Report on Unemployment Insurance Benefits and Actuarial Modeling in Washington

by

Dr. Wayne Vroman*

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Table of Contents

Introduction

Washington State's Unemployment Insurance (UI) program has undergone a number of important changes since 2003, the result of three major legislative enactments and increasingly proactive program administration. Second Engrossed Senate Bill (2ESB) 6097 of 2003 made fundamental changes in the method of financing UI and included a number of restrictions on UI benefits. As the benefit provisions became fully operative in early 2005, there was a particularly strong reaction to the reduction in benefits caused by the use of average earnings during all four-quarters of the base period for setting the weekly benefit amount (WBA). Prior to 2004 the WBA had been determined using the average of the high two quarters of the base period. The change reduced the average WBA by some $40-$50 with some claimants experiencing much larger reductions, e g., six percent with reductions of $150 and above.

Mainly in response to the widespread unhappiness among claimants caused by these reductions, Engrossed House Bill (EHB) 2255 was enacted in April 2005. Starting in April 24, 2005, it restored the previous two-quarter method for computing the WBA. This bill was written as a temporary measure with its provisions to sunset on July 1, 2007 unless new legislation was enacted. This bill also established the "Joint Legislative Task Force on Unemployment Insurance Benefit Equity" charged with examining issues of overall UI program costs, employer tax equity and claimant benefit equity. The Task Force also wanted to review the adequacy of UI program financing in Washington and the methodology used by the Washington State Employment Security Department (ESD) to project trust fund balances under different potential future economic scenarios.

The Task Force had thirteen participants: four elected officials from the Legislature, four representatives from business, four representatives from labor, and a member from the Employment Security Department (ESD). Task Force meetings commenced in June 2005 and continued throughout the year and into 2006. Requests by Task Force members for data analysis were made through a formal request process, with ESD undertaking tabulations and other analyses of benefit data and tax data. Data requests were received by ESD through March 2006.

The Task Force was also assisted by an outside consultant, Dr. Wayne Vroman of the Urban Institute in Washington D.C. During the fall of 2005, he made several Power Point presentations to the Task Force examining various issues related to its legislative mandate. He also made recommendations for legislation in November 2005. These were followed by recommendations from business and from labor representatives of the Task Force in January 2006.

In March 2006, Engrossed Substitute Senate Bill (ESSB) 6885 was enacted and signed into law by Governor Gregoire. The new legislation made changes to both UI taxes and benefits. The benefit provisions kept in place many of the benefit restrictions enacted in 2003 but made permanent the use of two quarter averages in WBA computations as well as other changes in benefits.

This report has three substantive chapters. Chapter 1 gives a more detailed summary of the legislation of 2003, 2005 and 2006. Chapter 2 reviews the effects of several specific changes in benefits enacted in 2003 and 2005 on the overall cost of UI benefits in Washington. Chapter 3 discusses the approach to trust fund modeling followed by Washington State. Each chapter can be read as a stand-alone document. Some conclusions are found at the end of Chapters 2 and 3. This report was written under terms of a contract between the Washington State Employment Security Department and the Urban Institute.

Chapter 1. Brief Legislative History

Washington State has had an unusually active history of UI legislation since 2003 with bills enacted in 2003, 2005 and 2006.[1] All three recent enactments have dealt with UI benefits and the bills of 2003 and 2006 also included major UI financing provisions.

In the long run, the cost of benefit payments is reflected in the UI taxes paid by covered employers. Washington State has a history of above-average benefit costs. While this partly reflects above-average unemployment, it also reflects benefit provisions related to payment levels and eligibility to receive benefits. Thus during the ten years 1995 to 2004, benefits averaged 1.402 percent of covered payroll in Washington or 84 percent above the national average of 0.760 percent for the same ten year period. During these years the state's unemployment was 18 percent above the U.S. average (5.98 percent versus 5.07 percent), the recipiency rate (beneficiaries as a ratio to unemployment) was 32 percent above-average (0.429 versus 0.326), and the replacement rate (the WBA as a ratio to average weekly wages) was 20 percent above-average (0.413 versus 0.326). Roughly speaking, benefits as a percent of payroll and taxes as a percent of payroll have both been about twice their respective national averages.

The legislation of 2003 (2ESB 6097) made several important changes to reduce access to benefits and restrict payment levels. Four changes were noteworthy. (1) The weekly benefit maximum was frozen at $496 and the indexation percentage relative to the average weekly wage was reduced from 70 percent to 63 percent. It is anticipated the freeze at $496 will last at least until 2007 and perhaps to 2008. From that point onward the maximum weekly benefit will be a full ten percent lower than it would have been under the previous indexation percentage of 70 percent. (2) The calculation of the WBA was changed from a percentage of the highest two quarters of base period earnings to the highest three quarters in 2004 and to four quarters in 2005. (3) The scope of compensable voluntary quits was restricted to ten specific quit situations that are allowed while all

[1] This narrative commences in 2003. It should be noted that UI reform legislation was also enacted in 2000 and 2002 and that a major change in the administration of continuing claims (termed Job Search Review) was implemented in 1999-2000.

others are denied.[2] (4) Maximum potential benefit duration was reduced from 30 weeks to 26 weeks, effective in 2004.

Of these changes, the largest in terms of quantitative impact was the movement to four quarter averaging. ESD estimated that in 2005 when this provision became operative over 80 percent of all recipients would receive a lower WBA (compared to the WBA under two quarter averaging). An ESD tabulation of benefit data from 2004 suggested that the average WBA under four quarter averaging would be lower by $50, a reduction of about 16 percent. This information was presented to the Task Force during meetings in June and November 2005.

Since 1985 Washington State had been taxing employers using four year average benefit ratios to assign tax rates. Rates were set under seven separate schedules with the trust fund reserve balance on the computation data (September 30th) used to identify the operative schedule for the upcoming year. Employers were ranked according to their benefit ratio under an array allocation procedure that placed employers into 20 categories each having 5.0 percent of taxable wages. The schedules all had a top tax rate of 5.4 percent but bottom rates that were successively higher as the trust fund balance crossed successively lower thresholds.

The 2003 bill moved to a system of using individual four-year benefit ratios as the primary determinant of individual employer tax rates. Employers were grouped into 40 benefit ratio–tax rate categories. The maximum tax rate (including a new, social tax) was raised to 6.5 percent (an increase from 5.4 percent) for most employers.[3] Social charges were added to the basic experience rate schedule using an add-on schedule where the bottom social charge rate was 78 percent of the average social charge rate and the top rate was 120 percent of the average. The average social tax had a minimum rate of 0.60 percent. The sum of the basic experience rated tax plus the social charge was limited to 6.5 percent of taxable wages for all employers. The taxable wage base continued to be set at 80 percent of average annual covered wages. These tax changes became operative in 2005.

[2] Misconduct disqualifications were also modified to become more restrictive but these changes were much less important in affecting total benefit payments. It should also be noted that the legality of the restrictions on voluntary quits is being challenged in state court.

2ESB 6097 also made two changes that reduced the volume of noncharged benefits. Since voluntary quits are almost always noncharged, restricting compensable quits to ten specific situations reduced noncharges. Additionally, the noncharge for marginal labor force attachment (MLFA) was eliminated. The latter noncharges typically arose among beneficiaries with highly irregular earnings patterns. Its elimination reduced annual noncharged benefits by over $40 million. The two changes moved the tax system towards more complete experience rating, i e., assigning charges to the employers where the charges originate. On balance, benefit charges were more equitably and appropriately assigned to individual employers following these changes.

At the time of the 2003 legislation there were questions about the ability of the revised financing arrangements to adequately respond to a recession. Some simulations with ESD trust fund models suggested a serious recession would overwhelm the taxing capacity of the new system. Following the 2001 recession, the state's economy has performed well and the trust fund has recovered strongly. At the end of 2005 the total trust fund balance exceeded $2.2 billion, representing a full recovery from the recession-related drawdown. The 2005 end-of-year reserve ratio (trust fund reserves as a percent of covered payroll) was 2.71 percent compared to 2.46 percent at the end 2000, just prior to the recession. Nothing to date suggests the new financing system is deficient, but the recent recession may have been too mild to pose a strong test of the system's resiliency.

