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# Feasibility of a Single-Payer Health Plan Model for the State of Maine

***Final Report***

***December 24, 2002***

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The Maine Health Management Coalition, the Maine Health Information Center, and other organizations and individuals contributing data and information for this study do not necessarily endorse the study's findings and conclusions, including those presented in this report. Any remaining errors and omissions are solely the responsibility of Mathematica Policy Research, Inc.

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# EXECUTIVE SUMMARY

The Health Care System and Health Security Board was established by the Maine legislature to study the feasibility of a single-payer health insurance plan that would provide coverage to all Maine citizens and guarantee a minimum savings of 5 percent relative to existing health care costs. To assist the Board in this effort, Mathematica Policy Research, Inc. (MPR), has developed an interactive policy microsimulation model to project the cost, financing, and economic impact of alternative specifications of a single-payer health insurance plan in Maine.

The Maine Microsimulation Model includes four interrelated components: (1) a population module that estimates the size and composition of Maine's population by age group, health insurance coverage categories, and other demographic characteristics in 2004 and 2008; (2) a cost module that estimates health care spending levels under current policy (base case) and under various single-payer health plan designs; (3) a financing module that simulates alternative ways of raising the revenue needed to fund health care expenditures under a single-payer health plan; and (4) an economic impact module that projects how a single-payer plan may affect health care providers, insurers, and Maine's economic and employment bases at large. The model relies primarily on data and parameters derived from existing Maine-specific information sources, supplemented with information from the published literature and from the informed judgments of the Board and other experts and relevant officials in Maine.

Estimates from the model indicate that, under current policy, health care spending in Maine will continue on a path of steady increase—rising by 37 percent between 2001-04 and by 31 percent between 2004-08. The model projects that a single-payer health system would produce a net increase in total health care spending under most benefit designs that we estimated, but this increase in spending would decline over time as the system realized savings through global budgeting, reductions in administrative costs, and enhanced access to primary and preventive care. Of the single-payer benefit designs that we estimated, some that include consumer cost-sharing would produce net savings in health care spending (relative to projected levels without reform) by 2008.

To finance the costs of a single-payer system, Maine would need to retain the value of private employer contributions to health insurance that now occur; ensure federal and state maintenance of effort for public employees, program beneficiaries, and direct purchase of

health care services; and, for most of the single-payer benefit designs we estimated, tap additional revenue sources.

By reducing administrative spending and increasing overall demand for health care, a single payer system would generate some change in employment in Maine. Single payer plan designs that generate a relatively small increase in the demand for health care services would produce a small net loss in health-sector employment. However, a single payer plan would improve health sector productivity by redistributing jobs from administrative to clinical positions.

Sensitivity analyses demonstrate that projections of single-payer spending and net cost vary within narrow ranges under alternative assumptions about the system's ability to reduce administrative costs and constrain underlying health care cost trends. Thus, error in assumptions appears to produce a tolerable range of uncertainty about the future cost and financing requirements of a single payer system in Maine.

In summary, a single payer system appears to be economically feasible for Maine. Much lower cost sharing and more limited use of managed care than now prevail among insured consumers in Maine would increase the cost of a single payer system and make financing more difficult. However, providing every resident with approximately the same benefit as large-firm employees receive would minimize demand growth among the insured population and achieve net savings from a single payer system, even in the near term.

The challenges of transitioning to a single payer system in Maine should not be overlooked. Maine might benefit from some additional information in key areas to plan such a transition. These would include a better understanding of insurers' and providers' administrative costs to improve estimates of potential cost savings; access to care in Maine and the relationship to economic productivity; and the need for workforce training associated with greater demand for health care services and displacement of administrative workers.

# CHAPTER I

# INTRODUCTION

The Maine legislature established the Health Care System and Health Security Board (the Board) to study the feasibility of a single-payer health insurance plan that would provide coverage to all Maine citizens and guarantee a minimum savings of 5 percent relative to existing health care costs. To assist the Board in this effort, Mathematica Policy Research, Inc. (MPR), has developed an interactive policy microsimulation model to project the cost, financing, and economic impact of alternative specifications of a single-payer health insurance plan in Maine.

The Maine Microsimulation Model includes four interrelated modules: (1) a population module that projects the distribution of Maine's population among demographic and health insurance coverage categories in 2004 and 2008; (2) a cost module that projects health care spending by source and service category, including both spending for medical services and administrative costs; (3) a financing module that projects levels of revenue obtainable from current sources and other sources available to the state for funding health care expenditures; and (4) an economic impact module that projects how a single-payer plan may affect health care providers, insurers, and Maine's economic and employment bases at large.

The Maine Microsimulation Model relies primarily on data and parameters derived from existing sources, including health care claims databases maintained by the Maine Health Information Center for the Maine Health Management Coalition and the Maine Bureau of Medical Services, as well as information from published health services research literature and studies available from Maine state agencies and health care organizations. In developing the cost module, MPR worked with Watson Wyatt and Company, an international employee benefits consulting firm. Actuarial projections of the cost of alternative health benefit designs are based on Watson Wyatt's PreView™ Medical Benefits Model (see Figure I.1). MPR also consulted with the Board and with other experts and relevant officials in Maine to develop the benefit design assumptions, parameters, and data that drive the model's results. The model produces base-case (no reform) and simulation (reform) results for 2004 and for a five-year projection period extending to 2008.

**Figure I.1. Watson Wyatt's PreView Medical Benefits Model**

PreView is a comprehensive health benefit microsimulation model that has been developed over the past 14 years to facilitate the estimation of health care expenditures in employer-sponsored health plans. It has also been used to estimate the plan expense and out-of-pocket costs associated with various health care reform proposals for both the pre-65 and post-65 populations. PreView allows the health benefit consultants to "repay" medical claims under alternative plan designs, population assumptions, utilization levels, and charge levels. It is a well established valuation model that has been widely used with many public and private clients.

This report describes the model's current architecture and assumptions and, based on model outcomes, presents estimates of the cost and economic impact of single-payer reform. Chapter II provides an overview of the single-payer health insurance system under study by the Health Security Board, including major eligibility assumptions and the alternative benefit designs examined in the report. In Chapter III, we describe the design and methodology of the Maine Microsimulation Model, including data and parameter sources, major assumptions, and methods used to estimate costs and economic impact. Chapter IV presents the health care cost, financing and economic impact projections generated by the model, including base-case and single-payer estimates for each alternative benefit design. To understand how the model's estimates of cost and economic impact are affected by alternative assumptions about health care cost trends, single-payer cost savings, and economic growth in Maine, Chapter V outlines findings from sensitivity analyses conducted on several major model parameters. Finally, in Chapter VI, we consider transitional strategies for implementing a single-payer health plan, taking into account the estimated costs and financing needs associated with each alternative benefit design.

# CHAPTER II

# OVERVIEW OF THE SINGLE-PAYER PLAN

A single-payer health insurance system would provide health coverage to all Maine residents under a single standardized health plan. The new system would be administered and funded by the state and would replace all current public and private health insurance, including Medicare, Medicaid, CHAMPUS, the Federal Employees Health Benefits Plan (FEHBP), the State Employee Health Plan, and all employer- and individually sponsored health insurance. Financing for the single-payer system would come from new tax revenues and from current state and federal funding of health programs that would be subsumed into the system. The system would eliminate health insurance premiums paid by employers, employees, and other individuals.

The single-payer benefits design is modeled on the benefits provided by MaineCare, the state's Medicaid program. The plan would cover inpatient and outpatient hospital care, primary and specialty care physician services, laboratory tests, prescription drugs, mental health services, home health services, and routine vision and dental care. Long-term care services would be provided to persons eligible for these services under current MaineCare policy. The plan would limit out-of-pocket health care costs.

We use the Maine Microsimulation Model to study the costs and economic impacts of three alternative benefit designs for a single-payer plan (see Table II.1). Each benefit design covers the same comprehensive set of health care services and varies only in the amount and type of cost sharing required of plan members. The first benefit design is modeled on the benefits currently provided by MaineCare with little or no cost sharing for broad coverage of health care services. The second and third benefit designs involve either copayments or coinsurance for families and individuals whose incomes exceed a specified percentage of the federal poverty level (FPL). We test three alternative poverty thresholds within each of these latter two alternative benefit designs to create a total of seven different scenarios for the benefit design of a single-payer health plan. Table II.2 documents the covered services and detailed cost sharing provisions of these single-payer plan designs.

**Table II.1. Required Cost Sharing by Family Income in Alternative Single-Payer Plans**

| Single-Payer Plan | Family Income Relative to Poverty | Level of Benefits |
|---|---|---|
| 1 | All levels | MaineCare Benefit |
| 2A | < 200 % FPL | MaineCare benefit |
| | ≥ 200 % FPL | Broad coverage with copayments |
| 2B | < 300 % FPL | MaineCare benefit |
| | ≥ 300 % FPL | Broad coverage with copayments |
| 2C | < 400 % FPL | MaineCare benefit |
| | ≥ 400 % FPL | Broad coverage with copayments |
| 3A | < 200 % FPL | MaineCare benefit |
| | ≥ 200 % FPL | Broad coverage with coinsurance |
| 3B | < 300 % FPL | MaineCare benefit |
| | ≥ 300 % FPL | Broad coverage with coinsurance |
| 3C | < 400 % FPL | MaineCare benefit |
| | ≥ 400 % FPL | Broad coverage with coinsurance |

**Table II.2. Benefit Designs, Cost Sharing, and Limits on Out-of-pocket Expense in Alternative Single-Payer Plans**

| Plan-Level Features | Plan 1<br>MaineCare Benefit | Plan 2<br>Copayment Plan | Plan 3<br>Coinsurance Plan |
|---|---|---|---|
| Income Level Subject to Cost Sharing | None | 200%; 300%;<br>or 400% FPL | 200%; 300%;<br>or 400% FPL |
| Out-of-Pocket Maximums<br>Individual<br>Family | None | $500<br>$1,000 | $1,000<br>$2,000 |
| Deductibles | None | None | None |
| Life-Time Maximum | None | None | None |
| Hospital Inpatient | $0–$3 per day; $30 maximum per month | $50 per day; $300 maximum per admission | $50 per day; $300 maximum per admission |
| Hospital Outpatient/Diagnostic, X-Ray, Laboratory | $0–$3 per day; $30 maximum per month | $25 copayment | 20% coinsurance |
| Primary Care Provider Visits | Covered in full | $10 copayment | $10 copayment |
| Specialty Care Provider Visits | Covered in full | $20 copayment | $20 copayment |
| Emergency Room | Covered in full | $50 copayment;<br>waived if admitted | $50 copayment;<br>waived if admitted |
| Mental Health/Substance Abuse Benefits | Covered in full | Parity | Parity |
| Prescription Drugs<br>Copayment--Generic<br>Copayment--Brand/Preferred<br>Copayment--Brand/Nonpreferred | <br>$0–$2<br>$0–$3<br>$0–$3 | <br>$5<br>$13<br>$28 | <br>$10<br>$20<br>$35 |
| Skilled Nursing | Covered in full | $25 per day; $150 maximum per admission | $25 per day; $150 maximum per admission |
| Home Health Care | Covered in full | $10 copayment | $10 copayment |
| Durable Medical Equipment | Covered in full | Covered in full | 20% coinsurance |
| Eyeglasses | $100 cap every 2 years | $100 cap every 2 years | 25% coinsurance;<br>$100 cap every 2 years |
| Included Benefits (not subject to cost sharing) | Preventive/wellness care, nutritional counseling, smoking cessation, wellness education, cardiac rehabilitation, routine dental care, routine vision care | Preventive/wellness care, nutritional counseling, smoking cessation, wellness education, cardiac rehabilitation, routine dental care, routine vision care | Preventive/wellness care, nutritional counseling, smoking cessation, wellness education, cardiac rehabilitation, routine dental care, routine vision care |
| Excluded Benefits | Cosmetic, infertility/sex change, routine foot care, custodial care, vision correction surgery (LASIK) | Cosmetic, infertility/sex change, routine foot care, custodial care, vision correction surgery (LASIK) | Cosmetic, infertility/sex change, routine foot care, custodial care, vision correction surgery (LASIK) |

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# CHAPTER III

# DESCRIPTION OF THE MAINE MICROSIMULATION MODEL

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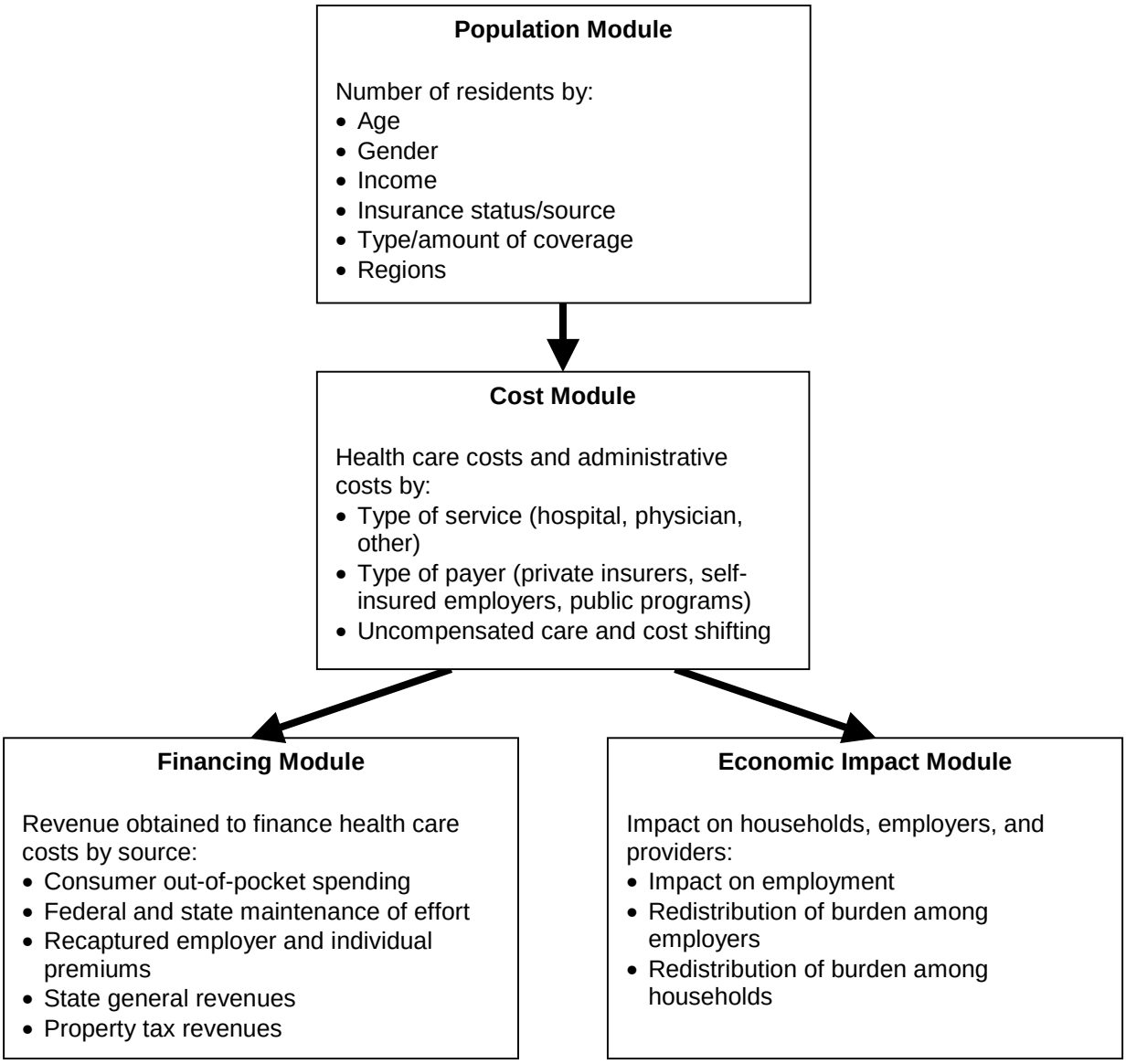
The Maine Microsimulation Model includes four interrelated modules: (1) a population module that projects the demographic and health insurance coverage characteristics of Maine's population to 2004 and 2008; (2) a cost module that projects health care spending by source and service category, including both spending for medical and administrative costs; (3) a financing module that projects levels of revenue obtainable from current sources and other sources available to the state for funding health care expenditures; and (4) an economic impact module that projects how a single-payer plan may affect health care providers, insurers, and Maine's economic and employment bases at large. The general design of the model is presented graphically in Figure III.1. In essence, the model links detailed population and per capita cost information, and then allows the user both to explore alternative methods of financing the plan and also provides estimates of job loss, premium relief for large and small employers, and changes in out-of-pocket cost for families by level of income. The following sections describe each of the model's component parts and the sources of data and major assumptions underpinning each module.

## A. POPULATION MODULE

### 1. Input Data

The primary input data come from the March 2002 Current Population Survey (CPS) of the non-institutionalized population. The CPS is a household survey that captures information about the household, each family in the household, and each person in the family; person-level records can be matched to other persons in the family as well as to family- and household-level characteristics. Compared to all other available household surveys, the CPS samples the largest number of households in Maine and, therefore, offers

**Figure III.1. Information Flow Diagram for the Maine Microsimulation Model**



the most precise estimates of household and family composition, economic characteristics, and insurance coverage.[1]

Each March, the Census fields a supplement to the CPS that includes detailed questions about income, employment, and health insurance. Respondents answer questions about insurance coverage during the previous calendar year (2001) and may respond that they received coverage from an employer, a privately purchased plan, Medicare, Medicaid or the State Children's Health Insurance Program (SCHIP), Civilian Health and Medical Program of the Uniformed Service (CHAMPUS), or any other health insurance plan. The supplement to the CPS identifies as uninsured only those individuals who state that they were without coverage from any of these sources during the entire previous year.[2]

To assemble the input data, we started with the full U.S. population sample and concatenated family and household records with each person-level record. We identified each person as Medicare-covered or not, identified other potential sources of insurance coverage, and then assigned each person to a unique source of coverage (alone or in combination with Medicare) in the following sequence:

- Employer coverage from own employer
- Employer coverage only as a dependent
- Individual coverage from own plan
- Individual coverage only as a dependent
- CHAMPUS
- Medicaid

Persons who reported only Medicare coverage but no other coverage were identified as having only Medicare coverage. Those who reported neither Medicare nor any other source

[1] In 2003, we will replace the CPS distributions in the population module with data from November/December 2002 Household Survey conducted in support of Maine's State Health Planning Grant.

[2] Because the CPS does not allow the user to differentiate between part-year and full-year coverage, it produces an undercount of individuals who are uninsured at some time during the year. Historically, The CPS count of uninsured is much like available panel survey counts of ever-uninsured individuals, suggesting that the CPS recall period may be less than 15 months. That is, the CPS appears to produce an estimate of the uninsured that is higher than an estimate of always-uninsured, but somewhat less than an estimate of ever-uninsured.

of coverage were identified as uninsured. This process of identification produced 14 unique insurance coverage categories.

For each person, we identified an insurance reference person (IRP). Persons who had coverage from their own employer or their own individual insurance plan were identified as their own IRP, as were persons with coverage from Medicaid, SCHIP, CHAMPUS, or Medicare only. Persons who had employer or other private coverage only as a dependent were matched to their source of coverage via their record line identification in the CPS.

