Unemployment Insurance Financing Options in Massachusetts

by

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December 2003

* Economist, the Urban Institute. This work was supported by the Rockefeller Foundation. Conclusions expressed are those of the author and do not necessarily reflect the views of the Urban Institute or the Rockefeller Foundation.

Table of Contents

	Page
Introduction	1
I. The Massachusetts Economy and its UI Program	2
II. Assigning Tax Rates to Individual Employers	10
A. Experience Rating Systems	10
B. Measuring Experience Rating	13
C. Actual and Proposed Tax Rate Schedules	16
III. Analysis of Revenues, Benefits and the Trust Fund Balance	21
A. A Short Description of the Model	21
B. Changing the Taxable Wage Base	26
C. Simulations of the Trust Fund Balance	30
IV. Options and Recommendations	32
Annex: Legislation of November 2003	35

Introduction

At the end of September 2003 the balance in the Unemployment Insurance (UI) trust fund in Massachusetts totaled less than $300 million. The projection from the Division of Employment and Training (DET) in its quarterly trust fund report of September 2003 was for the end-of-year balance to descend to $54 million. Given the seasonal pattern of low tax receipts and high benefit outlays that will occur during January-April 2004, it is almost certain that DET will need to borrow to make benefit payments during the early months of next year.

If Massachusetts does borrow in 2004, it will represent the third episode of borrowing since 1975. Loans and indebtedness were experienced between 1975 and 1980 and again between 1991 and 1993. It should also be noted that the UI trust fund balance would be even lower had the state not received a one time distribution of $193.6 million in Reed Act funds in March 2002.

Given the large scale loss of reserves experienced during 2001-2003 (more than $2.0 billion), several proposals have been offered to improve UI financing starting in 2004. Governor Mitt Romney and Senator Brian Lees each proposed a major revamping of the schedules used to assign tax (contribution) rates to individual employers. Both proposals would increase the potential range of UI tax rates and improve the assignment of tax rates to employers according to the balances in their individual reserve accounts.

Several bills would increase the taxable wage base in Massachusetts. The Governor proposed to increase the current taxable wage base of $10,800 per person to $12,800 in 2004. The proposed bill from the House of Representatives would increase the tax base to $14,800 in 2004 and index (link) the tax base to increases in statewide average wages starting in 2005.

Important changes in program financing are also proposed in the report of the Senate Committee on Post Audit and Oversight. The Post Audit report identifies four separate options for immediately improving financing in 2004 with revenue increases in the $380-$610 million range for the year. The increases in revenues would be achieved through movements to higher tax rate schedules (from the current Schedule B, operative during1999-2003), raising the tax base and indexing the tax base starting in 2005.

The present report has four main sections. Section I reviews salient aspects of the Massachusetts economy and its UI program. The review extends back to the late 1960s but primarily emphasizes developments since the mid 1980s. Key features of benefit outlays, tax receipts and the UI trust fund balance are examined. Section II examines experience rating, i.e., the assignment of tax rates to individual employers. Section III reports results of simulations undertaken with a model developed by the author at the Urban Institute. The simulation analysis primarily emphasizes the short run effects of alternative economic conditions and alternative financing strategies. Section IV discusses some financing options and makes recommendations. Finally, an annex to the report describes and briefly assesses the main provisions of the legislation that was passed in late November 2003.

Two broad options are recommended. 1. The state should at a minimum enact a major increase in its current taxable wage base of $10,800 per covered worker. Raising the tax base to $18,000 in 2004 would restore the taxable wage-total wage ratio (or taxable wage proportion) to its level as of 1992 when the tax base was increased as part of earlier solvency legislation. To prevent erosion of this higher tax base, it should be tied to change automatically with changes in average wages in covered employment. 2. The set of tax rate schedules should be modified to allow tax rates to vary over broader range of reserve ratios with a broadened range of tax rates compared to the current schedules. At present, there are three proposals to make such changes: the proposals of Governor Romney, of Senator Lees' and of the Senate Committee on Post Audit and Oversight. All three proposals provide a good basis for improving the effectiveness of assigning benefit costs to the individual employers where UI costs originate, provided they raise enough revenues to match benefit payments. DET provided technical support in developing the new proposed tax schedules. The report also shows that increasing the taxable wage base would substantially improve the assignment of UI benefit costs to individual employers.

I. The Massachusetts Economy and Its UI Program

Historically the Massachusetts economy has operated with a large manufacturing component but this changed during the 1980s as high tech industries became increasingly

important within the overall state economy. Indicative of this evolution has been the growth in average weekly wages of taxable covered employers. Column [7] in Table 1 shows the state's average weekly wage by year from 1967 to 2002. Between 1967 and 1986 the state weekly wage was always lower than the national average (usually by some 4 to 6 percent). The above-average growth in Massachusetts wages relative to the national average commenced in the early 1980s and continued into the early 1990s. Since 1990 the weekly wage in Massachusetts averaged some 20 to 30 percent above the national average. During 2002 higher weekly wages were observed only in Connecticut, the District of Columbia and New York.[1]

Since 1967 the unemployment rate in Massachusetts has been lower than the national average but has exhibited greater year-to-year variation. Between 1967 and 2002 the state and national unemployment rate averages were 5.5 percent and 6.1 percent respectively, a differential of 0.6 percentage points. The average differential was nearly a full percentage point during the most recent 18 year period, i.e., 1985 to 2002.

While Massachusetts has experienced below-average unemployment, especially since the mid 1980s, the state's unemployment rate has been more volatile than the national unemployment rate. Between 1967 and 2002, the standard deviation[2] of the Massachusetts unemployment rate was 2.1 percentage points compared to the national counterpart of 1.5 percentage points. Thus while the state has experienced below-average unemployment, it has also experienced wider swings in unemployment than most states. The unemployment rates shown in column [1] of Table 1 vividly illustrate this volatility. Note the two year changes over the periods 1969-1971, 1973-1975, 1989-1991 and 2000-2002. In three of the four periods the unemployment rate more than doubled and in three of four periods the increase exceeded 3.5 percentage points. When Massachusetts experiences a recession it is not unusual for the level of unemployment (column [2] in Table 1) to double. The increase between 2000 and 2002 is only the most recent example of this volatility.

[1] For the years 1967 to 1984 the Massachusetts and national growth rates in weekly wages averaged 6.7 and 6.4 percent respectively. The corresponding averages between 1985 and 2002 were 5.3 and 4.0 percent respectively. The higher average growth in Massachusetts during 1985-2002 includes 2001 and 2002 when average wages in the state were essentially unchanged.

[2] This is a standard measure of volatility. It measures the average absolute distance between each data point and the overall average (or mean).

When unemployment increases, there is a strong response of both weekly claims for regular UI benefits and the weekly number of beneficiaries (columns [3] and [4] in Table 1). Part of the increase reflects the increased volume of unemployment but part also reflects a change in the mix of unemployment. During recessions an increased share of the unemployed are job losers, the group most likely to be eligible for and to apply for UI benefits. Thus the increase in weekly caseloads also reflects an increase in the UI recipiency rate as those most likely to be eligible apply in larger numbers. This second factor is reflected in Chart 1 which displays the recipiency rates from column [5] of Table 1. Note the high volatility of the recipiency rate. Between 1967 and 2002 it exceeded 0.60 in six separate years, but it fell below 0.40 in twelve years.

The statutes governing benefit duration and weekly UI benefits have been quite stable for thirty years with only limited modifications.[3] The statutory replacement rate is 0.50 with a weekly benefit maximum of 57.5 percent of lagged weekly wages. Dependents' allowances are paid up to a level of half of the worker's weekly entitlement. Maximum benefit duration has been 30 weeks for over 30 years. However, a proposal to reduce maximum duration to 26 weeks is under active consideration in 2003.

Despite the long term stability in the main benefit statutes, the replacement rate (weekly benefits as a fraction of weekly wages in covered employment) does vary, as shown in columns [6]-[8] of Table 1. The replacement rate between 1967 and 2002 averaged 0.388 but was higher in recession years like 1975, 1990, 1991 and 2002. These increases reflect a change in the mix of beneficiaries during recessions, i.e., including a larger share of job losers with above-average base period earnings.[4]

[3] There have been periodic increases in the minimum earnings needed for monetary eligibility. Currently it is $3,000. Effective in 2001 the state moved to a uniform replacement rate of 50 percent for workers at all levels of base period wages. Previously there had been a sliding scale of replacement rates providing for 62 percent wage replacement for those with the lowest wages down to 50 percent for those with high wages.

[4] Regression analysis of the replacement rate series in column [8] finds a significant positive effect of the current year's unemployment rate, a negative effect of the unemployment rate lagged one year and a negative effect of the growth rate in average wages. The overall fit of the regression is not very good, explaining only about one third of the variation in the replacement rate and substantially underpredicting the high replacement rates of 1987 and 1988.

Chart 1 illustrates the higher volatility of the recipiency rate vis-à-vis the replacement rate for the 1967-2002 period. The replacement rate lies between 0.35 and 0.44 in every year but one (2000) of these 36 annual observations.[5]

To summarize, benefit payments in Massachusetts can vary widely from one year to the next with wide variability in both the unemployment rate and the UI recipiency rate contributing to payment volatility. In contrast, the replacement rate exhibits much more year-to-year stability.

Table 2 summarizes developments in aggregate benefit payments, contributions and the state's UI trust fund balance for the 1967-2002 period. The volatile pattern of benefit payouts in column [1] reflects the variability of unemployment and the recipiency rate discussed earlier. Column [3] shows that trust fund drawdowns of 1969-1971, 1973-1975, 1989-1991 and 2001-2002 reflect the large increases in benefit payouts of these years. These drawdowns are to be expected in UI programs.

UI program financing presumes there will be large increases in payouts during recessions with attendant reductions in trust fund balances. Programs rely upon advance (or forward) funding to ensure that trust fund reserves are adequate during recessionary periods, i.e., large enough to support large increases benefit payments. When reserves are inadequate, states may borrow from the U.S. Treasury to maintain benefit payments. Prior to the current downturn Massachusetts has had to borrow twice, in the mid 1970s and in the early 1990s. This borrowing reflects that past trust fund balances have not been as large as needed given the cyclical properties of the Massachusetts economy.

UI actuaries measure trust fund adequacy using a state's reserve ratio (or high cost) multiple. This multiple is the ratio of two ratios. The numerator is the state's trust fund reserve measured as a percent of covered payrolls (or reserve ratio). The denominator is the highest previous twelve month payout rate. The common standard of trust fund adequacy is that the reserve ratio multiple equal or exceed 1.0. A multiple of 1.0 means the trust fund has a balance equal to 12 months of benefits if benefits were to be paid out at the highest previous 12 month payout rate. In Massachusetts, the highest reserve ratio multiple since 1980 was 0.63 achieved at the end of 1985. During the 1990s, the highest

[5] The greater volatility of the recipiency rate series in Chart 1 is vividly illustrated by its coefficient of variation (the ratio of the standard deviation to the mean) of 0.21 compared to 0.05 for the replacement rate.

reserve ratio multiple was 0.58, achieved at the end of 1998. Since 1980 the trust fund balance has consistently fallen short of the suggested actuarial standard.[6]

The structure of UI financing ensures that tax payments exhibit less year-to-year volatility relative to benefit payouts. As a consequence, annual changes in UI trust fund balances are more closely tied to changes in benefit payouts than changes in taxes. The rationale for advance funding of UI with substantial trust fund balances is that the trust fund can withstand large recession-related drawdowns in the short run, giving revenues time to respond and eventually replenish the fund balance to pre-recession levels.

Columns [4]-[6] repeat the preceding with these three variables only now measured as percentages of total wages of taxable covered employers. Across the three series, note that the greatest volatility is exhibited by the reserve ratio whereas the average contribution rate shows the greatest year-to-year stability. The trust fund reserve ratio was 3.0-3.5 percent at the start of the 1967-2002 period but since 1970 it has not exceeded 2.01 percent. The loss of reserves during 1975-1977 and again during 1990-1992, descending to negative net reserves during both periods, is vividly portrayed in Chart 2. The rapid descent of the reserve ratio during 2001-2003 is also striking.[7]

Note in Chart 2 how the trust fund reserve ratio increased to close to 2.0 percent during the long expansions of the late 1980s and again during the late 1990s. In both periods employer tax rates (as a percent of total wages) fell below 1.0 percent for several years. The one previous period when tax rates close to one percent had prevailed was from 1967 to 1971. During this earlier period, however, the trust fund reserve ratio was initially much larger (above 3.0 percent), providing a more substantial cushion against which large drawdowns could occur without causing reserves to become negative.