As noted in the Introduction, the UI legislation of 2005 (EHB 2255) was motivated by the strong adverse reaction among claimants to the reduction in the WBA caused by four quarter averaging. The 2005 bill temporarily restored two quarter averaging but at the same time it lowered the statutory replacement rate from 52 percent to 50 percent (0.040 to 0.0385 of two quarter average earnings). The costs of restoring two quarter averaging were partly funded by use of Reed Act monies from the trust fund (as opposed to assigning the added costs fully to employer benefit ratios). Because the benefit provisions were temporary, however, all parties agreed that the enactment was a stop-gap to be followed either by new legislation or by a reversion to the benefit provisions of the 2003 law. Even without the reversion to four quarter averaging, the

[3] Employers in agriculture, food processing and a few other select industries were subjected to a maximum rate of 6.0 percent.

other benefit changes of 2003 and 2005 implied substantially reduced payments. The scale of the reductions is examined in Chapter 2.

The legislation of 2006 (ESSB 6885) made permanent both two quarter averaging and the use of the 50 percent statutory replacement rate (0.0385 of the two high-quarter average). Lesser changes affecting benefits were the restoration of one category of permissible voluntary quits (quits to follow a military spouse's mandatory transfer to any other state) and restoring state's administrative authority (including ESD, administrative law judges and the courts) to liberally interpret the Employment Security Act in making eligibility determinations.

Several tax provisions were also enacted in 2006. The linkage between the fund balance (expressed in terms of months of benefits) and the tax rate for social costs was modified with the latter permitted to vary over a range of from 0.60 percent down to 0.45-0.50 percent (but lower for employers in rate class 40 in a few selected industries). Authority for a solvency surcharge was continued, the surcharge to be activated whenever the fund balance falls below seven months (previously six months) of benefits. Tax relief to employers for use of two quarter averaging in calculating the WBA was extended indefinitely. The maximum tax rate in selected industries was reduced from 6.0 percent to 5.7 percent (meaning that the social tax was effectively capped at 0.3 percent for employers in the top rate class, class 40).

Issues of tax equity and benefit equity are still unresolved in Washington. The legislation of 2006 directed ESD to conduct studies of four topics and report findings to UI advisory committees and legislative committees by December 1, 2006. The topics are: 1) repeat episodes of unemployment benefits, 2) employers in the highest rate class (rate class 40), 3) employer turnover, and 4) corporate officer concerns. All four topics were examined to a degree by the Task Force in 2005, but many feel additional information would help in framing future legislative proposals. The newly authorized studies are to be completed by December 1, 2006. Their findings may inform future legislative proposals.

Chapter 2. The Quantitative Impact of UI Benefit Reductions

The payment of Unemployment Insurance (UI) benefits in Washington State has undergone a number of important changes since the late 1990s. As documented in Chapter 1, several changes have caused reductions in benefit payments to claimants. This chapter describes the changes and provides quantitative estimates of the dollar amount of savings to the UI trust fund. The chapter follows a methodology first described in a powerpoint presentation made before the Joint Legislative Taskforce on Unemployment Insurance Benefit Equity on November 17, 2005. It estimates the dollar amounts of savings from individual provisions and in total for the years 2006 to 2010.

The Cost Framework

Total UI benefit payments per year can be expressed as 52 times the average weekly benefit times the average weekly number of beneficiaries. It is useful to express total benefit payments as a percent of annual statewide payroll (an indicator of state size) since the long run costs of a UI program are driven by benefit payouts.

Total benefits as a percent of payroll can be measured as the product of three factors: 1) the replacement rate (or RRate, weekly benefits as a ratio to weekly wages), 2), the recipiency rate (NBen/TU, the ratio of beneficiaries to unemployment) and 3) an indicator of unemployment in the labor market (the ratio of the unemployment rate (or TUR, for total unemployment rate) to (100-TUR)).[4] This indicator includes unemployment arising from all sources including employer-initiated separations (or layoffs), voluntary quits as well as unemployment among first time labor force entrants and reentrants. While many of the unemployed are not eligible for UI benefit payments, the absence of good data on the number eligible claimants make the labor force survey estimate of unemployment a source that is available for every state and convenient for use in interstate comparisons and for comparisons across time for a single state.

Using the terms just introduced, the benefit cost rate equation for Washington (or any other state, or for the U.S. as a whole) is as follows:

[4] The total unemployment rate (or TUR) is measured for each state in the monthly household labor force survey. The recipiency rate then is the ratio of weekly benefiaries from UI program data to total unemployment as measured in the labor force survey.

(1) B% = RRate*(NBen/TU)*TUR/(100-TUR)

where B% is UI benefit costs expressed as a percent of payroll in UI taxable covered employment, and the other terms are as defined above. In words, UI benefits are more costly as the replacement rate is higher, the recipiency rate is higher and as the unemployment rate is higher. The effect of unemployment on the benefit cost rate in (1) is twofold because high unemployment not only increases benefit payouts to claimants it also reduces employment and thus the payrolls of covered employers.[5]

Washington has historically operated a relatively generous UI program. Since UI is financed by employer payroll taxes, this means Washington employers have paid above-average UI taxes. Table 1 summarizes the cost factors for Washington State for the ten year period from 1995 to 2004. During these years Washington's UI costs were just less than twice the national average. The tax cost rate was 91 percent above the national average while the benefit cost rate exceeded the national average by 84 percent.

Table 1. Costs of Unemployment Insurance, Washington State and the U.S., 1995 to 2004

	Washington	United States	Wash./U.S. Ratio
Taxes/Payroll %	1.26	0.66	1.91
Benefits/Payroll %	1.40	0.76	1.84
Recipiency Rate – NBen/TU	0.429	0.326	1.32
Replacement Rate – RRate	0.413	0.346	1.20
Unemployment Rate – TUR%	5.98	5.07	1.18
Benefit Generiosity = (NBen/TU)*RRate	0.177	0.113	1.57

Source: Calculations by the author with data from the U.S. Department of Labor.

Note in Table 1 that each of the three factors in cost equation (1) were above-average in Washington during 1995-2004. The recipiency rate was 32 percent above the national average (0.429 versus 0.326) while the replacement rate was 20 percent above average (0.413 versus 0.346). The state's average unemployment rate of 5.98 percent was

nearly a full percentage point (or 18 percent) above the national average of 5.07 percent for the same period. Thus all three factors identified in cost equation (1) contributed to Washington's above-average UI costs with the recipiency rate providing the largest deviation from the national average.

For any state, unemployment in the short run is largely beyond its control. In contrast, UI statutes and administrative practices exert a large effect on the generosity and benefit costs of a UI program. The product of the recipiency rate and the replacement rate can be termed a generosity index. It provides a short-hand summary of the liberality of a state's UI program. Factors such as the statutory replacement rate, the maximum weekly benefit, monetary eligibility criteria, the linkage between base period earnings and the maximum potential benefit entitlement as well as the conduct of program administration (frequency of eligibility reviews, determination rates on separation and nonseparation issues and associated denial rates) all determine how much is paid to UI claimants. Note in Table 1 that Washington's generosity index during 1995-2004 was 0.177 which was 57 percent above the national-average generosity index of 0.113. During the years 1995-2004 Washington operated a UI program which was measurably more generous and expensive than the national average.

