percentage point difference in the participation rate related with a particular characteristic compared with the stated reference group. For example, column (1) reports results for the QMB and SLMB eligible population combined. Results reported in the first row suggest that adults age 18 to 64 were 3.0 percentage points more likely to enroll in the QMB or SLMB programs compared with adults age 65 and older. Or in relative terms, nonelderly adults were 5.9 percent more likely to enroll than adults age 65 and older, given the participation rate for this group is 51.1 percent.

Married adults were less likely to enroll in the QMB or SLMB programs relative to married adults (5.2 percentage points or 10.2 percent), as were adults with higher levels of education. E.g., college graduates were 9.6 percentage points (18.8 percent) less likely to enroll than those with less than a High School education. Those with higher incomes, in the top half among eligibles, were more likely to enroll (5.2 percentage points or 10.2 percent). And enrollment in other government programs was the greatest predictor of MSP participation. SSI enrollees were 18.7 percentage points (36.6 percent) more likely to enroll in the QMB or SLMB program, and SNAP enrollees were 30.2 percentage points (59.1 percent) more likely to enroll. Those with private insurance were much less likely to enroll (17.2 percentage points or 33.7 percent), whereas adults in worse health were more likely to enroll. E.g., adults who reported an ADL or IADL, a common proxy for disability status, were 4.4 percentage points (8.6 percent) more likely to enroll than those who did not report such limitation. Finally, there is no evidence that the *rate* of enrollment changed between 2009 and 2010, over which time enrollment efforts for MSP programs increased.

Results from models that investigate participation in the QMB and SLMB programs separately (columns 2 and 3) generally corroborate results from the pooled model with QMB and SLMB eligibles (column 1), yet there are two notable differences. Note that the former results do not include state-level control variables like the latter pooled results, which may account for some of the apparent differences. First, SSI beneficiaries eligible for the QMB program are significantly more likely to enroll in the QMB program (24.9 percentage points or 46.7 percent); whereas SSI beneficiaries eligible for the SLMB program are much less likely to enroll in the SLMB program (19.7 percentage points or 61.2 percent). This finding likely reflects the fact that SSI eligibility thresholds are typically well below the federal poverty level, meaning that fewer SSI beneficiaries would be eligible for SLMB than for QMB. Second, there is some evidence that the rate of enrollment for the SLMB program increased in 2010 (3.6 percentage points or 11.2 percent) compared with 2009.

Column 4 of Table 4 reports results for the QI eligible population. Private health insurance is the only characteristic related with QI enrollment, albeit seemingly very important. Individuals eligible for the QI program that had private health insurance are 11.9 percentage points, or 78.8 percent, less likely to enroll. Recall that the eligible population here does not account for state-level limits on QI enrollment, which if binding would be very important.

Figure 1 reports regression-adjusted participation rates by state for the combined QMB and SLMB programs, and corresponding 95 percent confidence intervals, which are also presented in appendix Table A4. Results are based on the same regression model as results reported in Table 4, column 1, where estimates for select states are suppressed per U.S. Census Bureau disclosure avoidance rules. These estimates do not reflect observed participation in a particular state; they reflect state-level participation should all adults across the U.S. reside in a particular state. They illustrate which states have higher or lower predicted enrollment rates after accounting for differences in respondent characteristics related with MSP participation.

Immediately clear from Figure 1 is that the variation across states is large, where Georgia has the lowest regression-adjusted participation (25.4 percent) and Maine has the highest (78.1 percent). Another observation is that there no apparent pattern between the regression-adjusted participation rates and those states that have more generous income and/or asset eligibility rules relative to the federal standards. E.g., among states with more generous eligibility rules Maine has the highest estimated participation in the QMB or SLMB program (78.1 percent); however the remaining states span the rankings: Minnesota (10th highest regression-adjusted participation rate; 57.0 percent), Alabama (18th; 51.5 percent), Connecticut (24th; 46.5 percent), Mississippi (28th; 44.9 percent), New York (37th; 37.8 percent) and the District of Columbia (38th; 36.8 percent). A final observation is that, apparent from the 95 percent confidence intervals, the precision of the estimates vary widely by state.

The final analysis investigates the characteristics of MSP participation (QMB, SLMB or QI) among Medicaid enrollees only. (Results are available in appendix Table A5). This additional constraint effectively selects a subset of the non-enrolled eligible population, leaving the MSP enrolled population unchanged. Here we also include additional characteristics of enrollees' Medicaid benefits. Results show that those with full Medicaid benefits were less likely enrolled in a MSP (26.0 percentage points), which may be expected as those with full benefits have little incentive to enroll in an MSP program, especially one that does not offer full Medicaid benefits. Medicaid managed care enrollees were also less likely to be enrolled in an MSP (9.8 percentage points), as were those who received benefits through the medically needy program (14.5 percentage points). Finally, a few results contrast with those for the full eligible population. In particular, younger eligibles were less likely to enroll than older eligibles, and those with higher educational attainment were more likely to enroll. The participation rate was also slightly higher for 2010 relative to 2009.

## 5 Discussion

Compared to results from approximately 10 years earlier, the results described above find participation rates that lie somewhere between the low estimates of CBO (2004) and the higher rates of other researchers (Sears 2001; Haber et al. 2014). Like the CBO, we find that among beneficiaries eligible for the respective programs, participation rates for QMB were higher than those for SLMB or QI, although our estimates are higher than CBO's for both QMB and SLMB. However, no aggregation of participation rates across the three types of programs would produce estimates similar to those of Sears or Haber.