Columns [7] and [8] provide information on average contribution rates, i.e., contributions as a percent of taxable wages. Massachusetts sets employer tax rates using the reserve ratio method of experience rating. The tax statute calls for several tax rate schedules with the operative annual schedule determined by the trust fund balance for the private contributory employers. According to the statute, the trust fund balance as of

[6] Even using a lower measure of the high cost rate (the three-year average of the highest cost rates for post-1975 years, excluding 1975), the reserve ratio multiple has exceeded 1.0 only three times since 1975 (1985-1987), although it did exceed 0.90 during 1998-2000.

September 30th of a given year (measured as a percentage of total covered wages for the preceding calendar year) determines which of the various tax schedules will be operative during the upcoming calendar year.

Since 1985 Massachusetts has operated with two sets of tax rate schedules: one in effect between 1985 and 1991 and one in effect between 1992 and 2003. Lower trust fund balances activate schedules with higher tax rates. The schedules are identified with letters. Schedule A has the lowest tax rates while Schedule G has the highest tax rates. For these two sub-periods, column [8] in Table 2 shows the actual tax schedule operative in each year between 1985 and 2002. Note that higher letters in Column [8] are associated with higher contribution rates in Column [7] during both sub-periods.

Rather than showing only letters A through G, however, note that the Column [8] entries have several additional designations, e.g., A-, B- and New B. During selected years, these additional schedules have been operative. Between 1999 and 2003, for example, employers have been taxes under Schedule New B with tax rates 0.075 percent below those of Schedule B.[8] In effect, the existing statutory schedules provide a starting point from which actual tax schedules and tax rates have been determined by a political process in Massachusetts.

The most obvious manifestation of this political "override" of the statutory tax schedules has been the repeated use of tax schedules lower than the statutorily designated schedule. For eleven of the twelve years between 1992 and 2003 the actual schedule has been lower than the schedule suggested by the statute. The downward deviations of the actual schedule from the statutory schedule were largest in 1992 and 2003.

Lowering the tax rate schedules reduced employer taxes and at the same time reduced the rate of accumulation of the UI trust fund balance. The cumulative savings during the ten years between 1994 and 2003 probably has exceeded $1.0 billion.[9] Since balances in the trust fund also generate interest income, the balance has been reduced by

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[7] The estimates for the series in 2003 were derived by the author using estimates from the DET Quarterly Trust Fund Report of September 2003.

[8] The 0.075 percent finances a workforce training fund. Massachusetts General Laws, chapter 29, section 2RR; chapter 151A, section 14L.

[9] See "Broken Trust Fixing the Unemployment Trust Fund in Massachusetts," Report of the Senate Committee on Post Audit and Oversight, Senate, No. 1992, (April 2003). Page 20 of this report has an insert showing the statutory ("trigger") schedule, the actual schedule and the annual savings on employer taxes for each year between 1994 and 2003.

even more than the savings in employer taxes The only time since 1992 when the UI tax statute determined the next year's tax schedule was the 1996 determination of 1997 taxes.

Column [6] of Table 2 shows annual contributions expressed as a percent of total wages. Note that the lowest contribution rates in the entire 36 year period were for the three years 2000-2002. In each of these three years, the contribution rate was lower than 0.70 percent of total wages, the only years when the average rate fell below 0.70 percent

Another aspect of UI financing in Massachusetts is the determination of the taxable wage base and taxable wages. Since the program's inception in the 1930s, there have been only six taxable wage bases. Column [5] of Table 3 displays the time series for the tax base since 1967. The current tax base of $10,800 became operative in 1992, one element of solvency legislation of 1991 that raised the tax base from $7,000.

When the tax base is fixed it restrains the growth of taxable wages as most of wage growth takes place at wage levels above the level of the taxable wage base. Note in Columns [2] and [3] of the table that between 1992 and 2002 total wages of taxable covered employers increased by roughly $52 billion (from $65 to $117 billion). Over the same period taxable wages increased about $8 billion. Thus the 1992 taxable wage proportion (the ratio of taxable to total wages) of 0.396 had decreased to 0.289 by 2002. Since 2000 this proportion has fallen below 0.300 for the first time in the history of UI in Massachusetts.

A state's taxable wage proportion is a direct reflection of its taxable wage base. Data in Columns [7] and [8] of Table 3 provide vivid documentation of their linkage. In the years before 2002 the year-to-year changes in the tax-base-to-average-wages ratio were negative except for the four years when the tax base increased. These four years (1972, 1978, 1983 and 1992) were the only years when the taxable wage proportion increased. The columns also show the long term decrease in both the level of the tax base relative to average wages and in the taxable wage proportion. The latter exceeded 0.500 in 1967 and 1968 but it fell below 0.300 during 2000-2002.

Chart 3 depicts developments in the two series since 1967. It shows their very close association throughout these 36 years, e.g., a simple correlation of 0.99. For the final three years in the chart note that both series are essentially stable. This stability reflects the fact that average wages (Column [4] in Table 3) were essentially unchanged

during these years, increasing by 0.9 percent in 2001 but decreasing by 0.8 percent in 2002. For nearly all years of this period the tax base was stable and average wages increased. Thus the tax-base-to-average-wages ratio declined as did the taxable wage proportion. To return the former ratio to its level as of 1992 would imply a tax base of about $18,000 in 2004. If such a tax base were implemented, it would raise the taxable wage proportion back to roughly 0.400 as it was in 1992.

To summarize, seven comments seem appropriate. 1. The state economy can be described as having high wages, averaging 20 to 30 percent above the national average in the 1990s, and low but highly variable unemployment. It is not unusual for the Massachuesetts unemployment rate to double in a recession as it did between 2000 and 2002 (Column [1] in Table 1). 2. The UI program has highly variable recipiency rates as shown in Chart 1. Its recipiency rate and the benefit replacement rate have not exhibited strong trends since 1967, but both aspects of regular UI benefit payments do vary with the business cycle. Both are higher during periods of high unemployment. 3. The state's UI trust fund balance has been highly variable. At present it is experiencing its third period of large scale decline since 1967.[10] Borrowing, at least short-term (or cash flow) borrowing, seems likely to take place in 2004. 4. Since 1992 the state has set employer tax rates mainly through short term legislative enactments rather than by following the UI tax statute as revised in 1991. The effect of this political override has been to have lower taxes and a lower trust fund balance than implied by the statute. 5. The taxable wage base has been fixed except for occasional increases. These increases have lagged the growth in wages, causing the taxable wage proportion to decrease from above 0.500 in the late 1960s to less than 0.300 during 2000-2003. 6. Little change on the benefit side of the program coupled with restrictions on both the operative tax schedule and the taxable wage base have made the trust fund prone to insolvency during recessions. The low level of the trust fund balance is indicated by low reserve ratio multiples during periods of economic expansion of the 1980s and 1990s. 7. From Chart 2 the pattern of decline in the trust fund balance during the most recent three years closely resembles developments during the 1989-1992.

[10] This statement considers the declines between 1970 and 1976 as a single period even though decreases of 1970-1972 and 1974-1976 were distinct recessionary episodes.

II. Assigning Tax Rates to Individual Employers

As noted, Massachusetts employers pay UI taxes under a system of reserve ratio experience rating. For those with sufficient experience to qualify for experience rating (one year), tax rates are determined based on the employer's reserve ratio (the reserve balance on September 30th as a percent of payroll for the twelve months ending six months earlier). Tax rates for individual experience-rated employers are nominally set using a tax rate table with seven different tax rates schedules (A through G) with increasingly higher rates for schedules with higher alphabetic letters. Each schedule links ranges of employer reserve ratios with tax rates. As noted above, however, the selection of the upcoming year's tax schedule has been determined legislatively in eleven of the past twelve years.

A. Experiencing Rating Systems

In the United States, charges associated with the payment of UI benefits are assigned to employers through experience rating. Employers who initiate more job separations that are followed by an above-average volume of benefit payments pay higher UI taxes than employers who initiate fewer separations.

The UI programs in the U.S. use two primary methods for measuring employer experiences. Stock-based experience rating systems take account of all past taxes and benefits and their cumulative net difference as reflected by each employer's trust fund account balance. This balance, measured as a percent of taxable or total covered wages, i.e., as a reserve ratio, determines the tax rate to be paid on the tax schedule operative for the year. Reserve ratio experience rating is used by Massachusetts and by 32 other states.

Flow-based experience rating uses a measure benefit payments (either benefits or a close proxy such as benefit wages, i.e., the base period wages of claimants) over a specified period as the indicator of experience. The most common flow-based system uses three year benefit ratios, i.e., benefit payments relative to taxable or total covered wages over the past three years, as a main determinant of individual employer tax rates.

There are 20 flow-based experience rating systems.[11] In these systems there is no need (or attempt) to track the time path of account balances for individual employers.

Both stock-based and flow-based experience rating systems utilize tax schedules that specify a minimum, a maximum and a set of intermediate tax rates that link employer experience indicators to their tax liabilities. Moving across the experience distribution, employers with increasingly more favorable experience indicators (higher reserve ratios, lower benefit ratios) are taxed at progressively lower rates until the minimum tax rate is reached. Most state UI tax statutes have several tax rate schedules, not a single schedule, potentially applicable in a given year. Successively higher tax rate schedules are activated as the aggregate trust fund balance declines to successively lower levels. Thus, employer tax rates increase following an economic downturn both because many individual employers exhibit worse experience (lower reserve ratios, higher benefit ratios) and because higher tax rate schedules are operative.

All states constrain potential employer UI tax liabilities by specifying minimum and maximum tax rates for a given year. The presence of minimums and maximums also limits the degree of experience rating. Full experience rating would be present if one extra one dollar of benefit payments eventually caused the employer's UI tax to increase by one dollar.[12] The actual response UI tax systems typically is less than a dollar per dollar response. Later paragraphs discuss the measurement of the degree of experience rating in Massachusetts.

In practice, the contrast between stock-based and flow-based experience rating systems is smaller than suggested by the preceding description. Most of the flow-based systems have several tax schedules, and the trust fund balance on the computation date

[11] Seventeen states use benefit ratios while two (Delaware and Oklahoma) use benefit wage ratios and one (Alaska) uses payroll declines as flow-based measures of experience. The payroll decline system uses the decrease in covered payrolls as a proxy for the covered wages of workers on layoff. Benefit ratios are measured for four year periods in three states and for five year periods in three states. Included among the seventeen benefit ratio states are Michigan and Pennsylvania which use both benefit ratios and reserve ratios to set employer tax rates. Thus the counts of stock-based versus flow-based systems could be either 33-20 or 35-18 depending upon the classification of Michigan and Pennsylvania.

[12] The concepts of full experience rating and perfect experience rating are discussed in Vroman , Wayne, "Unemployment Insurance Tax Equity in Washington," Report to the Washington State Employment Security Department (January 1999). For present purposes, it is sufficient to think of full experience rating as one dollar of added benefits causes one dollar of subsequent UI taxes for the employer responsible for the added benefits.

determines which schedule is used during the next tax year. These features are similar to features of stock based experience rating systems.

The actual operation of experience rating in the U.S. is most accurately described as partial experience rating because a large share of benefit charges are not effectively assigned back to the employers where the job separations occurred. In other words, the costs of a large share of UI benefit payments are socialized, i.e., all employers pay collectively for benefit payments not effectively assigned to individual active employers. Three types of benefit payments fall outside the scope of experience rating: noncharged benefits, ineffectively charged benefits and benefits charged to inactive employer accounts. Each of the three will be briefly described.

Noncharged benefits originate from payments to former workers in cases where the employer did not cause the job termination or where the state has decided not to assign the benefit charges to the employer. For example, suppose two coworkers commute to work from a neighborhood beyond the reach of public transportation in Worker 1's vehicle and Worker 2 is not a driver. If Worker 1 changes jobs and moves away from the area, Worker 2 would have to leave work (quit) because there is no way commute to the job. If a successful claim is filed, the employer would not be charged for the associated benefit payments because the reason for leaving work was not attributable to the employer. Relief of charges may also be granted when a recipient worked for two base period employers but the separation from the earlier employer was not a chargeable separation, e.g., a quit. Noncharged benefits are the general responsibility of the state's UI tax system, not of specific employers. State UI programs have varying policies and practices regarding noncharging, and noncharges are of widely differing importance across the states. Massachusetts, for example, pays dependents' allowances but these benefits are noncharged.

Ineffectively charged benefits arise when the tax payments associated with the employer's experience measure (either a reserve ratio or a benefit ratio) does not generate revenues equal to the benefit charges assigned to that employer. The employer may be taxed at the maximum tax rate, but benefit charges may be substantially larger. Although an ineffective charge for the current year could be recovered in a later year, in practice many ineffective charges are never recovered. Certain employers taxed at the maximum

rate incur benefit charges far in excess of their tax.[13] Raising the maximum tax rate reduces the volume of ineffective charges. In contrast to noncharges, ineffective charges can be assigned to individual employer accounts, but the assignment is ineffective because taxes paid are insufficient, often because the employers are already taxed at the maximum tax rate.