Review of Recent Changes

Washington has implemented several important legislative and administrative changes in its UI program in recent years. Chapter 1 documented the most important aspects of legislation of 2003, 2005 and 2006. The largest changes were made in 2003 in 2ESB 6097 which modified several provisions affecting UI taxes and benefits.[6] Four changes in benefits to be examined here are: 1) the freeze on the weekly benefit maximum at $496 and a reduction in the indexation percentage from 70 percent of average weekly wages to 63 percent, 2) a change in the computation of weekly benefits from using earnings in the two high quarters of the base period to using three high quarters starting in 2004 and using all four quarters starting in 2005, 3) increased

[5] This cost framework is discussed in more detail in Chapter 2 of Wayne Vroman and Vera Brusentsev, Unemployment Compensation Throughout the World: A Comparative Analysis, (Kalamazoo MI: W.E. Upjohn Institute, 2005).

[6] The present discussion will focus just on changes in UI benefits.

disqualifications for voluntary quits,[7] and 4) a reduction in maximum potential benefit duration from 30 to 26 weeks. These changes all operate to reduce total payouts.

In early 2005, bill EHB 2255 was enacted with two important benefit provisions. 1) The basis for computing weekly benefits was changed back to using two high quarters rather than using four quarters which had commenced in January 2005. 2) The statutory replacement rate was reduced from 52 percent to 50 percent of two high quarter wages. These provisions were temporary and scheduled to sunset in June 2007 unless extended or superceded by new legislation.

Over the past five years Washington has also made other changes in eligibility and program administration. Even prior to legislation of 2003, other restrictions on eligibility following voluntary quits were enacted.[8] In 2001 a new program of Job Search Reviews (JSR) was instituted that required selected claimants to appear in local one-stop offices to discuss reemployment strategies and document their job search activities. Starting in 2005 a second program focused on continuing eligibility was initiated. The Reemployment and Eligibility Assessment (REA) program has been operative since July 2005 and will interview about 40,000 claimants in local offices during its period of operation (to September 2006 or longer). REA participants are required to appear in local offices when called and must keep written logs of their job search activities. Administrative data show that the number of determinations and denials on issues related to continuing eligibility (able and available for work and reporting requirements) have risen sharply since 2000. Increased administrative oversight is an ongoing feature of UI in Washington.

Cost Savings Methodology

The approach to be followed here utilizes the cost framework previously introduced. It starts with cost equation (1) and modifies the recipiency rate and the replacement rate to reflect each of the changes in benefit availability previously

[7] There were also increased disqualifications for misconduct, but the changes were much less extensive than ones affecting voluntary quits. Also changed was the administration of the state's Job Search Review program which verifies continuing eligibility for benefits among claimants. The administration was directed to conduct "all weeks" reviews with increased potential disqualification penalties for claimants who did not provide adequate evidence of active job search.

[8] Quit-to-follow one's spouse in a job transfer was restricted.

discussed. For each of six individual restrictions in benefits, the methodology for estimating its effect is described. The individual changes affect either the replacement rate or the recipiency rate. After the effects of the individual changes are estimated, a total cost estimate is then derived with estimates for years from 2006 to 2010.

Restriction 1 (R1). – Freezing the maximum WBA at $496 and reducing indexation to 63% of average weekly wages

These changes will affect the maximum WBA in all future years. Assuming 3 percent annual wage growth, the maximum will remain at $496 through 2007 and then increase to $500 in 2008, $515 in 2009 and $531 in 2010. These latter three maximums will be respectively $56, $58 and $59 below the levels that would have been reached under a continuation of indexation at 70% of average weekly wages.

Reducing the maximum weekly benefit will lower the average replacement rate. To estimate the size of this effect two multiple regressions were fitted. In both, the dependent variable was the replacement rate (weekly benefits as a fraction of average weekly wages or AWW) and one of the explanatory variables was the ratio of the maximum WBA to the AWW. Both regressions yielded coefficients that show the response of the replacement rate to the maximum weekly benefit.

The first regression used annual data from Washington for the 38 years 1967 to 2004. Besides the ratio of the maximum WBA to the AWW, the equation also included the state unemployment rate and the unemployment rate lagged one year. This equation explained 84 percent of the variation in the replacement rate with both the maximum WBA/AWW ratio and the unemployment rate entering significantly. The equation indicated the replacement rate is higher in years of high unemployment and when the maximum WBA/AWW ratio is higher. The coefficient on the latter variable was 0.3910 indicating that the replacement rate increases by 0.00391 for each increase in the maximum WBA/AWW ratio of 0.01.

The second regression used ten year averages of data from 51 state UI programs during 1995-2004. The replacement rate was the dependent variable and the maximum WBA/AWW ratio was among the explanatory variables. Other significant explanatory variables in the equation were the statutory replacement rate (entering positively) and a

dummy for states that use 4 quarter averages for determining the weekly benefit (entering negatively). This regression explained 79 percent of the interstate variation in the ten year average replacement rate. The coefficient on the maximum WBA/AWW ratio was 0.4646, and it was by far the most significant variable in the regression (a t ratio of 11.2).

The results of the two regressions are quite similar. When the maximum WBA/AWW ratio decreases by 0.01 the replacement rate decreases by about 0.004. Of the two regression coefficients I have used the first one (0.3910) which was based on Washington State time series data.

In 2003 the maximum WBA/AWW ratio was 0.668. Under the freeze at $496 this ratio gradually decreases to 0.606 in 2007 and then to 0.594 in 2008 and later years when the 63% indexation is operative. The full decrease of 0.074 in the maximum WBA/AWW ratio (from 0.668 to 0.594) when multiplied by the regression coefficient of 0.3910 implies a total reduction in the replacement rate of 0.029 in 2008 and later years or 7.0 percent of the 1995-2004 average of 0.413 as shown in Table 1. The time path of this decrease in the replacement rate is from 0.413 for the ten year average to 0.403 in 2005, 0.396 in 2006, 0.389 in 2007 and 0.384 in 2008 and later years. The full effects of the freeze in the maximum WBA on the replacement rate will not be apparent until 2008.

Restriction 2 (R2). Lowering the statutory replacement rate from 52% to 50%

One element of EHB 2255 reduced the statutory replacement rate from 52 to 50 percent of average wages in the two high quarters.[9] The Washington Employment Security Department did a tabulation of its effect on the actual weekly benefit amount (WBA) using data for persons who established benefit years in 2004. The tabulation indicated that the WBA was lowered by $8 or 2.6 percent of the actual average of $310 for the year.

The effect on the actual WBA is small enough that its impact may not be apparent from aggregate data. While there is no reason to question the accuracy of the ESD calculation, it does weigh each individual recipient equally regardless of how long they remain in benefit status and with no reductions for factors such as deductible income. If

[9] The actual calculation of the weekly benefit amount (WBA) previously used the fraction 0.04 of the two high quarter average earnings. This was reduced to 0.0385.

each claimant was weighted by actual weeks in benefit status and their actual weekly payments, the resulting weighted average could differ from $8. In calculations used here, I have assumed the change reduced the replacement rate by 1.5 percentage points or from 0.413 to 0.398, a reduction of 3.5 percent. Note that use of the $8 estimate made by ESD would imply a larger reduction in the replacement rate.

Restriction 3 (R3). Moving from a two quarter to a four quarter WBA calculation

Use of four quarters in calculating the WBA lowers the computed amount for most claimants. The only ones whose WBAs would not be adversely affected are persons with steady earnings streams during all four quarters of their base period. The impact of the change is largest on persons with the most irregular and seasonal earnings patterns.

A tabulation by ESD with 2004 data suggested that 81.4 percent of persons would experience a lower WBA under four quarter averaging compared to two quarter averaging. Their tabulation indicated that the overall average reduction in the WBA would be $50 with 38.2 percent of claimants experiencing a reduction of more than $50. Since the average WBA in 2004 was $310, a large fraction would experience a reduction in their WBA of more than 15 percent compared to use of two quarter averaging.

Again using a conservative estimate, I have assumed the overall average reduction in the WBA due to four quarter averaging is $40. This represents 12.9 percent of the average WBA ($310) for 2004.

This change was temporarily reversed under EHB 2255 and two quarter averaging was made permanent under ESSB 6885. However, to show the effects of two-quarter versus four-quarter averaging, estimates have been made under both assumptions.