## 2. Adjustments to Enhance Maine's CPS Population Sample

While the March CPS 2002 sample in Maine produces valid estimates for selected population characteristics, its size is insufficient for a microsimulation model that requires 14 unique coverage categories as well as firm size (if employed or the dependent of an employed person) and family income information. To resolve this problem and gain precision, we employed a method that reweights the entire CPS sample, allowing Maine to "borrow" statistical strength from the much larger U.S. population (Schirm et al. 2000). We fitted a Poisson regression model to the national CPS sample to obtain the estimated prevalence in Maine of household types defined by the characteristics of families and individuals in Maine households. The Poisson model was specified to control for the prevalence in Maine of the following person- and family-level characteristics:

- Insurance coverage (14 categories, as described above)
- Age (in five intervals: 0–5; 6–18; 19–39; 40–64; and 65 or older)
- Race (White non–Hispanic, Hispanic, American Native/Asian, and other)
- Income as a percent of federal poverty (in four categories: 0–200 percent; 201–300 percent; 301–400 percent; and 401 percent and above)
- Household and family size

This process produced a "synthetic" sample of the Maine population. Unweighted, the sample size is equal to the size of the full U.S. sample. Weighted, the synthetic sample matches Maine totals and significant subtotals. The much larger sample produces the more precise estimates of the Maine population (within demographic, economic, and insurance coverage cells) that we require for the microsimulation.

We performed a number of integrity checks of the population (comparing significant subtotals as well as subtotals on variables that we did not control) to confirm that the synthetic sample is, within acceptable levels of error, an accurate representation of Maine's non-institutionalized population. The much larger sample supports the more precise estimates of the Maine population (within demographic, economic, and insurance coverage cells) that we require for the microsimulation.

We mapped the person-level output data from this process into the 14 coverage categories as described above. We further classified those with employer coverage from their own employer or as a dependent as having coverage from a large firm (100 or more employees) or a small firm (respectively, 25–99 employees or fewer than 25 employees) according to the firm size of their IRP's principal employer during the previous year (2001). We assigned persons with an employer-covered IRP who did not report employment during the previous year (for example, retirees or persons continuing coverage under the Consolidated Omnibus Budget Reconciliation Act, or COBRA) to firm sizes in the same proportion that persons were distributed by firm size when their IRP did report having an employer.

To classify IRPs as federal or state employees, we obtained counts of total federal employment in Maine from the U.S. Office of Personnel Management's Web site and counts of state employment from the state of Maine and calculated the percentage of employment in firms of 100 or more attributable to federal or state employment. We then randomly assigned persons with an IRP in the largest firm size to federal or state employment within demographic cells to produce the correct count of federal and state workers; we classified all other workers as private-sector or local-government employees.

We adjusted the estimates of the number of Maine residents with Medicaid (MaineCare) coverage to address the fact that Medicaid coverage is underreported in the CPS. The reweighted 2002 CPS sample for Maine indicates that MaineCare covered 133.3 thousand residents in 2001, compared to the Maine Bureau of Medical Services count of 190.8 thousand full-time equivalent persons with full MaineCare coverage in 2001. We assume that this discrepancy results in our having misclassified approximately 57.5 thousand MaineCare recipients as uninsured or as covered by Medicare only. To address this discrepancy, we raised the model's count of FTE Medicaid recipients to 190.8 thousand in 2001, reduced the model's count of the uninsured by 45.5 thousand, and reduced the model's count of individuals with Medicare coverage only by 12.0 thousand. As a result, the model's estimates of the uninsured population in Maine are lower than estimates from other published studies relying on CPS data alone.

We further allocated persons to underinsured status and to MaineCare eligibility as follows: We used data provided by Anthem Blue Cross and Blue Shield of Maine on enrollment in high-deductible (at least $2,500) health insurance products to develop an approximation of the proportion of members who are underinsured in each commercial market segment (large group, small group, and nongroup). We then used the proportions to allocate people within the CPS sample to underinsurance status based on their coverage type and IRP employer firm size. Similarly, we used estimates provided by the Maine Bureau of Medical Services on the number of people eligible but not enrolled in MaineCare to allocate individuals within the CPS sample to this eligibility category based on their classification as uninsured individuals below 200 percent of the federal poverty level.

Finally, we "aged" the 2002 non-institutionalized population to 2004 and 2008 by using age- and gender-specific growth rates for Maine as projected by the U.S. Census. By again reweighting the synthetic Maine sample to produce population totals equal to Census

projections, we produced new estimates of Maine's population by coverage status and poverty level. In effect, the population module's output assumes that all changes in coverage and family income between 2002 and 2004-2008 are solely attributable to changes in the age distribution and size of the population.

Table III.1 summarizes the major assumptions used in setting default values for each parameter in the population module.

### 3. Module Outputs

The population module projects the number of Maine residents in each of 38 unique coverage categories:

- Coverage from a small employer (1-24 or 25-99 employees), a large private employer (100+ employees), federal government, or state government; either directly or as a dependent (10 categories)
- Coverage from an individual plan, directly or as a dependent (2 categories)
- Employer-sponsored or individual private coverage (direct or as a dependent), but underinsured (6 categories)
- Any of the first 12 categories in combination with Medicare (12 categories)
- CHAMPUS
- MaineCare
- MaineCare-eligible, but not enrolled
- CHAMPUS, MaineCare, or MaineCare-eligible in combination with Medicare (3 categories)
- Medicare only
- Other uninsured

The module further classifies persons in each coverage category by whether the IRP is a worker or not (e.g., a retiree), family income (in 5 categories), age (in 4 categories), gender, and region of the state (6 categories, including county of residence unknown). Table III.2 documents these additional classifications. In all, the module exports unique population counts in 18,240 cells. This level of population detail supports relatively precise actuarial estimates of aggregate plan cost for each single-payer benefit design and also more accurate estimates of the plans' financing requirements. Because the CPS does not support substate estimates in Maine, we have in effect assigned the Maine sample randomly to regions within the state.

**Table III.1. Parameter Assumptions Used in the Population Module of the Maine Microsimulation Model**

| Parameter | Mean Value | Source |
|---|---|---|
| Annual population growth rate, by region 2001-04 | 0.4% | Colgan (2002) |
| Annual population growth rate, by region 2004-08 | 0.6% | Colgan (2002) |
| Percent of individuals with large employer coverage who receive coverage through: | | |
| Federal employer | 2.1% | Colgan (2002) |
| State Employee Health Plan | 4.0% | Bureau of Human Resources |
| Proportion of state population residing in each region: | | |
| Medicare beneficiaries | -- | CMS (2002) |
| Medicaid (MaineCare) beneficiaries | -- | Bureau of Medical Services |
| Federal employees | -- | Colgan (2002) |
| Other | -- | U.S. Census (2000) |
| Percent of commercially insured population that is enrolled in high-deductible health plans | | |
| Nongroup/individual market | 22.0% | Based on information provided by Anthem Blue Cross and Blue Shield of Maine |
| Small group market (2-99 members) | 11.0% | Based on information provided by Anthem Blue Cross and Blue Shield of Maine |
| Large group Market (100+ members) | 2.0% | Based on information provided by Anthem Blue Cross and Blue Shield of Maine |
| Percent of uninsured who are eligible for MaineCare | 12.0% | Based on information provided by the Bureau of Medical Services |

**Source: Mathematica Policy Research, Inc.**

**Table III.2. Demographic, Economic, and Regional Stratifications of the Maine Population**

| Characteristic | Stratification |
|---|---|
| Individual Age | 0–18 |
| | 19–39 |
| | 40–64 |
| | 65 or older |
| Family Income | Below 150% FPL |
| | 150–200% FPL |
| | 201–300% FPL |
| | 301–400% FPL |
| | 400% FPL or more |
| Geographic Area | Bangor (Penobscot County) |
| | Lewiston-Auburn (Androscoggin County) |
| | Portland Metropolitan Area (Cumberland County) |
| | Nonmetro North (Franklin, Somerset, Piscataquis, Aroostook, and Washington counties) |
| | Nonmetro South (Oxford, Hancock, Kennebec, Knox, Lincoln, Sagadahoc, Waldo, and York counties) |
| | Place of residence unknown |

Source: Mathematica Policy Research, Inc.

## B. COST MODULE

The cost module estimates per capita health care spending within each population cell under base-case assumptions that reflect Maine's current health policy environment and under the assumptions of a single-payer health plan. Below we describe the data and methods used to develop spending estimates under each set of assumptions.

### 1. Base-Case Estimates

#### a. Input Data

The model uses baseline health care cost data from several sources. To begin, we used claims data from the Maine Health Management Coalition to estimate baseline health care expenditures for individuals who obtain coverage from large employers. The Maine Health Information Center (MHIC) constructed measures of plan payments per member per month

as well as out-of-pocket payments by type of service (hospital, physician, pharmacy, and other services), age group, gender, dependent status, county, and year (1999 through 2001). We then aggregated the measures to develop separate measures for each of five regions as documented in Table III.2. Given that some of the claims incurred in 2001 were missing provider identification numbers and therefore could not be identified accurately by type of service, we chose to use data from year 2000 claims and extrapolate the data to 2001 by using the overall trend rate observed between 2000 and 2001.

We used enrollment and claims data from Maine's Medicaid and SCHIP programs (MaineCare and CubCare) maintained by the Maine Health Information Center to estimate baseline health care expenditures for individuals covered by these programs. We constructed estimates of program payments per member per month by type of service, age group, gender, and coverage type (full Medicaid coverage, limited Medicaid coverage, or state-only coverage), dual eligibility status for Medicare (yes or no), region, and year. We tracked Medicaid payments for nursing facilities, nonmedical institutions, Bureau of Mental Retardation waivers, and other long-term care services separately from payments for hospital, physician, pharmacy, and other services. Because approximately 4 percent of the Medicaid claims incurred in 2001 were missing from MHIC's data files, we used estimates from year 2000 claims data and trended them forward to 2001.

We used Maine-specific aggregate claims data from the Centers for Medicare and Medicaid Services (CMS) to construct baseline estimates of Medicare payments per member per month and out-of-pocket expenses by type of service for 2001. We used information from the Medicare Current Beneficiary Survey (MCBS) to estimate private health insurance payments for Medicare beneficiaries with employer-provided or individually purchased supplemental coverage. We also used the MCBS to estimate Medicare payments for individuals who are dually eligible for Medicaid and Medicare.

### b. Adjustments

To estimate costs for population groups not represented in the baseline data and to project costs for future years, the cost module applies a variety of adjustments to the baseline cost data. The adjustments are computed by multiplying the baseline cost data by a series of parameters developed from earlier studies and, where clear evidence is lacking, from informed judgments. These parameters include:

- ***Baseline per capita health care spending for individuals covered by small employers, privately purchased nongroup policies, the Federal Employee Health Benefits Program (FEHBP), CHAMPUS, or the Maine State Employee Health Plan.*** To estimate spending for each of these coverage groups, the model uses a set of "relativity" parameters that expresses per capita spending as a percentage of the baseline spending estimates for individuals covered by large employers in the Maine Health Management Coalition claims database. For this analysis, we assume that there are no differences in per capita health care charges among these coverage groups after accounting for age, gender, dependent status, and region. However, we assume that the proportion

of covered charges paid out-of-pocket varies directly with the payer administrative cost rate, as described below. Specifically, we assume that the higher administrative costs incurred in small group and nongroup health insurance policies are financed through higher out-of-pocket expenses for consumers. This assumption, combined with the administrative cost estimates detailed below, results in the assumption that out-of-pocket expenses account for 18 percent of total spending for individuals covered by large employers, 27 percent of spending for individuals covered by small employers, and 40 percent of spending for individuals covered by individual (nongroup) policies.

- ***Baseline health care spending for the uninsured.*** To develop spending estimates for the uninsured, we used the methodology employed in the Year 2000 Blue Ribbon Commission on Health Care's report on health care costs in Maine. First, we assumed that spending for the uninsured approximates 70% of the spending for fully insured individuals (Long and Marquis 1994). Second, we assumed that the uninsured pay approximately 40 of their incurred health care charges out of pocket, with the remaining 60 of charges covered by charity care and bad debt (Year 2000 Blue Ribbon Commission 2000; Young 1995). We applied these two parameters to the per capita spending estimates from the Maine Health Management Coalition claims data in order to calculate per capita estimates of spending for the uninsured, net of uncompensated care costs.

- ***Projected growth rates in per capita health care spending by type of service and by payer.*** We use one set of parameters to project growth between 2001 and 2004 and another set of parameters to project growth between 2004 and 2008. We assume that medical care spending for the privately insured and uninsured increases at an average annual rate of 13 percent between 2001 and 2004, based on a blend of national estimates from the Kaiser/HRET annual survey of employer health benefits (HRET 2002) and Maine-specific estimates from the Maine Health Management Coalition claims database for 1999-2001. For Medicare beneficiaries, we use an annual trend rate of 3.2 percent for medical care spending based on data from the Centers for Medicare and Medicaid Services (CMS 2002). For MaineCare beneficiaries, we assume an annual trend rate of 7 percent based on a blend of actual MaineCare spending estimates for 1999-2001 and on national estimates from the Kaiser/HRET survey (HRET 2002). We assume that prescription drug spending for all Mainers increases at an average annual rate of 14 percent during 2001-04, based on national estimates produced by the pharmacy benefits administrator MedCo (MedCo 2002). For the 2004-2008 period, we use spending projections produced by the Centers for Medicare and Medicaid Services (CMS) Office of the Chief Actuary (2002), which indicate an average annual growth rate in medical care spending of 5 percent and an increase in prescription drug spending of 7 percent. Consistent with CMS practice, we do not use separate trend estimates for Medicare and non-Medicare populations in the 2004-2008 period given the uncertainties in long-term projections of cost trends.

- ***Payer administrative costs as a percentage of total costs.*** We use separate parameters to approximate the administrative costs of private health insurance plans for large employers, small employers, and individuals and the administrative costs of Medicare and Medicaid. Estimates of private health insurance administrative costs were based on estimates from an analysis of underwriting practices of major insurers performed for the Congressional Research Service (1988). These estimates assume that administrative costs account for 12 percent of total health insurance costs for large groups of 100 or more employees, 22 percent of costs for groups of 2 to 99 employees, and 30 percent of costs for individual (nongroup) policies. These estimates are somewhat higher than the 13 percent administrative cost rate estimated by the Maine Bureau of Insurance based on financial statements from fully insured HMOs in Maine in 2001 (Bureau of Insurance 2002); however, we use the CRS estimates because they are based on actual insurer administrative practices and therefore are less sensitive to underlying medical cost trends and insurance underwriting cycles. Estimates of Medicare and Medicaid administrative costs were based on information reported by CMS (2002), including a 2.1 percent administrative cost rate for Medicare and a 6.4 percent administrative cost rate for Medicaid (combined federal and state rate).

### c. Output

The cost module produces estimates of health plan payments and out-of-pocket costs in 2004 and 2008 for persons in each of the population cells that it imports from the population module. For each population cell it computes costs in each of four service categories: hospital care, medical provider services, prescription drugs, and other medical services and equipment. It retains estimates of the cost of MaineCare services for institutional care and other long-term care, which cannot be linked to the population module's tally of the non-institutionalized population.

## 2. Single-Payer Estimates

To estimate the costs of different health benefit designs that may be offered through a single-payer health plan, we use the Preview™ benefits simulation model developed by Watson Wyatt and Company. As inputs to the model, we use the Maine-specific baseline per capita spending estimates for individuals covered by employer-provided insurance, individually purchased insurance, Medicare, and Medicaid. PreView™ then estimates the per capita plan payments and out-of-pocket spending associated with a specified benefit design. We used PreView™ to develop per capita cost estimates for the three different benefit designs: Maine's current Medicaid benefit design and two alternative designs that involve higher cost sharing. To simulate the costs and cost savings associated with a single-payer health plan, the cost module applies several adjustments to the estimates obtained from the PreView™ model. The adjustments are computed by multiplying the PreView™ cost estimates by a series of parameters developed from earlier studies and informed judgments. We later vary the most critical of these (in terms of their impact on estimated

cost) to gauge how sensitive the model's cost, financing and economic results are to the accuracy of the parameter.

The model's key parameters include:

- ***Single-payer administrative costs.*** This parameter specifies the costs of administering a single-payer system. Such a system would centralize the processing of claims and decrease or eliminate costs related to activities such as billing and the adjudication of claims. It would increase economies of scale by covering all Maine citizens under a single program and eliminating the complexities associated with the participation of multiple insurers with multiple benefit designs. We expect the single-payer administrative costs to be less than those incurred by private health insurers under current policy. For this analysis we set the single-payer administrative cost rate at 5.0 percent—a rate that is somewhat below the 6.4 percent rate incurred by Maine's Medicaid program under the assumption that the single-payer plan will have fewer administrative processes to perform concerning eligibility determination and outreach. This rate is considerably higher than the estimate used in some other single-payer simulations—such as the 1.4 percent estimate used in the Lewin Group's study of a single-payer system in Massachusetts (Sheils et al. 1998). However, we feel it is more realistic to assume a rate that is relatively close to the current Medicaid rate during the initial years of a single-payer system, especially given the assumption that Maine would maintain its MaineCare primary care case management program as a cost containment and care coordination feature of the system. We test alternative assumptions about single-payer administrative cost savings as part of the sensitivity analyses.

- ***Changes in provider administrative costs.*** Provider administrative costs include all labor and overhead expenses associated with tasks that are not directly related to patient care, such as billing and accounting. Under a single-payer plan, these costs would decrease due to the standardization of all claims submission, payment, and utilization review processes. Hospital administrative costs are based on regional estimates obtained from an analysis of Medicare cost report data submitted by New England hospitals (Woolhander and Himmelstein 1997), while medical providers' administrative costs are based on national estimates from the American Medical Association's Socioeconomic Monitoring System physician survey (AMA 2002). We assume that a single-payer system reduces both by 15 percent due to movement to uniform processes for claims submission and benefits determination and to reductions in billing for uncompensated care. That is, net administrative cost are 28.4 percent for hospitals and 27.2 percent for medical providers. By comparison, simulations of single-payer health insurance systems in other states have assumed administrative cost savings of 14 percent for hospitals and 26 percent for medical providers (Sheils et al. 1998). We test alternative assumptions about cost changes due to provider administrative cost savings as part of the sensitivity analyses.

- ***Changes in managed care.*** These parameters indicate expected changes in health care spending as a result of eliminating commercial HMOs. We expect a rise in spending due to the increase in health care utilization among privately insured persons who currently have HMO coverage and who may not have managed care in the single payer system. In this analysis we assume that total spending increases by 10 percent for individuals enrolled in commercial HMOs at baseline. We base these parameters on both published and proprietary estimates of the effectiveness of HMOs in containing health care costs (Cutler, McClellan and Newhouse 2000; Mobley 1998; Zwanziger, Melnick and Bamezai 2000; Glied 2000). We assume that approximately 55 percent of Maine's population with commercial health insurance is currently enrolled in an HMO, based on data provided by Anthem Blue Cross and Blue Shield of Maine. Note that the model retains MaineCare's primary care case management (PCCM) program for 43 percent of persons who qualify for the MaineCare benefit design; this is the current rate of PCCM enrollment among MaineCare enrollees. We test alternative assumptions about cost changes due to managed care as part of the sensitivity analyses.