In the actual measurement of ineffective charges, measurement occurs at the level of the reserve ratio (or benefit ratio). Taxes paid by all employers at a given reserve ratio are compared with the sum of all charged benefits. When charged benefits exceed taxes, ineffective charges are measured as the difference between benefits and taxes.

Charges to inactive employer accounts constitute a separate category of ineffective charges. Although the employer is no longer active, benefits continue to be paid to former employees. Inactive employers may pay some taxes in the current year and may also initially have a reserve balance to defray some of these charges, but typically these amounts are much smaller than the associated benefit charges. The excess charges against inactive employer accounts become a socialized liability of the UI program.

The sum of noncharges, ineffective charges and charges against inactive accounts represents a substantial fraction of total UI benefits in most states. Hence the US system of financing state UI programs is said to practice partial (or imperfect) experience rating.

B. Measuring Experience Rating.

Since 1988 the Office of Workforce Security (OWS, formerly the Unemployment Insurance Service) of the U.S. Department of Labor has required states to report benefit payment summaries that separately identify the three types of ineffectively assigned benefit charges and their combined sum measured as a fraction of total benefit payments. A summary statistic based on these state reports is termed the Experience Rating Index (ERI). The ERI is computed as a ratio whose numerator is total benefits less each of the three types of ineffectively assigned charges (noncharged benefits, ineffective charges

[13] The computations leading to ineffective charges differ in stock-based and flow-based experience rating systems. They are simpler in flow-based systems because of their shorter memory. Because stock-based systems can retain information on ineffective charges for longer periods, there is more potential for recovery from the employer at a later date. In Massachusetts this information is kept for all future years unless the employer's reserve ratio reaches -25.0 percent. Each year negative balances that cause the

and charges against inactive employers) and whose denominator is total benefits. By construction, the ERI is a proportion that can range from zero to unity with higher values indicating a higher degree of experience rating. It is the most widely utilized measure for studying changes in experience rating through time and for making comparisons across states. In OWS publications the ERI is shown as a percentage that can vary between zero and 100. For rate years 1988 through 2001 the national average of state ERIs was 63. Nationwide over these 14 years about 63 percent of benefits paid were effectively assigned to employers whose workers received UI benefits.

The ERI does have limitations as an indicator of the degree of experience rating. It is based totally on benefit payments for the twelve month period ending on the computation date of the previous year. Thus it does not fully capture the dynamics of tax rate changes in response to increased benefit payouts. This limitation is more serious for stock based (reserve ratio) experience rating systems like that used in Massachusetts. To this point in time, however, no research has used the data underlying the ERI (reports submitted by the states) to try to capture the intertemporal aspect of experience rating.[14]

Table 4 summarizes experiences in Massachusetts for rate years 1988 through 2003. Noted that the benefit data for a given rate year refer to the twelve months ending on September 30th of the preceding calendar year. For example, benefits for rate year 2003 were paid between October 2001 and September 2002. The sixteen years covered by Table 4 span the recession of the early 1990s and part of the 2001-2003 downturn. Note the variability of total benefit payments (Column [4]) in both recessionary periods, another indication of the volatility of the Massachusetts economy. Benefit payments more than doubled between 1989 and 1991 and again between 2001 and 2003.

Because nominal wages and benefits were growing during the 1988-2003 period, the measures in Columns [5]-[8] are most relevant. The average ERI for Massachusetts is considerably lower than the national average. For example, between 1988 and 2001 the state and national averages were 54 and 63 respectively. There is much more cross-subsidization of employers in the Bay State than in most states.

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employer's reserve ratio to fall below -25.0 percent are "written off," i e., forgiven, to the extent that the negative balance exceeds -25.0 percent. This practice is quantitatively important in Massachusetts.

Before discussing the three elements of ineffectively assigned benefit charges, one measurement issue should be noted. Starting in rate year 1998 DET modified the way it reported data on inactive account charges. From that year the bulk of these charges have been included as one debit element of benefit charges not assigned to individual employers. These amounts are not trivial, averaging between 4.0 and 6.0 percent of total benefits in most recent years. The reporting in Massachusetts includes these charges within the broad category of ineffective charges. Thus the ineffective charge proportions in Column [5] are high by about 0.05 during the 1998-2003 period while the Column [6] entries are low by a similar proportion.

Between 1988 and 2001, the nationwide average proportions for the three types of ineffectively assigned benefit charges were 0.17 for ineffective charges, 0.11 for inactive account charges and 0.11 for noncharged benefits. In Massachusetts for the same 14 years, the average proportions were 0.23 for ineffective charges, 0.07 for inactive account charges and 0.17 for noncharged benefits.[15] Compared to the U.S. average, Massachusetts has much higher shares of ineffective charges and noncharged benefits.

About 40 percent of noncharged benefits are dependents' allowances. These are not charged to separating employers and have averaged roughly $50 million in recent years. The remaining elements of noncharged benefits represent roughly the same proportion of total benefits in Massachussets as the overall national average for noncharged benefits, i e., 0.11.

By far the largest element of ineffective benefit charging in Massachusetts arises from ineffective charges against negative balance employers. Column [1] shows that these averaged $256 million during the 16 rate years covered by Table 4. For rate year 2003 they totaled nearly $1.0 billion. In Massachusetts there is an unusually large volume of ineffective charging. Note that the ineffective charge proportions in column [6] exceeded 0.300 in rate years 1991 and 1992 and again in rate years 2002 and 2003. During recessions ineffective charging is especially prevalent.

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[14] The ETA 204 reports, the basis for constructing ERIs for each state, show taxable wages, contributions and charged benefits for employers over a twelve month period, grouped according to their reserve ratio. To fully capture experience rating one would need longitudinal data for individual employers.

[15] These averages were based on "adjusted" estimates of ineffective charges and inactive account charges which lowered the former by an average of 0.05 and raised the latter by 0.05 during 1998-2001. This

Ineffective charging is concentrated among Massachusetts employers with negative account balances. For rate year 2003 they accounted for 30 percent of all experience rated employers, 69 percent of charged benefits, but only 19 percent of taxable wages. Because they had generally bad payment experiences, i.e., above-average payout rates and payments far in excess of UI contributions, these employers accounted for 93 percent of ineffective charges ($913 million of $978 million). Their contributions totaled $248 million compared to benefit charges of $1161 million, i.e., more than four dollars of charged benefits for every dollar of contributions. This pattern in 2003 is not unusual. During rate year 2002 they accounted for 96 percent of all ineffective charges. These employer subsidies are financed by the remainder of Bay State employers.

One aspect of ineffective charging is the practice of granting "writeoffs" to employers with large negative balances. Each year excessive negative reserves are forgiven for every employer whose reserve ratio falls below -25 percent of payrolls. By granting writeoffs, the employer's negative balances are returned to -25 percent of payrolls from some larger negative amount. In recent years, writeoffs have totaled more than $100 million annually. There is outright forgiveness of this portion of excess benefit payments and individual employers can (an do) receive writeoffs year after year.

C. Actual and Proposed Tax Rate Schedules and Ineffective Charges

For a given level of benefit payments, ineffective charges are reduced when tax rates (and associated contributions) are aligned closely with benefit payouts. In practice, this means increasing tax rates on employers with large ineffective charges. Although the majority of employers have positive balances and are providing subsidies to the remainder, the situation regarding ineffective charges has existed for decades.

During 2003, however, proposals have been advanced to change the tax rate schedules to improve the assignment of benefit charges. Three proposals (the so called DET Modified Alternative, Senator Lees' proposal and Governor Romney's proposal) share the following common characteristics. 1. They would extend the range of negative reserve ratios for which differentiated tax rates would apply. 2. They would extend the

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change placed all inactive account charges in the appropriate category (not as ineffective charges as shown in the state's ETA 204 reports).

range of positive reserve ratios for which differentiated tax rates would apply. The combined effects of these two changes would be to expand the sloped range of the tax rate schedules, e.g., the range of reserve ratios where a change in the reserve ratio would cause a change in the tax rate. 3. They would lower the minimum tax rate. 4. They would raise the maximum tax rate. 5. They would change the levels of the triggers that activate the individual tax schedules.

This final change would make it easier to activate lower tax rate schedules by lowering the trigger thresholds for each schedule. Compared to the current tax statute, the lower thresholds imply a lower average trust fund balance with an attendent increase in the risk of future insolvency. The practical effect of the proposed lowering of triggers is difficult to assess because it would depend on actually following the new triggers. Experiences of the past decade give a basis for questioning if this would actually occur.

Table 5 summarizes important details of these proposed changes. For comparison, the table also shows details of the schedules operative between 1985 and 1991 and the current set of schedules (including the modifications noted in column [8] of Table 2). For all five sets of tax schedules, the progression of tax rates from lowest to highest is bounded by schedules A and G. Note in line 4 that the sloped part of the rate schedules extended over a 20.5 percent range of reserve ratios (from -7.0 percent to 13.5 percent) under the 1985-1991 schedules, a 28.0 percent range under the 1992-2003 schedules, but it would extend over a 58.0 percent range under Governor Romney's and Senator Lees' proposals. Lines 6, 7 and 8 and lines 11, 12 and 13 respectively show the minimum, the maximum and the range of tax rates for the lowest and highest schedules under the five sets of schedules . The Governor's proposal has the widest range of tax rates, particularly for the highest tax rate schedule, i.e., an 18.35 percentage point differential between the highest and the lowest tax rate (line 13).

Lines 9 and 14 show estimates of average tax rates under each set of schedules. The statutory rates were weighted by the distribution of taxable wages for rate year 2003. There is a tendency for average tax rates to be somewhat higher under the proposed new schedules than the averages under the current schedules.

The obvious question to pose regarding the proposed new schedules is their effect on ineffective charges. This was investigated using taxable wage distributions from rate

years 2002 and 2003. These two recent years were selected because of ready data availability from ETA 204 (experience rating) reports. The years also present a sharp contrast in the volume of benefits charged against rated employers. i.e., $916 million in rate year 2002 but $1,679 million in rate year 2003. Relative to the total payroll of experience rated employers, these totals represented benefit ratios of 0.79 percent in 2002 and 1.52 percent on 2003.

Recall that the actual tax rate schedules were below those suggested by the tax statute. For both years, the actual rate schedule was New B (Schedule B with rates lowered by 0.075 percent to cover the costs of training supported by DET). The schedules that were indicated by the tax statute were Schedule D in 2002 and Schedule F in 2003. According to the "Broken Trust" report (p. 20), the tax savings to Massachusetts employers totaled $233 million in 2002 and $496 million in 2003. The important point about the comparative tax savings for these two years is that there are direct implications for the volume of ineffective charges. Much larger ineffective charges were recorded in 2003 because the deviation of the actual tax schedule from the statutory schedule was much larger than in 2002. Recall total ineffective charges in Table 4, $341 million in 2002 but $978 million in 2003. Half of all benefits were ineffectively charged in 2003.

The simulation analysis of the alternative sets of tax rate schedules examined three questions. (1) What is the effect of the alternative (actual and proposed) schedules on ineffective charges? (2) What is the effect of differing tax bases on ineffective charges? (3) What is the effect on ineffective charges of having revenues equal to charged benefits? The analysis found that all three factors have a large effect on the volume of ineffective charges.

Table 6 presents results of the simulation analysis. Three factors are allowed to vary in the table. There are five separate panels (A through E) which identify the (actual or proposed) operative tax rate schedules. For all five, the table assumes that tax rates are set using Schedule B. Because the shortfall of revenues below charged benefits was so much larger in rate year 2003 than in 2002, two simulations were run for each year. Columns [1] and [2] are based on actual revenues (when the tax base is $10,800) while columns [3] and [4] impose equality between revenues and charged benefits. This equality is achieved by adding a flat tax rate on all employer contributions using a rate

that increases total revenues to match charged benefits. Finally, columns [1] and [2] also show the effects of changing the taxable wage base. Because all simulations are based on Schedule B, raising the tax base increases taxable wages and total revenues in all these simulations.

Three things are apparent in Table 6. (1) Balancing revenues with charged benefits reduces ineffective charges. In each panel, ineffective charges in columns [3] and [4] are lower than their counterparts in columns [1] and [2]. Since the disparity between charged benefits and revenues was so much larger in 2003 than in 2002, the reductions in ineffective charges were much larger in 2003 than in 2002. However, note also in column [4] that ineffective charges remain substantial in 2003. All entries exceed $600 million, or 36 percent of charged benefits. In rough orders of magnitude, adding about $900 million to revenues in 2003 (through a common flat rate tax) reduces ineffective charges by about $200 million.