Of the three restrictions on the replacement rate just discussed, the largest effect arises from the use of four quarter averaging.

All restrictions in the WBA will be partially offset by increases in potential benefit duration.[10] None of Washington's recent legislation has affected the linkage between base period earnings (BPE) and a claimant's maximum potential benefit entitlement (or MBA). The MBA/BPE ratio has remained at 0.3333. A claimant cannot receive more than one third of base period earnings in benefit payments. ESD has

[10] In later discussions this will be referred to as restriction D.

conducted tabulations of the effect of WBA reductions on potential benefit duration using data from 2004. The added potential duration effect will be modest as persons affected will only receive these benefits if they pursue their claims into the later weeks of their full 26 week entitlement. Note also that those already eligible for 26 weeks will not experience longer potential entitlements.

The initial result of the ESD tabulations indicates that potential duration under EHB 2255 in 2004 data was 24.05 weeks compared to 25.55 weeks under 2ESB 6097, a difference of 1.50 weeks or 6.2 percent. This increase in potential duration will increase actual benefit duration to some degree, but the exact amount is not known with certainty. In the present analysis, the increase in actual benefit duration is assumed to be one third of the increase in potential duration, i. e., 2.1 percent. This estimate of an one-third response of actual duration to increased potential duration is based partly on the average exhaustion rate over the 1995-2004 period and partly on an assumed partial response of claimant duration to higher potential duration.[11]

Restriction 4 (R4). The reduction of maximum potential weeks from 30 to 26

For all claimants filing after April 2004, maximum potential weeks were limited to 26, a change affecting all who previously eligible for 27 to 30 weeks. Data from the ETA 218 reports show actual duration for those who exhaust benefits in three relevant intervals: 26-27 weeks, 28-29 weeks and 30+ weeks. Counts of exhaustees in these intervals were averaged for the period 1995 to 2003, years with the 30 week maximum. Their average duration was 29.6 weeks indicating that most did collect for 30 weeks.[12]

Exhaustees represented 0.331 of all recipients during 1995-2003, and within the exhaustee group nearly half collected for 27-30 weeks. These persons represented 0.159 of all recipients during 1995-2003. Under a 26-week maximum potential duration, their average actual weeks would have been 26.0 rather than 29.6. A reduction in duration of 3.6 weeks for these claimants would have reduced overall average duration by 0.58 weeks from 17.92 to 17.34 weeks. This shorter average duration represents 3.2 percent of the average of 17.92 weeks for the period.

[11] In later quantitative analysis this effect of longer benefit duration is referred to as restriction D.

[12] The calculation of average duration assumed that half in the 26-27 week interval collected for 26 weeks and half for 27 weeks. Those who received 26 weeks were unaffected by the change.

Restriction 5 (R5). Restrictions on compensable voluntary quits in 2ESB 6097

While this legislation affected disqualifications for both misconduct and voluntary quits (VQ), its effects were concentrated in VQ disqualifications. Because the VQ restrictions that became effective in January 2004 were controversial, ESD was directed to study their effects. The ESD-VQ report was completed in June 2005.[13]

ESD examined 16,825 VQ determinations made between July and December 2004. For each decision it made two eligibility determinations: under previous rules and under the new rules effective in January 2004. It found that 1,989 denials under the new rules would have been decided as allowances under the previous rules. Overall, the VQ denial rate was 0.729 under 2004 rules but 0.611 under earlier rules, an increase in 0.118.

To estimate the full effect on disqualifications, this higher disqualification rate was applied to the 45,233 VQ determinations made during the full year of 2004. This implied a total increase in VQ disqualifications of 5,337.

Translating the increased number of disqualifications into reduced weeks compensated was not attempted in the VQ study. To make an estimate, recall that average duration during 1994-2003 was 17.92 weeks. VQ disqualifications last for the duration of claimants' current spells of unemployment. It has been assumed the claimants would have received benefits for 12.0 weeks had they not been disqualified. Multiplying the increased number (5,337) times 12.0 yields an estimate of weeks not compensated of 64,044 weeks, or 1.8 percent of the 3,626,672 total weeks compensated in 2004.

Restriction 6 (R6). Enhanced job search oversight

Beneficiaries who file continuing claims for benefits in Washington now face a more proactive administration compared to five years ago. Two administrative initiatives are now in place. Job Search Reviews (JSR) have been operative since 2001 while Reemployment and Eligibility Assessments (REA) commenced in July 2005. Both require claimants to appear in local one-stop offices, to provide verifiable evidence of active job search as well as providing enhanced services to speed reemployment.

[13] "Voluntary Quit Decisions in the Unemployment Insurance Program: Before and After the Implementation of Second Engrossed Senate Bill 6097," Washington Employment Security Department, (June 2005).

Evidence of the presence of these initiatives is found in ETA 207 reports of activities related to nonseparation nonmonetary determinations. The number of such determinations increased from 65,586 in 2000 to 109,000 in 2004. The associated number of denials increased from 48,523 in 2000 to 82,555 in 2004 or by 34,032. Two categories of denials have increased sharply, "able and available for work" and "reporting requirements." People who do not actively search and who refuse what ESD deems to be suitable jobs are much more likely to be denied benefits than in the past.

The denials in these cases may withhold benefits for a week or for longer periods. There are no data that show the average duration of the denials and the associated reductions in weeks compensated. It has been assumed that the average duration of the denials is 2.0 weeks. This would imply that the 34,032 increase in denials would translate into 68,064 fewer weeks compensated. Since weeks compensated totaled 3,626,672 in 2004, these increased denials would represent 1.9 percent of total weeks compensated.

Note that restrictions R4, R5 and R6 all operate to reduce total weeks compensated, hence the recipiency rate. For present purposes it has been assumed that all three will operate with unchanged proportional effects in all years after 2005. Note also that all six restrictions are measured as proportions that fall below 1.0. Combined they will operate to reduce UI benefit payments in future years.

Savings on Benefit Payments

As noted at the start of this chapter, total benefit payments in any year can be expressed as 52 times weekly benefits times the weekly number of recipients, or

(2) TBen = 52*WBA*NBen where

TBen = total benefits,
WBA = average weekly benefits, and
NBen = average weekly beneficiaries.

Expression (2) can also be expressed using terms that directly reflect the generosity of Washington's UI program, that is

(3) TBen = 52*(AWW*RRate)*(TU*(NBen/TU)) where

AWW = the average weekly wage, and
TU = total unemployment.

The term within the first right-hand expression in parenthesis is the weekly wage times the replacement rate (an alternative way to express weekly benefits) while the term within the second parentheses is total unemployment times the recipiency rate (an alternative way to express the average weekly number of beneficiaries).

Expression (3) identifies four factors that combine to determine total annual benefit payouts. To make projections for future years, one needs to make assumptions about all four right-hand factors. Table 2 shows projections of the underlying factors based on a combination of historical averages and projections. For all years 2006 to 2010 the unemployment rate has been assumed to be 5.76 percent, the average assumed by the Washington Economic Forecast Council for 2006 and 2007. This assumption along with the Forecast Council assumption about wage growth yields the estimates of unemployment and weekly wages. Table 2 makes baseline projections of benefit payments assuming the recipiency rate and the replacement rate equal their historic averages from the 1995-2004 period, 0.429 and 0.413 respectively.

Combined, these four assumed time paths yield the annual benefit projections shown in the final column of Table 2. Total benefit payments increase from $1,398 million in 2006 to $1,592 million in 2010.

Table 2 Baseline Simulation of Benefits with No Restrictions

	Unemploy-ment - TU	Recipiency NBen/TU	Avg Weekly Wage - AWW	Replacement Rate	Total Benefits
2006	197	0.429	770	0.413	$1,398
2007	200	0.429	778	0.413	$1,434
2008	203	0.429	787	0.413	$1,472
2009	206	0.429	799	0.413	$1,516
2010	216	0.429	800	0.413	$1,592

Unemployment in thousands, total benefits in $millions.