- ***Changes in uncompensated care.*** We presume that providers charge private insurance carriers higher prices to compensate for unpaid services delivered to uninsured patients. By covering all Maine residents, the single-payer plan would eliminate uncompensated care (charity care and bad debt) and end cost shifting. We assume that average per unit payments to providers would decline as providers are reimbursed for previously uncompensated care under a single-payer system. We use parameters to indicate the expected change in the pricing of hospital and medical provider services due to the elimination of uncompensated care. We base the hospital parameters on MedPAC estimates of hospital uncompensated care costs in New England, using data from the American Hospital Association's 2000 Survey of Hospitals (MedPAC 2001). Using the American Medical Association's 2000 Socioeconomic Monitoring System survey, we base the physician parameters on estimates of physicians' charity care provision in New England.

- ***Changes in demand for health services.*** The single-payer health plan designs modeled in this study would reduce out-of-pocket expenses for uninsured and underinsured individuals and thereby increase their utilization of health services to levels reported by insured persons with similar demographic characteristics. Similarly, we expect that utilization will increase among insured persons covered by the single-payer plan as compared with less generous coverage. For individuals who are uninsured in the base case, we assume that health care spending increases to 100 percent of the per capita spending estimate for insured individuals of the same age group. For individuals who are insured in the base case, we specify parameters to indicate the expected increase in health care utilization associated with a given reduction in out-of-pocket health care costs under the single-payer health plan. The parameters are based on demand elasticities estimated in the RAND health insurance experiment (Newhouse

1993) and in more recent studies conducted by CBO. These parameters assume that a 10% decrease in consumer out-of-pocket spending produces a 1.7% increase in overall health care utilization.

- ***Changes in avoidable health care utilization.*** By providing uninsured and underinsured individuals with enhanced financial access to routine primary care and preventive services, a single-payer health plan may reduce the need for care in more intensive settings such as hospitals and emergency rooms. We use parameters to approximate the net reduction in avoidable health care costs, basing them on estimates of ambulatory care-sensitive hospitalizations and emergency room utilization among uninsured and underinsured populations (Ayanian et al. 2000; Friedman and Basu 2001; Eisert and Babow 2002; Steiner et al. 2002).

- ***Changes in provider reimbursement.*** The establishment of a single-payer program allows the state to control annual health spending levels by setting hospital operating budgets and provider reimbursement levels. Hospitals and providers can use the budgets to create incentives for reducing unnecessary care utilization and delivering health care services efficiently. We use a set of parameters to project changes in underlying health care cost trends between 2004 and 2008 as a result of a single-payer health plan that uses a global budgeting system for all Maine health care spending. The parameters are based on the assumption that hospital costs are paid in accordance with a case rate methodology similar to Medicare's Diagnosis Related Grouping (DRG) system, in which rates are subject to an annual global budget cap for hospital services. Similarly, we assume that physicians are paid on a resource-indexed fee scale such as Medicare's Resource-Based Relative Value Scale (RBRVS) system, whereby fees are subject to a global budget cap for physician care. In this analysis we assume that a single-payer system produces a 5 percent reduction in the underlying health care cost trend rate between 2004 and 2008; we test alternative assumptions about the magnitude of trend reduction as part of the sensitivity analyses.

Table III.3 summarizes the major assumptions used in setting default values for each parameter in the cost module. These parameter values represent conservative but realistic assumptions, and are used to generate the base-case and single-payer cost projections described in Chapter IV.

## C. FINANCING MODULE

The financing module estimates revenues from alternative tax bases that could be used to fund a single-payer health plan. The module considers additional revenue that might be generated from existing sources, including assessments on personal and corporate income, personal and real property, and sales.

**Table III.3. Parameter Assumptions Used in the Cost Module of the Maine Microsimulation Model**

| Parameters | Mean Value | Source |
|---|---|---|
| Annual growth rate in per capita health care spending in base case, 2001-04 | | |
| Medical care spending for privately insured and uninsured | 13.0% | HRET (2001, 2002) |
| Medical care spending for Medicare beneficiaries | 3.2% | CMS (2002) |
| Medical care spending for Medicaid beneficiaries | 7.0% | Blend of actual MaineCare trends for 1999-2001 and HRET (2001,2002) |
| Prescription drug spending | 14.0% | Medco (2002) |
| Annual growth rate in per capita health care spending in base case, 2004-08 | | |
| Medical care | 5.0% | CMS (2002) |
| Prescription drugs | 7.0% | CMS (2002) |
| Payer administrative costs as a percentage of total costs: | | |
| Private insurer costs for large groups (≥ 100 members) | 12.0% | CRS (1988) |
| Private insurer costs for small groups (< 100 members) | 22.0% | CRS (1988) |
| Private insurer costs for individual (nongroup) policyholders | 30.0% | CRS (1988) |
| Medicare | 2.1% | CMS (2002) |
| Medicaid | 6.4% | CMS (2002) |
| CHAMPUS | 8.0% | CRS (1988) |
| Single-payer administrative cost rate | 5.0% | Benchmarked with Medicare and Medicaid cost rate |
| Hospital administrative cost rate in the base case | 33.4% | Woolhander and Himmelstein (1997); Sheils et al. (1998); Sheils and Haught (2000) |
| Percent reduction in administrative costs under single-payer plan | 15.0% | Judgment based on Woolhander and Himmelstein (1997); Sheils et al. (1998) |

Source: Mathematica Policy Research, Inc.

**Table III.3 (continued)**

| Parameters | Mean Value | Source |
|---|---|---|
| Physician administrative costs in the base case | 32.0% | AMA (2000); Sheils et al. (1998) |
| Percent reduction in administrative costs under single-payer plan | 15% | Judgment based on AMA (2000); Sheils et al. (1998) |
| Proportion of commercially insured population enrolled in HMOs in base case | 55% | Judgment based on Anthem Blue Cross and Blue Shield of Maine; Interstudy (2002); Bureau of Insurance (2002) |
| Change in per-capita health care costs due to a 10 percent increase in commercial HMO enrollment | -1.0% | Judgment based on Cutler, McClellan and Newhouse (2000); Mobley (1998); Zwanziger, Melnick and Bamezai (2000); Glied (2000) |
| Percent of MaineCare population enrolled in PCCM in base case | 43.0% | CMS (2002) |
| Percent of population below 200% FPL enrolled in PCCM in single-payer system | 43.0% | Based on MaineCare experience as reported by CMS |
| Change in per-capita health care costs due to a 10% increase in PCCM enrollment. | -1.0% | Judgment based on Cutler, McClellan and Newhouse (2000); Glied (2000); Hurley et al. (1991); Meyer et al. (1996); Rask et al. (1999) |
| Base case uncompensated care costs as a percent of total private payer costs | | |
| Hospitals | 10.0% | American Hospital Association 2000 Survey of Hospitals, New England estimate (MedPac 2001) |
| Physicians | 6.0% | American Medical Association 2000 Socioeconomic Monitoring System Survey, New England estimate (AMA 2002) |
| Percent reduction in uncompensated care costs under single-payer plan | | |
| Hospitals | 90.0% | Judgment based on care for individuals who are not Maine citizens |
| Physicians | 90.0% | |
| Health care utilization by uninsured as a percent of utilization by insured populations | 70.0% | Long and Marquis (1994) |
| Percent of health care spending on the uninsured paid out-of-pocket | 40.0% | Blue Ribbon Commission (2000); Young (1995) |

**Table III.3 (continued)**

| Parameters | Mean Value | Source |
|---|---|---|
| Percent change in hospital care spending for formerly under-insured and uninsured residents due to elimination of avoidable hospitalizations and emergency visits | -4.0% | Informed judgment based on Ayanian et al. (2000); Culler et al. (1998); Parchman and Culler (1999); Friedman and Basu (2001) |
| Percent change in ambulatory care spending for formerly under-insured and uninsured residents due to elimination of avoidable hospitalization and emergency visits | -2.0% | Informed judgment based on Friedmand and Basu (2001); Eisert and Gabow (2002); Steiner et al. (2002) |
| Percent increase in total health care spending due to 10% decrease in consumer out-of-pocket spending on health care | 1.7% | RAND Health Insurance Experiment (Newhouse 1993) and unpublished estimates from Congressional Budget Office |

Source: Mathematica Policy Research, Inc.

Because most of Maine's current private health insurance is employer-sponsored and therefore now financed as an offset to wages and salaries, the financing module also allows Maine to consider the equitable reallocation of some or all of the costs of a single-payer system back to wages and salaries via a tax on payroll (wages and salaries) and farm income.

## 1. Input Data

The financing module considers five major sources of financing for a single-payer system: (1) various general revenue tax bases; (2) real and personal property; (3) earnings; (4) public sector maintenance of effort; and (5) consumer out-of-pocket spending for health care. Each is described below.

### a. General Revenue Sources

The financing module incorporates information about Maine's current general revenues from the following 10 sources:

- Individual income tax
- Corporate income tax
- Sales and use taxes
- Motor fuel taxes
- Business taxes
- Succession taxes

- Real estate transfer tax
- Special industry taxes
- Cigarette and tobacco taxes
- Taxes on spirits, beer, and wine

We base revenues from these sources on the 2002 projected revenues obtained from the Maine Revenue Services. We project revenues from each source to 2004 and 2008 at the historical average annual growth in revenues from each source between 1997 and 2002. The module allows the user to adjust the assumption about projected growth and to increase revenues from each source (by one or more percentage points or a fraction of a percentage point) to produce additional revenues. It exempts amounts paid as a tax on payroll (discussed below) from additional taxation as personal income.

### b. Real and Personal Property

The module incorporates information about Maine's property values and the effective rate of taxation on property, obtained from the Web site of the Maine Revenue Service (http:// www.state.me.us/revenue/propertytax/homepage.html). The module contains assessed municipal property valuations (aggregated real and personal property) by county, projected to 2004 and 2008 by using the historical rate of growth reported between 2000 and 2001. Property in unorganized territories is valued at the state valuation and projected forward as an aggregate. Current effective tax rates by county and for unorganized territories are calculated as total revenues per total assessed valuation in 2001. To calculate net revenues from additional property taxation by county, the module allows the user to adjust effective tax rates and to revise assumptions about projected growth in property valuation.

### c. Earnings from Employment

The module incorporates payroll and farm income projections as of July 2002, obtained from the Maine Consensus Economic Forecasting Commission. Earnings per worker are calculated from the Commission's projections of total employment and total payroll and farm income to 2002 and 2004, and both employment and earnings per worker are projected to 2008 by the average annual rate of growth implicit in the Commission's short-term projections from 2002 to 2004. The module allows the user to adjust assumptions about projected earnings per worker (separately for payroll and farm income) and to estimate the revenues that might be obtained by imposing a tax on either or both.

We assume that the value of contributions that employers could have made to health insurance will be passed forward to workers as an increase in wages and salaries. The model automatically calculates private employer payments for health insurance as a percentage of payroll (public employer payments are retained separately as maintenance of effort, described below), and retains this value as the default rate of taxation on payroll to finance the single-

payer system. The default rate of taxation on farm income is set to zero, as we presume that all health insurance among farm workers is individually purchased.

### d. Public Sector Maintenance of Effort

The financing module assumes federal maintenance of effort for Medicare, MaineCare, CHAMPUS, and federal employees as well as current federal spending for direct health care services. It assumes that federal funding for Medicare, FEHBP, and CHAMPUS would continue as in the base case (without single-payer reform), in effect as if these programs made capitated payments for all Maine beneficiaries. Because this assumption has precedent elsewhere, we believe that it is the most likely scenario for federal maintenance of effort in Maine.[3]

Federal funding for MaineCare also would continue, and it would include additional matching funds associated with new enrollees who had been eligible but not enrolled. We estimate federal funding at current reimbursement rates only for current MaineCare enrollees. For persons who are newly enrolled in MaineCare, we assume providers are paid the same average rate as for all single-payer plan enrollees. In 2004, these standard rates are benchmarked to private insurer payment levels and then trended to 2008 using the same cost trends implicit in all of the model's cost estimates.

We assume that the federal matching rate remains at two thirds of MaineCare spending for medical services, and calculate state MaineCare financing as a residual (total minus federal matching). The financing module presumes state maintenance of effort only for base-case MaineCare enrollees; it seeks new funding for the state's cost of enrolling additional MaineCare beneficiaries through the single-payer system.

### e. Consumer Out-of-Pocket Expenditures for Health Care

Finally, the financing module incorporates the cost module's calculation of consumer out-of-pocket spending for health care. Given that variation in benefit design and in income thresholds for consumer cost sharing drives differences in plan cost as well as out-of-pocket spending, the financing module re-estimates financing for each benefit design and cost-sharing variant.

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[3] The United Mineworkers plan offers a precedent for this way of handling federal maintenance of effort. Specifically, Medicare uses capitated payments to fund Medicare beneficiaries enrolled in the United Mineworkers plan. While alternative forms of federal maintenance of effort might be feasible (such as coordination of benefits), modeling such alternatives would require precise information about how Maine might set payment rates or risk-adjust providers for specific segments of the Maine population enrolled in the single-payer plan.

Table III.4 documents the assumptions used in developing financing estimates from the Maine Microsimulation Module.

### 2. Module Outputs

The financing module produces base-case and single-payer estimates of the sources and levels of revenues available to finance health care spending in 2004 and 2008. It compares the revenues to estimates of health plan costs net of financing for each of the seven single-payer designs. At present, the model assumes no macroeconomic impact associated with increases or decreases in overall tax burden or the redistribution of tax burden associated with a single-payer health plan.

## D. ECONOMIC IMPACT MODULE

The economic impact module projects employment change in Maine by sector related to changes in health care financing. At this time, the economic impact module is fully integrated with the population and cost modules but is not integrated with the financing module. The independence of the financing and economic modules has implications for the findings of each. Some of these implications are discussed at the end of this section.

### 1. Input Data and Major Assumptions

We obtained projections of employment by industry (at the two-digit SIC level) from the Maine Consensus Economic Forecasting Commission. The data reflect Maine's consolidated economic forecast as of July 2002 and include employment projections through 2005. We estimated 2008 employment by extrapolating 2005 employment levels by the projected average annual rate of growth in each industry group between 2002 and 2005.

To develop estimates of employment in specific health-related sectors within major industry groups, we applied projected 2005 national ratios of sector employment per industry-wide employment to Maine's projected employment by industry (Pfleeger and Wallace 1994). Using the same ratio for both 2004 and 2008, we estimated baseline employment in nine sectors within four industries: construction; manufacturing; finance, insurance, and real estate; and services. The specific sectors for which we estimated employment are:

- Construction of health care facilities
- Manufacturing of medical instruments and supplies
- Manufacturing of pharmaceuticals
- Health insurance carriers and brokers, agents, and related insurance services
- Private hospitals

**Table III.4 Parameter Assumptions Used in the Financing Module of the Maine Microsimulation Model**

| Parameters | Mean Value | Source |
|---|---|---|
| Percent of insurance premium paid by employee | 16.5% | MEPS, Maine Subsample (AHRQ 2000) |
| Percent of adjusted gross income from wages and salaries among Maine-median income taxpayers | 81.3% | Internal Revenue Service (2001) |
| Percent of adjusted gross income in taxpaying households at Maine median income | 96.4% | Internal Revenue Service (2001) |
| Effective personal income tax rate per total adjusted gross income | 8.0% | Bureau of Revenue Services. |

Source: Mathematica Policy Research, Inc.

- State hospitals
- Offices of health practitioners
- Nursing and personal care facilities
- Other health services

We implicitly assumed that employment in each of these sectors grew at the same rate as employment in the industry. Moreover, we assumed that health insurance represents 20 percent of total employment in insurance companies as well as 20 percent of employment in insurance brokerages and agents.

Table III.5 documents the assumptions used in developing estimates of the economic impact of a single-payer system in Maine.

## 2. Sources of Employment Change

We estimated employment change attributable to three features of a single-payer system in Maine: (1) reduction in administrative costs; (2) increase in spending for medical care; and (3) management of increases in health care costs. Each of these sources is described briefly below.

**Table III.5. Parameter Assumptions Used in the Economic Impact Module of the Maine Microsimulation Model**

| Parameters | Mean Value | Source |
|---|---|---|
| Percent of employment in Finance, Insurance and Real Estate associated with insurance carriers | 19.9% | Pfleeger and Wallace (1994) |
| Percent of employment in Finance, Insurance and Real Estate associated with insurance agents and brokers | 11.4% | Pfleeger and Wallace (1994) |
| Percent of insurance employment associated with health insurance | 20.0% | Judgment based on distribution of total insurance premium revenues |
| Percent of private service employment associated with health care services | 26.4% | Pfleeger and Wallace (1994) |
| Percent of government employment associated with health care services | 5.9% | Pfleeger and Wallace (1994) |
| Percent of construction and manufacturing employment associated with health care services | 1.1 to 2.4% | Pfleeger and Wallace (1994) |
| Percent increase in employment associated with 10% increase in health care spending | 6.0% | Hammermesh (1986) |

Source: Mathematica Policy Research, Inc.

### a. Reduction in Administrative Costs

We assume administrative cost savings related to the sale and administration of insurance and to providers' billing activity. Specifically, we assume that the administrative cost percentage associated with insurance decreases from a weighted average of 10.3 percent to 5 percent—a rate somewhat below MaineCare's administrative cost ratio.[4] To reflect the administrative cost assumptions used in developing the model's cost estimates, we further assume that physicians and hospitals realize a 15 percent reduction in administrative costs as a consequence of administrative efficiency. Moreover, we assume that the revenue elasticity of employment in all sectors is 0.6. This rate is approximately the midpoint of the range reported in the literature (Hammermesh 1986), allowing for limited ability in the short-run to retrain administrative workers for other jobs at their current places of employment. We assume no change in the administrative costs of nursing or personal care facilities associated with a single-payer system.

[4] This rate of administrative cost is similar to that reported for Canada's national system, 6 percent in 2001 (Canadian Institute for Health Information 2001).

### b. New Spending for Health Care Services

A single-payer system generates increased consumption of health care services by covering individuals who were previously uninsured and making insurance coverage more comprehensive for those who were underinsured relative to the single-payer benefit design. To the extent that the single-payer benefit design is more comprehensive (reducing consumer cost sharing for covered services and extending coverage to services that before might not have been covered at all), it encourages greater consumption of health care services. The impact of new spending for health care services affects all sectors either directly (the production of health care services) or indirectly (the production of complementary goods and services, such as construction of new facilities, manufacture of medical goods and equipment, and the administration of health care). Again, we assume that the employment response to an increase in health care spending is inelastic (0.6) in all employment sectors directly affected by greater demand for health care services.

### c. Management of Growth of Health Care Costs

Finally, we consider the impact of constraining the growth in health care spending in Maine on employment throughout the state – that is, the multiplier effect of moderating the growth of health care costs. We adopt estimates produced by researchers at the U.S. Department of Labor who projected the long-range employment effects of slow versus rapid growth in health care spending (Pfleeger and Wallace 1994) and compute the employment change for Maine associated with slow health care cost growth between 2004 and 2008. We use the same adjustment factor in both years and for each of the seven alternative single-payer plan designs.

## 3. Module Outputs

The economic impact module projects total employment in the base-case and in the single-payer system, for each plan design in 2004 and 2008. It calculates separate estimates of employment change in selected health care-related industries based on net health care spending and administrative costs in the single-payer plan, as imported from the cost module.