(2) The new proposed tax rate schedules make a noticeable reduction in ineffective charges. Further, the progression across Panels A through E is consistent. The largest reduction is achieved under Governor Romney's proposed tax schedules. With the current ($10,800) tax base, the reductions between Panels B and E were $47.8 million in 2002 and $71.3 million in 2003.

(3) Increasing the tax base also reduces ineffective charges. Moving from $10,800 to $18,000 reduces ineffective charges by about $100 million in 2002. The same change in 2003 reduces ineffective charges by $200-300 million, depending upon which Schedule B is in use. Raising the tax base increases total revenues substantially and at the same time reduces ineffective charges.[16] Moving to the $18,000 base would have increased revenues by about 50 percent in both years (columns [1] and [2]), but would have had a much larger effect on ineffective charges in 2003 compared to 2002, i e., $180-200 million versus $100 million.

Ineffective charges are caused primarily by negative balance employers. In all simulations in Table 6, ineffective charges arising from these employers accounted for at least 93 percent of the total. They dominate in causing ineffective charges.

[16] The range of revenue increases was between $365 million and $435 million across the five panels.

One important conclusion from the simulations is that negative balance employers must be subjected to higher tax rates in order to achieve major reductions in ineffective charges. This applies not only to the current tax rate schedules but also to the alternative schedules under consideration.

A second conclusion from the simulations is simple. If the actual schedule used to tax employers is substantially lower than the schedule called for by the statute, there will be a very large volume of ineffective benefit charges. For all sets of (actual and proposed) tax rate schedules examined here, tax rates were lower than the rates needed to cover charged benefits (with a tax base of $10,800). Under all alternatives, over 90 percent of ineffective charges were consistently generated by negative balance employers. With the current tax base, Schedule B generates between $750 million and $800 million under the current tax rate schedule and the proposed alternatives. Against these contribution totals, charged benefits totaled $916 million in 2002 and $1679 million in 2003. The disparity between revenue and benefit charges was much more important than the shape of the tax rate schedule in generating ineffective charges during these two rate years. Hence ineffective charges were much smaller in 2002 (when the disparity was comparatively small) than in 2003.

Of the alternative tax rate schedules examined here, the lowest volume of ineffective charges was estimated to arise under Governor Romney's proposed schedules. For each level of the tax base, Panel E has the lowest volume of ineffective charges. Expanding the range of effective tax rates and widening the sloped range of the tax schedule (as shown in Table 5) help to achieve better targeting to taxes, reducing ineffective charges.

Finally, raising the tax base has a large effect in reducing the volume of ineffective charges. Increasing the tax base would not only raise total revenues collected from a given tax schedule, but it would also help to improve the targeting of taxes to the employers responsible for ineffective charges.

Reform of UI taxes in Massachusetts has potential for substantially reducing ineffective benefit charges. Instituting new tax rate schedules like those presently under consideration and raising the taxable wage base would make separate and important contributions to reductions in ineffective charges.

III. Analysis of Revenues, Benefits and the Trust Fund Balance

The analysis of the Massachusetts UI trust fund utilized a simulation model developed to project important trust fund variables to the year 2010. In Massachusetts, the history UI financing developments since 1992 makes it more difficult to project future trust fund balances than in most other states. Typically, UI trust fund simulation models for individual states are built with the assumption that the tax statute will be followed in all future years. In Massachusetts this is patently not the case. The setting of the UI tax schedule for the upcoming year is done through a political process where the trust fund balance on the September 30th computation date is but one factor.

To study UI program financing in Massachusetts, a simulation model was developed. Like models developed in other states (most recently in Virginia and Montana), the model produces annual simulations of important economic variables and variables for the Massachusetts UI program. Unlike the simulations in other states, however, this model placed greater reliance on alternative simulations of key economic and UI variables for the upcoming year.

A. A Short Description of the Model.

The model generates deterministic simulations that extend to the year 2010. Thus while individual variables can take on different values from one simulation run to the next, the model's output paths for all variables will be identical whenever two simulations specify all exogenous (or control) variables to have exactly the same values for the two simulations. This allows one to examine the effects of changing just one variable and tracking its effects on all variables of interest.

The model has a recursive structure with five main sections or modules. Besides these five modules, it has a control panel which allows the user to change important variables and note their effects on key outcomes such as the benefit payments, tax revenues and the trust fund balance. The model is similar to earlier models developed by the author in several other states, most recently in Virginia and Montana.[17]

[17] See Appendix B in "An Analysis of the Virginia Unemployment Compensation System," Final report to the Virginia Employment Commission (December 2002) and "A Simulation Model of the Montana UI Trust Fund," Report to the Montana Department of Labor and Industry (May 2003).

The model has five modules that respectively characterize 1) the labor market, 2) UI benefits, 3) taxes, 4) trust fund interest and 5) an annual summary of the inflows and outflows that change the trust fund balance.

1. The Labor Market

Relationships in the labor market determine the levels of the Bay State labor force, employment, unemployment and the unemployment rate as measured by the household labor force survey. This module also determines aggregate labor market variables for the UI program such as taxable employment, reimbursable employment, the average weekly wage and total covered wages of both taxable and reimbursable employers.

Paramount among the labor market variables is the total unemployment rate (TUR). This measures total unemployment among persons aged 16 and older and expresses unemployment as a percentage of the state's labor force. Changes in the TUR are indicative of demand conditions in the state labor market. The model uses the TUR as the principal summary variable to represent the business cycle in Massachusetts.

The module is structured to make a direct connection between the household survey estimate of total employment and UI covered employment. The ratios of both taxable covered employment and reimbursable employment to household employment as of 2002 were noted and projected to persist unchanged into the future. One important consequence of linking household survey employment to UI covered employment is that covered employment changes whenever total employment varies. Thus, when the unemployment rate increases, there is an automatic negative effect on UI tax revenue which declines as total employment and taxable covered employment both decline.

Other important exogenous variables present in this module are the assumed rate of labor force growth, the rate of wage inflation and the nominal interest rate. The module also includes a relationship that links the interest rate paid on UI trust fund balances to the rate of wage inflation. Thus, if the inflation rate changes, interest earnings of the UI trust fund are affected, e.g., increasing when the inflation rate increases.

Historic values of the key labor market variables are included through 2002 while projections are made for later years. For the baseline simulation, the model assumes the

labor force will grow at a 1.0 percent annual rate starting in 2003 while nominal wages will grow by 4.0 percent annually and the nominal interest rate will be 6.0 percent.

2. UI Benefits

The benefits module determines regular UI benefits that are financed from the Massachusetts UI trust fund. Total payments in the regular UI program are projected as the product of weeks compensated times the average weekly benefit.

A key variable that determines regular UI benefit payments is insured unemployment (IU), the weekly average of UI claimants. This, in turn, is linked to total unemployment (TU) as measured in the household labor force survey. A regression fitted to data from the 1967-2002 period explained over 90 percent of the variation in IU. The specification had just two variables: total unemployment (TU) from the current year (with a large positive effect on IU) and TU lagged one year (with a large negative effect).

Although the connection between IU and TU and TU lagged was close, the regression did make increasingly large underpredictions for the years 2000 to 2002. There was an unexplained growth in UI claims during these years such that by 2002 the underprediction of IU reached 12,800 or more than 10 percent. This unexpected growth in IU adds an element of uncertainty to future projections of UI claims.[18]

It was noted earlier that the replacement rate (weekly benefits as a proportion of weekly wages) was explained using as arguments the current and lagged unemployment rates and the rate of growth of weekly covered wages. While each of the three was statistically significant, their combined explanatory power accounted for only about one-third of the variation in the replacement rate over the 1967-2002 period. Although the fit was not as good as desired, the regression's residuals did not exhibit any unusual pattern for recent years. Weekly benefits are then projected as the product of the replacement rate times the average weekly wage.

[18] An unexpected growth in UI claims during 2000-2002 has occurred in most large states throughout the U.S. It could reflect an ageing of the unemployment pool since the early 1990s as well as increased employer reliance on permanent job separations (as opposed to temporary layoffs) during the present downturn. One recent analysis of labor market developments in Massachusetts with emphasis on the increase in unemployment duration during since 2000 is provided in Andrew Sum, et al, "Labor Market Problems in Massachusetts from the End of the Labor Market Boom of 2000 through the Early Summer of 2003," Center for Labor Market Studies , Northeastern University, (October 2003).

Other aspects of benefit payments such as the ratio of weeks paid to weeks claimed have been generally well behaved in recent years in Massachusetts. Thus the uncertainties in projecting future benefit payouts arise mainly from uncertainties about future unemployment and the future recipiency rate. While it is possible that the Extended Benefits (EB) program will be activated between 2004 and 2010, the model as developed assumes there will be no EB payouts during these years.

3. UI Taxes

The model derives total tax payments as the product of taxable wages times the average tax rate. There is one aggregate tax relationship that does not make distinctions between experience rated employers and those taxed at the new employer rates.

The history of the tax base was discussed earlier in Section I. Massachusetts has operated with its current taxable wage base of $10,800 since 1992. The model allows for various levels of the tax base in future years with the future level determined through periodic fixed increases or automatically through indexation. The effects of changing the tax base can be simulated for individual years or for a succession of years. Recall the close relationship depicted earlier in Chart 3. The model determines the taxable wage proportion relying primarily on the ratio of the tax base to annual wages. The relationship is nonlinear, and includes a significant negative effect of the unemployment rate. Over 98.5 percent of the variation in the taxable wage proportion between 1967 and 2002 is explained by the regression used in the model. Thus the effect of changing the tax base on taxable wages is estimated with considerable precision.

As noted, the determination of the tax rate schedule and the associated average tax rate is a major modeling problem in Massachusetts. While the model has relationships to determine the trust fund balance and reserve ratio on the September 30th computation date, more reliance in this report is placed on simulations using tax rate schedules determined outside the model. While there are relationships in the model that would allow activation of each of the individual tax schedules, e.g., Schedules A through G, little reliance is placed on the automatic (reserve-ratio-based) selection of tax schedules because the selection has been legislatively determined in all recent years except 1997.

Massachusetts also has a solvency assessment designed to cover deficits in the solvency account. The primary revenue source for this account in most years is interest

earnings on state's UI trust fund balance while the most important debits are ineffectively assigned benefit charges (noncharges, ineffective charges and charges against inactive employer accounts). Deficits in the solvency account are made up through flat rate assessments on employer UI account balances. Thus the solvency assessment does not show up in aggregate taxes but rather as reductions in employer trust fund accounts. During 2002 this account received a large infusion of Reed Act monies and was roughly in balance, but during 2003 its deficit totaled about $500 million leading to a solvency assessment of 1.49 percent for 2004. The high solvency rate for 2004 reflects both low interest income due to the trust fund drawdown and the large volume of ineffective charges as described in Section II. Thus in 2004 Massachusetts employers' accounts will be substantially lower due to the solvency assessment.

Total taxes are then the product of taxable wages and the average tax rate as determined by the model user. This may be either an automatic determination or one set each year by the model user.

4. Interest Income

The model calculates interest income as the product of the interest rate times the average trust fund balance during the year. The interest rate is determined in the labor market module through a linkage with the rate of wage inflation. The relation recognizes the recent differential between the interest rate paid on trust fund balances and the state's rate of wage inflation. As noted in the introduction, the real interest rate is assumed to be 2.0 percent in the model. Also, interest earned during the fourth calendar quarter is credited to that quarter, not in the first quarter of the next year when it is actually paid.

To avoid circularity in the model, some of the interest income from the current year is ignored in setting an initial estimate of the end-of-year balance.[19] The omitted interest income is approximated by using an add factor that equals the deviation of simulated interest income and actual interest income during 1997-2001.

5. The Trust Fund Identity

[19] The end-of-year balance is influenced by interest earnings. However, if interest is included in initial estimate of the end-of-year balance, this introduces circularity (simultaneity) into the model, i.e., mutual determination between interest income and the end-of-year balance. This can be avoided by making an initial estimate of the end of year balance that recognizes taxes and benefit payments but does not recognize interest income during the year. The consequence of this procedure is to produce a small underestimate of interest income for the year.

The fifth module sets the trust fund balance annually. Taxes and interest income are added to the end-of-year balance from the previous year and current year benefit payments are subtracted to produce the end-of-year balance for the current year. This is simply an accounting identity that updates the trust fund balance each year by adding to the lagged balance the net difference between annual inflows (taxes plus interest) and the annual benefit outflow. For 2002 and later years, the fund balance identity includes the $193.6 million Reed Act distribution of 2002.