Next, recall the six restrictions identified above.

R1 – The freeze of the maximum WBA at $496 and later indexation to 63% of average wages. This decreases R1 from 0.959 in 2006 to 0.930 in 2008-2010.

R2 – The reduction in the statutory replacement rate from 52% to 50%. R2 = 0.965 in all years.

R3 – Use of four quarter averages to calculate the WBA. R3 = 0.871 in all years.

R4 – The reduction in maximum potential duration from 30 weeks to 26 weeks. R4 = 0.968 in all years.

R5 – The increase in VQ denials due to 2ESB 6097. R5 = 0.982 in all years.

R6 – The increased oversight of continuing claims from the JSR and REA initiatives. R6 = 0.981 in future years

D – The effect of reducing the WBA on actual duration. D = 1.021 in future years.

D is the only ratio that exceeds 1.0. All factors enter cost equation (3) multiplicatively.

Table 3 shows estimated effects of these restrictions on benefit payouts for the period 2006 to 2010. Besides simulated baseline payouts, two other benefit payout totals are also displayed: one with five benefit restrictions (all but the movement to four quarter averaging to compute the WBA) and one with all six. For both sets of estimated savings, the restrictions are fully operative during the last three years, 2008-2010. Thus savings during 2008-2010 reflect only projected growth in the Washington economy with a larger labor force and unemployment and higher money wages. The estimated savings during 2006-2007 grow more rapidly because the effect of freezing the maximum WBA is still being phased-in.

Table 3. Benefit Payouts Under Recent Benefit Restrictions

	Baseline Benefits	Payouts - 5 Restrictions	Savings – 5 Restrictions	Payouts – 6 Restrictions	Savings – 6 Restrictions
2006	$1,398	$1,231	$166	$1,073	$325
2007	$1,434	$1,246	$193	$1,081	$353
2008	$1,472	$1,258	$214	$1,095	$376
2009	$1,516	$1,296	$221	$1,129	$388
2010	$1,592	$1,360	$232	$1,185	$407

Estimates in $millions.

The savings shown in Table 3 are substantial. Savings from the five restrictions increase from $166 million in 2006 to $232 million in 2010. As a percent of baseline

payouts, the savings were 11.9 percent in 2006, 13.5 percent in 2007 and 14.5 percent during 2008-2010. The cumulative total in savings for the five years is $1,026 million.

Adding the sixth restriction (movement to four quarter averaging) measurably increases the estimates of savings. The final column in Table 3 shows the total increases from $325 million in 2006 to $407 million in 2010. As a percent of baseline payouts, these totals grow from 23.6 percent in 2006 to 25.6 percent in 2008-2010. The five-year cumulative savings estimate under all six restrictions is $1,849 million.

Each of the six restrictions has a measurable effect on the estimates of savings. Note in Table 3 the estimated total for all six restrictions in 2008 is $376 million. The detailed savings in 2008 are as follows

R1 – The freeze of the maximum WBA- $93 million.

R2 – The reduction in the statutory replacement rate from 52% to 50%. - $47 million.

R3 – Use of four quarter averaging to calculate the WBA. - $172 million.

R4 – The reduction in maximum potential duration to 26 weeks. - $43 million.

R5 – The increase in VQ disqualifications due to 2ESB 6097. - $24 million.

R6 – The increased oversight of continuing claims from the JSR and REA - $25 million.

Finally, the effect of reduced WBAs on increased benefit duration is projected to increase payouts by $28 million an amount that offsets a small part of the six restrictions.[14] From this listing, it is clear that the biggest restrictive effect arises from instituting four quarter averaging and the second largest effect arises from the freeze on the maximum WBA and subsequent lowering of the indexation percentage to 63%.

The benefit restrictions substantially reduce the generosity of Washington's UI program when compared to the national average. Recall from Table 1 that the generosity index for Washington (the product of the recipiency rate times the replacement rate) was calculated as 0.177 compared to the national average of 0.113. Washington's index during 1995-2004 was 57 percent above the national average.

The five restrictions summarized in Table 3 reduce the generosity index to 0.151 in 2008 and later years or to 34 percent above the national average. The restrictions

[14] The restrictions interact multiplicatively as six individual ratios deviate downward from 1.0 and the seventh (the reduced WBA-increased duration effect) exceeds 1.0. The absolute deviation of each restriction ratio from 1.0, e.g., the reduction in the statutory replacement rate causes R2 to be 0.035 below 1.0, was used to assign shares of the individual restrictions in the total reduction in benefits.

eliminate about 40 percent of the upward deviation of Washington's generosity compared to the national average. They lower Washington's rank from number six to number fourteen when compared to 51 "state" UI programs.

The six restrictions, including four quarter averaging for the WBA calculation, reduce the generosity index to 0.132 or to 17 percent above the national average. This index places Washington 21st among the 51 states in benefit generosity.

Summary

The five restrictions on benefits now in place have reduced long run benefit payouts by 14.5 percent and represent a major change in the generosity of UI benefits in Washington. Fully 40 percent of the upward deviation of benefit generosity from the national average has been eliminated. Following the enactment of ESSB 6885 in March 2006, each of the five restrictions is presently a permanent feature of UI benefit determinations in Washington. In light of the large quantitative impact of the five restrictions, I did not see a need to revert to four quarter averaging in computing the WBA. Hence in November 2005 I recommended that the temporary 50 percent statutory replacement rate be made permanent but that use of two quarter averaging also be made permanent. As noted, both recommendations were included in ESSB 6885.

Chapter 3. Models of UI Trust Fund Financing in Washington

Quantitative analysis of UI program financing in Washington is most reliably conducted using simulation models to characterize the flows of revenues and expenditures and the level of reserves in the state's trust fund. In the past decade, three different models have been used in Washington to help assess the solvency of its UI program. These are: 1) the Employment Security Department's (ESD) model, 2) the U.S. Department of Labor, Office of Workforce Security (DOL-OWS) model (also known as the Mercer model) and 3) a model developed by Wayne Vroman of the Urban Institute as part of an earlier analysis of program solvency conducted for ESD in the mid-1990s. The three models continue to be used and supported by ESD in its analysis of the recovery of the state's trust fund following the recession of 2001 and projections of future trust fund balances.

This chapter has two main sections. First, the main features of the three models are described along with their interrelations. While all three make projections of the principal trust fund variables, there are important differences among the three with the ESD model being the most important model. The contrasts are noted and discussed. Second, some suggestions for improving the modeling are made. If implemented, these changes which build upon the existing models would make modeling procedures more transparent and could improve the accuracy of projections for future periods.

The time paths of revenues, expenditures and the trust fund balance have been extensively examined by ESD in recent simulations, both in response to Task Force requests and as part of trust fund monitoring by ESD. Many of the projections extended through 2012 and even 2014. Projections were made with both the ESD model and the DOL-OWS model under a baseline scenario and other scenarios that represent alternative possible future paths of the state's economy. One purpose of this analysis was to assess the likely fiscal situation of the UI trust fund under several potential future time paths of the state's economy. The main conclusion of the ESD analysis was that the state's trust fund would remain solvent under a variety of alternative future scenarios.

As part of this analysis, the effects of legislation of 2003 and 2005 on trust fund revenues and outlays were also examined. The main details of 2ESB 6097 of 2003 and

EHB 2255 of 2005 were described in Chapter 1. The changes brought about by these bills will have a significant effect on the state trust fund balance in future years. Modeling the effects of these laws provides an important application for the trust fund models. Many people are keenly interested in the short run and long run effects of the recent changes.