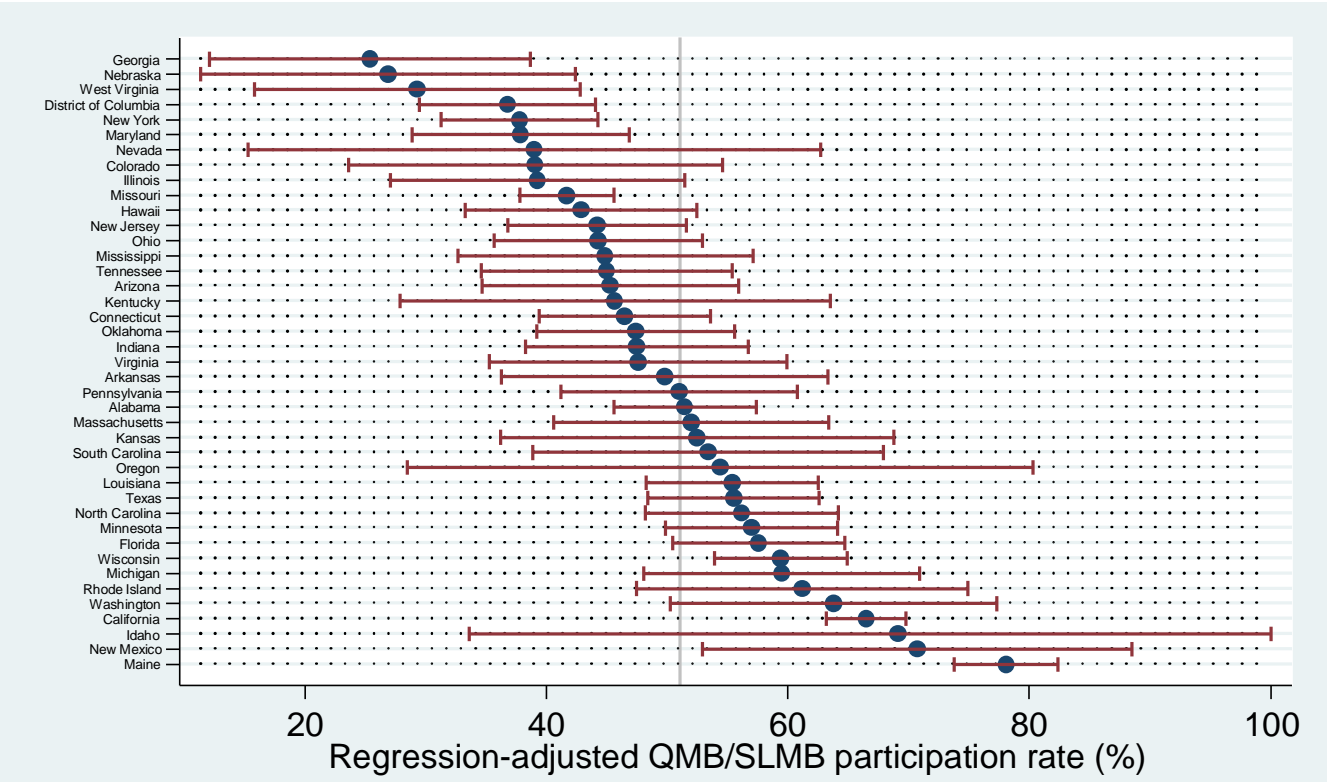
Simple bivariate comparisons of QMB and SLMB enrollees with those eligible but not enrolled in those programs revealed marked differences in across groups, where age, race/ethnicity, education, private health insurance status, health and health care utilization were all related with enrollment status. The multivariate analyses of participation showed that the observed differences were mostly robust to other controls. The individual level factors that increased the likelihood of enrollment were young age, being unmarried, having less education, participation in other public programs (SNAP and SSI), lacking private health insurance, and having worse health and functional status. SNAP, SSI enrollment and private health insurance status were the strongest predictors.

Regression adjusted participation rates varied considerably by state. For a standard population of persons eligible for either the QMB or SLMB program, predicted participation ranged from 25 percent (Georgia) to 78 percent (Maine). Perhaps surprisingly, this variation was not strongly related to the generosity of income and asset limits determined by the states.

One implication of these findings is that there is room for significant increases in MSP enrollment that could serve to improve access to care and strengthen the financial protection of low income Medicare beneficiaries. However, the results above suggest that these improvements will require more than changes in eligibility rules in low-enrollment states. Variations in enrollment by state not related to eligibility rules suggest that other factors, such as variations in outreach and enrollment systems across state, may be important. Further investigation of those state level variations seems warranted. Our findings also suggest that increasing enrollment in certain subgroups of the population will require more effort than in others.