B. Changing the Taxable Wage Base

The model can be used to examine several issues related to UI financing in Massachusetts. The most obvious application of the model would be to project future revenues and trust fund balances under alternative economic scenarios. In Massachusetts, however, any projection exercise must recognize that decisions about the tax rate schedule to be used and the total tax rate in future years will most likely be made on an annual basis through a political process wherein each successive future year's tax rate schedule is determined legislatively. While the main factors that enter this determination can be identified, e.g., the existing trust fund balance and the tax rate schedule currently in effect, the outcome of the process is very difficult to foresee over a succession of individual future years.

This uncertainty about future tax rate schedules has affected the sequencing of the analysis undertaken in this section. We commence with an analysis of changing the taxable wage base and then proceed to an analysis of tax rates and total revenues. In effect, the initial analysis with the model is performed in the area where the future consequences of tax-related changes can be foreseen with greater certainty.

The close link between the tax base per employee and the taxable wage proportion was vividly documented in Chart 3. Between 1967 and 2002, the only years when the taxable wage proportion increased were years when the tax base increased, e.g., 1972, 1978, 1983 and 1992. Simulations with the model examined the effects of varying the tax base from its present level of $10,800. The simulations explored the effects of one-time increases of different magnitudes, e.g., increases to $12,800, $14,800 and $18,000 and the effects of indexation.

Table 7 displays selected outcomes that focus on taxable wages and potential revenues under alternative tax bases. Panel A. shows historic data for the 1992-2002 period. Panel B shows projections from 2004 to 2010 assuming no change in the current tax base of $10,800. Panel C shows projections under tax bases of $12,800 (as in Governor Romney's proposal), $14,800 and $18,000. Primary interest centers on the ratio of the tax base to average wages, the taxable wage proportion, taxable wages and tax revenues (Columns [3], [4], [6] and [7] respectively).

From the preceding discussion, recall that the greatest uncertainty in the simulations pertains to the establishment of the tax rate schedules to be operative in future years. The estimates in Column [7] of Table 7 presume that Schedule D is operative in all future years. In 1993 and 1994 when the trust fund was still depleted following the 1989-1992 downturn, Schedule D was operative and the average tax rate for the two years was about 4.0 percent.[20] Using just one tax schedule is not likely to hold during the next seven years, but by fixing the tax rate, the present analysis will better focus on the effects of changing the tax base.

Note in Panel A how the ratios in columns [3] and [4] declined between 1992 and 2002. The decrease in the taxable wage proportion was from 0.40 to 0.29. As a result, total wages (column [5]) grew much more rapidly than taxable wages (column [6]) during these years. Note also that total tax revenues were actually higher in 1992 than in either 2000 or 2002 and that taxable wages and taxes both fell between 2000 and 2002.

Panel B projects future wages and revenues assuming that the current tax base does not change. Note how the tax-base-to-average-wage ratio continues its descent, reaching 0.18 by 2010 while the taxable wage proportion decreases to 0.24. With no change in the tax base, UI taxes in 2010 will be levied on roughly one quarter of total wages. Assuming that Schedule D applies during these years, there is a noticeable increase in revenues starting in 2004. The estimate for that year is $1420 million and under Schedule D annual revenues would increase to $1636 million in 2010.

Taxable wages and revenues are successively higher under the three higher tax bases identified in Panel C. The highest of these, $18,000, makes the tax-base-to-average-wage ratio and the taxable wage proportion in 2004 equivalent to their counterparts in

[20] Data from the ETA Handbook indicate tax rates of 4.10 percent and 3.95 percent for these two years.

1992. Because taxable wages are considerably higher than with a $10,800 tax base, projected revenues are substantially higher in Panel C than in Panel B. In 2004, each of the three higher tax bases successively adds about $200 million to revenues in comparison to revenues under the next lower tax base. The combined effects in 2004 of having an $18,000 tax base and taxing employers under Schedule D yields total revenues of more than $2 billion.

The projections in Panel C indicate that taxing 40 percent of wages under Schedule D would cause revenues to more than double in 2004. If benefit payments for the year totaled, $1.4 billion,[21] the state would end 2004 with a trust fund balance of about $0.5 billion.

The preceding tax increase would represent a more than doubling of employer taxes compared to 2002. One broad lesson of the simulations is that there is substantial revenue generating capacity in Massachusetts if higher tax rate schedules are allowed to become operative. Revenue of $2.06 billion in 2004 would represent 1.6 percent of total wages for the year. Note in Column [6] of Table 2 that this was roughly the average rate paid by Massachusetts employers during the nine years between 1972 and 1980. It is also similar to the average tax rate that prevailed during 1993 and 1994.

Reviewing the pattern of more gradual tax increases that occurred during the 1990-1993 period, the mix of tax base changes and tax rate changes could also follow a more gradual path than suggested in Table 7. Employers would experience smaller immediate tax increases in 2004, but, at the same time, the trust fund balance would recover more slowly. The legislative-political process in the state now has ample experience for choosing the "appropriate" tax schedule. As of now, the schedule indicated by the statute for 2004 is Schedule G.

For example, implementing a higher tax base could be accompanied by movement to Schedule C in 2004 as one way to reduce the tax increase for the year. Under the assumptions used here, the operative tax rate for 2004 would then be 3.6 percent rather than the 4.0 percent assumed for the revenue estimates appearing in Column [7]. Total revenues in 2004 under Schedule C would be ten percent lower than shown in the table,

[21] The DET projection of September 2003 is for annual benefits from the private contributory trust fund account to total $1.35 billion in 2004.

e.g., $1278 million under a tax base of $10,800 and then $1447 million, $1609 million and $1854 million respectively under tax bases of $12,800, $14,800 and $18,000.

As noted, the model was structured to produce simulations with an indexed tax base. There are numerous indexation options, and the model's structure permits one to explore several alternatives. Three indexation variables were imbedded in the model: 1) the indexation percentage, 2) the lag between the base wage and the tax base linked to the base wage, and 3) the rounding of the indexed tax base. In other state systems with indexation, the indexation percentage varies between 40 percent (Oklahoma) and 100 percent (Hawaii and Idaho) of the statewide average wage. The lag period is usually the twelve month period ending either six months or twelve months before the current year. Rounding is usually to the nearest $100 or $1,000. Various combinations of options can be explored with the model.

With an indexed base, the taxable wage proportion would be quite stable for a succession of years. In one exercise, the cumulative amount of taxable wages under a tax base of $18,000 was noted to be $389.2 billion over the seven years from 2004 to 2010. Note taxable wages for three of these years appear in the bottom rows of Table 7. Total revenue collected from Schedule D for the seven years was simulated to be $15.6 billion.

Adopting indexation in 2004 with the tax base set at 35 percent of average annual wages yields a simulated tax base of $16,100 in 2004, growing to $19,900 in 2010.[22] This indexed tax base would produce taxable wages of $387.1 billion for the years 2004-2010. For these seven years, the potential to raise tax revenues was essentially the same from having an indexed tax base set at 35 percent of average wages or having tax base fixed at $18,000 per year. The taxable wage proportion under the indexed tax base varied from 0.371 and 0.375 in these years. In contrast, taxable wage proportions under the fixed tax base of $18,000 declined from 0.41 in 2004 to 0.35 in 2010 (Column [4] in Table 7).

The contrast with the cumulative taxable wage total under a continuation of a tax base of $10,800 for these seven years is substantial. The model simulates taxable wages to sum to $268.3 billion between 2004 and 2010 under the present tax base. This lower amount represents 69 percent of taxable wages that would accrue under a tax base

[22] Indexation at a level of 30 percent of average wages would imply a tax base of $13,800 in 2004. The "Broken Trust" report (p. 23) recommended the tax base be raised to $13,800 in 2004 and indexed.

indexed at 35 percent of statewide average wages. While indexing the tax base to 35 percent (or 30 percent) of lagged annual wages would raise the tax base substantially, it should be recalled that the lowest indexation percentage currently in use is Oklahoma's 40 percent. States with indexed tax bases uniformly have much higher taxable wage proportions than the Massachusetts proportion.

Charts 4 and 5 illustrate the effects of indexation on the taxable wage proportion. Chart 4 traces this proportion in historic data between 1990 and 2003. It then shows four sets of taxable wage proportions for the years 2004 through 2010, i.e., a continuation of the present $10,800 tax base and the three higher tax bases identified in Table 7. With a fixed tax base, the taxable wage proportions decline each year after 2004 much like the decreases that occurred between 1993 and 2000. The factor that determines the rate of decline is the pace of wage growth. Because wage growth was essentially zero between 2001 and 2003 the taxable wage proportion in Chart 4 was flat for these years.

Chart 5 covers the same 1990-2010 period but with each of the higher tax bases indexed to average wages after 2004. Here the proportions are quite stable between 2004 (the first year of the higher tax bases) and 2010. Note also that the increase to $18,000 in 2004 merely restores the taxable wage proportion its level in 1992, the first year the tax base equaled its present $10,800. Chart 5 vividly illustrates how erosion of taxable wages (relative to total wages) can be prevented by indexation of the tax base.

Indexation of the taxable wage base would impose symmetry on the revenue and benefits sides of the Massachusetts UI program. The tax base would grow at the same rate as the maximum weekly benefit and help the revenue side of the program to keep pace with long run developments on the benefits side of the program.

C. Simulations of the Trust Fund Balance

The model projected future trust fund balances through the year 2010 using different assumptions about the time paths of both benefit outlays and tax revenues. It must be stressed that any projections of the Massachusetts trust fund balance will have an unusually wide range of uncertainty. Two factors linked to benefit payments that contribute to this uncertainty were previously identified: 1) the variability of the Massachusetts economy as reflected in its unemployment rate and 2) the variability of the

UI benefit recipiency rate. Two other factors related to revenues can also be identified: 3) the future level of the tax base, and 4) the tax schedules to be effective in upcoming years. As noted, the operative tax schedule in 2004 would be Schedule G if the tax statute were followed. However, the pattern of the past decade suggests the tax statute will serve mainly as a starting point for a legislatively determined decision regarding the operative tax schedule. Proposals to raise the tax base include those of Governor Romney and the Broken Trust report. Given the concern about changes in employer tax burdens, decisions about changing the tax base and tax schedule will be made together. A larger increase in the tax base will probably imply a smaller change from the schedule operative in 2003.

The initial model simulations emphasized the effects of alternative unemployment rates and recipiency rates combined with current (2003) tax base and tax rate schedule. Under a variety of assumptions about the future time paths of the two benefit variables, total benefit outlays between 2004 and 2010 fell into the range from $9.0 billion to $11.1 billion. With the current tax base of $10,800 and continued reliance on the present tax rate schedule (New B), total revenues for the same years totaled between $7.5 billion and $10.2 billion. The range in the estimated revenue totals reflects uncertainty about three factors: 1) the effects of future solvency assessments on the fund balance, 2) the selection of tax rate schedules in individual future years, and 3) the depressing effects on contributions from high future unemployment. The combination of pessimistic revenue estimates (closer to $7.5 billion) and pessimistic benefits estimates (closer to $11.1 billion) caused the trust fund balance to become negative in 2004 and remain negative for several years. The initial simulations point the need for some action to improve the balance between revenues and outlays over the 2004-2010 period.

One set of alternative simulations allowed the actual tax rate schedules operate as in the statute. For 2004 and 2005 this caused an increase to Schedule G followed by movement to lower schedules as the trust fund balance increased. During 2007-2010 taxes were levied using Schedule D and the trust fund balance increased to $1.93 billion.

The second set of alternatives kept Schedule B as the operative schedule and altered the taxable wage base. With the tax base set to 30, 35 and 40 percent of average annual wages the respective trust fund balances at the end of 2010 were -$931 million,

$52 million and $1,185 million. The latter balance represented only 0.69 percent of covered wages in 2010.

An important conclusion from these two sets of simulations is that either higher tax schedules or a higher tax base operating alone will cause a definite but limited restoration of the trust fund balance. To restore the balance to more robust levels requires large tax increases during 2004-2006. Following restoration of the fund to a level of some $1.2-1.5 billion in 2006, lower tax schedules would then automatically become operative if the tax statute is allowed to operate as intended. Instituting an indexed tax base would speed the return to lower tax rate schedules in future years because it would increase the annual tax yield of each operative tax schedule.

Again it should be stressed that the simulations carry a high degree of uncertainty for the upcoming seven years (even for the next four years as in DET projections). Among the uncertainties affecting revenues and expenditures are the future levels of the unemployment rate, the recipiency rate, the tax base and the operative tax schedules.