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# CHAPTER IV

# MODEL RESULTS

Estimates from the Maine Microsimulation Model project how health care spending, financing, and economic activity are likely to change over time under current policy (the base case) and under several different single-payer health plan designs. The results indicate that, under current policy, health care spending in Maine will continue on a path of steady increase—rising by 37 percent between 2001-04 and by 31 percent between 2004-08. A variety of factors contribute to this cost trend, including continued growth in the volume and intensity of health care utilization, increases in the unit costs of health care due to new technology such as pharmaceuticals, and an aging Maine population. Implementation of a single-payer health system would increase health care spending at least in the short-term by expanding health insurance coverage to all formerly uninsured and under-insured populations and by enhancing the insurance benefits of many insured populations, including Medicare beneficiaries. At the same time, a single-payer system would also help to constrain growth in health care spending through reductions in administrative costs, elimination of uncompensated care cost-shifting, and constraints on underlying health care cost trends created by global budgeting and other payment policies.

The model projects that a single-payer health system would result in a net increase in total health care spending relative to the base case under most benefit designs, but this increase in spending declines over time. Some benefit designs that include consumer cost-sharing would produce a net savings in health care spending by 2008. In this chapter we present spending estimates for an array of different single-payer benefit designs, and examine the financing and economic impact estimates associated with each design. We begin by summarizing estimates of how population and insurance coverage characteristics change during the period of study, and then examine the cost, financing, and economic impact estimates under base case and single-payer assumptions.

## A. POPULATION PROJECTIONS

Table IV.1 summarizes the analysis of the population module output. In 2004, 62.8 percent of Maine's population is projected to have employer coverage. This proportion is projected to drop to 62.3 percent by 2008, reflecting the relatively faster growth of the

population over age 65. Maine's low-income population is projected to rise by 1 percentage point. However, MaineCare enrollment (based on current eligibility rules and the current percentage of the population that is eligible but not enrolled) is projected to remain at approximately 15 percent of the population. The uninsured population—with neither Medicare nor any other source of coverage—is projected to remain at 7.4 percent of the total population. For both 2004 and 2008, we estimate that 3.2 percent of the total population, while insured, is underinsured.

As Maine's population ages, Medicare will become a larger source of health coverage in the state. The Medicare-covered population is projected to rise to nearly 19 percent of the noninstitutionalized population in 2004 and to nearly 20 percent in 2008. Among the MaineCare population, the percentage with Medicare coverage also is projected to rise to 23.3 percent in 2004 and to 24.2 percent in 2008 (see Table IV.1). Similarly, a larger proportion of the employer-insured population is projected to constitute retirees with Medicare coverage, rising from 8.4 percent in 2004 to 9.3 percent in 2008.

Table IV.2 provides the same information for Medicare beneficiaries in Maine. In both 2004 and 2008, approximately 28 percent of the Medicare population is projected to have supplemental employer coverage with 25 percent expected to carry Medigap coverage. Approximately 25 percent of Medicare beneficiaries are projected to rely solely on Medicare.

## B. HEALTH CARE SPENDING ESTIMATES

Estimates from the Maine Microsimulation Model provide aggregate and per capita health care spending projections under base-case and single-payer assumptions for 2004 and 2008. The base-case projections assume that Maine's current health insurance and health care system remains in place through 2008. The single-payer projections assume that one of three alternative single-payer plan designs is fully implemented in 2004. For two of the three single-payer designs, we test several alternative cost-sharing requirements as described in Chapter III. All spending estimates are in nominal dollars not adjusted for inflation.

### 1. Health Care Spending Under Current Policy (Base-Case)

Under Maine's current system of health care financing, spending for health services in the state will reach an estimated $8.4 billion in 2004, an increase of 37 percent over spending in 2001 (the most recent year for which complete cost data in Maine are available). State and federal spending on MaineCare is projected to reach $2.2 billion in 2004 compared with projected Medicare spending of $1.9 billion and private health insurance spending of $2.8 billion (see Table IV.3). Out-of-pocket spending for health services for both the insured and uninsured is projected to total $1.2 billion in 2004 (exclusive of premium contributions and uncompensated care), equal to 14.1 percent of all health care spending in Maine. By 2008, Maine's total health care spending is expected to grow another 31.4 percent, reaching nearly $11 billion.

**Table IV.1. Projected Population Size by Baseline Source of Coverage (in Thousands)**

| | 2004 | | | | 2008 | | | |
|---|---|---|---|---|---|---|---|---|
| | | Percent of Total Population | | | | Percent of Total Population | | |
| | Total Count | Medicare | No Medicare | Total | Total Count | Medicare | No Medicare | Total |
| Total | 1,290.3 | 18.9% | 81.1% | 100.0% | 1,324.8 | 20.3% | 79.7% | 100.0% |
| | | | | | | | | |
| Employer Provided Insurance | 810.8 | 5.3% | 57.5% | 62.8% | 825.7 | 5.8% | 56.5% | 62.3% |
| Firms < 25 | 161.4 | 2.2% | 10.3% | 12.5% | 166.1 | 2.4% | 10.1% | 12.5% |
| Firms 25-99 | 99.1 | 0.5% | 7.2% | 7.7% | 100.6 | 0.5% | 7.1% | 7.6% |
| Firms >= 100 | 550.3 | 2.7% | 40.0% | 42.6% | 559.0 | 2.9% | 39.3% | 42.2% |
| Federal | 5.9 | 0.0% | 0.4% | 0.5% | 6.0 | 0.0% | 0.4% | 0.5% |
| State | 26.8 | 0.1% | 1.9% | 2.1% | 27.3 | 0.1% | 1.9% | 2.1% |
| Other | 517.6 | 2.5% | 37.6% | 40.1% | 525.8 | 2.7% | 37.0% | 39.7% |
| Other Private Insurance | 102.3 | 4.7% | 3.2% | 7.9% | 109.8 | 5.1% | 3.2% | 8.3% |
| CHAMPUS | 26.7 | 0.7% | 1.4% | 2.1% | 28.0 | 0.8% | 1.3% | 2.1% |
| Medicaid/SCHIP | 193.9 | 3.5% | 11.6% | 15.0% | 197.7 | 3.6% | 11.3% | 14.9% |
| No Supplemental Coverage | 156.7 | 4.7% | 7.4% | 12.1% | 163.6 | 5.0% | 7.3% | 12.4% |
| Medicaid/SCHIP Eligible | 13.2 | 0.2% | 0.9% | 1.0% | 13.5 | 0.2% | 0.8% | 1.0% |
| Not Eligible | 143.4 | 4.5% | 6.6% | 11.1% | 150.1 | 4.9% | 6.5% | 11.3% |
| | | | | | | | | |
| < 200% FPL | | 9.2% | 23.3% | 32.6% | | 10.1% | 23.5% | 33.6% |
| 200-299% FPL | | 4.7% | 13.0% | 17.7% | | 5.3% | 13.1% | 18.4% |
| 300-399% FPL | | 1.9% | 15.6% | 17.4% | | 2.0% | 15.7% | 17.7% |
| 400+ % FPL | | 3.3% | 30.1% | 33.4% | | 3.7% | 30.4% | 34.1% |
| Percent Underinsured | | 0.0% | 3.2% | 3.2% | | 0.0% | 3.2% | 3.2% |

Source: Mathematica Policy Research, Inc.

**Table IV.2 Number and Percent of Medicare Covered Population by Source of Coverage, Projected 2004 and 2008 (Baseline)**

| | 2004 | | 2008 | |
|---|---|---|---|---|
| | Medicare (in thousands) | Percent of Medicare Population | Medicare (in thousands) | Percent of Medicare Population |
| Employer Provided Insurance | 69.0 | 28.3% | 76.8 | 28.5% |
| Firms < 25 | 28.8 | 11.8% | 32.1 | 11.9% |
| Firms 25-99 | 5.9 | 2.4% | 6.5 | 2.4% |
| Firms >= 100 | 34.3 | 14.1% | 38.2 | 14.2% |
| Federal | 0.4 | 0.2% | 0.4 | 0.2% |
| State | 1.7 | 0.7% | 1.9 | 0.7% |
| Other | 32.3 | 13.2% | 35.9 | 13.3% |
| Other Private Insurance | 60.6 | 24.8% | 67.6 | 25.1% |
| CHAMPUS | 9.2 | 3.8% | 10.3 | 3.8% |
| Medicaid/SCHIP | 44.5 | 18.2% | 47.9 | 17.8% |
| No Supplemental Coverage | 60.6 | 24.8% | 66.8 | 24.8% |
| Medicaid/SCHIP Eligible | 2.2 | 0.9% | 2.4 | 0.9% |
| Not Eligible | 58.4 | 23.9% | 64.4 | 23.9% |
| Total | 244.1 | 100.0% | 269.2 | 100.0% |

Source: Mathematica Policy Research, Inc.

**Table IV.3. Base Case Health Care Spending in Maine by Source**

| | Spending by Year (in millions) | | |
|---|---|---|---|
| Source of Funds | 2001 | 2004 | 2008 |
| **Aggregate Spending (in millions)** | | | |
| Government Programs | | | |
| Medicaid/SCHIP program spending | $1,375.6 | $2,237.3 | $2,930.9 |
| Medicaid out-of-pocket spending | $5.0 | $9.4 | $12.2 |
| Medicare program spending | $1,259.4 | $1,884.8 | $2,590.3 |
| Medicare out-of-pocket spending | $59.0 | $84.5 | $120.3 |
| Private Health Insurance | | | |
| Large group (>100 members) health plan spending | $1,484.9 | $1,653.2 | $2,096.3 |
| Large group out-of-pocket spending | $279.5 | $370.7 | $472.4 |
| Small group (2-99 members) health plan spending | $690.0 | $827.8 | $1,061.4 |
| Small group out-of-pocket spending | $177.0 | $297.5 | $382.9 |
| Nongroup/individual health plan spending | $237.8 | $334.5 | $453.3 |
| Nongroup/individual out-of-pocket spending | $154.4 | $224.5 | $304.9 |
| CHAMPUS health plan spending | $96.0 | $127.3 | $167.0 |
| CHAMPUS out-of-pocket spending | $5.0 | $7.9 | $10.5 |
| Uninsured out-of-pocket spending[a] | $121.9 | $171.1 | $217.5 |
| Total Third Party Spending | $5,114.1 | $7,183.2 | $9,449.2 |
| Total Out-of-Pocket Spending | $985.1 | $1,175.9 | $1,534.0 |
| Total Spending | $6,099.2 | $8,359.1 | $10,983.2 |
| **Per Capita Spending (in dollars)** | | | |
| Third Party Spending | $4,016 | $5,567 | $7,133 |
| Out-of-Pocket Spending | $774 | $911 | $1,1158 |
| Total Spending | $4,790 | $6,478 | $8,291 |

Source: Mathematica Policy Research, Inc.

On a per capita basis, health care spending in Maine is projected to average $6,478 in 2004 and $8,291 by 2008. These estimates reflect a 3.2 percent annual growth rate in Medicare medical care spending and a 13 percent annual growth rate for non–Medicare spending through 2004, converging to a 5 percent annual growth rate thereafter. We assume prescription drug spending rises by 14 percent annually through 2004 and by 7 percent thereafter.

The base-case distribution of spending across broad categories of health care services remains relatively stable, with 38 percent of spending allocated to hospital services, 15 percent to physician and other medical provider services, 19 percent to prescription drugs, 10 percent to other medical care services, and 10 percent to administration (see Table IV.4). The model also tracks an additional 8 percent of health care spending that reflects other services (such as long-term care, board and care, and other nonmedical services) covered by MaineCare, but not by other sources of coverage.[1] Prescription drug spending is projected to grow faster than other service categories in the base-case, rising by 38 percent between 2004 and 2008. By comparison, spending on hospital care and medical provider services is projected to grow by 26 percent and inpatient care by 28 percent during the same period.

## 2. The Cost of a Single-Payer Plan

Both aggregate and per capita health care spending rise in the short term under most of the single-payer health plan designs examined in this study (Figure IV.1). Under all of the single-payer designs, new spending for formerly uninsured and underinsured individuals is substantially offset by reductions in insurer and provider administrative costs and by the elimination of uncompensated hospital and physician care. Our estimates indicate that during the first year of implementation (2004), a universal single-payer health plan results in spending changes that vary from a *reduction* of 2 percent (Plan 3 with all persons above 200 percent FPL subject to cost sharing) to an *increase* of 14 percent (Plan 1, the MaineCare benefit design) relative to base case spending. With spending growth constrained at a level 5 percent below the base case trends between 2004 and 2008, net spending under a single-payer system would vary between -8 percent and +7 percent of the base case spending.

**Single-Payer Plan 1: MaineCare Benefit Design.** The MaineCare benefit design provides the highest ratio of covered benefits to total expenditures (99 percent); out-of-pocket spending represents less than 1 percent of total health plan spending (Table IV.5). This design is much more generous than the base-case, in which estimated out-of-pocket spending accounts for 18 percent of total spending for health services.

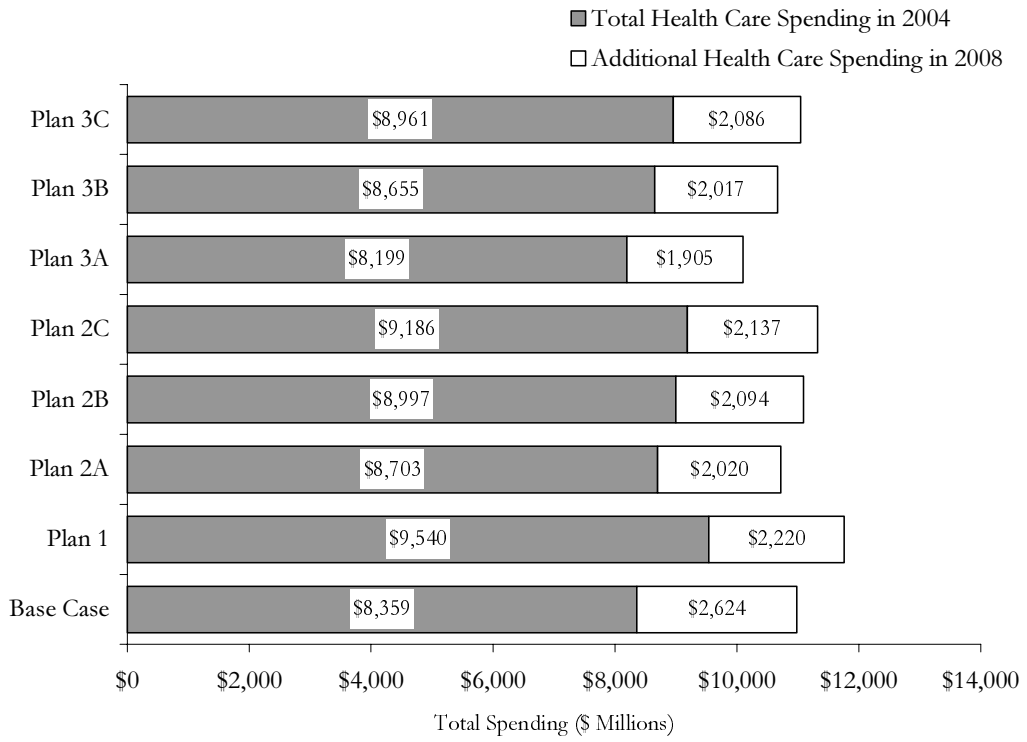
[1]Tracking these Medicaid-only services separately allows more accurate comparisons of spending and utilization among different sources of health insurance and program coverage in the model.

**Table IV.4. Projected Health Care Spending by Type of Service Under Base Case and Single-Payer Assumptions**

| | Spending by Type of Service (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Benefit Plan | Hospital | Physician | Pharmacy | Other Services | Other Medicaid | Admin | Total Spending | Percent of Base Case |
| **Base Case** | | | | | | | | |
| 2004 | $3,153.6 | $1,221.6 | $1,613.0 | $827.8 | $678.9 | $864.2 | $8,359.1 | 100% |
| 2008 | $3,975.1 | $1,558.9 | $2,224.4 | $1,165.7 | $924.7 | $1,134.3 | $10,983.2 | 100% |
| **Plan 1** | | | | | | | | |
| 2004 | $3,618.9 | $1,678.5 | $1,642.7 | $1,498.9 | $678.9 | $421.9 | $9,539.8 | 114% |
| 2008 | $4,352.3 | $2,019.7 | $2,146.4 | $1,800.7 | $924.7 | $516.0 | $11,759.7 | 107% |
| **Plan 2A** | | | | | | | | |
| 2004 | $3,254.5 | $1,545.7 | $1,497.6 | $1,344.4 | $678.9 | $382.1 | $8,703.2 | 104% |
| 2008 | $3,908.9 | $1,857.5 | $1,953.3 | $1,611.8 | $924.7 | $466.6 | $10,722.8 | 98% |
| **Plan 2B** | | | | | | | | |
| 2004 | $3,368.3 | $1,588.9 | $1,550.1 | $1,415.1 | $678.9 | $396.1 | $8,997.5 | 108% |
| 2008 | $4,049.8 | $1,911.2 | $2,024.1 | $1,696.7 | $924.7 | $484.1 | $11,090.6 | 101% |
| **Plan 2C** | | | | | | | | |
| 2004 | $3,453.6 | $1,619.5 | $1,581.9 | $1,447.5 | $678.9 | $405.1 | $9,186.4 | 110% |
| 2008 | $4,152.5 | $1,948.1 | $2,066.0 | $1,736.1 | $924.7 | $495.1 | $11,322.6 | 103% |
| **Plan 3A** | | | | | | | | |
| 2004 | $3,025.7 | $1,464.5 | $1,415.0 | $1,256.6 | $678.9 | $358.1 | $8,198.7 | 98% |
| 2008 | $3,633.2 | $1,759.3 | $1,844.6 | $1,505.1 | $924.7 | $437.1 | $10,104.0 | 92% |
| **Plan 3B** | | | | | | | | |
| 2004 | $3,204.2 | $1,531.5 | $1,494.8 | $1,365.6 | $678.9 | $379.8 | $8,654.7 | 104% |
| 2008 | $3,853.2 | $1,842.3 | $1,951.9 | $1,635.6 | $924.7 | $464.2 | $10,671.9 | 97% |
| **Plan 3C** | | | | | | | | |
| 2004 | $3,344.2 | $1,581.4 | $1,545.3 | $1,416.9 | $678.9 | $394.4 | $8,961.1 | 107% |
| 2008 | $4,021.4 | $1,902.3 | $2,018.3 | $1,698.0 | $924.7 | $482.0 | $11,046.6 | 101% |

Source: Mathematica Policy Research, Inc.

**Figure IV.1. Projected Health Care Spending Under Base Case And Single-Payer Health Plans: 2004 And 2008**




Source: Mathematica Policy Research, Inc.

Reflecting the very low cost sharing, projected total spending under Plan 1 is $9.5 billion in 2004, approximately $1.2 billion (14 percent) higher than spending in the base-case. However, by 2008, the difference in spending between the two plans is projected to narrow to less than $0.8 billion (7 percent) as the single-payer plan realizes cost savings from global budgeting and preventable hospital and emergency room use.