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Notes: The overall U.S. QMB/SLMB participation rate (combined) equals 51.1% (Table 2) and is marked by the horizontal grey line. Regression-adjusted QMB/SLMB enrollment rates (proportion of MSP eligibles enrolled) and 95 percent confidence intervals are based on coefficient estimates from a logit model (not reported) and observable characteristics of the entire sample. E.g., the regression-adjusted participation rate in Georgia, for QMB and SLMB eligibles combined, was 25.4 percent. Results for Alaska, Delaware, Iowa, Montana, New Hampshire, North Dakota, South Dakota, Utah, Vermont, and Wyoming are suppressed following U.S. Census Bureau disclosure review rules. Qualified Disabled Working Individual (QDWI) enrollees are excluded as the program is too small to study with survey data. See the Data and Methods section for more details on the survey data, criteria applied to determine MSP eligibility and regression model specifications.

**Figure 1** Regression-adjusted enrollment rates for the QMB and SLMB programs combined, by state

**Table 1** Model specifications and interpretation of results from multivariate analyses

Model	Output of interest	Interpretation of estimated Average Marginal Effects corresponding to variable(s) of interest
(1) MSP take-up, estimated among eligibles only, by type of MSP (QMB, SLMB and QI) and QMB & SLMB combined $y_{it} = g(\alpha_0 + X_{it}\delta, \epsilon_{it})$	$\hat{\delta}$ (Average Marginal Effects estimates corresponding to characteristics associated with MSP participation, such as sex, race & ethnicity, state of residence {pooled QMB & SLMB model only}, etc.)	<b>Positive:</b> Characteristic associates with increased probability of MSP enrollment with respect to the reference group. <b>Negative:</b> Characteristic associates with decreased probability of MSP enrollment with respect to the reference group. <b>Magnitude:</b> As all independent variables are binary (meaning they can only take two possible values), the reported average marginal effects equal the percentage point change in the probability of enrollment in a MSP corresponding to a given characteristic with respect to a reference group.
	$\frac{1}{N} \sum_{i=1}^N \hat{y}_{it}$ (Average predicted probability of MSP enrollment, among all enrollees, assuming residence in a given state)	Higher/lower value indicates higher/lower regression-adjusted MSP participation rate for a given state

**Table 2** Average monthly Medicare Savings Program (MSP) enrollment by age group, 2009 and 2010

	Person-month observations: Enrolled	Person month observations: Eligible but not enrolled	Enrolled (1/1,000)	SE (1/1000)	Eligible but not enrolled (1/1,000)	SE (1/1000)	Total eligible population (1/1,000)	% Enrolled	SE
<i>Ages 18 to 64</i>									
QMB or SLMB	4,300	2,700	1,670	72	1,080	58	2,750	60.8%	1.7
QMB	3,700	2,200	1,420	64	850	50	2,270	62.5%	1.7
SLMB	650	800	250	29	340	29	590	42.6%	3.6
QI	150	500	44	10	200	20	244	18.1%	3.8
<i>Ages 65 and over</i>									
QMB or SLMB	6,100	7,100	2,280	84	2,700	92	4,980	45.7%	1.1
QMB	5,100	5,500	1,920	76	2,070	83	3,990	48.1%	1.3
SLMB	1,000	2,500	360	36	940	45	1,300	27.5%	2.2
QI	400	2,200	140	18	820	46	960	14.3%	1.6
<i>Ages 18+</i>									
QMB or SLMB	10,000	9,900	3,950	110	3,780	118	7,730	51.1%	1.0
QMB	8,800	7,700	3,340	99	2,920	105	6,260	53.3%	1.1
SLMB	1,600	3,300	610	44	1,280	53	1,890	32.2%	1.8
QI	500	2,700	180	20	1,020	51	1,200	15.1%	1.4

QMB = Qualified Medicare Beneficiary; SLMB = Specified Low-Income Medicare Beneficiary; QI = Qualifying Individual; SE = Standard Error

Notes: Columns “Enrolled”, “Eligible but not Enrolled” and “Total eligible population” report the estimated of number respective individuals, scaled by 1/1,000. Statistics are based on a sample of person-month observations and are appropriately interpreted as average monthly enrollment over the entire the reference period. MSP eligibility is not mutually exclusive as defined here. Qualified Disabled Working Individual (QDWI) eligibles are excluded as the program to too small to study with survey data. See the Data and Methods section for more details on the survey data and the criteria applied to determine MSP eligibility. Eligibility statistics by enrollment status and sample size are rounded per U.S. Census Bureau, Research Data Center guidelines; consequently subpopulation totals do not add up to population totals.

Source: Authors' calculations using the 2008 SIPP panel, combined monthly responses from waves 4 and 7 administered in mid-to-late 2009 and 2010, linked with the Medicaid Statistical Information System (MSIS) by calendar year and month for each respondent, executed at the U.S. Census Bureau, Research Data Center.