The main conclusion of the simulation analysis is that the trust fund can be restored through many combinations of tax base increases and/or movement to higher tax rate schedules. The latter may be accomplished with either the schedules in the current law or one of the alternative sets of schedules identified and examined Tables 5 and 6 of Section II. The advantage of selecting one of the alternatives is that ineffective charges would be reduced. From the results reported in Panels C-E of Table 6, however, the reductions in ineffective charges will be modest, perhaps 15 to 20 percent when compared to ineffective charges under the present tax rate schedules.

IV. Options and Recommendations

This report has focused on financing UI benefits in Massachusetts with attention devoted primarily to the revenue side of the program. The choice of emphasis reflects my judgement that the cause for the current financing problem arises from past decisions affecting the contributions that support UI. The benefit side of the UI program has not exhibited unusual behavior during 2001-2003. Yet the loss of reserves over these years has been sufficient to make borrowing during 2004 a likely event.

Between 1967 and 2002 the average cost rate (UI benefits as a percent of covered wages) for benefits covered by Massachusetts employers' contributions was 1.24 percent. The annual cost rates in 2001 and 2002 were 1.08 percent and 1.61 percent. The 2001 cost rate equaled the median cost rate for these 36 years while the cost rate in 2002 was exceeded by the cost rate in seven other years between 1967 and 2002.[23] The payout rate in the current recession simply has not been that high when compared to earlier periods.

Effective tax rates have been kept low for more than a decade through a series of overrides of the tax statute. Also contributing to low revenues has been the fixed and unchanged (since 1992) taxable wage base of $10,800. Contributions are now derived from less than 30 percent of covered wages.

A second important financing problem in Massachusetts is the extent of cross subsidization of some employers by other employers. As a group, negative balance employers incur benefit charges that average four times their contributions. The situation was examined in data for rate years 2002 and 2003, but it has been present for decades.

Four remedies to address these financing problems can be suggested. 1) Raise the taxable wage base. 2) Index the taxable wage base. 3) Allow the tax statute to operate as intended so that tax schedule reductions take place only after the trust fund balance has been restored to more adequate levels. 4) Substitute for the existing set of tax rate schedules, ones like the three alternatives examined in Section II, i.e., the Modified DET Alternative, Senator Lees' proposal or Governor Romney's proposal. Compared to the present schedules, all three make modest reductions in the amount of ineffective charges. Because the tax schedules in Governor Romney's proposal makes the largest reductions in ineffective charges, they are preferable to the schedules in the other two proposals.

Increasing the tax base and indexing it to average wages will help to ensure more adequate program financing as the Massachusetts economy grows by allowing aggregate taxable wages to grow at the same pace as the state's economy. The increase in the tax base under indexation will also help to reduce the volume of ineffective charges. Estimates of the size of the reductions under higher tax bases were reported in Table 6. The potential contribution in reducing ineffective charges is large. Thus, instituting an indexed tax base could improve both overall program financing (if not fully offset by tax

[23] Five years were in the 1970s along with 1990 and 1991.

reductions associated with moving to lower tax rate schedules) and yield an improved assignment of charges to the employers where benefit charges originate.

Combining a higher tax base (preferably an indexed tax base) with one of new sets of proposed tax rate schedules would improve both program financing and the assignment of benefit charges.

Annex: Legislation of November 2003

During the third week of November 2003 Massachusetts enacted UI legislation that addressed solvency questions and several other matters. This Annex briefly describes the scope of the legislation and discusses in more detail four provisions related to trust fund solvency. All provisions become effective on January 1, 2004.

The "other" provisions fall into five areas. All five have small (or no) implications for the overall solvency of the UI trust fund. 1. Changes will be made in DET advisory bodies. Future nominations for the DET Advisory Council will have direct input from the labor community which can make three nominations from which the labor representative will be selected. A DET Board of Review is to be re-established and nominees are to have relevant qualifications. 2. New provisions were included that focus on (employer and claimant) fraud and overpayments. 3. Reporting on trust fund developments will be increased. Monthly reports on the status of the UI trust fund are to replace the current quarterly reports. Each year an annual report is to be prepared which focuses on the effectiveness of collection procedures devoted to fraud and overpayments and total amounts collected. 4. New eligibility provisions will apply to temporary workers. In the future they will be required to report back to their temporary employers following the end of a temporary assignment as a condition of eligibility for benefits. 5. The maximum duration for regular UI benefits will decrease from the current 30 weeks to 26 weeks whenever all 10 state labor market areas have unemployment rates below 5.1 percent of the labor force.

The important solvency provisions all affect UI taxes. 1. The tax rate schedules are modified, broadly following the schedules proposed by Governor Romney and Senator Lees. The newly enacted schedules mimic those as described in Table 5 except that the negative balance cutoffs and positive balance cutoffs are quite similar to those of the existing schedules. The future negative balance cutoffs will be reserve ratios of -15% (compared to -14% in 2003, line 2 of Table 5) while the positive balance cutoffs will be 16% (compared to 14.5% in 2003, line 3 of Table 5). Because these changes in the positive and negative balance cutoffs are smaller than in the proposals discussed earlier, they will have a smaller effect in reducing ineffective charges than suggested by the

simulated totals shown in Table 6. The new schedules will also have lower reserve ratio trigger thresholds than at present. Thus it will be easier to reach a given schedule with the lower reserve ratio requirements, e.g., Schedule D will be activated for reserve ratios between 1.1% and 1.4% rather than reserve ratios between 1.4% and 1.7% under the current schedules.

2. The taxable wage base will be set at $14,000 starting on January 1, 2004. This change is estimated to increase taxable wages over the four years from $148.1 billion to $179.1 billion or by 21 percent. The taxable wage proportion in 2004 is estimated to be 0.339 rather than 0.280 under a continuation of the present tax base of $10,800. Since the higher base is not indexed, the taxable wage proportion will be subject to the same erosion as documented earlier in Charts 3 and 4.

3. The tax schedule to be operative during 2004-2007 will be Schedule D. Since the new tax schedules will have somewhat higher average tax rates than those under the present Schedule D, total revenues during 2004-2007 under the higher tax base is simulated to exceed $7.2 billion compared to $5.9 billion under the present schedule. The roughly $1.3 billion of added revenue will help to restore the trust fund balance by 2007, perhaps to the range of $1.3-$1.6 billion.

4. The new legislation creates the authority for a new “Surcharge” tax to be levied by the Commissioner in specific situations, e.g., when it is deemed there is not money in the trust fund to pay benefits or to repay short term borrowing so that interest on loans can be avoided. The additional taxes will be levied at rates ranging from 0.3-0.9 percent of taxable wages. Details of the activation of this tax, its duration and how rates might depart from the stipulated 0.3-0.9 percent remain to be determined. The important point about this “Surcharge” is that it gives an added element of discretion in setting tax rates for the purpose of avoiding sustained trust fund indebtedness.

On balance, these changes will help Massachusetts to restore the trust fund balance even if the economic recovery of 2004 and later years is weak.

Table 1. UI Recipiency, Benefit Levels and Replacement Rates, 1967 to 2002

Year	Unemployment Rate - % [1]	Total Unemployment [2]	Insured Unemployment [3]	Weekly UI Beneficiaries [4]	Beneficiares/Total Unemp. [4]/[2] [5]	Weekly UI Benefits, WBA [6]	Average Weekly Wage, AWW [7]	Replacement Rate [6]/[7] [8]
1967	3.0	68.0	50.8	44.8	0.658	43.30	114.24	0.379
1968	2.9	67.0	48.1	41.4	0.618	45.72	121.08	0.378
1969	2.9	69.0	48.6	42.1	0.610	47.81	130.43	0.367
1970	4.6	113.6	76.7	66.7	0.587	51.36	138.03	0.372
1971	6.6	160.8	95.8	88.1	0.548	55.46	146.03	0.393
1972	6.4	160.8	86.1	75.8	0.472	60.20	153.52	0.392
1973	6.7	168.5	85.6	75.7	0.449	64.45	162.20	0.397
1974	7.2	189.4	107.5	94.2	0.497	69.39	173.18	0.401
1975	11.2	298.2	155.7	128.1	0.429	72.98	184.42	0.396
1976	9.5	260.0	106.6	90.2	0.347	76.76	195.88	0.392
1977	8.1	224.9	87.1	75.5	0.336	79.78	208.18	0.383
1978	6.1	172.2	78.1	66.9	0.389	84.00	222.50	0.378
1979	5.5	160.5	75.1	63.2	0.394	89.47	240.60	0.372
1980	5.6	162.3	82.1	71.0	0.438	97.38	263.07	0.370
1981	6.4	186.8	85.5	74.1	0.396	104.79	287.38	0.365
1982	7.9	236.7	99.4	89.3	0.377	115.36	311.31	0.371
1983	6.9	204.8	81.7	73.9	0.361	122.57	331.34	0.370
1984	4.8	145.0	60.8	54.1	0.373	129.47	351.48	0.368
1985	3.9	119.7	64.7	57.9	0.484	141.91	375.00	0.378
1986	3.8	117.9	64.1	57.8	0.491	156.31	400.41	0.390
1987	3.2	99.0	53.3	49.9	0.504	173.85	430.88	0.403
1988	3.3	103.0	57.9	54.8	0.532	197.94	463.09	0.427
1989	4.0	127.0	84.4	78.9	0.621	211.93	483.95	0.438
1990	6.0	194.8	112.8	107.6	0.552	217.39	511.89	0.425
1991	9.1	286.2	127.3	121.5	0.425	222.49	537.33	0.414
1992	8.6	269.3	100.8	94.1	0.349	226.31	568.67	0.398
1993	6.9	218.7	78.7	70.8	0.324	233.61	578.19	0.404
1994	6.0	190.7	80.1	73.2	0.384	237.07	593.55	0.399
1995	5.4	169.8	73.4	66.6	0.392	244.40	619.48	0.395
1996	4.3	136.6	70.2	63.5	0.465	254.14	649.81	0.391
1997	4.0	130.8	63.5	58.3	0.446	262.85	683.81	0.384
1998	3.3	109.2	63.4	57.1	0.523	261.00	724.68	0.360
1999	3.2	105.0	66.2	59.4	0.566	278.86	774.07	0.360
2000	2.6	87.7	60.1	54.0	0.615	293.45	851.92	0.344
2001	3.7	124.9	89.6	81.6	0.653	334.72	863.49	0.388
2002	5.3	185.1	116.3	109.8	0.593	360.09	861.88	0.418

Source: Unemployment from the Bureau of Labor Statistics, U.S. Department of Labor. All other data from the Office of Workforce Security, U.S. Department of Labor. Unemployment, insured unemployment and weekly beneficiaries in thousands. All UI data refer to taxable plus reimbursable covered employment.

Table 2. UI Benefits, Trust Fund Reserves, Tax Revenues and Tax Rates, 1967 to 2002.

	Total Benefits	Total Contri-butions	Net Trust Fund Reserves Dec. 31	Reserve Ratio - %	Benefit Payout Rate-%	Contri-bution Rate on Total Wages-%	Contri-bution Rate on Taxable Wages-%	Tax Rate Schedule in Effect-a
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
1967	93.6	121.0	331.3	3.32	0.94	1.21	2.07	
1968	92.8	123.3	376.2	3.50	0.86	1.15	2.10	
1969	98.8	117.7	412.5	3.52	0.84	1.00	1.85	
1970	172.1	121.7	377.5	3.04	1.39	0.98	1.93	
1971	262.5	120.0	223.6	1.75	2.05	0.94	1.90	
1972	233.2	215.1	198.4	1.43	1.68	1.55	3.05	
1973	240.8	257.6	212.0	1.40	1.59	1.70	3.54	
1974	309.5	265.7	150.8	0.93	1.92	1.65	3.55	
1975	476.9	270.0	-99.1	-0.60	2.90	1.64	3.87	
1976	329.8	309.7	-171.3	-0.95	1.84	1.73	4.28	
1977	281.2	320.6	-158.5	-0.82	1.46	1.67	4.38	
1978	263.4	375.1	-49.7	-0.22	1.15	1.64	3.45	
1979	253.1	430.0	132.0	0.51	0.98	1.66	3.47	
1980	315.8	431.6	257.2	0.90	1.10	1.50	3.30	
1981	344.9	467.8	412.2	1.28	1.07	1.45	3.29	
1982	492.1	469.9	436.3	1.26	1.42	1.35	3.22	
1983	429.4	492.9	532.3	1.43	1.15	1.32	3.10	
1984	338.6	518.2	782.0	1.85	0.80	1.23	2.98	
1985	402.0	457.4	930.0	2.01	0.87	0.99	2.60	B
1986	448.1	408.7	990.1	1.96	0.89	0.81	2.07	A
1987	404.4	424.9	1097.0	1.96	0.72	0.76	2.05	A
1988	505.8	442.7	1132.9	1.84	0.82	0.72	2.06	A
1989	783.7	466.2	908.9	1.44	1.24	0.74	2.16	A-
1990	1090.6	505.8	381.8	0.60	1.72	0.80	2.48	C
1991	1232.4	635.9	-234.7	-0.38	1.99	1.02	3.37	F
1992	969.9	839.0	-379.9	-0.58	1.49	1.29	3.23	B-
1993	761.0	998.7	-116.0	-0.17	1.14	1.49	4.10	D
1994	786.8	1068.8	184.9	0.26	1.12	1.52	3.95	D
1995	731.6	1074.9	527.3	0.70	0.97	1.42	3.84	D
1996	720.0	1060.1	914.6	1.13	0.89	1.30	3.65	D
1997	686.1	1145.8	1446.2	1.63	0.78	1.29	3.78	E
1998	694.4	945.8	1803.0	1.86	0.72	0.98	2.85	C
1999	776.9	785.0	1921.6	1.81	0.73	0.74	2.32	New B
2000	745.3	821.8	2131.0	1.76	0.62	0.68	2.34	New B
2001	1319.4	822.4	1770.5	1.45	1.08	0.67	2.30	New B
2002	1886.6	784.9	920.0	0.79	1.61	0.67	2.44	New B