**Single-Payer Plan 2: Copayment Plan (2A-2C).** Given that Plan 2 involves several conventional forms of cost sharing for some share of the population (defined by family income relative to the poverty level), projected health care spending under the plan is lower than for Plan 1. When cost sharing is required of all families with income above 200 percent of the federal poverty level, projected total spending is $8.7 billion in 2004, 4 percent higher than base-case spending but 8 percent lower than plan 1. By 2008, spending under Plan 2 is projected to be 2 percent less than the base case assuming the rate of cost growth is constrained at 5 percent below the base case trends. In 2004, an additional $294 million in health plan spending occurs when the cost-sharing threshold is relaxed to 300 percent FPL and another $189 million when the threshold is relaxed to 400 percent FPL.

**Table IV.5. Projected Health Care Spending by Source Under Base Case and Single-Payer Assumptions**

| | 2004 Spending (in millions) | | | 2008 Spending (in millions) | | |
|---|---|---|---|---|---|---|
| Benefit Plan | Health Plan | Out-of-Pocket | Total | Health Plan | Out-of-Pocket | Total |
| Base Case | $7,183.0 | $1,176.0 | $8,359.0 | $9,449.0 | $1,534.0 | $10,983.0 |
| Single-Payer Plan 1 | $9,500.0 | $39.0 | $9,540.0 | $11,710.0 | $49.0 | $11,760.0 |
| Single-Payer Plan 2A | $8,470.0 | $233.0 | $8,703.0 | $10,432.0 | $291.0 | $10,723.0 |
| Single-Payer Plan 2B | $8,821.0 | $175.0 | $8,997.0 | $10,874.0 | $216.0 | $11,091.0 |
| Single-Payer Plan 2C | $9,057.0 | $129.0 | $9,186.0 | $11,162.0 | $160.0 | $11,323.0 |
| Single-Payer Plan 3A | $7,826.0 | $373.0 | $8,199.0 | $9,640.0 | $464.0 | $10,104.0 |
| Single-Payer Plan 3B | $8,379.0 | $276.0 | $8,655.0 | $10,331.0 | $341.0 | $10,672.0 |
| Single-Payer Plan 3C | $8,764.0 | $197.0 | $8,961.0 | $10,803.0 | $244.0 | $11,047.0 |

Source: Mathematica Policy Research, Inc.

**Single-Payer Plan 3: Coinsurance Plan (3A-3C).** Because Plan 3 involves higher cost-sharing requirements than Plan 2, it generates the lowest health care spending projections of all the designs we examined. When cost sharing is imposed at or above 200 percent FPL, projected health care spending totals $8.2 billion in 2004, approximately 2 percent less than the base-case spending projection and 14 percent less than spending for plan 1. By 2008, spending under Plan 3 reaches $10.1 billion, representing an 8 percent reduction in spending from the base case. Relaxing Plan 3's cost-sharing threshold to 300 percent FPL and 400 percent FPL yields spending increases of $456 million and $306 million, respectively, in 2004.

## C. HEALTH CARE FINANCING ESTIMATES

For all benefit designs that we considered, the total cost of a single-payer system could be offset substantially by the spending that is projected to occur in 2004 and 2008 in the base case (i.e. without single-payer reform). However, because none of the single-payer scenarios involves premium financing, all of the base case expenditures on insurance by employers, employees, and individuals are released. The model estimates the proportion of health care expenditures in a single-payer system that must be financed from alternative sources net of the public funding that is projected to remain in Maine's health care system.

### 1. Maintenance of Effort and Obligated Funding

Table IV.6 summarizes the financing that we assume would remain in a single-payer system. As described in Chapter III, funds include substantial federal spending for Medicare and MaineCare beneficiaries as well as federal spending for FEHBP and CHAMPUS. State spending for MaineCare beneficiaries also would continue, and total MaineCare spending would rise as eligible persons who are not enrolled are swept into the single-payer system and providers are paid at the higher single-payer plan rates for new beneficiaries.

Assuming no reform, public-sector spending in Maine is projected to finance 54 percent of all health care expenditures in Maine by 2004 and 55 percent by 2008. These expenditures include funding for Medicare and MaineCare, as well as federal, state, and local government spending for public employees and direct health care services.

In a single payer system, the proportion of cost that would be financed by maintenance of effort varies with the overall cost of the system, largely because the model assumes that Medicare, FEHBP, and CHAMPUS expenditures are capitated at base-case levels. Consequently, federal and state maintenance of effort generally funds a smaller share of the cost of plan designs that generate higher additional demand for services. Maintenance of effort is projected to fund 48 percent of the total cost of Plan 1 in 2004 but 56 percent of the cost of Plan 3A (the least generous plan design). In 2008, maintenance of effort is projected to fund 52 percent of Plan 1 costs, assuming that federal capitation rates are not adjusted to reflect constrained health care spending in Maine (the most literal definition of maintenance of effort). Federal, state, and local maintenance of effort is projected to fund nearly 60 percent of the total cost of Plan 3A in 2008.

**Table IV.6. Summary of Financing Sources for Baseline and Single-Payer Health Plans, 2004 and 2008**

| | Baseline | | Single-Payer Plan 1 | | Single-Payer Plan 2A | | Single-Payer Plan 2B | |
|---|---|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| Total health plan cost (in millions) | $8,359.1 | $10,983.2 | $9,539.8 | $11,759.7 | $8,703.2 | $10,722.8 | $8,997.5 | $11,090.6 |
| Insurance premiums[a] | 34.8% | 34.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Consumer out of pocket[b] | 14.1% | 14.0% | 0.4% | 0.4% | 2.7% | 2.7% | 1.9% | 2.0% |
| Maintenance of effort[c] | 53.7% | 54.6% | 48.0% | 51.5% | 52.6% | 56.4% | 50.9% | 54.6% |
| Federal | | | | | | | | |
| Medicare | 22.5% | 23.6% | 19.8% | 22.0% | 21.7% | 24.2% | 20.9% | 23.4% |
| MaineCare | 17.9% | 17.8% | 16.5% | 17.6% | 18.1% | 19.3% | 17.5% | 18.7% |
| State | | | | | | | | |
| MaineCare (baseline enrollment) | 8.9% | 8.9% | 7.8% | 8.3% | 8.6% | 9.1% | 8.3% | 8.8% |
| Obligated general revenues for state and local employees and state direct spending for health care services | 2.6% | 2.5% | 2.3% | 1.9% | 2.5% | 2.0% | 2.4% | 2.0% |
| Total financing in place | -- | -- | 48.4% | 51.9% | 55.3% | 59.2% | 52.8% | 56.5% |
| Net health plan cost (in millions) | -- | -- | $4,923.8 | $5,658.0 | $3,894.0 | $4,379.6 | $4,246.7 | $4,821.8 |
| Percent of total | -- | -- | 51.6% | 48.1% | 44.7% | 40.8% | 47.2% | 43.5% |

**Table IV.6** (*continued)*

| | Single-Payer Plan 2C | | Single-Payer Plan 3A | | Single-Payer Plan 3B | | Single-Payer Plan 3C | |
|---|---|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| Total health plan cost (in millions) | $9,186.4 | $11,322.6 | $8,198.7 | $10,104.0 | $8,654.7 | $10,671.9 | $8,961.1 | $11,046.6 |
| Insurance premiums[a] | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Consumer out of pocket[b] | 1.4% | 1.4% | 4.5% | 4.6% | 3.2% | 3.2% | 2.2% | 2.2% |
| Maintenance of effort[c] | 49.8% | 53.5% | 55.8% | 59.9% | 52.9% | 56.7% | 51.1% | 54.8% |
| Federal | | | | | | | | |
| Medicare | 20.5% | 22.9% | 23.0% | 25.6% | 21.8% | 24.3% | 21.0% | 23.4% |
| MaineCare | 17.2% | 18.3% | 19.2% | 20.5% | 18.2% | 19.4% | 17.6% | 18.8% |
| State | | | | | | | | |
| MaineCare (baseline enrollment) | 8.1% | 8.6% | 9.1% | 9.7% | 8.6% | 9.1% | 8.3% | 8.8% |
| Obligated general revenues for state and local employees and state direct spending for health care services | 2.4% | 1.9% | 2.7% | 2.2% | 2.5% | 2.1% | 2.4% | 2.0% |
| Total financing in place | 51.2% | 54.9% | 60.4% | 64.5% | 56.1% | 59.9% | 53.3% | 57.0% |
| Net health plan cost (in millions) | $4,480.8 | $5,109.8 | $3,249.6 | $3,588.0 | $3,802.6 | $4,278.7 | $4,187.8 | $4,750.6 |
| Percent of total | 48.8% | 45.1% | 39.6% | 35.5% | 43.9% | 40.1% | 46.7% | 43.0% |

Source: Mathematica Policy Research, Inc.

[a]Estimates includes health insurance premium payments by non-Federal employers, employees, and individuals

[b]Base-case estimate includes spending by both insured and uninsured consumers net of uncompensated care. Uncompensated care expenditures are presumed to be financed by insurance payments and federal and state direct payments for health care.

[c]All estimates include federal payments for FEHBP, CHAMPUS, and direct federal and state spending for health care services, as well as, Medicare and MaineCare spending. Simulation estimates exclude direct state spending for health care services, which are retained as obligated general revenues."

To calculate the net financing burden of a single-payer system, the financing module retains other "obligated" funds from a number of sources, including public sector expenditures that now finance health insurance benefits for state and local government employees as well as projected state expenditures (in the base case) for direct health care services. The financing module also considers consumer out-of-pocket spending for health care, which falls from 14 percent of total spending in the base case (in 2004 and 2008) to less than 5 percent of total expenditures in Plan 3A and to about 0.5 percent in Plan 1.

Net of these sources of financing already in Maine's health care system–and assuming full premium relief for employers, employees, and other individuals–the projected net cost of a single-payer system in 2004 is projected to range from $3.2 billion (for Plan 3A) to $4.9 billion (for Plan 1). In 2008, the projected net cost ranges from $3.6 billion to $5.7 billion for these plan designs.

## 2. Financing the Net Cost of a Single-Payer System

In any major reform that offers premium relief, the principal financing challenge lies in the withdrawal of employer payments for health care. Economic theory holds that workers bear the cost of employer-paid insurance premiums in the form of reduced cash compensation—in effect, a tax on wages and salaries. The financing module recaptures the value of private employer contributions to health insurance as the default value of a tax on payroll. The projected value of such a tax (implicit in the base case spending estimates) is 6.6 percent in 2004 and 6.8 percent in 2008, although, among covered workers, we project employer contributions to health insurance to be roughly 10 percent of wages and salaries in both years.[2]

While the Maine Microsimulation Model offers users flexibility in considering financing options, this report cannot provide a comprehensive look at all possible financing options. Table IV.7 reports the results of two sets of simulations that compare alternative methods of financing with the net cost of a single-payer system. The first simulation assumes that all net costs are financed as a tax on wages and salaries (including self-employed earnings). The second assumes more diversified financing of net costs, retaining only the current effective burden of the employer cost of health insurance benefits on wages and salaries in both years.

In 2004, the rate of *additional* taxation on payroll required to fund the net cost of a single-payer system varies from 4.5 percent (for Plan 3A) to 10.2 percent (for Plan 1). Under the model's assumptions about the ability of a single-payer system to constrain cost growth over time, the rate of additional taxation that would be required in 2008 is somewhat less

[2] Including all employers (public as well as private sector), projected employer spending financed as tax on payroll in the base case is substantially higher—7.9 percent in 2004 and 8.1 percent in 2008. The financing module retains federal contributions to FEHBP as maintenance of effort and state and local contributions to public employee health insurance as obligated general revenues.

than in 2004: 4 and 8.7 percent, respectively. These out-year taxation rates produce *total* rates of payroll taxation that would vary between 11.1 percent (for Plan 3A) and 16.8 percent (for Plan 1) in 2004 and between 9.7 and 15.5 percent in 2008. It is important to note that in 2008, the lowest-cost single-payer plan that we estimated–Plan 3B–offers current employer-insured workers substantially more complete coverage than they now receive, at a somewhat lower average percent of payroll than we project that they would pay in the base case as a discount on wages and salaries (9.7 percent versus 10 percent).

Table IV.7 offers a second financing scenario that retains only the base-case level of private employer financing as a tax on payroll (6.6 and 6.8 percent in 2004 and 2008, respectively); additional financing takes the form of an increase in revenues from five sources that now contribute to Maine's general revenues: the individual income tax, the corporate income tax, sales and use taxes, and taxes on both tobacco and alcohol. Assuming no additional taxation on payroll, the projected burden of a single- payer system on Maine's general revenue sources is substantial for the most generous plan designs as well as for the designs that require minor cost sharing. For Plan 1, revenue from the individual income tax, the corporate income tax, and sales and use taxes would have to rise by 130 percent–more than doubling the current rates in these categories, assuming that the projected taxable base does not expand. For Plan 3A, the burden would be substantially less but still high: the net cost of the single-payer plan could be financed by raising revenues from individual and corporate income taxes and sales and use taxes by 57 percent and from tobacco and alcohol taxes by 76 percent.

Consideration of these two relatively extreme scenarios suggests two rules for financing the net cost of a single-payer system. First, the benefit design of the single-payer plan is critical in determining the plan's financing requirements. By constraining new demand, plan designs with somewhat more cost sharing correspond to a substantially lower need for additional financing. Second, broad financing of a single-payer system is essential. The change in tax burden estimated in the second financing scenario above seems likely to generate substantial economic dislocation. Broader financing–including not only "break-even" payroll tax financing but additional taxation on payroll as well as additional use of the state's current sources of revenue–would mitigate adverse economic effects.

## D. ECONOMIC IMPACT ESTIMATES

We expect the impact of a single-payer system on total employment in Maine to derive from three main aspects of such a system: reduced administrative costs, increased demand for health care services, and constrained cost growth over time. Table IV.8 reports the projected changes in total employment related to each aspect. As with all other simulations reported in this chapter, the estimates reflect intermediate enrollment in managed care as well as moderate administrative cost savings and cost containment in a single-payer system. Further, as described in Chapter III, the estimates primarily reflect employment change in industries *directly* related to the health care and health insurance industry and do not include potential economy-wide impacts related to the financing of the single-payer system. In general, they should be regarded as "initial impact" projections of employment change.

**Table IV.7. Estimated Tax Rates Required to Financial Alternative Single-Payer in 2004 and 2008: Illustrative Alternative Financing Scenarios**

| | Single-Payer Plan 1 | | Single-Payer Plan 2A | | Single-Payer Plan 2B | | Single-Payer Plan 2C | |
|---|---|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| **Payroll Tax Financing Only** | | | | | | | | |
| Current effective percent of payroll | 6.6% | 6.8% | 6.6% | 6.8% | 6.6% | 6.8% | 6.6% | 6.8% |
| Additional percent of payroll | 10.2% | 8.7% | 6.7% | 5.1% | 7.9% | 6.4% | 8.7% | 7.2% |
| Total percent of payroll | 16.8% | 15.5% | 13.3% | 11.9% | 14.5% | 13.2% | 13.9% | 14.0% |
| **Diversified Financing** | | | | | | | | |
| Current effective percent of payroll | 6.6% | 6.8% | 6.6% | 6.8% | 6.6% | 6.8% | 6.6% | 6.8% |
| Increase in general revenues from: | | | | | | | | |
| Individual income | 130.1% | 118.0% | 83.1% | 67.4% | 99.1% | 84.6% | 110.0% | 96.5% |
| Corporate income | 130.1% | 118.0% | 83.1% | 67.4% | 99.1% | 84.6% | 110.0% | 96.5% |
| Sales and use | 130.1% | 118.0% | 83.1% | 67.4% | 99.1% | 84.6% | 110.0% | 96.5% |
| Tobacco | 150.0% | 130.0% | 127.8% | 106.5% | 136.5% | 117.6% | 138.5% | 117.2% |
| Alcohol | 150.0% | 130.0% | 127.8% | 106.5% | 136.5% | 117.6% | 138.5% | 117.2% |

**Table IV.7. (Continued)**

| | Single-Payer Plan 3A | | Single-Payer Plan 3B | | Single-Payer Plan 3C | |
|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| **Payroll Tax Financing Only** | | | | | | |
| Current effective percent of payroll | 6.6% | 6.8% | 6.6% | 6.8% | 6.6% | 6.8% |
| Additional percent of payroll | 4.5% | 3.1% | 6.4% | 4.9% | 7.7% | 6.2% |
| Total percent of payroll | 11.1% | 9.9% | 13.0% | 11.7% | 14.3% | 13.0% |
| **Diversified Financing** | | | | | | |
| Current effective percent of payroll | 6.6% | 6.8% | 6.6% | 6.8% | 6.6% | 6.8% |
| Increase in general revenues from: | | | | | | |
| Individual income | 56.5% | 39.3% | 80.0% | 65.0% | 97.5% | 83.1% |
| Corporate income | 56.5% | 39.2% | 80.0% | 65.0% | 97.5% | 83.1% |
| Sales and use | 56.5% | 39.2% | 80.0% | 65.0% | 97.5% | 83.1% |
| Tobacco | 76.1% | 55.2% | 111.3% | 85.7% | 125.0% | 101.1% |
| Alcohol | 76.1% | 55.2% | 111.3% | 85.7% | 125.0% | 101.1% |

Source: Mathematica Policy Research, Inc.

Due primarily to the substantial differences in new demand for health services associated with each benefit design, the estimates of employment change presented in Table IV.9 vary among the single-payer plan designs. However, in every case, gains or losses in net employment are relatively small–ranging from a small net loss of jobs (200, in Plan 2B) in 2004 to a potential gain of 3,000 jobs (Plan 1) in 2004. By 2008, as administrative costs continue below the projected base case and costs are reduced in the single-payer system, the model projects a net job loss in the health sector for every plan design. Relative to the base case, Plan 3A is projected to result in 8,200 fewer jobs in Maine by 2008; Plans 2A and 3B are projected to result in at least 5,000 fewer jobs by 2008.

**Table IV.8. Change in Projected Total Employment by Source of Change, All Industry Groups, 2004 and 2008 (Employment in thousands)**

| | Single-Payer Plan 1 | | Single-Payer Plan 2A | | Single-Payer Plan 2B | | Single-Payer Plan 2C | |
|---|---|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| Total change in employment | 3.0 | -0.2 | -2.0 | -5.2 | -0.2 | -3.4 | 0.9 | -2.3 |
| Reduced administrative cost | -5.7 | -6.1 | -6.2 | -6.5 | -6.0 | -6.4 | -5.9 | -6.3 |
| Increased health care use | 9.2 | 6.4 | 4.7 | 1.9 | 6.3 | 3.5 | 7.3 | 4.5 |
| Constrained cost growth | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 |

| | Single-Payer Plan 3A | | Single-Payer Plan 3B | | Single-Payer Plan 3C | |
|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| Total change in employment | -5.0 | -8.2 | -2.3 | -5.4 | -0.4 | -3.6 |
| Reduced administrative cost | -6.5 | -6.8 | -6.2 | -6.6 | -6.0 | -6.4 |
| Increased health care use | 2.0 | -0.8 | 4.4 | 1.7 | 6.1 | 3.3 |
| Constrained cost growth | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 | -0.5 |

Source: Mathematica Policy Research, Inc.