**Table 3** Characteristics of adults eligible for Medicare Savings Programs (MSP) by enrollment status

	QMB or SLMB Eligible		QMB Eligible		SLMB Eligible		QI Eligible		Not Eligible Any MSP
	Eligible, Enrolled	Eligible, Not enrolled	Eligible, Enrolled	Eligible, Not enrolled	Eligible, Enrolled	Eligible, Not enrolled	Eligible, Enrolled	Eligible, Not enrolled	
<i>Subpopulation Size (average monthly eligible population estimate)</i>	3,950,000	3,780,000	3,340,000	2,920,000	610,000	1,280,000	180,000	1,020,000	35,530,000
<i>Sample Size (person-month observations)</i>	10,000	9,900	8,800	7,700	1,600	3,300	500	2,700	92,000
<b>Demographics</b>									
Age 18-64	42.3%	28.5% **	42.5%	29.2% **	41.0%	26.3% **	24.2%	19.5%	12.4%
Age 65+	57.7%	71.5% **	57.5%	70.8% **	59.0%	73.7% **	75.8%	80.5%	87.6%
White, non-Hispanic	52.2%	62.4% **	48.6%	61.0% **	72.1%	64.8% *	69.9%	72.0%	82.5%
Black, non-Hispanic	18.5%	16.6%	19.4%	17.1%	14.0%	16.0%	14.5%	14.2%	8.5%
Other, non-Hispanic	9.6%	7.2% +	10.5%	8.0%	4.4%	5.3%	7.7%	5.3%	3.7%
Hispanic	19.7%	13.9% **	21.6%	13.9% **	9.5%	14.0%	7.9%	8.6%	5.3%
Male	35.9%	34.1%	35.9%	33.1%	35.6%	36.6%	33.6%	37.3%	46.4%
Female	64.1%	65.9%	64.1%	66.9%	64.4%	63.5%	66.4%	62.7%	53.6%
Not married	82.9%	76.6% **	83.7%	78.6% **	78.4%	72.8%	75.8%	73.5%	39.6%
Married	17.1%	23.4% **	16.3%	21.4% **	21.6%	27.2%	24.2%	26.5%	60.4%
Less than High School	34.7%	26.9% **	35.3%	28.2% **	31.1%	23.8% *	32.1%	24.1% +	11.8%
High School graduate & less than college degree	59.1%	63.4% **	58.0%	61.5% +	64.6%	68.7%	61.0%	67.2%	64.3%
College graduate	6.3%	9.7% **	6.6%	10.3% **	4.3%	7.4% +	6.9%	8.8%	23.9%
<b>Household Composition</b>									
No children less than 18 years old in household	87.8%	89.5%	86.8%	88.7%	93.4%	91.1%	89.9%	91.5%	93.6%
One or more children less than 18 years old in household	12.2%	10.6%	13.2%	11.3%	6.6%	8.9%	10.1%	8.5%	6.4%
One adult age 18 or over in household	54.6%	52.6%	54.0%	53.0%	57.6%	52.8%	55.6%	49.5%	30.7%
Two or more adults age 18 and over in household	45.5%	47.4%	46.0%	47.0%	42.4%	47.2%	44.5%	50.5%	69.3%
<b>Family Income as a % of the Federal Poverty Level (FPL)</b>									
Below 100% FPL	42.0%	38.7% +	46.7%	47.4%	15.9%	9.1% **	9.3%	4.4%	3.3%
Between 100% - 120% FPL	19.4%	19.0%	17.1%	18.8%	32.3%	29.9%	15.1%	3.4% *	2.1%
Between 120% - 135% FPL	9.2%	11.4% +	6.7%	4.4% *	22.8%	26.8%	25.7%	17.5%	2.3%
Between 135% - 175% FPL	9.6%	9.0%	9.3%	6.9% *	11.3%	13.4%	26.0%	45.0% **	10.1%
Between 175% - 300% FPL	11.4%	11.7%	11.4%	11.6%	11.4%	12.6%	16.1%	16.7%	31.5%
300% FPL and above	8.4%	10.2%	8.8%	11.0%	6.3%	8.3%	7.8%	13.1%	50.7%
<b>Family Asset Categories</b>									
\$0-\$2,000 (single) or \$0-\$3,000 (couples)	89.8%	76.6% **	90.8%	79.4% **	84.4%	72.0% **	76.2%	71.5%	16.9%
\$2,000-\$6,600 (single) or \$3,000-\$9,910 (couples)	6.9%	13.0% **	6.2%	11.9% **	10.3%	17.1% **	13.9%	16.4%	5.7%
\$6,600 or greater (single) or \$9,910 or greater (couples)	3.3%	10.4% **	3.0%	8.7% **	5.3%	11.0% **	9.9%	12.1%	77.4%
<b>Gov't Program Participation</b>									
SSI	38.6%	11.6% **	44.6%	12.2% **	5.3%	9.0% **	4.9%	4.8%	4.5%
SNAP	43.4%	12.3% **	46.1%	11.9% **	28.2%	12.3% **	11.6%	8.1%	3.6%
<b>Health Insurance</b>									
Private health insurance coverage	12.2%	36.1% **	10.0%	35.3% **	24.2%	39.0% **	24.8%	48.1% **	74.3%
<b>Medicaid Characteristics</b>									
Medicaid (any)	99.8%	16.6% **	100.0%	17.8% **	98.6%	12.5% **	99.1%	10.5% **	7.4%
Full-benefit Medicaid	69.8%	16.3% **	80.5%	17.6% **	10.8%	12.1%	X	10.4% **	5.3%
Medicaid - managed care plan	8.4%	3.3% **	9.9%	3.7% **	X	2.3% **	X	1.9% **	0.8%
Medicaid - disability basis of eligibility	49.4%	10.5% **	50.9%	10.9% **	41.1%	8.4% **	24.3%	6.2% **	3.8%
Medicaid - medically needy maintenance assistance status	3.4%	2.3%	3.7%	2.4% +	1.8%	1.5%	X	2.1% *	0.3%
<b>Health &amp; Health Care Spending &amp; Utilization</b>									
No ADL/IADL	32.2%	44.9% **	32.3%	44.5% **	31.9%	45.7% **	44.8%	46.9%	60.9%
ADL/IADL	67.8%	55.1% **	67.7%	55.5% **	68.1%	54.3% **	55.2%	53.2%	39.2%
Self reported health: Excellent or very good	12.2%	21.5% **	12.0%	22.1% **	13.1%	20.4% **	15.9%	24.3% *	35.7%
Self reported health: Good	33.6%	36.2% +	33.4%	36.2%	35.2%	35.5%	38.5%	33.5%	37.0%
Self reported health: Fair or poor	54.2%	42.4% **	54.7%	41.8% **	51.8%	44.1% *	45.6%	42.2%	27.3%
Number of nights spent in a hospital in last 12 months	2.8	2.5	2.9	2.5	2.5	2.7	2.9	2.5	1.6
Number of medical professional visits in last 12 months	10.2	8.0 **	10.4	8.2 **	9.3	7.9	9.1	7.9	7.8
Number of dental visits in last 12 months	0.9	1.1 *	0.9	1.1 *	0.8	1.0	0.6	0.9 *	1.5
Prescription drug use in last 12 months	90.0%	80.0% **	90.0%	80.0% **	90.0%	80.0% *	90.0%	80.0% +	80.0%
Medical out-of-pocket spending	\$410	\$941 **	\$352	\$898 **	\$730	\$1,049 **	\$840	\$1,242 **	\$1,808
<b>Survey Year</b>									
2009	48.0%	50.5% *	48.6%	50.7%	44.9%	50.6% **	43.8%	46.2%	49.4%
2010	52.0%	49.5% *	51.4%	49.3%	55.1%	49.4% **	56.2%	53.8%	50.6%