Source: Columns [1]-[7] from data published by the Office of Workforce Security, U.S. Department of Labor.
Benefits, contributions and reserves in millions of dollars for the combined (private and govt.) contributory systems.
a - Distinct tax rate schedules were operative between 1985 and 1991 and between 1992 and 2003. In addition to the seven basic schedules of each period, there were special schedules operative in individual years. Schedule A- in 1989 had rates 0.2 percentage points above those of Schedule A. Schedule B- in 1992 had rates that were generally 0.2-0.4 percentage points above those of Schedule B. New Schedule B of 1999-2002 (and 2003) had rates 0.075 percentage points below those of Schedule B.

Table 3. Employment, Wages and Taxable Wages in Massachusetts, 1967 to 2002.

Year	Covered Employ-ment [1]	Total Wages [2]	Taxable Wages [3]	Average Annual Wages [2]/[1] [4]	Taxable Wage Base [5]	Average Taxable Wages [3]/[1] [6]	Tax Base/ Average Wages [5]/[4] [7]	Taxable Wage Prop. [3]/[2] [8]
1967	1677	10.0	5.7	5941	3600	3384	0.606	0.570
1968	1706	10.7	5.9	6296	3600	3467	0.572	0.551
1969	1730	11.7	6.2	6782	3600	3586	0.531	0.529
1970	1729	12.4	6.2	7178	3600	3597	0.502	0.501
1971	1686	12.8	6.1	7577	3600	3629	0.475	0.479
1972	1738	13.9	7.1	7967	4200	4066	0.527	0.510
1973	1796	15.1	7.4	8422	4200	4123	0.499	0.490
1974	1805	16.1	7.6	8938	4200	4234	0.470	0.474
1975	1710	16.4	7.1	9614	4200	4166	0.437	0.433
1976	1757	18.0	7.3	10217	4200	4153	0.411	0.406
1977	1776	19.2	7.6	10818	4200	4296	0.388	0.397
1978	1978	22.8	11.4	11548	6000	5764	0.520	0.499
1979	2072	25.9	12.7	12482	6000	6107	0.481	0.489
1980	2094	28.7	13.1	13712	6000	6278	0.438	0.458
1981	2153	32.3	14.3	15000	6000	6650	0.400	0.443
1982	2135	34.7	14.5	16244	6000	6778	0.369	0.417
1983	2159	37.3	16.1	17266	7000	7458	0.405	0.432
1984	2304	42.2	17.5	18323	7000	7587	0.382	0.414
1985	2365	46.3	18.4	19563	7000	7801	0.358	0.399
1986	2416	50.5	19.5	20899	7000	8054	0.335	0.385
1987	2477	55.9	20.6	22571	7000	8324	0.310	0.369
1988	2534	61.6	21.6	24297	7000	8539	0.288	0.351
1989	2503	63.2	21.6	25247	7000	8622	0.277	0.342
1990	2383	63.5	20.6	26646	7000	8645	0.263	0.324
1991	2222	62.0	19.3	27924	7000	8681	0.251	0.311
1992	2196	65.0	25.7	29578	10800	11720	0.365	0.396
1993	2226	67.0	26.3	30091	10800	11822	0.359	0.393
1994	2277	70.3	27.2	30888	10800	11943	0.350	0.387
1995	2335	75.6	28.0	32367	10800	12006	0.334	0.371
1996	2382	81.3	29.1	34126	10800	12231	0.316	0.358
1997	2454	88.5	30.5	36064	10800	12433	0.299	0.345
1998	2518	96.8	31.9	38452	10800	12653	0.281	0.329
1999	2569	106.2	33.0	41354	10800	12855	0.261	0.311
2000	2636	121.0	35.0	45912	10800	13283	0.235	0.289
2001	2631	121.9	35.0	46315	10800	13318	0.233	0.288
2002	2545	116.8	33.8	45917	10800	13264	0.235	0.289

Source: U.S. Department of Labor, Office of Workforce Security. Employment in thousands. Total wages and taxable wages in billions of dollars. All data refer to taxable covered employers in the combined (private and government) contributory systems.

Table 4. Aspects of Experience Rating in Massachusetts, Rate Years 1988 to 2003

Rate Year	Ineffective Charges [1]	Inactive Charges [2]	Non-charged Benefits [3]	Total Benefits [4]	Prop. Ineffective [1]/[4] [5]	Prop. Inactive [2]/[4] [6]	Prop. Non-charged [3]/[4] [7]	Exp. Rating Index {1-[5]-[6]-[7]}% [8]
1988	99.9	33.7	50.2	410.3	0.244	0.082	0.122	55.2
1989	116.4	41.0	65.8	480.5	0.242	0.085	0.137	53.6
1990	193.5	49.5	97.0	680.7	0.284	0.073	0.142	50.1
1991	386.9	91.0	153.8	1055.9	0.366	0.086	0.146	40.2
1992	446.9	99.1	177.4	1271.3	0.352	0.078	0.140	43.1
1993	252.8	57.7	361.1	1269.5	0.199	0.045	0.284	47.1
1994	165.5	51.1	115.5	787.9	0.210	0.065	0.147	57.8
1995	138.3	52.3	144.4	794.0	0.174	0.066	0.182	57.8
1996	138.1	48.5	256.2	884.3	0.156	0.055	0.290	49.9
1997	145.0	46.9	175.2	809.6	0.179	0.058	0.216	54.6
1998	161.2	3.6	96.9	706.0	0.228	0.005	0.137	62.9
1999-a	161.4	12.5	90.7	694.8	0.232	0.018	0.130	61.9
2000	186.0	3.6	99.0	786.5	0.236	0.005	0.126	63.3
2001	184.6	1.2	98.6	759.0	0.243	0.002	0.130	62.5
2002	341.3	2.2	122.1	1052.9	0.324	0.002	0.116	55.8
2003	978.4	3.6	195.4	1970.2	0.497	0.002	0.099	40.2
Average	256.0	37.3	143.7	900.8	0.260	0.045	0.159	53.5

Source: Data from ETA 204 reports for Massachusetts. Benefits in columns [1]-[4] in millions of dollars.

a - Ineffective charges for 1999 estimated by author.

Table 5. Historic and Proposed Tax Rate Schedules: 1985 to 2004

	Actual Schedules 1985 to 1991	Actual Schedules 1992 to 2003	DET Mod. Alternative 2004	Senator Lees' Proposal 2004	Governor's Proposal 2004
1. Number of Schedules	8	10	7	7	7
2. Negative Balance Cutoff - %	-7%	-14%	-17%	-23%	-23%
3. Positive Balance Cutoff - %	13.5%	14.5%	35.0%	35.0%	35.0%
4. Sloped Range of Tax Rate Schedules - %	20.5%	28.5%	52.0%	58.0%	58.0%
5. Res. Ratio Trigger - Lowest Schedule A	2.3%	3.0%	1.75%	1.75%	1.75%
6. Min. Rate - Lowest Schedule A - %	1.2%	0.6%	0.1%	0.1%	0.1%
7. Max. Rate - Lowest Schedule A - %	5.4%	6.5%	8.2%	9.4%	9.4%
8. Tax Rate Range - Lowest Schedule - %	4.0%	5.9%	8.1%	9.3%	9.3%
9. Average Tax Rate - Lowest Schedule - %	2.58%	2.28%	2.78%	2.84%	2.84%
10. Res. Ratio Trigger - Highest Schedule G	0.8%	0.8%	0.5%	0.5%	0.5%
11. Min. Rate - Highest Schedule G - %	3.0%	3.4%	2.5%	2.5%	0.2%
12. Max. Rate - Highest Schedule G - %	7.2%	9.3%	10.6%	11.8%	18.55%
13. Tax Rate Range - Highest Schedule	4.2%	5.9%	8.1%	9.3%	18.35%
14. Average Tax Rate - Highest Schedule - %	4.38%	5.08%	5.18%	5.24%	5.61%

Source: Commerce Clearinghouse for actual tax rate schedules for 1985-1991 and 1992-2003.
Tax rate schedules for 2004 from summaries of proposed legislation. Average tax rates computed at the Urban Institute using the taxable wage distribution for rate year 2003 from ETA 204 report.

Table 6. Simulated Ineffective Charges in Rate Years 2002 and 2003 Under Alternative Tax Rate Schedule Proposals and Alternative Tax Bases.

	Actual and Simulated Revenues, Schedule New B		Revenues Equal Charged Benefits	
	2002 [1]	2003 [2]	2002 [3]	2003 [4]
Panel A - Actual Reported Data - a				
Tax Base = $10,800	344.9	978.4	324.5	746.7
Tax Base = $12,800	312.2	904.4		
Tax Base = $14,800	284.7	849.9		
Tax Base = $18,000	246.9	773.6		
Panel B - Rates from Current Schedule - b				
Tax Base = $10,800	302.8	872.6	301.3	685.4
Tax Base = $12,800	269.5	787.9		
Tax Base = $14,800	241.2	723.5		
Tax Base = $18,000	205.7	634.0		
Panel C - Rates from DET Modified Alternative - b				
Tax Base = $10,800	275.4	832.4	267.2	645.9
Tax Base = $12,800	239.7	737.4		
Tax Base = $14,800	210.5	664.7		
Tax Base = $18,000	182.1	563.5		
Panel D - Rates from Senator Lees' Proposal - b				
Tax Base = $10,800	266.3	814.9	259.3	631.7
Tax Base = $12,800	229.5	716.7		
Tax Base = $14,800	199.4	640.9		
Tax Base = $18,000	169.5	535.3		
Panel E - Rates from Governor Romney's Proposal - b				
Tax Base = $10,800	255.0	801.3	240.1	603.7
Tax Base = $12,800	214.1	692.8		
Tax Base = $14,800	184.8	609.5		
Tax Base = $18,000	158.2	496.0		

Source: Simulations at the Urban Institute using ETA 204 data for rate years 2002 and 2003.
Ineffective charges measured as charged benefits less estimated taxes in rate intervals where benefits exceed estimated taxes and summed over all rate intervals . Estimtes in millions of dollars.
a - Effective tax rates from ETA 204 reports
b - Tax rates from tax Schedule B

Table 7. Revenues Under Alternative Tax Bases, 2004 to 2010

Year	Tax Base [1]	Average Wages [2]	Tax Base to Average Wages [3]	Taxable Wage Prop. [4]	Total Wages [5]	Taxable Wages [6]	Tax Revenue a [7]
Panel A. Historic Data							
1992	10,800	29,578	0.37	0.40	65.0	25.7	839
2000	10,800	45,912	0.24	0.29	121.0	35.0	822
2002	10,800	45,917	0.24	0.29	116.8	33.8	785
Panel B . Base Simulation							
2004	10,800	48,709	0.22	0.28	126.8	35.5	1420
2007	10,800	54,791	0.20	0.26	148.3	38.4	1536
2010	10,800	61,632	0.18	0.24	171.8	40.9	1636
Panel C. Alternative Tax Bases							
2004	12,800	48,709	0.26	0.32	126.8	40.2	1608
2007	12,800	54,791	0.23	0.29	148.3	43.5	1740
2010	12,800	61,632	0.21	0.27	171.8	46.2	1848
2004	14,800	48,709	0.30	0.35	126.8	44.7	1788
2007	14,800	54,791	0.27	0.33	148.3	48.4	1953
2010	14,800	61,632	0.24	0.30	171.8	51.4	2057
2004	18,000	48,709	0.37	0.41	126.8	51.5	2060
2007	18,000	54,791	0.33	0.38	148.3	55.8	2232
2010	18,000	61,632	0.29	0.35	171.8	59.3	2372

Source: Simulations with a model developed at the Urban Institute. Total wages and taxable wages in billions of dollars. Revenues in millions of dollars. Data refer to taxable covered employers.

a - Revenue projected using Schedule D assuming a 4.0 percent tax rate.