Most telling, however, is the distribution of projected job loss among industry groups and occupations. Table IV.9 offers a picture of the distribution by industry group for each single-payer plan design in 2004 and 2008. Direct job losses in the insurance industry are projected to be relatively small–in total, fewer than 1,000 jobs in either 2004 or 2008. This estimate reflects the low level of employment that Maine projects in these industries in 2004 and 2008 as well as the model's assumption that health insurance accounts for a relatively small share of employment among insurance carriers, agents, and brokers (20 percent). However, reflecting the drop in administrative costs in a single-payer system, the net loss of employment in hospitals and medical provider practices is significant in nearly all plan designs and in both years. Only in Plan 1 does the large initial increase in demand for health services in 2004 offset the loss of administrative positions in 2004, producing a small net gain in projected employment that year.

**Table IV.9. Projected Change in Employment Associated with a Single-Payer System by Selected Industry Groups (in thousands)**

| | Single Payer Plan 1 | | Single Payer Plan 2A | | Single Payer Plan 2B | | Single Payer Plan 2C | | Single Payer Plan 3A | | Single Payer Plan 3B | | Single Payer Plan 3C | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| Total employment[a] | 3.0 | -0.2 | -2.0 | -5.2 | -0.2 | -3.4 | 0.9 | -2.3 | -5.0 | -8.2 | -2.3 | -5.4 | -0.4 | -3.6 |
| Construction | | | | | | | | | | | | | | |
| New hospitals and institutions | 0.1 | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Manufacturing | | | | | | | | | | | | | | |
| Medical instruments and supplies | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 |
| Pharmaceuticals | 0.1 | 0.1 | 0.1 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 |
| Finance, insurance, real estate | | | | | | | | | | | | | | |
| Insurance carriers | -0.2 | -0.3 | -0.4 | -0.5 | -0.3 | -0.4 | -0.3 | -0.4 | -0.4 | -0.5 | -0.4 | -0.5 | -0.3 | -0.4 |
| Insurance agents, brokers and services | -0.2 | -0.2 | -0.3 | -0.3 | -0.2 | -0.3 | -0.2 | -0.3 | -0.3 | -0.4 | -0.3 | -0.3 | -0.2 | -0.3 |
| Services | | | | | | | | | | | | | | |
| Hospitals, private | 0.1 | -0.9 | -1.5 | -2.5 | -0.9 | -1.9 | -0.5 | -1.6 | -2.4 | -3.5 | -1.6 | -2.6 | -1.0 | -2.0 |
| Offices of health practitioners | 0.3 | -0.5 | -1.0 | -1.8 | -0.5 | -1.3 | -0.3 | -1.1 | -1.7 | -2.5 | -1.0 | -1.8 | -0.6 | -1.4 |
| Nursing and personal care facilities | 1.0 | 0.6 | 0.4 | 0.0 | 0.6 | 0.2 | 0.8 | 0.3 | 0.0 | -0.4 | 0.3 | -0.1 | 0.6 | 0.2 |
| Health services, n.e.c. | 0.2 | -0.1 | -0.3 | -0.6 | -0.1 | -0.5 | 0.0 | -0.3 | -0.6 | -0.9 | -0.3 | -0.7 | -0.2 | -0.5 |
| Government | | | | | | | | | | | | | | |
| State and local hospitals | 0.1 | -0.2 | -0.4 | -0.7 | -0.2 | -0.5 | -0.1 | -0.4 | -0.7 | -1.0 | -0.4 | -0.7 | -0.3 | -0.6 |

Source: Mathematica Policy Research, Inc.

[a]Includes industries not shown.

These changes by industry are more clearly understood by considering changes in employment by occupational group as reported in Table IV.10. The model projects a loss of administrative jobs, including jobs in the insurance industry, hospitals, and medical provider offices, of 5,300 to 6,200 in either simulation year. However, the increased demand for health services associated with new coverage and reduced cost sharing is projected to drive increased employment among medical service providers, ranging from just 200 jobs (in Plan 3A) to 6,600 jobs (in Plan 1). By 2008, constrained cost growth moderates the increased demand for health care providers. Nevertheless, the model projects at least level employment among medical service providers (relative to the base case) in all plans except Plans 3A and 3B and continued, substantial net job growth in Plan 1.

In summary, the model projects a redistribution of jobs in Maine associated with a single-payer system that brings about reduced administrative costs and greater demand for health care services. A single-payer system would create a loss of administrative jobs that, in our projections, would continue in the long term. It also would create new medical provider jobs related to greater demand for health care services, as persons who had been uninsured gain coverage and the insured population gains greater coverage and reduced cost sharing.

The redistribution of jobs ultimately may ease the burden of financing a single-payer system, although the model at this point does not integrate the economic impact estimates with the financing estimates. In particular, a single-payer system would create new professional jobs in the health care sector–jobs that are more likely to remain local and that are potentially higher-paying than the jobs in insurance administration that they replace. Relative to the model's current financing estimates, the redistribution may reduce the per capita burden of financing the system either through a payroll tax or Maine's general revenue tax sources.

## E. ACHIEVING FIVE PERCENT SAVINGS IN HEALTH CARE SPENDING

The Maine Legislature directed the Health Security Board to consider a single-payer health system that guarantees a minimum five percent savings over existing health care spending. Estimates from the Maine Microsimulation Model suggest that none of the seven single-payer health plans analyzed in this study would achieve this goal in 2004. The only health plan that achieves this goal by 2008—Plan 3C—would produce an 8 percent savings over the base case spending under current model assumptions. This plan achieves these savings by applying higher consumer cost-sharing requirements to larger segments of the Maine population than do other plan designs examined in this analysis.

**Table IV.10. Projected Change in Employment Associated with a Single-Payer by Selected Occupational Groups (in thousands)**

| | Single-Payer Plan 1 | | Single-Payer Plan 2A | | Single-Payer Plan 2B | | Single-Payer Plan 2C | |
|---|---|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| Total employment | 3.0 | -0.2 | -2.0 | -5.2 | -0.2 | -3.4 | 0.9 | -2.3 |
| Insurance administration[a] | -5.3 | -5.8 | -5.6 | -6.1 | -5.5 | -6.0 | -5.4 | -5.9 |
| Health care providers | 6.6 | 4.1 | 2.6 | 0.0 | 4.0 | 1.5 | 4.9 | 2.4 |
| Other | 1.7 | 1.6 | 1.0 | 0.9 | 1.2 | 1.1 | 1.4 | 1.3 |

| | Single-Payer Plan 3A | | Single-Payer Plan 3B | | Single-Payer Plan 3C | |
|---|---|---|---|---|---|---|
| | 2004 | 2008 | 2004 | 2008 | 2004 | 2008 |
| Total employment | -5.0 | -8.2 | -2.3 | -5.4 | -0.4 | -3.6 |
| Insurance administration[a] | -5.7 | -6.2 | -5.6 | -6.1 | -5.5 | -6.0 |
| Health care providers | 0.2 | -2.4 | 2.4 | 0.2 | 3.9 | 1.3 |
| Other[b] | -0.5 | -0.4 | -0.9 | -0.8 | 1.2 | 1.1 |

Source: Mathematica Policy Research, Inc.

[a]Includes administrative staff in hospitals and medical provider offices.
[b]Includes industries not shown.

One option for achieving a five percent savings by 2004 involves the use of still higher consumer cost-sharing requirements. Although it generates the lowest spending estimates of all the plan designs examined in this study, Plan 3C provides a more generous benefit package than is commonly available in most employer-provided health insurance plans. This benefit package covers 92.4 percent of all health plan expenditures for individuals above 200 percent of the federal poverty level, and 99.6 percent of expenditures for those below this income threshold (producing an average benefit rate of 95.6 percent). Introducing higher levels of cost-sharing for individuals above the income threshold would reduce health spending for these populations and lower the total cost of a single-payer system.

A preliminary analysis of alternative benefit designs suggest that a single-payer system could generate a minimum 5 percent savings in 2004 using a benefit package that covers 85 percent of all health plan expenditures for individuals above 200 percent FPL. Such a benefit package would be similar to conventional health plan designs currently offered in the employer-provided health insurance market, and include the following provisions:

- Annual deductibles of $250 for individuals and $500 for families
- Coinsurance of 80 percent on all services, subject to a $1250 out-of-pocket maximum for individuals and a $2500 maximum for families
- Three-tiered copayment for prescription drugs, requiring $10 for generic prescriptions, $20 for preferred brands, and $35 for nonpreferred brands.

Changing the benefit design is only one possible way of achieving cost savings within a single-payer health system. Other strategies could include more aggressive cost containment through managed care, global budgeting, or other payment and care management policies. We examine the projected effects of these strategies as part of the sensitivity analyses in Chapter V.

Finally, none of the estimates produced by the Maine Microsimulation Model account for the start-up and transition costs associated with implementing major health system reform. We discuss these transition issues and their possible costs in Chapter VI.

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# CHAPTER V

# SENSITIVITY ANALYSES

Estimates of the cost, financing requirements, and economic impact of a single-payer health system in Maine depend heavily on assumptions about the administrative costs and cost savings associated with the system. Because it is impossible to specify all the assumptions with certainty in a microsimulation model, it is important to test the sensitivity of model estimates to alternative but still realistic assumptions. To conduct the sensitivity tests, we varied—within plausible ranges—the values of major parameters used in the Maine Microsimulation Model and computed new estimates of single-payer cost and economic impact for each new set of parameter values.

This chapter presents our microsimulation results projecting the range of costs associated with alternative assumptions, and explores the implications of uncertainty for financing a single-payer system. We find that the intermediate-case estimates presented in Chapter IV are quite stable. That is, having selected the larger framework of the single payer system—the plan design and managed care environment in which it will operate—projected total spending and net cost are quite stable within plausible ranges of error in forecasting administrative cost savings and health care cost trends.

## A. ASSUMPTIONS USED IN TESTING PLAN COST SENSITIVITY

The simulation estimates presented in Chapter IV derive from several assumptions regarding the implementation and operation of a single-payer health system in Maine. Among the most important assumptions are (1) the degree of managed care that is eliminated or retained within the single-payer system and the impact of such a change on health care spending; (2) the amount of administrative cost savings produced by the single-payer system at both the health plan and provider levels; and (3) the degree to which the single-payer system constrains underlying health care cost growth through global budgeting and other payment policies.

Considerable uncertainty exists around each of these assumptions, raising the possibility that incorrect assumptions could cause the microsimulation model to over- or underestimate the true cost and impact of a single-payer health system in Maine. For this reason, we examine how the projected cost and economic impact of a single-payer system changes

relative to the base case (status quo) estimate given alternative assumptions about the extent of managed care, potential administrative cost savings, and long-term cost trends. In all, we report on 17 sensitivity analyses and compare the results of each with the model's intermediate projections as presented in Chapter IV.

We first test the model's results related to the degree of managed care that will be retained in the single-payer system. We test a "low" managed care scenario and a "high" managed care scenario (see Table V.1). In the low managed care scenario, commercial HMO enrollment is eliminated. Health care spending increases by 10 percent for individuals who in the base case are enrolled in commercial HMOs (an estimated 55 percent of the privately insured population). However, we assume that the MaineCare primary care case management (PCCM) program continues to operate and that Maine residents exempt from cost sharing under the single-payer benefit design also are enrolled in a PCCM program in the same relative numbers as MaineCare beneficiaries in the base case (43 percent in 2002, as estimated by CMS).

In the high managed care scenario, the single-payer system retains all cost savings associated with commercial HMO enrollment. Moreover, 60 percent of persons exempt from cost sharing under the single-payer benefit design enroll in PCCM; this rate is approximately 50 percent greater than the base-case MaineCare enrollment rate. We assume that per capita health care spending is approximately 10 percent lower for those who enroll in PCCM compared with those who do not. By comparing these two scenarios, we can understand the range of costs in a single-payer system due to reducing or retaining the savings associated with managed care.

Within each of these managed care scenarios, we then test the sensitivity of single-payer costs to assumptions about the amount of administrative cost savings that a single-payer system might achieve. We test three alternative levels of potential cost savings (see Table V.2):

- ***Low administrative cost savings.*** In this scenario, the single-payer system reduces health plan administrative costs from an average of 10.3 percent of total costs (the weighted average of all private and public payers in the base case) to 7.5 percent—a level that is 50 percent greater than the "moderate" administrative cost rate described below and higher than MaineCare's current administrative cost rate of 6.4 percent. Hospital and physician spending on administration also declines modestly—by 7.5 percent, one-half the rate used in our "moderate" scenario.

- ***Moderate administrative cost savings.*** This scenario retains the intermediate assumptions about the decline in administrative costs that drives the model results described in Chapter IV. Specifically, the health plan administrative cost rate drops to 5 percent under the single-payer system—that is, to one-half the average rate in the base case. We assume that the administrative costs of hospitals and physicians decline by 15 percent.

**Table V.1. Definition of High and Low Managed Care: Enrollment in HMO/PCCM Arrangements**

| | Managed Care Scenario | |
|---|---|---|
| Populations Covered | Low Managed Care | High Managed Care |
| Persons exempt from cost sharing | Current MaineCare PCCM enrollment (43 percent) | 60 percent PCCM enrollment |
| Persons subject to cost-sharing | No managed care enrollment | Current commercial HMO enrollment |

Source: Mathematica Policy Research, Inc.

- ***High administrative cost savings.*** In this scenario, health plan administrative costs decline to 2.5 percent of total costs (comparable to reported administrative costs in Medicare), hospital and physician administrative spending declines by 22.5 percent (to 25.6 percent and 24.8 percent, respectively)—1.5 times the administrative cost reductions assumed in the moderate scenario.

The administrative cost savings produced by a single-payer system will depend in part on the selected plan design. Under Plan 1, for example, providers expend relatively few resources on billing and collections because there are no deductibles and minimal copayments to administer. Similarly, the health plan requires relatively little administrative infrastructure for tracking consumer out-of-pocket spending. By contrast, Plan 3A requires administrative processes at both the provider and health plan levels for the purpose of managing the plan design's cost-sharing components. For this reason, it may be reasonable for the reader to focus on estimates associated with higher administrative savings assumptions for Plan 1 and on estimates associated with lower cost savings for other single payer plan designs. However, some of the administrative savings that we expect from a single payer system relate to standardization of data transmissions between health care providers and insurers—which under HIPAA will occur with or without a single payer system. Thus, the reader should view estimates associated with alternative levels of cost savings as savings net of the somewhat lower absolute level that may occur due to implementation of HIPAA standards.

**Table V.2. Definition of Administrative Cost Reduction: Health Plans and Providers**

| Location of Administrative Cost | Low Reduction in Administrative Cost | Moderate Reduction in Administrative Cost | High Reduction in Administrative Cost |
|---|---|---|---|
| Change in health plan administrative cost | -25.0% | -50.0% | -75.0% |
| Change in provider administrative cost | -7.5% | -15.0% | -22.5% |

Source: Mathematica Policy Research, Inc.

Finally, in addition to varying the model's managed care assumptions and administrative cost savings, we test the sensitivity of the model's cost results to the long-term cost trend of a single-payer system. This trend would vary with the ability of a single-payer system to constrain underlying health care cost growth through global budgeting or other payment policies. Again, we test three alternative cost trends:

- ***Low constraints on cost growth.*** In this scenario, the single-payer system reduces the underlying health care cost growth trend by 2.5 percent between 2004 and 2008 so that the effective cost trend is 4.3 percent per year for the four-year period (compared with the base-case trend of 5 percent).

- ***Moderate constraints on cost growth.*** In this scenario, the single-payer system reduces underlying the health care cost trend by 5 percent, producing an effective cost trend of 3.6 percent per year between 2004 and 2008.

- ***High constraints on cost growth.*** In this scenario, the underlying cost trend is reduced by 7.5 percent, producing an effective trend rate of 3 percent per year between 2004 and 2008.

By varying each of the three sets of assumptions described above, we define 17 alternatives to the intermediate-case results presented in Chapter IV. In Tables V.3 and V.4, those intermediate-case estimates fall into the mid-range cost scenario against which more conservative and more ambitious scenarios can be compared.

## B. SENSITIVITY OF SINGLE-PAYER COST ESTIMATES

### 1. Variation in Administrative Cost Savings and Constraints on Cost in a Low Managed Care Environment

Table V.3 presents the cost estimates for all the scenarios that assume (as in Chapter IV) lower HMO savings under a single-payer health system than are projected to occur in the without reform. The estimates reflect moderate administrative cost savings and moderate constraints on underlying cost trends are the same as those presented in Chapter IV: 2004 spending for the single-payer plan designs ranges from $8.2 billion in Plan 3A to $9.5 billion in Plan 1—98 and 114 percent, respectively, of spending in the base case.

More conservative assumptions about administrative savings produce single-payer cost estimates ranging from $8.5 billion to $9.9 billion in 2004 (see Table V.3). These estimates exceed the base-case spending levels by 2 and 18 percent, respectively. Conversely, if the single-payer system achieved particularly high administrative savings (reaching approximately the level reported by Medicare), single-payer costs could range from 95 percent (Plan 3A) to 110 percent (Plan 1) of the base case in 2004.

**Table V.3. Sensitivity of Total Spending to Alternative Administrative Cost and Cost Growth Assumptions (Low Managed Care)**

| | Low Administrative Savings | | Moderate Administrative Savings | | High Administrative Savings | |
|---|---|---|---|---|---|---|
| Year and Plan Type | Total Spending (in millions) | Percent of Base Case | Total Spending (in millions) | Percent of Base Case | Total Spending (in millions) | Percent of Base Case |
| **2004 Projections** | | | | | | |
| Plan 1 | $9,898.1 | 118% | $9,539.8 | 114% | $9,188.3 | 110% |
| Plan 2A | $9,024.6 | 108% | $8,703.2 | 104% | $8,387.8 | 100% |
| Plan 2B | $9,331.2 | 112% | $8,997.5 | 108% | $8,670.0 | 104% |
| Plan 2C | $9,528.6 | 114% | $9,186.4 | 110% | $8,850.7 | 106% |
| Plan 3A | $8,497.1 | 102% | $8,198.7 | 98% | $7,905.9 | 95% |
| Plan 3B | $8,972.3 | 107% | $8,654.7 | 104% | $8,343.1 | 100% |
| Plan 3C | $9,292.6 | 111% | $8,961.1 | 107% | $8,635.8 | 103% |
| **2008 Projections with Low Constraint in Cost Growth** | | | | | | |
| Plan 1 | $12,491.6 | 114% | $12,044.9 | 110% | $11,606.7 | 106% |
| Plan 2A | $11,380.8 | 104% | $10,980.6 | 100% | $10,587.9 | 96% |
| Plan 2B | $11,774.0 | 107% | $11,358.1 | 103% | $10,950.1 | 100% |
| Plan 2C | $12,022.6 | 109% | $11,596.2 | 106% | $11,177.8 | 102% |
| Plan 3A | $10,717.0 | 98% | $10,345.6 | 94% | $9,981.0 | 91% |
| Plan 3B | $11,324.2 | 103% | $10,928.4 | 100% | $10,539.9 | 96% |
| Plan 3C | $11,726.1 | 107% | $11,313.0 | 103% | $10,907.5 | 99% |
| **2008 Projections with Moderate Constraint in Cost Growth** | | | | | | |
| Plan 1 | $12,195.0 | 111% | $11,759.7 | 107% | $11,332.8 | 103% |
| Plan 2A | $11,112.7 | 101% | $10,722.8 | 98% | $10,340.1 | 94% |
| Plan 2B | $11,495.8 | 105% | $11,090.6 | 101% | $10,693.0 | 97% |
| Plan 2C | $11,738.1 | 107% | $11,322.6 | 103% | $10,914.9 | 99% |
| Plan 3A | $10,465.9 | 95% | $10,104.0 | 92% | $9,748.8 | 89% |
| Plan 3B | $11,057.6 | 101% | $10,671.9 | 97% | $10,293.3 | 94% |
| Plan 3C | $11,449.2 | 104% | $11,046.6 | 101% | $10,651.5 | 97% |
| **2008 Projections with Aggressive Constraint in Cost Growth** | | | | | | |
| Plan 1 | $11,898.4 | 108% | $11,474.6 | 104% | $11,058.9 | 101% |
| Plan 2A | $10,844.6 | 99% | $10,464.9 | 95% | $10,092.3 | 92% |
| Plan 2B | $11,217.6 | 102% | $10,823.1 | 99% | $10,435.9 | 95% |
| Plan 2C | $11,453.5 | 104% | $11,048.9 | 101% | $10,652.0 | 97% |
| Plan 3A | $10,214.8 | 93% | $9,862.4 | 90% | $9,516.6 | 87% |
| Plan 3B | $10,790.9 | 98% | $10,415.4 | 95% | $10,046.8 | 91% |
| Plan 3C | $11,172.2 | 102% | $10,780.2 | 98% | $10,395.6 | 95% |

Source: Mathematica Policy Research, Inc.