\*\*, \*, + indicates statistical significance at the 0.01, 0.05, 0.10 level, respectively. The null hypothesis is that a given row statistic is equal for enrollees and non-enrollees.

QMB = Qualified Medicare Beneficiary; SLMB = Specified Low-Income Beneficiary; QI = Qualifying Individual; SE = Standard Error

X indicates that the sample size corresponding to the cell is too small and has been suppressed.

Notes: The percentage of the stated MSP eligible population, defined by each column, with a given row characteristic is reported unless labeled otherwise (subpopulation size, sample size, average health care utilization and out-of-pocket spending). Statistics are based on a sample of person-month observations and are appropriately interpreted as averages over the entire the reference period. Medicare Savings Program eligibility is not mutually exclusive as defined here. Family income as a percentage of the Federal Poverty Level and family assets are defined using different criteria than the thresholds for MSP eligibility, where the latter incorporates a different eligibility unit and does not count all sources of income and/or assets. Qualified Disabled Working Individual (QDWI) eligibles are excluded as the program is too small to study with survey data. See the Data and Methods section for more details of the survey data and the criteria applied to determine MSP eligibility. Enrollment and sample size statistics are rounded per U.S. Census Bureau, Research Data Center guidelines; consequently subpopulation totals do not add up to population totals.

Source: Authors' calculations using the 2008 SIPP panel, combined monthly responses from waves 4 and 7 administered in mid-to-late 2009 and 2010, linked with the Medicaid Statistical Information System (MSIS) by calendar year and month for each respondent, executed at the U.S. Census Bureau, Research Data Center.

**Table 4** Average marginal effects (AME) from regression models predicting Medicare Savings Program (MSP) enrollment among eligibles, by MSP program