Chart 1. Recipiency Rates and Replacement Rates, 1967 to 2002

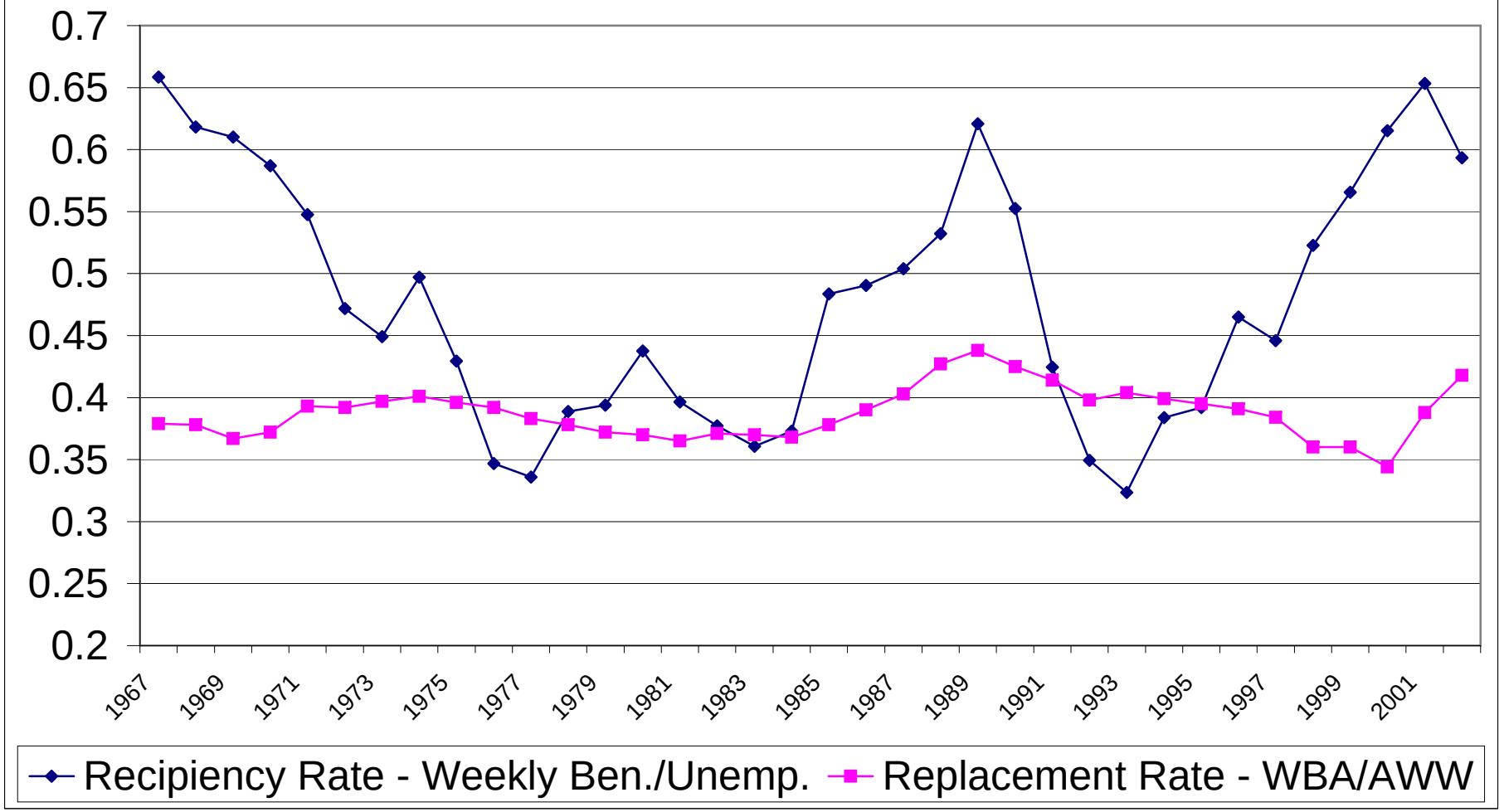
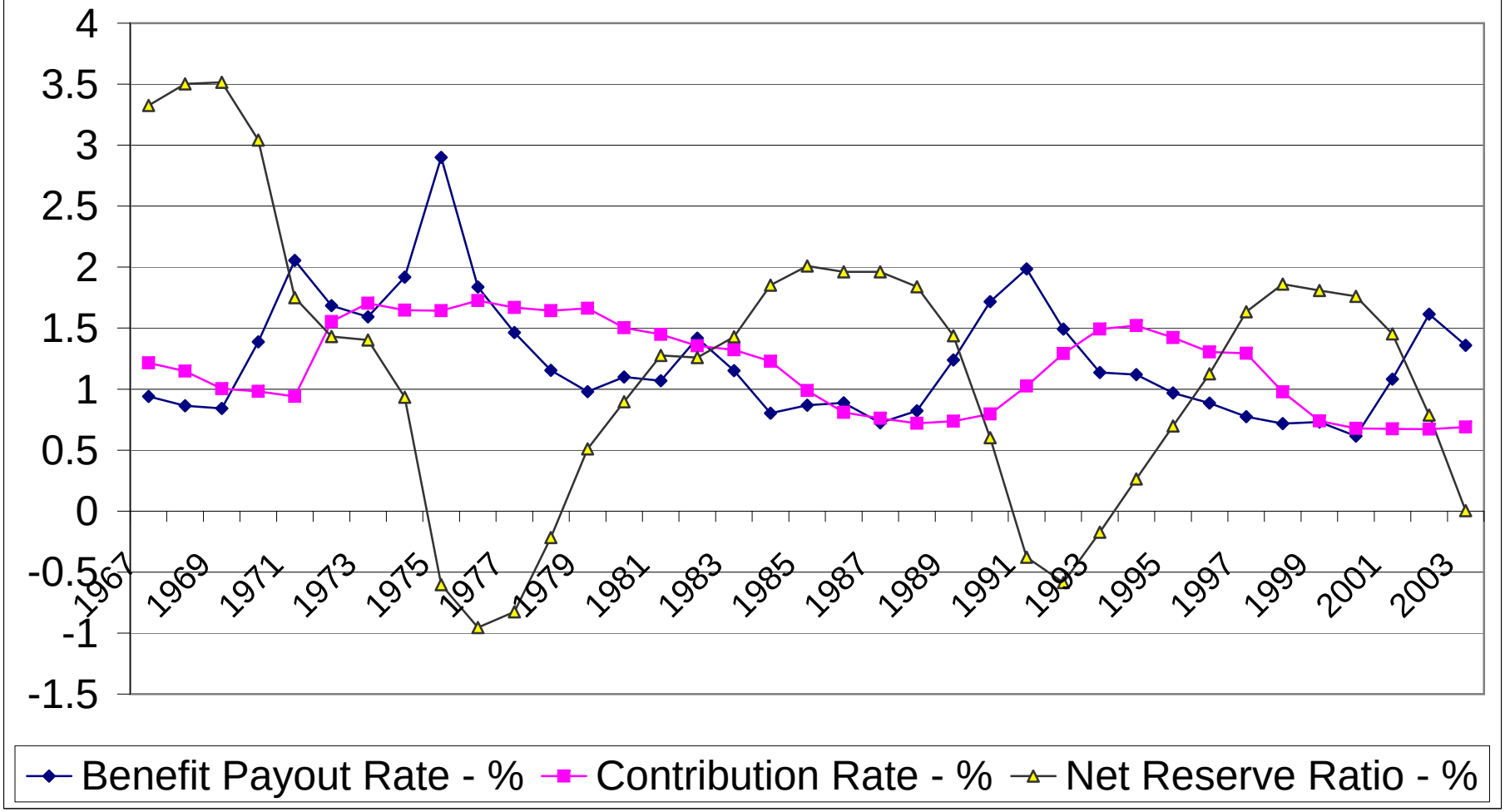


Chart 2. Benefits, Contributions and Net Reserves, 1967 to 2003



Data for the years 1967 to 2002 from Table 2. Data for 2003 from the DET September Quarterly Trust Fund Report as adapted at the Urban Institute.

Chart 3. Tax Base to Average Wage Ratio and Taxable Wage Proportion, 1967 to 2002

Chart 4. Taxable Wage Proportions from 1990, Alternative Fixed Tax Bases, 2004-2010

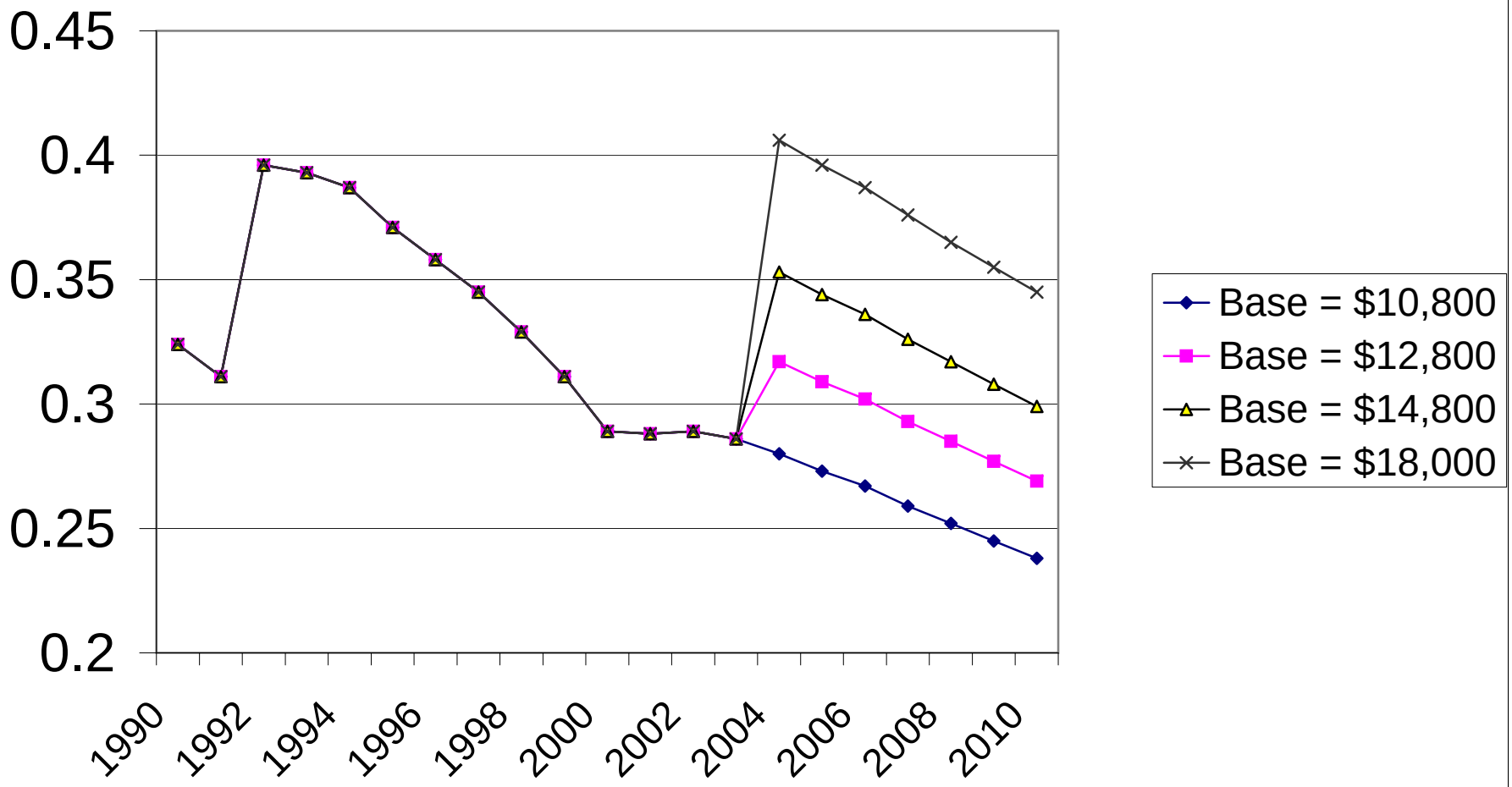


Chart 5. Taxable Wage Proportions from 1990, Alternative Indexed Tax Bases, 2004-2010