The Three Models

The three UI trust fund simulation models have been utilized by ESD for several years. Each of the three makes projections of the main trust fund variables for multiyear periods. By relying upon simulation models, UI agencies can examine questions and issues of program financing within a consistent framework. Having a model means that greater logical consistency is present compared to analyses based on more ad-hoc approaches that examine only selected variables to study financing questions. Thus, for example, when unemployment increases, a model can show effects on not only UI benefit payments but also program revenues. Trust fund models often generate simulations for future periods of from five to ten years.[15]

When major UI legislation was considered and then enacted as 2ESB 6097 in 2003, ESD generated a number of simulations showing effects on revenues and benefit outlays. During 2004 and 2005, model simulations have helped ESD to assess the likely path in the recovery of the trust fund following the recession of 2001. The model used most extensively in this activity is the model supported by ESD. This model is described in the following paragraphs.

The ESD Model

The ESD model has been continuously supported for almost 25 years. The model was first developed in the early-to-mid 1980s to examine UI financing questions associated with the transition from a flat, uniform tax-rate regime (in place from 1972 to 1984) to a regime that experience-rated individual employers.

[15] Readers are reminded of the paper and associated powerpoint presentation by Ms. Judy Johnson of ESD staff prepared for the July 26, 2005 meeting of the Joint Legislative Task Force. Her paper entitled "Presentation on Forecasting Models" focuses on the accuracy of model simulations for several important variables in the three models used by ESD staff.

The new (1985) tax rate regime assigned tax rates using seven tax rate schedules with four year benefit ratios to characterize the experiences of individual employers. It utilized array allocation to rank employers by their benefit ratios (from low to high) and then assign a tax rate from one of the 20 tax rates within the operative tax schedule. Each of the 20 rate classes was structured to contain five percent of taxable wages. One advantage of using array allocation is that it provides high precision in determining the average tax rate. The overall tax rate is an average of the rates across the 20 categories. Both the shares of taxable wages and the tax rates within each tax rate category are known with certainty in an array allocation system. This contrasts with more commonly used tax rate schedules where the boundaries between adjacent tax rate categories are fixed so that the share of taxable wages within each rate category varies from one year to the next. The changes of 1985 represented a dramatic departure from the previous flat rate regime and raised several questions about future solvency in Washington State. ESD agency leadership and its professional staff felt a strong need to develop a model that addressed Washington's specific financing questions. In subsequent years, ongoing attention and resources have been devoted to trust fund modeling in Washington.

The ESD model utilizes five main tabs (leafs) to accomplish projections of the state's financing situation. One tab provides industrial detail for 35 industries on variables such as benefit charges, taxable wages, experience rated taxes and social taxes. Having industrial detail has proven useful to many users from the employer community. This level of detail is absent from all but one or two state forecasting models.

The model draws upon two other models (the DOL-OWS model and the Vroman model) for estimates of certain key variables (such as weeks compensated and extended benefit payments respectively). The full ESD model determines tax collections, benefit outlays, interest income, and tracks the trust fund balance on a quarterly and an annual basis. The model places heavy reliance on three exogenous variables projected by the State Revenue Forecast Council: wage growth, employment growth and total unemployment. The Forecast Council projections extend out two or three years, currently to 2009. In some model applications (scenarios) the exogenous variables for the out years are projected to repeat patterns of the latest year for which projections exist. Thus the unemployment rates past 2009 are projected to equal the current Forecast Council

projection for 2009. Other projections could be utilized, but having the Forecast Council's projections is deemed to be less controversial than alternatives.

A key determining (or exogenous) variable in the model is the total unemployment rate (or TUR). The TUR is used to represent the business cycle in Washington. The TUR (and the associated estimate of total unemployment (or TU)) is a key determinant of weekly UI claims (insured unemployment or IU). When the state economy goes into recession, this linkage is the indicator through which the recession affects UI claims, weeks compensated and benefit payments. As will be noted below, the TUR also plays an important role in determining tax revenues through an impact on the average UI tax rate as well as its effect on taxable covered employment.

Probably the most important issue in trust fund management is to have sufficient pre-recession reserves to experience a sharp downturn but avoid having the fund balance go to zero and need loans. The model is used to examine several "what if" scenarios where the state is subjected to recessions of differing severity and duration. For these simulations, the out years extend for eight to ten years, e g., to 2014. This allows ESD to examine several possible situations. Simulations in 2003 focused heavily on the possibility of an increased risk of insolvency due to financing changes under 2ESB 6097. Recession scenarios continue to be examined including several runs undertaken in the fall of 2005 and early 2006 at the request of the Joint Legislative Task Force.

The main model has regression equations and other relationships that determine all the principal variables that affect the trust fund balance. Because workload (principally weeks compensated for the regular UI program) is a key determinant of total benefit outlays, the model utilizes both a workload projection made by the DOL-OWS model (discussed below) and a second workload projection used in scheduling ESD staffing levels for upcoming periods. This second projection utilizes a regression based on monthly data but its output is combined into a quarterly series. A key explanatory variable in the regression is the insured unemployment rate (IUR), itself determined by a historic link between the total unemployment rate (TUR) and the IUR. The projection of the TUR is taken from State Revenue Forecast Council projections.

Total regular UI benefits are modeled as the product of weeks compensated and the average weekly benefit. Annual and quarterly estimates of both variables are made so

that benefit payouts are projected for each calendar quarter. In determining the weekly benefit amount (WBA), historic data for the 1999-2005 period have been examined to note the average relation between the quarterly WBA and the annual average WBA (below-average in the first quarter but above-average in later quarters). Forecasts of the annual average WBA are taken from the DOL-OWS model and then distributed by quarter from the historic quarterly/annual ratios. Quarterly forecasts of weeks compensated are made using a regression that links weeks compensated to weeks claimed. This regression has a very close fit. The quarterly forecasts of the WBA and weeks compensated are then combined to yield a forecast of quarterly benefit payments. Estimated benefit payments made by reimbursable employers are removed from total benefits to yield quarterly estimates of benefit payments for claims on taxable employers.

The model also recognizes the possibility of paying Federal-State Extended Benefits (or EB). The projection for this component of trust fund outlays is made using the Vroman model (to be described below) which has relationships to determine if EB is activated (under each of two possible triggering mechanisms), and if so, the timing and duration of EB.[16] This procedure worked satisfactorily for projecting EB outlays during 2003, the most recent year EB was activated.

Interest income is projected assuming an interest rate of 4.63 percent on the trust fund balance from 2006 forward. This interest rate is somewhat lower than a rate of 5.88 percent that was operative during 2003, 2004 and early 2005. If federal interest rate-trust fund policy changes or if market interest rates change, this interest rate can be changed in the model. The trust fund interest rate is fully exogenous to the model.

Three separate revenue streams from taxable employers are modeled: regular contributions based on charged benefits, social taxes and solvency taxes that are triggered when the projected trust fund balance falls outside the range of from six to ten months of reserves.[17] Revenues from three are summed to yield total tax revenue.

Taxable wages are determined from the relationship between taxable and total wages in recent years. The overall taxable wage proportion is projected to remain just

[16] Washington is one of only a few states that has both a TUR as well as an IUR trigger for EB. The TUR trigger is activated by the unemployment rate as measured in the monthly labor force survey while the IUR trigger utilizes UI claims to activate EB.
[17] The triggers, solvency tax rates and social tax rates were modified by ESSB 6885.

below 0.60 under the assumption that the indexation percentage remains at its current 80 percent of lagged statewide average annual wages. The quarterly pattern of taxable wages, quite stable in recent years is projected to persist into future periods. Quarterly shares have averaged 18, 31, 27 and 24 percent in recent years. Total wages, in turn, are determined as the product of employment (of taxable covered employers) times average weekly wages (lagged average wages times projected wage growth) and both are based on Forecast Council projections. Total wages are important as the primary determinant of taxable wages.

Experience-rated taxes for individual employers are determined as the product of the average tax rate on taxable wages times taxable wages. The average tax rate projected by the model depends upon the total unemployment rate (TUR). The linkage with the TUR is made using a regression equation based on data from the ten years 1995 to 2004.