	(1)			(2)			(3)			(4)		
	Dependent Variable: Enrolled in QMB or SLMB Mean = 0.511			Dependent Variable: Enrolled in QMB program Mean = 0.533			Dependent Variable: Enrolled in SLMB program Mean = 0.322			Dependent Variable: Enrolled in QI program Mean = 0.151		
	AME	SE	Relative difference	AME	SE	Relative difference	AME	SE	Relative difference	AME	SE	Relative difference
<b>Demographics</b>												
Age 18-64	0.030 +	0.018	5.9%	0.005	0.019	0.9%	0.120 **	0.042	37.3%	0.019	0.041	12.6%
Age 65+ (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
White, non-Hispanic (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
Black, non-Hispanic	0.001	0.026	0.2%	0.003	0.028	0.6%	-0.091 *	0.039	-28.3%	-0.028	0.041	-18.5%
Other, non-Hispanic	0.033	0.038	6.5%	0.041	0.039	7.7%	-0.088	0.070	-27.3%	0.050	0.081	33.1%
Hispanic	0.009	0.030	1.8%	0.059 *	0.029	11.1%	-0.107 +	0.057	-33.2%	-0.029	0.054	-19.2%
Male (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
Female	-0.001	0.017	-0.2%	-0.019	0.019	-3.6%	0.036	0.032	11.2%	0.036	0.029	23.8%
Not married (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
Married	-0.052 *	0.024	-10.2%	-0.029	0.024	-5.4%	-0.001	0.055	-0.3%	0.005	0.051	3.3%
Less than High School (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
High School graduate & less than college degree	-0.035 *	0.015	-6.8%	-0.009	0.018	-1.7%	-0.095 **	0.033	-29.5%	-0.051	0.032	-33.8%
College graduate	-0.096 **	0.029	-18.8%	-0.061 *	0.030	-11.4%	-0.158 *	0.064	-49.1%	-0.045	0.064	-29.8%
<b>Household Composition</b>												
No children less than 18 years old in household (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
One or more children less than 18 years old in household	-0.004	0.029	-0.8%	0.001	0.031	0.2%	-0.064	0.060	-19.9%	0.000	0.059	0.0%
One adult age 18 or over in household (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
Two or more adults age 18 and over in household	0.017	0.021	3.3%	0.017	0.021	3.2%	0.006	0.044	1.9%	-0.020	0.042	-13.2%
<b>Family Income</b>												
Family income (FPL) below median (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
Family income (FPL) at or above median	0.052 **	0.016	10.2%	0.087 **	0.020	16.3%	-0.046	0.033	-14.3%	-0.051	0.035	-33.8%
<b>Gov't Program Participation</b>												
SSI	0.187 **	0.022	36.6%	0.249 **	0.020	46.7%	-0.197 **	0.033	-61.2%	-0.036	0.055	-23.8%
SNAP	0.302 **	0.020	59.1%	0.300 **	0.019	56.3%	0.200 **	0.045	62.1%	0.003	0.045	2.0%
<b>Health Insurance</b>												
Private health insurance coverage	-0.172 **	0.019	-33.7%	-0.196 **	0.022	-36.8%	-0.117 **	0.029	-36.3%	-0.119 **	0.028	-78.8%
<b>Health Status</b>												
No ADL/IADL (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
ADL/IADL	0.044 **	0.014	8.6%	0.040 *	0.017	7.5%	0.097 **	0.031	30.1%	-0.009	0.030	-6.0%
Self reported health: Excellent or very good (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
Self reported health: Good	0.052 **	0.017	10.2%	0.052 **	0.020	9.8%	0.061 +	0.036	18.9%	0.049	0.037	32.5%
Self reported health: Fair or poor	0.058 **	0.020	11.4%	0.073 **	0.022	13.7%	0.039	0.039	12.1%	0.039	0.034	25.8%
<b>Survey Year</b>												
2009 SIPP (reference group)	--	--	--	--	--	--	--	--	--	--	--	--
2010 SIPP	0.014	0.009	2.7%	0.013	0.011	2.4%	0.036 *	0.018	11.2%	0.009	0.019	6.0%

\*\* , \* , + indicates statistical significance at the 0.01, 0.05, 0.10 level, respectively. The null hypothesis is that a given AME is equal to zero.

QMB = Qualified Medicare Beneficiary; SLMB = Specified Low-Income Beneficiary; QI = Qualifying Individual; SE = Standard Error

-- indicates not applicable; X indicates that the cell is too small and has been suppressed

Notes: "AME" columns report the estimated average percentage point difference in MSP enrollment corresponding to a given row characteristic with respect to a stated reference group, which are Average Marginal Effects based on the coefficient estimates from a logit model (not reported) and observable sample characteristics. E.g., column (1), row "Age 18-64", reports that among those eligible for either the QMB or SLMB program, respondents age 18-64 were 3.0 percentage points more likely to enroll compared with individuals age 65 and older (significant at the 10-percent level). The overall rate of MSP enrollment corresponding to a given model is reported in each column heading, and the column "Relative difference" reports the AME as a percentage of the enrollment rate. Additional controls accounted for but not reported include state of residence corresponding to the QMB or SLMB eligible population in column (1) only. Qualified Disabled Working Individual (QDWI) eligibles are excluded as the program is too small to study with survey data. See the Data and Methods section for more details of the survey data, criteria applied to determine MSP eligibility and regression model specifications.

Source: Authors' calculations using the 2008 SIPP panel, combined monthly responses from waves 4 and 7 administered in mid-to-late 2009 and 2010, linked with the Medicaid Statistical Information System (MSIS) by calendar year and month for each respondent, executed at the U.S. Census Bureau, Research Data Center.

## Appendix

### Data Reference Periods

The reference period for this analysis is best interpreted as mid-to-late 2009 and 2010. The lack of specificity is a result of how SIPP interviews are administered, which is complex and summarized here. In this analysis we use the 2008 SIPP panel, which began in 2008 and ended in 2013. Interviews were conducted four months apart at intervals termed “waves,” where the same respondents are interviewed at each wave. The 2008 panel includes a total of 16 waves. All respondents were divided into four “rotation groups,” and interviews at a given wave were administered for each rotation group one month apart for four months. Finally, the reference period for monthly information collected during an interview, such as income, include the four calendar months prior to the interview month.

Table A1 summarizes the reference period corresponding to the linked SIPP-MSIS data used in this analysis. Here we illustrate how SIPP waves, rotation groups, interview months, reference months and calendar months relate. For this work we combine SIPP data from waves 4 and 7, which were administered one year apart. This is the most recent data available that we are able to link with the administrative MSIS files. Wave 4 rotation group 1 interviews were administered in September of 2009, and the reference period for monthly data (e.g., income) correspond to May, June, July and August, in turn. Similarly, the wave 4, rotation group 2 monthly reference periods spanned June through September. In short, the reference period for survey respondents do not correspond to the same calendar months, and the combined sample of reference period months (or person-month observations) spans mid-to-late 2009 and 2010. Statistics presented in this report are therefore best interpreted as averages over this time period.