**Table V.4. Sensitivity of Total Spending to Alternative Administrative Cost and Cost Growth Assumptions (High Managed Care)**

| | Low Administrative Savings | | Moderate Administrative Savings | | High Administrative Savings | |
|---|---|---|---|---|---|---|
| Year and Plan Type | Total Spending (in millions) | Percent of Base Case | Total Spending (in millions) | Percent of Base Case | Total Spending (in millions) | Percent of Base Case |
| **2004 Projections** | | | | | | |
| Plan 1 | $9,650.1 | 115% | $9,302.0 | 111% | $8,960.6 | 107% |
| Plan 2A | $8,804.0 | 105% | $8,491.7 | 102% | $8,185.2 | 98% |
| Plan 2B | $9,105.1 | 109% | $8,780.7 | 105% | $8,462.4 | 101% |
| Plan 2C | $9,295.3 | 111% | $8,962.8 | 107% | $8,636.5 | 103% |
| Plan 3A | $8,297.5 | 99% | $8,007.3 | 96% | $7,722.5 | 92% |
| Plan 3B | $8,763.1 | 105% | $8,454.1 | 101% | $8,150.9 | 98% |
| Plan 3C | $9,070.8 | 109% | $8,748.4 | 105% | $8,432.1 | 101% |
| **2008 Projections with Low Constraint in Cost Growth** | | | | | | |
| Plan 1 | $12,186.8 | 111% | $11,752.6 | 107% | $11,326.6 | 103% |
| Plan 2A | $11,109.7 | 101% | $10,720.6 | 98% | $10,338.8 | 94% |
| Plan 2B | $11,496.2 | 105% | $11,091.7 | 101% | $10,694.8 | 97% |
| Plan 2C | $11,736.0 | 107% | $11,321.3 | 103% | $10,914.4 | 99% |
| Plan 3A | $10,471.6 | 95% | $10,110.2 | 92% | $9,755.4 | 89% |
| Plan 3B | $11,067.1 | 101% | $10,681.7 | 97% | $10,303.5 | 94% |
| Plan 3C | $11,453.6 | 104% | $11,051.6 | 101% | $10,657.0 | 97% |
| **2008 Projections with Moderate Constraint in Cost Growth** | | | | | | |
| Plan 1 | $11,898.0 | 108% | $11,475.0 | 104% | $11,059.9 | 101% |
| Plan 2A | $10,848.5 | 99% | $10,469.4 | 95% | $10,097.4 | 92% |
| Plan 2B | $11,225.1 | 102% | $10,831.0 | 99% | $10,444.2 | 95% |
| Plan 2C | $11,458.8 | 104% | $11,054.8 | 101% | $10,658.3 | 97% |
| Plan 3A | $10,226.8 | 93% | $9,874.7 | 90% | $9,529.0 | 87% |
| Plan 3B | $10,807.0 | 98% | $10,431.5 | 95% | $10,063.0 | 92% |
| Plan 3C | $11,183.6 | 102% | $10,791.9 | 98% | $10,407.5 | 95% |
| **2008 Projections with Aggressive Constraint in Cost Growth** | | | | | | |
| Plan 1 | $11,609.3 | 106% | $11,197.3 | 102% | $10,793.2 | 98% |
| Plan 2A | $10,587.4 | 96% | $10,218.2 | 93% | $9,856.0 | 90% |
| Plan 2B | $10,954.1 | 100% | $10,570.3 | 96% | $10,193.7 | 93% |
| Plan 2C | $11,181.6 | 102% | $10,788.2 | 98% | $10,402.1 | 95% |
| Plan 3A | $9,982.0 | 91% | $9,639.1 | 88% | $9,302.6 | 85% |
| Plan 3B | $10,546.9 | 96% | $10,181.4 | 93% | $9,822.6 | 89% |
| Plan 3C | $10,913.6 | 99% | $10,532.2 | 96% | $10,157.9 | 92% |

Source: Mathematica Policy Research, Inc.

Different assumptions about the single-payer system's ability to constrain the underlying cost trend also have large effects on our estimates of total spending beyond the implementation year. Assuming moderate cost constraints and depending on the benefit design, single-payer spending is projected to range between $10.1 billion and $11.8 billion by 2008. These estimates are 92 to 107 percent of base-case spending in 2008. A more conservative assumption about the ability of a single-payer health system to constrain underlying health care cost trends produces 2008 spending projections that range between 94 percent (Plan 3A) and 110 percent (Plan 1) of cost in the base case. Conversely, with more aggressive constraints on cost growth, projected total costs would range between 90 percent (Plan 3A) and 104 percent (Plan 1) of the base case by 2008.

The low managed care environment contains the highest-cost scenario within the plausible ranges that we tested—low administrative cost savings and low constraints on underlying cost trends, together with low managed care. With the convergence of these conditions, the cost of a single-payer system in 2004 would range from at least 2 percent higher (Plan 3A) to as much as 18 percent higher than the base case (Plan 1). These percentage differences correspond to a higher total cost for a single-payer system that would range from $0.1 billion to $1.5 billion more than the projected cost of Maine's current system. By 2008, the cost margin between a single-payer system and the base case would still narrow, reflecting the retention of some cost control in a single-payer system. Assuming low administrative savings, Plan 1 would cost 14 percent more than the base case while Plan 3A would cost 2 percent less.

### 2. Variation in Administrative Cost Savings and Constraints on Cost in a High Managed Care Environment

Spending projections for all plan designs are predictably lower under the assumption that base-case HMO savings are fully retained under a single-payer system. Higher HMO enrollment, however, is likely to generate somewhat higher administrative costs, consistent with the broader use of cost containment strategies such as primary care case management and utilization review. Thus, in considering the high managed care scenarios in Table V.4, the reader should pay particular attention to the scenarios with relatively low administrative cost savings.

Assuming a high managed care environment, projected total spending in a single-payer system ranges between 99 percent (Plan 3A) and 115 percent (Plan 1) of base case costs in 2004. With moderate constraints on health care cost trends, the projected cost of these plan designs drops in 2008 to 93 and 108 percent, respectively, of the base case. A more conservative assumption about the potential for constraining underlying cost trends yields only slightly higher estimates of total spending in 2008: between 95 and 111 percent of the base case.

The least-cost scenario for the single-payer health care system occurs with the convergence of more extensive managed care, high administrative cost savings, and aggressive constraints on cost growth. With these conditions in place, projected spending in single-payer Plan 1 is 107 percent of the base case in 2004; in Plan 3A, projected spending is

92 percent 7 the base case. By 2008, all the single-payer plan designs generate lower costs than the base case, with Plan 1 producing 2 percent savings and Plan 3A producing 15 percent savings.

## C. FINANCING STRATEGIES

The range of cost estimates presented above provides a general sense of how unexpected cost levels and growth may affect net costs of a single-payer system and therefore the adequacy of the system's financing. Considering the obvious uncertainties inherent in any health insurance system, Maine would be prudent to consider the amount of reserves that might be required to ensure a stable system over time. This is not a trivial problem and certainly warrants more analysis than we are able to offer here, specifically as related to the major concerns of any insurance plan in projecting cost: possible changes in patterns of illness or injury, technology, and provider organization. However, the sensitivity results suggest the general range of reserves that might be required in both the near and longer terms to finance the net costs of a single-payer system, that is, projected total spending net of consumer out-of-pocket cost, federal and state maintenance of effort, obligated general revenues, and a baseline payroll tax that would retain the value of private employer contributions to premiums.

We also consider the financing requirements suggested by the sensitivity results measured as a percentage of payroll. While it probably would be unwise for Maine to consider financing a single-payer system on a single base, consideration of the range of projected net costs as a percentage of payroll offers a clear sense of the range of burden that is associated with differences in administrative cost savings and constraints on effective health care cost trends.

### 1. Implications of Cost Sensitivity for the Net Cost of a Single-Payer Plan

Table V.5 reports the projected net cost of each single-payer plan design in 2004 within the low managed care environment. Regardless of plan design, differences in the administrative costs may be an important component of uncertainty in the implementation year of a single-payer system. A single-payer plan that achieved low administrative cost savings would incur a net cost that is 12 to 23 percent higher than a plan that achieved moderate administrative cost savings. However, the highest-percentage difference—associated with Plan 3A—corresponds to the lowest absolute difference in cost: about $3 million on a projected net cost base of $1.3 billion in 2004.

Although the level of administrative costs in a single-payer system becomes known in the years following implementation, the uncertainty associated with the underlying cost trends remains. Table V.6 displays the net cost of each plan design under alternative assumptions about cost growth between 2004 and 2008, given the level of administrative

**Table V.5. Projected Net Cost of a Single Payer System with Alternative Administrative Cost Savings in a Low Managed Care Environment, 2004 (in millions)**

| | Low Administrative Savings | Moderate Administrative Savings | Ratio | Difference |
|---|---|---|---|---|
| Plan 1 | $3,348.9 | $2,990.6 | 112.0% | $358.3 |
| Plan 2A | $2,282.1 | $1,960.7 | 116.4% | $321.4 |
| Plan 2B | $2,647.1 | $2,313.4 | 114.4% | $333.7 |
| Plan 2C | $2,889.8 | $2,547.6 | 113.4% | $342.2 |
| Plan 3A | $1,614.6 | $1,316.2 | 122.7% | $298.4 |
| Plan 3B | $2,186.9 | $1,869.2 | 117.0% | $317.7 |
| Plan 3C | $2,586.0 | $2,254.5 | 114.7% | $331.5 |

Source: Mathematica Policy Research, Inc.

cost savings that may emerge. For most of the plan designs, regardless of the administrative cost savings of a single-payer system, a higher cost trend produces net plan costs 18 to 33 percent higher than an intermediate cost trend. Again, greater percentage margins systematically correspond to the lower-cost plan designs: for Plan 3A, the net cost margin associated with the different cost trends is 40 to 55 percent, depending on the administrative cost savings that the single-payer system would achieve.

## 2. Variation in Net Cost as a Percentage of Payroll

Table IV.7 expresses the net cost of Plans 1 and 3A in terms of the additional rate on payroll that would be required to finance them. The net cost of the two plan designs defines the range of net costs for all the plan designs that we considered. Recognizing that substantial burden on payroll is currently built into employer-sponsored financing of health care, we also report net costs in terms of the total implied burden on payroll.

In 2004, the difference between moderate and high administrative cost savings for Plan 1 (a relatively likely range for this plan design) translates to an additional rate on payroll of 10 percent versus 9 percent. Measured as total burden on payroll, high administrative cost savings would reduce the financing burden for Plan 1 from 17 percent of payroll to 16 percent. Because Plan 3A involves cost sharing for a larger share of the population, it probably would incur higher administrative costs. Therefore, it is instructive to look at the difference in burden associated with achieving moderate versus low administrative cost savings. Again, the difference in additional burden relative to payroll is about 1 percentage point: 4.5 percent versus 5.5 percent, if administrative cost savings were moderate versus low. This translates into a total burden relative to payroll of 12.1 percent versus 11.1 percent.

**Table V.6. Projected Net Cost of a Single Payer System with Alternative Administrative Cost Savings and Cost Trends in a Low Managed Care Environment, 2008 (in millions)**

| | Low Administrative Savings | | | | Moderate Administrative Savings | | | |
|---|---|---|---|---|---|---|---|---|
| | Low constraint on cost growth | High constraint on cost growth | Ratio | Difference | Low constraint on cost growth | High constraint on cost growth | Ratio | Difference |
| Plan 1 | $3,868.4 | $3,277.8 | 118.0% | $590.6 | $3,421.7 | $2,854.1 | 119.9% | $567.6 |
| Plan 2A | $2,509.9 | $1,989.0 | 126.2% | $520.9 | $2,109.7 | $1,609.3 | 131.1% | $500.4 |
| Plan 2B | $2,979.4 | $2,434.4 | 122.4% | $545.0 | $2,563.5 | $2,039.9 | 125.7% | $523.6 |
| Plan 2C | $3,285.5 | $2,724.9 | 120.6% | $560.6 | $2,859.1 | $2,320.3 | 123.2% | $538.8 |
| Plan 3A | $1,668.6 | $1,190.9 | 140.1% | $477.7 | $1,297.2 | $838.5 | 154.7% | $458.7 |
| Plan 3B | $2,402.0 | $1,886.6 | 127.3% | $515.4 | $2,006.1 | $1,511.1 | 132.8% | $495.0 |
| Plan 3C | $2,903.6 | $2,362.5 | 122.9% | $541.1 | $2,490.4 | $1,970.5 | 126.4% | $519.9 |

Source: Mathematica Policy Research, Inc.

In 2008, uncertainty about the system's ability to constrain health care costs is greater than uncertainty about administrative cost savings. However, the potential volatility of the financing burden is lower in 2008—that is, for a given plan design and a given administrative cost savings level, differences in the ability of the system to constrain cost translate into relatively narrow differences in net cost expressed as a percentage of payroll. Comparing the results of low versus moderate constraints on underlying costs in Plan 1 (see Table V.8), net costs expressed as the additional burden on payroll vary less than 1 percentage point—between 8.7 and 9.4 percent (a total burden of 15.5 to 16.2 percent). For Plan 3A, net costs vary between 3.6 and 4 percent of payroll (a total burden of 9.7 to 10.4 percent).

Finally, consideration of the "worst-case" scenario—with low managed care, low administrative cost savings and low constraints on cost growth—is instructive. The difference in burden relative to payroll between the moderate-constraint and low-constraint estimates (assuming low administrative cost savings) is 0.6 percentage points for both Plans 1 and 3A. That is, the additional burden of Plan 1 associated with a high cost trend would be 10.7 percent versus 9.9 percent (a total burden of 17.5 percent versus 16.7 percent). For Plan 3A, a high cost trend would raise the additional burden relative to payroll to 4.6 percent from 4 percent (a total burden of 11.4 percent versus 10.8 percent).

**Table V.7. Projected Net Cost of Selected Single Payer Plan Designs a Percentage of Payroll in 2004: Alternative Administrative Cost Assumptions in a Low Managed Care Environment**

| | Low administrative cost savings | | Moderate administrative cost savings | | High administrative cost savings | |
|---|---|---|---|---|---|---|
| | Additional rate | Total rate | Additional rate | Total rate | Additional rate | Total rate |
| Plan 1 | 11.4% | 18.0% | 10.2% | 16.8% | 9.0% | 15.6% |
| Plan 3A | 5.5% | 12.1% | 4.5% | 11.1% | 3.5% | 10.1% |

Source: Mathematica Policy Research, Inc.

## D. SUMMARY AND DISCUSSION

The sensitivity estimates presented in this chapter offer a valuable perspective on the implications of uncertainty about administrative costs and cost trends for a single-payer system in Maine. They yield important information about the significance of managed care and also about the "worst-case" costs that such a system may incur. Managed care is potentially a critical factor in making a single-payer system affordable relative to the status quo. For every plan design, elimination of private sector enrollment in managed care (retaining only PCCM for the same percentage of persons who receive the MaineCare benefit as now exists among MaineCare beneficiaries) raises projected total costs by about 3 percentage points relative to the base case.

The "worst-case" scenario estimated in this chapter—-that is, low managed care coupled with low administrative cost savings and low constraints on spending—is also instructive. Depending on the plan design, the scenario yields total plan costs that range between just 102 and 118 percent of the base case in 2004. By 2008, the various plan designs would cost from 98 to 114 percent of the base case. These estimates are less optimistic than those developed for other states using different analytic methods, but they are more encouraging than some might expect.

**Table V.8. Projected Net Cost of Selected Single Payer Plan Designs as a Percentage of Payroll in 2008: Alternative Administrative Cost Assumptions in a Low Managed Care Environment**

| | Low Administrative Cost Savings | | Moderate Administrative Cost Savings | | High Administrative Cost Savings | |
|---|---|---|---|---|---|---|
| | Additional rate | Total rate | Additional rate | Total rate | Additional rate | Total rate |
| **Low Constraint on Cost Growth** | | | | | | |
| Plan 1 | 10.7% | 17.5% | 9.4% | 16.2% | 8.2% | 15.0% |
| Plan 3A | 4.6% | 11.4% | 4.0% | 10.4% | 2.6% | 9.4% |
| **Moderate Constraint on Cost Growth** | | | | | | |
| Plan 1 | 9.9% | 16.7% | 8.7% | 15.5% | 7.5% | 14.3% |
| Plan 3A | 4.0% | 10.8% | 3.6% | 9.7% | 2.0% | 8.8% |
| **Aggressive Constraint on Cost Growth** | | | | | | |
| Plan 1 | 9.1% | 15.9% | 7.9% | 14.7% | 6.7% | 13.5% |
| Plan 3A | 3.3% | 10.1% | 2.3% | 9.1% | 1.4% | 8.2% |

Source: Mathematica Policy Research, Inc.

Finally, the alternative scenarios yield estimates of net plan cost (after subtracting consumer out-of-pocket spending, federal and state maintenance of effort, obligated general revenues, and the retained value of employer contributions to health insurance) that offer a sense of the financing burden that might evolve, given uncertainty about the potential for reducing administrative costs and containing health care costs.

Two concluding points are in order with respect to the projected financing burden. First, given the managed care environment and plan design of a single-payer system, the net cost of the single-payer plan is sensitive to administrative cost savings as well as to cost trends. The net cost projections presented in this chapter suggest that the percentage and level of reserves that Maine might consider for a single-payer system would vary with the plan's design and the state's confidence about constraining administrative costs and underlying cost growth.

Secondly, given the managed care environment and plan design, the implications of uncertainty about administrative costs and cost growth for financing the system are not what might be expected. Differences in net plan cost expressed as a percentage of payroll are narrow—and always within a percentage point for plausible ranges of error.