Washington now uses a single schedule with 40 rates to assign experience-rated taxes to employers. Experience-rated taxes reflect four-year benefit ratios. Since historic tax data from the years 1995-2004 were generated by the earlier system of array allocation, there is no readily available historical data series on average tax rates by year under the present system of assigning experience rated tax rates. To approximate such a series, the historical data were retabulated “as if” employers were taxed under the 40 rate classes. Micro data for individual employers were aggregated into the 40 classes and the average tax rate for each class in each year was noted. These distributions were then summed across the 40 rate classes to yield a counterfactual estimate of total tax receipts. Dividing this total for each year by taxable wages for the year yielded an estimate of the average tax rate for each of the ten years. This average tax rate was then linked to the TUR for the same years with a regression based upon ten time series observations. In years when unemployment is higher, the average tax rate is lower.

The projection of experience-rated taxes then enters the determination of the ineffectively assigned benefit charges. Benefits for taxable employers are estimated assuming that benefits for reimbursable employers are a fixed percentage of total benefits. Experience rated taxes are subtracted from the benefit liability of taxable employers to yield an estimate of total social benefits that must be covered by the social

tax. The average social tax rate is then derived as the ratio of these social charges to taxable wages. This flat social tax has a minimum of 0.45 percent under ESSB 6885.

The social tax is then allocated across the 40 rate classes such that employers in rate class 1 pay 78 percent of the average and those in the highest categories pay 120 percent of the average. Of course, this is subject to the constraint that the sum of rates for experience-rated taxes and social taxes does not exceed 6.5 percent. The average socialized rate is presently constrained to be at least 0.5 percent (0.45 percent for those in the lowest tax rate category), but it does not have an upper limit.

The 2003 legislation introduced not only an explicit social tax but also an explicit solvency tax. After 2006, when the trust fund on the computation date (September 30th) has a balance of at least seven months of benefits (See below), there is no solvency tax.[18] Lower balances cause this tax to be triggered to restore the trust fund to a nine-month level. The solvency tax is a flat rate tax that can range up to 0.2 percent, and it is not subject to the 6.5 percent cap that applies to the sum of experience-rated taxes plus social taxes. The solvency tax has not yet been activated since its authorization in 2003.

The calculation of the solvency tax relies upon a reserve ratio multiple (RRM) calculation. The numerator of the RRM is the ratio of the trust fund on the computation date to lagged total wages of taxable employers. The denominator is the average benefit payout or cost rate for the three highest-cost years out of the past 20. This reserve ratio multiple is then multiplied by 12 to indicate the number of months of benefits that the balance in the trust fund represents. If the number falls below 7 months the solvency tax rate for the next year is set so as to restore the fund balance to 9 months of benefits. This tax is applied to all employers, and it is not subject to a restriction for employers at or near the 6.5 percent combined tax rate for experience-rated taxes plus the social tax.

Total revenues seemed to respond fully adequately during the most recent recession. The trust fund balance at the end of 2005 exceeded $2.2 billion, and, as noted, the reserve ratio was higher than it had been prior to the 2001 recession. Because the statutory tax changes of 2003 did not become operative until 2005, however, a test of the current financing system must await the next recession. To this author, there is nothing

[18] The high cost payout rate used to define one month of benefits uses the average cost rate of the three highest-cost years of the past 20 multiplied by total covered wages for the most recent fiscal year.

about the performance of revenues in the most recent period to suggest the current system will not be able to handle the increased benefit charges of the next recession. The solvency tax gives the state an added revenue element to ensure against trust fund insolvency in the future.

The model is still being calibrated to incorporate changes in the procedure for assigning tax rates to employers under the legislation of 2003. As more experience with the current tax structure accrues, further changes in the model will need to be made to directly estimate the shares of taxable wages falling into each of the 40 tax rate intervals. More time must pass, however, before these modifications can be attempted.

Because the legislation of 2003 made fundamental changes in the way taxes are determined for individual employers, the model had to be substantially revised in order to reflect the new tax provisions. It now projects the shares of taxable wages that fall into each of 40 tax rate categories. In order to estimate these shares, ESD staff examined historic data (from the array allocation years) to determine what share of taxable wages would have fallen into the 40 individual categories. Taxable wage data for the years 1995 to 2004 were classified “as if” the new 40 categories had been in effect during these earlier years.

The ESD model includes two tabs (leafs) that summarize the state’s financing situation. It collects and summarizes all benefit payout information in a leaf entitled “Benefit Cost Rates.” This, in turn, feeds into the so called “Data page” leaf that includes the relevant detail on benefits, interest income and taxes that combine to determine the trust fund balance in future periods. Because the data page is very extensive, it does not lend itself to a simple summary. Thus there is also a one page summary termed “Comparisons” which displays a concise summary of the main trust fund variables for the future period of interest. This tab has annual summaries of benefits, interest, taxes, end-of-year trust fund balances and calculations of the trust fund balance expressed as a number of months of benefits. These leafs are inter-linked so that changes in “benefit cost rates” and/or “data page” automatically change entries in the “comparisons” leaf.

While the ESD model focuses mainly on aggregate statewide totals and the overall trust fund balance, one tab provides detail for 35 industrial categories. Thus the

effects of legislation and economic developments on detailed industries can be examined within a system fully consistent with the statewide aggregates.

Additionally, some analyses have been undertaken to examine effects of legislation and other changes on specific industries. Simulated totals from the model can be distributed across industries to yield a more detailed picture and one that individual industries find most relevant to their particular experiences and needs. As part of the disaggregated analyses, ESD also relies on historic data from its data mall which covers many aspects of benefits and taxes.

The DOL-OWS Model

Analyses of the adequacy of UI financing in Washington and several other states have been conducted using a simulation model supported by the Actuarial Division of the Office of Workforce Security (OWS), U.S. Department of Labor (DOL). First developed in the late 1970s under a contract with Mercer Associates, the State Benefit Financing Model has been utilized during past periods by roughly half of all State UI programs (including Washington) to study UI financing questions. The description of the model to be given here draws upon a recent manual provided to model users[19] and conversations with staff at OWS and ESD.

The DOL State Benefit Financing Model is a large scale model that projects the timepaths of important state economic variables and UI program variables. The model is quarterly and structured to simulate key variables for ten future years. It has two main parts or modules: the Projection Program (PP) and the Financial Forecast Program (FFP).

The Projection Program (PP) module develops and utilizes quarterly forecasts of three economic scenario variables (the unemployment rate,[20] the wage level and the total labor force) and three variables reflecting UI laws (the maximum weekly benefit amount, the maximum tax base per employee and dependents' benefits). These act as important controls that determine key UI program outcomes such as the weekly benefit amount

[19] "State Unemployment Insurance Benefit Financing Model: Users Manual," Division of Fiscal and Actuarial Services, Employment and Training Administration, US Department of Labor, (2002).
[20] Depending on the state, this is either the insured unemployment rate based on UI claims or the total unemployment rate based on the household labor force survey of CPS. In Washington State the model operates with the insured unemployment rate (or IUR).

(WBA), total weeks compensated, and taxable wages. The timepaths of the scenario variables are determined by the user.

The WBA in the DOL-OWS model is determined by a regression where the weekly wage, the maximum weekly benefit and insured unemployment are key explanatory (or regressor) variables. Four regression relations are fitted, one for each calendar quarter. By using four relationships with individual intercepts, seasonality in weekly benefits is addressed. Total weeks compensated are determined by a regression where weekly claims (insured unemployment) and the replacement rate are the primary explanatory variables. Again, there are four quarterly relations to address seasonality. Taxable wages are explained using total wages, the average weekly wage and the covered labor force as explanatory variables. Because only about 60 percent of annual covered wages are taxable, there is even more pronounced seasonality to taxable wages than to benefit variables like the weekly benefit or weeks compensated. Again, seasonality is addressed through use of four regression relations, one for each calendar quarter. All regressions in the PP module have a high degree of explanatory power.