### MSP Eligibility Rules

The majority of states follow federal standards for determining MSP eligibility. The federal income eligibility threshold for the QMB program is 100 percent of the Federal Poverty Level, the SLMB income eligibility threshold equals 120 percent of the FPL, and QI eligibility equals 135 percent of the FPL. Table A2 summarizes these thresholds in terms of monthly income for all three programs during 2009 and 2010. Income not counted towards the eligibility threshold (disregarded) include the first \$65 of monthly wage income, 50 percent of the remaining wage income, and \$20 per month for all types of income (wage and non-wage income). The federal asset threshold in 2009 was \$4,000 for an individual or \$6,000 for couples, which increased in 2010 to \$6,600 for an individual or \$9,910 for a couple. The value of one automobile and respondents’ primary home are excluded from countable assets.

Table A3 summarizes the income and asset limits among the 10 states with more generous eligibility rules during 2009 and 2010. Note that the District of Columbia, whose program was most generous with no asset tests and income eligible up to 300 percent of the FPL, effectively only had a QMB program, and that Connecticut’s rules changed between 2009 and 2010.

### Supplemental Tables

Table A4 reports regression-adjusted participation rates by state, which are presented in Figure 1 of the main text.

Table A5 reports results from regression models that predict MSP enrollment among QMB, SLMB and QI eligibles with Medicaid.

**Table A1** Survey of Income and Program Participation (SIPP) reference periods, 2008 Panel waves 4 and 7

Month-year	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	...	May-10	Jun-10	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10
Wave & rotation group	Wave 4									Wave 7							
Rotation group 1	R	R	R	R	I					R	R	R	R	I			
Rotation group 2		R	R	R	R	I					R	R	R	R	I		
Rotation group 3			R	R	R	R	I					R	R	R	R	I	
Rotation group 4				R	R	R	R	I					R	R	R	R	I
I = interview month																	
R = reference month																	

**Table A2** Federal monthly income for MSP eligibility, 2009 and 2010

	Monthly Income Thresholds		
	48 Contiguous States and DC	Alaska	Hawaii
Reference year 2009			
QMB (up to 100% FPL)			
One person	\$902.50	\$1,127.50	\$1,038.33
Couple	\$1,214.17	\$1,517.50	\$1,396.67
SLMB (100% to 120% FPL)			
One person	\$1,083.00	\$1,353.00	\$1,246.00
Couple	\$1,457.00	\$1,821.00	\$1,676.00
QI (120% to 135% FPL)			
One person	\$1,218.38	\$1,522.13	\$1,401.75
Couple	\$1,639.13	\$2,048.63	\$1,885.50

Notes: There was no change in the poverty guidelines between 2009 and 2010.

Source: Health and Human Services, Assistant Secretary for Planning and Evaluation

**Table A3** MSP income and asset limits for states with more generous requirements, 2009 and 2010

	2009						2010					
	QMB		SLMB		QI		QMB		SLMB		QI	
	Income % FPL	Assets	Income % FPL	Assets	Income % FPL	Assets	Income % FPL	Assets	Income % FPL	Assets	Income % FPL	Assets
Alabama	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0
Arizona	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0
Connecticut	Fed Std	Fed Std	Fed Std	Fed Std	Fed Std	Fed Std	197%	0	217%	0	232%	0
Delaware	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0
DC	300%	0	300%	0	N/A	N/A	300%	0	300%	0	N/A	N/A
Maine	150%	0	170%	0	185%	0	150%	0	170%	0	185%	0
Mississippi	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0
Minnesota	Fed Std	\$10k/\$18k	Fed Std	\$10k/\$18k	Fed Std	\$10k/\$18k	Fed Std	\$10k/\$18k	Fed Std	\$10k/\$18k	Fed Std	\$10k/\$18k
New York	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0
Vermont	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0	Fed Std	0

Fed Std = Federal Standard; N/A = Not Applicable

**Table A4** Regression-adjusted enrollment rates for the QMB and SLMB programs combined, by state

	Regression- adjusted enrollment rate Mean = 0.511	SE
Alabama	0.515 **	0.030
Alaska	X	X
Arizona	0.453 **	0.054
Arkansas	0.498 **	0.069
California	0.665 **	0.017
Colorado	0.391 **	0.079
Connecticut	0.465 **	0.036
Delaware	X	X
District of Columbia	0.368 **	0.037
Florida	0.576 **	0.036
Georgia	0.254 **	0.068
Hawaii	0.429 **	0.049
Idaho	0.691 **	0.181
Illinois	0.393 **	0.062
Indiana	0.475 **	0.047
Iowa	X	X
Kansas	0.525 **	0.083
Kentucky	0.457 **	0.091
Louisiana	0.554 **	0.036
Maine	0.781 **	0.022
Maryland	0.379 **	0.046
Massachusetts	0.520 **	0.058
Michigan	0.595 **	0.058
Minnesota	0.570 **	0.036
Mississippi	0.449 **	0.062
Missouri	0.417 **	0.020
Montana	X	X
Nebraska	0.269 **	0.079
Nevada	0.390 **	0.121
New Hampshire	--	--
New Jersey	0.442 **	0.038
New Mexico	0.707 **	0.091
New York	0.378 **	0.033
North Carolina	0.562 **	0.041
North Dakota	X	X
Ohio	0.443 **	0.044
Oklahoma	0.474 **	0.042
Oregon	0.544 **	0.132
Pennsylvania	0.510 **	0.050
Rhode Island	0.612 **	0.070
South Carolina	0.534 **	0.074
South Dakota	X	X
Tennessee	0.450 **	0.053
Texas	0.555 **	0.036
Utah	X	X
Vermont	X	X
Virginia	0.476 **	0.063
Washington	0.638 **	0.069
West Virginia	0.293 **	0.069
Wisconsin	0.594 **	0.028
Wyoming	--	--

\*\* , \* , + indicates statistical significance at the 0.01, 0.05, 0.10 level, respectively. The null hypothesis is that a given statistic is equal to zero.