# CHAPTER VI

# REMAINING ISSUES AND MODEL LIMITATIONS

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Estimates from the Maine Microsimulation Model provide valuable information about how a single-payer health insurance system is likely to affect health care spending, financing and economic activity in Maine. Nevertheless, like all policy simulation models, this model imposes simplifying assumptions on the health care and health insurance systems it represents in order to make the estimation tractable. Users must interpret estimates from the microsimulation model with caution, taking into account the assumptions used in the model and how they affect the results. In addition, the model is silent on many important operational and policy issues that must be addressed in order to make the transition to a single-payer system.

This chapter examines some pressing policy issues and questions concerning a single-payer health care system that the Maine Microsimulation Model does not address. We begin by exploring a number of practical and policy questions that Maine must consider in designing a single payer system. We believe that these questions have policy importance, but most are unlikely to affect the model's estimates fundamentally. They include options for achieving federal maintenance of effort, phasing in different coverage groups, addressing the growth in demand for care, and setting provider payment levels.

Next, we examine important caveats and limitations of the Maine Micosimulation Model that should be considered when interpreting model results. In this light, we recommend several enhancements to the model that may improve its precision and usefulness to Maine in considering impacts of a single payer system or other major health care financing reforms.

Finally, we identify areas where Maine might benefit from additional research specific to the state's current health care and health insurance markets. This additional research might help Maine refine the estimates of cost and economic impact associated with a single-payer system and also support a planning process for implementation.

## A. TRANSITION ISSUES

### 1. Federal Maintenance of Effort

Federal programs are a major source of payments for health care in Maine, and retaining federal funds would be essential to the feasibility of a single payer system. Therefore, understanding in some detail how a single payer system might calculate and accept federal funds is essential.

The two largest programs with federal funding in Maine are MaineCare and Medicare. Retaining federal matching funds for MaineCare seems straightforward. The scenarios we have estimated assume no disruption of the MaineCare program and full enrollment of all persons who are eligible. They entail no change in either eligibility rules or the MaineCare benefit. For such a system, we would anticipate no change that would require specific state or federal attention related to integration of the MaineCare program.

Reflecting the aging of the population, Medicare will become an increasingly important source of health care financing in Maine, and retaining federal funding for Medicare beneficiaries in a single payer system will require attention. Including Medicare beneficiaries in the single payer system would provide them with full supplemental coverage and make the transition into Medicare coverage seamless and transparent.

There are a number of ways that the single payer system might draw Medicare funds to finance Mainers who are Medicare-eligible. The financing estimates presented in this report (and built into the microsimulation model) assume that Medicare payments are calculated as they would occur in the base case and paid as a capitation amount. While such an arrangement would require that Maine enter into a special arrangement with Medicare, there is some precedent for this approach—including Medicare's current arrangement with the United Mineworkers Plan and a past arrangement with TriCare. Nevertheless, negotiating such an arrangement might require considerable effort for Maine, as would negotiating an update factor that would retain Medicare funding per capita as the single payer system succeeded in curbing cost growth in the long term.

Alternatively, the single payer system might consider simply coordinating Medicare benefits with the single payer system—making Medicare first payer for Medicare-covered services. While this approach is relatively simple administratively, it would complicate the overall financing of the single payer system by subjecting it to changes in Medicare reimbursement levels. In addition, with coordination of benefits, hospitals and medical care providers would remain subject to Medicare's administrative rules and procedures for Medicare payment, quality assurance and cost reporting. In effect, it would retain a second payer in Maine's system to which providers would remain directly accountable.

Deciding between these alternatives will require both more specific analysis of current Medicare payments in Maine and undertaking at least preliminary conversations with CMS to understand more fully whether there may be additional options. We would advise also

building a separate small component of the microsimulation model to calculate Medicare payments under alternative, specific forms of maintenance of effort.

## 2. Phasing in Coverage Groups

Maine might consider building a single payer system up gradually, phasing in specific populations over time. Such populations might include Medicare beneficiaries, self-insured employer groups (i.e., ERISA plans), federal employees who are enrolled in FEHBP, CHAMPUS/VA enrollees, and persons served by the Indian Health Service. All of these populations are now insured and therefore may not be priority populations in considering major system reform.

However, moving all of Maine's population into a single payer system at the same time would offer some important advantages. First, it would simplify the administration of health care financing by standardizing coverage and consolidating the source of payment. This simplification is critical to achieving the level of administrative savings needed to finance coverage for Mainers who now uninsured, together with a high benefit standard for all. Second, it would ensure that cost shifting among payer groups is eliminated. The ability of payers to shift cost, intentionally or otherwise, would make the financing of a single payer system more difficult. Third, it would eliminate the potential for problems of biased selection, if individuals were able to choose among sources of coverage. Fourth, it would eliminate the potential for gaps in coverage for individuals and families in transition, and potentially problems of access for some insured populations. Finally, it would maximize risk spreading and minimize problems of equity in financing. In addition to these advantages, the small size of Maine's population makes managing the whole population in a single plan relatively simple administratively.

We would advise that the relative costs and benefits of phasing in some populations be given very careful consideration, potentially taking the following questions as a template for analysis:

- Does holding a specific population out of the single payer system seriously affect the system's ability to reduce overall administrative complexity and cost?

- Is it possible to "firewall" the single payer system from cost shifting and for how long?

- How might the parallel system cause adverse selection for the single payer system?

- What is the potential for gaps in coverage? What populations are most at risk, and how might gaps in coverage affect single payer plan cost?

- How might nonparticipation of a specific population affect the cost/benefit tradeoff for participants in the single payer system?

- Is it possible to negotiate and retain federal maintenance of effort, if that population otherwise would draw federal funding?

### 3. Addressing Growth in Demand for Care

Expanding health insurance coverage to the uninsured and underinsured through a single-payer health care system would improve financial access to care and, therefore, stimulate additional demand for health care. Accommodating this additional demand will be a key concern for health care providers, particularly in rural areas where access to health care professionals and facilities is already a problem. The single-payer spending estimates presented in Chapter IV are based on a projected average increase in demand for health care ranging from 15 to 23 percent, depending on the plan design. Geographic areas where health insurance coverage is lower than Maine's statewide average are likely to experience higher than average increases in demand.

Relieving health care providers of some administrative burden might help them to accommodate some of the increased demand for health care, improving their productivity. In a single-payer system with lower administrative burden, clinicians might spend a larger share of time on direct patient care and less on administrative tasks such as billing, prior authorization, and benefits determination. However, even with enhanced productivity, many providers will need to add clinical staff and facilities. A sound implementation strategy for a single-payer health system should include provisions for increasing health professions training and recruitment activities to meet the anticipated new demand for health care.

At present, the single-payer health care spending projections produced by the Maine Microsimulation Model do not include costs for clinical training and recruitment, or the additional economic activity associated with clinical training and recruitment. Similarly, unemployment and retraining costs associated with the disruption of employment among administrative staff (especially in hospitals and medical provider offices) are not estimated in the model. All of these changes will require time, training, and expense to move through a transition to the single-payer system.

### 4. Changing Provider Payment Levels and Methods

A single-payer health care system may require health care providers to accommodate a number of important changes in payment levels and methods that collectively would reprice health care services. Such changes would include:

- Lowering payments to reflect a reduction in providers' administrative costs

- Lowering payments to reflect the reduction or elimination of uncompensated care

- Constraining growth in total health care spending, using global budgeting and other payment incentives.

The Maine Microsimulation Model develops estimates of single-payer spending as if these payment changes occur instantaneously and universally across Maine's health care system. In reality, however, these payment changes will need to be instituted over time (and synchronized with changes in the underlying operating costs of health care providers) to avoid overburdening Maine's health care delivery system. Health care providers are likely to see their administrative costs decline gradually under a single-payer system, as they adjust their administrative processes and personnel to fit the requirements of the new financing system. Similarly, uncompensated care costs may decline gradually over time, if Maine phases enrollment in the single-payer system.

Accommodate gradual changes in the underlying cost structure of health care providers will require consideration of transitional payment policies that introduce payment adjustments over time. One strategy for phasing in payment adjustments is to hold providers harmless in the initial years of implementation, guaranteeing providers a minimum level of revenue per capita (per case or per relative value unit). This guaranteed payment level could be set at the current level of spending in the first year of single-payer implementation, and then adjusted in subsequent years to reflect administrative savings, reductions in uncompensated care, and the underlying health care cost trend.

### 5. Incorporating Other Health Care Payers

In general, it may be very difficult for Maine to create a true single-payer system. While Maine may succeed in making some major payers transparent to providers (including MaineCare, Medicare, FEHBP, and CHAMPUS), it may be impossible to enfold every resident and every health care expenditure into the single payer system. Some (including retirees moving into Maine with benefits from an out-of-state employer, or emergency care for non-residents) may inevitably remain outside the system, although, they will represent a very small share of total spending.

The estimates presented in this report do not consider some entities' payments for health care services that Maine may ultimately wish to consider incorporating into the single-payer health plan. These entities include Workers Compensation and automobile insurers, as well as general liability insurers that cover bodily injury. The total payments associated with these insurers are small; Maine Bureau of Insurance estimates suggest that they are less than 2 percent of total spending for health care services in Maine.

Fully incorporating these insurers' liabilities for health care would offer several advantages. It would maintain administrative simplicity in the single payer system, as providers would no longer bill multiple payers. It would reduce the cost of Workers Compensation and general liability insurance, relieving employers of significant burden. Finally, it would reduce the cost of automobile insurance, recognizing that the single-payer system would in any case absorb the health care costs associated with drivers who are uninsured or underinsured.

However, absorbing these costs into the single payer system might also introduce some problems, both in the short term and in the long term. In the short term, retaining the funds

that these insurance systems now contribute to Maine's health care system probably would be desirable. In any case, Maine should consider the incidence of burden for these insurance payments carefully, and identify the implications for equity and economic efficiency that may result from absorbing the burden of these payments into the single payer system. In the long term, Maine should consider the incentives for safety that might result by divorcing the cost of health care from activities (such as hazardous jobs or reckless driving) that may cause illness or injury.

### 6. Accommodating Residents Employed Out-of-State

A substantial minority of Maine's working population is employed in nearby states and may also have coverage from their out-of-state employer. Maine would need to consider whether and how such workers and their families might become eligible to participate in the single payer system. Assuming either payroll-tax or personal income tax financing (or both), this situation would require that the worker elect both to participate in Maine's single payer system and to have their out-of-state employer withhold appropriately from their paycheck.

Adjusting withholding for greater personal income tax payments, regardless of the employer's location, seems straightforward. However, use of a payroll tax would require that out-of-state employers modify their current systems of withholding and direct payments to Maine. Maine might consider developing guidelines (and even software) to assist out-of-state employers in payroll withholding in order to facilitate Maine residents' participation in the single payer system. Because Mainers are likely to use health care where they reside, greater participation of Maine residents in the single payer system, regardless of where they are employed, would reduce the system's administrative complexity.

There are a number of models specifically related to current local tax systems that Maine might consider. For example, some cities tax the earnings of residents regardless of their place of work (as well as persons who work there). Maine might investigate whether and how residents who are employed outside such a city withhold income to pay these taxes, in order to inform the development of income withholding guidelines for out-of-state employers.

Finally, the failure of residents to select the single payer system when they have employer-provided coverage out-of-state introduces some potential for adverse selection in the single payer plan, although it probably is not great. Maine might deal with this problem by using conventional insurance methods to deter adverse selection, such as waiting periods or periodic open enrollment. However, any such method is likely to result in gaps in coverage for some individuals and families, and therefore, some level of uncompensated care for Maine health care providers.

### 7. Addressing the Potential for In-migration

Implementation of a universal coverage, single-payer health system at a state level raises the possibility that individuals who reside outside the state would relocate to Maine obtain health care coverage. The incentives for relocation may be particularly strong for individuals

excluded from private health insurance coverage in other states due to pre-existing medical conditions or insurance rating practices. If Maine's single payer system attracted individuals who were particularly costly to insure and also contributed relatively little to Maine's tax base, they could add significantly to the cost of financing a single-payer health insurance system.

While Maine's experience with other public programs (for example, cash assistance under the Temporary Assistance for Needy Families program) suggests that the relocation incentives associated with program generosity are relatively modest, it may still wish to consider some strategy to reduce the incentives for in-migration created by a single-payer health system. For example, Maine might impose a look-back provision or waiting period for new residents to become eligible for coverage under the single-payer system. This might reduce relocation incentives by requiring new Maine residents to meet minimum residency requirements before obtaining eligibility for coverage under the single-payer system.

## B. IMPORTANT CAVEATS AND LIMITATIONS OF THE CURRENT MODEL

The Maine Microsimulation Model includes a number of important limitations that should be borne in mind when using the model and interpreting its results and implications. Like all policy simulation applications, the model imposes simplifying assumptions on the health care and health insurance systems it represents in order to make the estimation of costs and economic impacts tractable. Some of these simplifying assumptions and limitations will be relaxed when additional data and model development time become available under Maine's HRSA State Planning Grant activities that will take place during 2003. However, the current version of the Maine Microsimulation Model must be used with the following limitations in mind.

### 1. Regional Estimates

The model is designed to produce both statewide and regional estimates of health care spending in Maine. Regional estimates are based in part on regional per capita health care cost estimates. These were constructed from claims data maintained by the Maine Health Care Management Coalition (for large employers) and the Bureau of Medical Services (for Medicaid). However, because the CPS does not provide regional estimates of population and insurance coverage characteristics, we allocated Maine's CPS sample into regions based on county-level Medicare and Medicaid distributions (for Medicare and Medicaid beneficiaries) and based on county age and gender distributions (for everyone else in the CPS sample). Because we were unable to identify regional differences in health insurance coverage rates beyond those due to Medicaid and Medicare coverage and population demographics, the model's regional spending estimates are relatively imprecise. This limitation of the current model can be addressed when data from the Maine household survey become available; this survey is being conducted under the HRSA State Planning Grant.

## 2. Single-Payer Estimates by Coverage Subgroups

The Maine Microsimulation Model uses per capita health care cost estimates generated from Watson Wyatt and Company's PreView™ Medical Benefits Model to project health care spending under alternative benefit designs for a single-payer health plan. For each benefit design, the PreView model produces age-group specific estimates of per capita covered charges and out-of-pocket expenses by type of service. These estimates represent statewide averages for all Maine residents; they do not reflect the underlying variation in health care utilization across population subgroups defined by their base case source of insurance coverage. The current version of the Maine Microsimulation Model adjusts these statewide single-payer spending estimates for changes in the demand for health care that are expected to result from changes in out-of-pocket spending in a single-payer health system. However, it does not adjust spending estimates for underlying variation in health care utilization due to differences in health status or health risk (other than age). For example, the model does not account for the fact that individuals covered by MaineCare in the base case are likely to have higher than average health care spending in the single-payer system due to differences in health status and health risks.

This limitation is likely to introduce some imprecision into estimates of how health care spending changes for specific population subgroups when they obtain coverage under the single-payer health system. Specifically, the model may under-estimate changes in health care spending for subgroups with higher-than-average health care needs and risks, and over-estimate spending changes for low-risk subgroups. Additional model development as part of the HRSA State Planning Grant work will address this limitation by constructing adjustment parameters for the single-payer spending estimates produced by the PreView model.

## 3. Interaction between Financing and Economic Impact Estimates

At present, the model does not integrate the financing and economic impact estimates. Thus, net increases in tax burden generate no change in work effort or employment, and projected employment levels do not adjust automatically when other aspects of the model are changed. Similarly, changes in employment do automatically case levels of payroll or taxable income to change. Incorporating these interactions into the Maine Microsimulation Model would help in understanding and predicting impacts more precisely, and could also help in guiding the system's management and policy direction after implementation.

Maine has in place an economic forecasting model as well as a state revenue model. The most reasonable approach to integrating the financing and economic impact modules would be to incorporate the specific logic and results of these models directly into the Maine Microsimulation Model, to ensure that the results of all three correspond. This enhancement would allow us to understand not only how changes in plan cost and financing might affect Maine's economy, but also the distributional impacts of a single payer system on Maine households.

## C. RECOMMENDATIONS FOR ADDITIONAL RESEARCH

In completing this microsimulation study, we identified a number of areas where Maine might benefit from additional research specific to Maine's health care and health insurance markets. These areas include:

- ***The level and composition of insurers' administrative expense.*** Administrative cost savings are essential to the feasibility of a single payer system in Maine – and indeed, to any reform that would significantly broaden coverage or improve benefits for the covered population. The policy discussion would benefit from a clearer understanding of the composition of insurers' administrative expense in Maine, as well as the factors that drive greater or less administrative expense. This latter analysis might include a comparison of Maine insurers to insurers in other states.

- ***The level and composition of provider expenses.*** A single-payer system would change the cost structure of health care providers by reducing provider spending on administration and reducing cost-shifting for uncompensated care. Like savings on insurer administration, provider cost savings are essential to the feasibility of a single payer system in Maine. Acquiring more detailed information on the composition of hospital and physician practice expenses in Maine would support more precise estimates of the cost-savings likely to accrue through a single-payer system, and the economic impact of such a system on health care providers. A detailed cost study of a representative group of Maine hospitals and medical practices could provide this valuable information.

- ***The economic impact of health care access.*** Very little analysis of the impact of greater access to health care on worker's productivity and economic development is available. Moreover, it is extremely difficult to compare what research is available with the situation that Maine may encounter with improved access. The population survey data that Maine is collecting under its State Health Planning Grant, compared with other states' data, may offer an excellent opportunity to refine estimates of employment and productivity that may result from improved access to care.

- ***The economic impact of health care reform on employment and training in Maine.*** In the timeframe of this project, we were unable to adequately explore the implications and cost of the change in employment that may result from major reform of Maine's health care sector. Addressing this question would require a workforce study that might occur in the context of a larger look at workforce and economic development in Maine. Such a study would offer a clearer picture of the time, resources and training that major reform of health care financing in Maine would entail, and assist in developing a planning process to accommodate reform.

Additional information in these areas would support refinements to the Maine Microsimulation Model and improved estimates of the cost and economic impacts of a single-payer reform, as well as alternative major reforms that Maine may consider.

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# LIST OF ACRONYMS

AHA: American Hospital Association

AHRQ: Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services

AMA: American Medical Association

CHAMPUS: Civilian Health and Medical Program of the Uniformed Services

CMS: Centers for Medicare & Medicaid Services, U.S. Department of Health and Human Services

COBRA: Consolidated Omnibus Budget Reconciliation Act of 1986

CPS: Current Population Survey

CRS: Congressional Research Service

DRG: Diagnosis Related Groups, as defined in Medicare's hospital payment system

ERISA plans: Employer-sponsored benefit plans subject to the Employee Retirement Income Security Act of 1974

FEHBP: Federal Employee Health Benefits Program

FPL: Federal Poverty Level

HIPAA: Health Insurance Portability and Accountability Act of 1996

HMO: Health maintenance organization

HRET: Health Research and Educational Trust

HRSA: Health Resources and Services Administration, U.S. Department of Health and Human Services

IRP: Insurance reference person, as defined in the Current Population Survey

MCBS: Medicare Current Beneficiary Survey, conducted by CMS

MEPS: Medical Expenditure Panel Survey, conducted by AHRQ

MHIC: Maine Health Information Center

MHMC: Maine Health Management Coalition

PCCM: Primary care case management

RBRVS: Resource Based Relative Value Scale, as defined in Medicare's physician payment system

SCHIP: State Children's Health Insurance Program

TRICARE: Managed health care program of the U.S. Department of Defense

VA: U.S. Department of Veterans Affairs