QMB = Qualified Medicare Beneficiary; SLMB = Specified Low-Income Beneficiary; QI = Qualifying Individual; SE = Standard Error

-- indicates not applicable; X indicates that the cell is too small and has been suppressed

Notes: Regression-adjusted MSP enrollment rates (proportion of MSP eligibles enrolled) are based on coefficient estimates from a logit model (not reported) and observable characteristics of the entire sample. E.g., the regression-adjusted participation rate in Alabama, for QMB and SLMB eligibles combined, was 51.5 percent. Qualified Disabled Working Individual (QDWI) eligibles are excluded as the program is too small to study with survey data. See the Data and Methods section for more details of the survey data, criteria applied to determine MSP eligibility and regression model specifications.

Source: Authors' calculations using the 2008 SIPP panel, combined monthly responses from waves 4 and 7 administered in mid-to-late 2009 and 2010, linked with the Medicaid Statistical Information System (MSIS) by calendar year and month for each respondent, executed at the U.S. Census Bureau, Research Data Center.

**Table A5** Average marginal effects (AME) from regression models predicting Medicare Savings Program (MSP) enrollment among eligibles with Medicaid coverage

	Dependent Variable: Enrolled in QMB, SLMB or QI program	
	AME	SE
QMB Eligible	0.197 **	0.024
SLMB Eligible (reference group)	--	--
QI Eligible	-0.193 **	0.035
<b>Demographics</b>		
Age 18-64	-0.095 **	0.024
Age 65+ (reference group)	--	--
White, non-Hispanic (reference group)	--	--
Black, non-Hispanic	-0.034	0.022
Other, non-Hispanic	0.025	0.026
Hispanic	0.049 **	0.019
Male (reference group)	--	--
Female	-0.026 +	0.015
Not married (reference group)	--	--
Married	0.001	0.020
Less than High School (reference group)	--	--
High School graduate & less than college degree	0.050 **	0.015
College graduate	0.066 **	0.025
<b>Household Composition</b>		
No children less than 18 years old in household (reference group)	--	--
One or more children less than 18 years old in household	-0.019	0.016
One adult age 18 or over in household (reference group)	--	--
Two or more adults age 18 and over in household	-0.010	0.016
<b>Family Income</b>		
Family income (FPL) below median (reference group)	--	--
Family income (FPL) at or above median	0.033 *	0.014
<b>Gov't Program Participation</b>		
SSI	0.024	0.015
SNAP	0.033 *	0.013
<b>Health Insurance</b>		
Private health insurance coverage	-0.024	0.022
<b>Medicaid Characteristics</b>		
Medicaid (any) (reference group)	--	--
Full-benefit Medicaid	-0.260 **	0.014
Medicaid - managed care plan	-0.098 **	0.023
Medicaid - disability basis of eligibility	0.032	0.022
Medicaid - medically needy maintenance assistance status	-0.145 **	0.039
<b>Health Status</b>		
No ADL/IADL (reference group)	--	--
ADL/IADL	-0.006	0.012
Self reported health: Excellent or very good (reference group)	--	--
Self reported health: Good	0.033	0.021
Self reported health: Fair or poor	0.036 +	0.020
<b>Survey Year</b>		
2009 SIPP (reference group)	--	--
2010 SIPP	0.020 *	0.008
Sample Size (person-month observations)	13,000	
Subpopulation Size (average monthly eligible population estimate, 1/1,000)	4,860	

\*\* , \* , + indicates statistical significance at the 0.01, 0.05, 0.10 level, respectively. The null hypothesis is that a given AME is equal to zero.

QMB = Qualified Medicare Beneficiary; SLMB = Specified Low-Income Beneficiary; QI = Qualifying Individual; SE = Standard Error

-- indicates not applicable; X indicates that the cell is too small and has been suppressed

Notes: Column "AME" reports the estimated average percentage point difference in MSP enrollment corresponding to a given characteristic (row) with respect to a stated reference group, which are Average Marginal Effects based on the coefficient estimates from a logit model (not reported) and observable sample characteristics. E.g., column (1), row "Age 18-64", reports that among those eligible for either the QMB or SLMB program with Medicaid benefits, respondents age 18-64 were 9.5 percentage points less likely to enroll compared with individuals age 65 and older (significant at the 1-percent level). Qualified Disabled Working Individual (QDWI) eligibles are excluded as the program to too small to study with survey data. See the Data and Methods section for more details of the survey data, criteria applied to determine MSP eligibility and regression

Source: Authors' calculations using the 2008 SIPP panel, combined monthly responses from waves 4 and 7 administered in mid-to-late 2009 and 2010, linked with the Medicaid Statistical Information System (MSIS) by calendar year and month for each respondent, executed at the U.S. Census Bureau, Research Data Center.