The Financial Forecast Program (FFP) module utilizes as input the variables forecasted in the PP module and then develops a detailed projection of the distribution of employers by tax rate interval, the associated amount of taxable wages in each interval, total contributions, trust fund interest income, and, most important, the future time path of the UI trust fund balance. Its important variables fall into five broad areas: general financial parameters, the employer experience rating account, experience rating intervals, benefit payments (regular UI and EB) and the details of loans from the U.S. Treasury to states that incur debts. Because so many variables are determined in the FFP module, the user can access numerous screens that combined display all of the model's individual outcome variables but select only those screens (and associated variables) of principal interest. In applied situations where the model is utilized intensively for several weeks, most or all of the output displays from the initial simulations are reviewed for consistency. Subsequent simulations then focus just on a subset of outcome variables of main interest, such as the timepaths of benefits, revenues and the trust fund balance.

During September 2005 several simulations were run with the DOL model, projecting Washington's trust fund balance through 2014. Prior to executing the

simulations, the model was modified in several ways to reflect the changes in tax and benefit statutes arising from the legislation of 2003 and 2005. One key change was to modify the system of assigning taxable wages by tax rate interval. In switching from array allocation with twenty tax rate intervals to a structure with fixed benefit ratio intervals, the underlying taxable wage data had to be updated to reflect the 40 fixed benefit ratio intervals currently in force. To make the modifications, DOL used historic information supplied by ESD on the share of taxable wages falling into each of these intervals. Since there were no historic data readily available from existing federal reports (because the historic data were based on the array allocation intervals with variable boundries), DOL utilized data assembled by ESD which simulated the distribution of taxable wages by fixed tax rate intervals. A second key change was to modify the tax module to reflect changes in determining the social tax and solvency tax in Washington. Once the average tax rate for the social tax has been determined, tax rates are then set for the 40 detailed tax rate intervals, ranging between 78 percent and 120 percent of the average social tax rate. The solvency tax is set within a range between 0.0 and 0.2 percent depending upon the fund balance (measured as the number of months of benefits) as of the computation date.

Recent simulation analyses with the DOL model show a sharp recovery of the UI trust fund balance. In fact, the recovery has been so rapid that overall tax reductions start to occur during 2006 following the achievement of a reserve threshold of ten months on the September 30, 2005 computation date. Larger reductions would have occurred in 2006 if the minimum “social tax” rate of 0.6 percent were not operative. As noted, the minimum social tax rate and the tax rate triggers were modified in ESSB 6885.

While more analysis with the DOL model will take place and many more simulations will be undertaken, two likely outcomes of these efforts can be anticipated. 1) The DOL model will include the statutory features needed to accurately represent the future timepaths of the trust fund balance and other key UI financing variables. 2) Under a range of assumptions regarding future unemployment and benefit payouts, the trust fund balance will be large enough to finance recession-related increases in benefit payments without the need to borrow from the U.S. Treasury.

The Urban Institute Model

During the mid-1990s, I developed a model of UI financing in Washington as part of an analysis of the effects of a major reduction in UI taxes. The main question was: would the tax cut pose a serious threat to the solvency of Washington's UI trust fund? The conclusion was that the financing system was robust and that the tax cut would not threaten solvency.

The model that was assembled to address this question was similar to models I had previously developed in several other states.[21] The model generates deterministic simulations that extend forward for up to ten years. 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 two simulations. This allows one to examine the effects of changing just one variable and tracking its effects on all variables of interest in the model. As part of the project, the full model with supporting documentation was made available to the Washington Employment Security Department (ESD). The model has continued to be updated by Bob Wagner of ESD.

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 outcome variables such as the benefit payments, tax revenues and the trust fund balance. As noted, the model is similar to earlier models developed in several other states, most recently in Virginia and Montana. A general description of the modeling approach appears in Vroman (1990).[22]

For all variables of interest, the model generates annual time paths for several consecutive years. The model's standard output display typically includes up to ten years of recent historical experiences and usually spans a total of about 20 years. For the recent years, the display is useful in showing historic values for individual variables. Behavioral relations are present for the most recent years (with add factors to force agreement with

[21] The model for Washington State is described in Wayne Vroman, "An Analysis of Unemployment Insurance Financing in Washington" report to the Washington State Employment Security Department, (June 1996). Chapter II and Appendix A give a detailed description of the model.

historic values) and (along with exogenous variables) form the basis for projections of future periods.

The model incorporates roughly 130 relationships needed to determine important variables related to revenues and benefit payments. Individual equations include behavioral relations, logical relationships and definitional identities. Behavioral relations were developed from multiple regressions based on historic data. The combined set of equations provides a full characterization of the relationships that determine benefits, taxes and the trust fund balance. The equations in the model are displayed in Appendix A of Vroman (1996) op. cit.. Each dependent variable is defined, and the exact mathematical relationship determining each variable is shown. The Appendix provides a four page display of model output spanning the 21 years from 1988 to 2008.

The model has five modules that respectively characterize 1) Washington's 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 Washington's labor force, employment, unemployment and the unemployment rate as measured by the monthly household labor force survey and the BLS Local Area Unemployment Statistics (LAUS) program. 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 Washington State.

The module is structured to make a direct connection between the household survey estimate of total employment and UI covered employment. One important consequence of linking household survey employment to UI covered employment is that

[22] See Chapter 3 and the three appendices in Wayne Vroman, Unemployment Insurance Trust Fund Adequacy in the 1990s, (Kalamazoo, MI: W.E. Upjohn Institute, 1990).

covered employment changes whenever total employment varies. Thus, when the unemployment rate increases, there is an automatic effect on UI tax revenues which decline 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 exogenous labor market variables are included through 2005 while projections are made for later years. As with the ESD model, Economic Forecast Council estimates of unemployment and wage growth are utilized in simulations with the model. The model user can change the assumptions about these and other exogenous variables like the interest rate on trust fund balances.

2. UI Benefits

The benefits module determines regular UI benefits that are financed from Washington's UI trust fund. The state also is responsible for paying half of the costs of federal-state Extended Benefits, or EB. Since Washington has activated (or "triggered on") EB in all recent recessions, the model also has relationships to determine EB payouts and the state share of EB costs.

A key variable that determines regular UI benefit payments is insured unemployment (IU). This, in turn, is linked to total unemployment (TU) as measured in the household labor force survey. The model sets IU as the product of TU (determined in the labor market module) times the IUTU ratio. A multiple regression relationship determines the IUTU ratio. The total unemployment rate (TUR), the TUR lagged, and two dummy variables (one starting in 1981 and one starting in 1990) enter as explanatory variables in the regression. However, this ratio exhibits wide volatility in historic data and much of its variation is not explained by the regression equation.

The model also distinguishes weeks compensated by reimbursable employers from those of taxable employers. While reimbursable employers have accounted for about one fifth of total covered employment in recent years (21 percent in 2004), the associated claims and benefit payments are much less important as a share of weeks

compensated. The model projects the average reimbursable share of benefit payments (roughly 4 percent) to persist into the future. Thus in determining compensable weeks for taxable employers, the model makes explicit adjustments for both reimbursable weeks and weeks claimed that are not compensated.

From historic data it is clear that the maximum weekly benefit exerts a strong influence on the average weekly benefit paid to recipients. The model determines the weekly benefit as the product of the average weekly wage and the replacement rate (weekly benefits as a proportion of the average weekly wage). Washington increases the maximum benefit for new claims on July 1st of each year. Thus the model shows the maximum applicable for each half of a given calendar year, and then computes an annual maximum which is the average for the two six month periods. During the years of the maximum benefit freeze at $496, this part of the model is overridden by the freeze.

The replacement rate (REPRATE) equation in the model is a regression that has four explanatory variables; the ratio of the maximum annual weekly benefit to the average weekly wage (both the ratio and the square of the ratio), the unemployment rate (TUR) and the rate of wage inflation. Combined these variables explain over 90 percent of replacement rate variation during the 1967-2004 period.

The final factor affecting benefit payments from the regular UI program is an adjustment that reconciles all individual factors (IU, the ratio of weeks compensated to weeks claimed, a reduction recognizing weeks compensated for reimbursable employers, and the weekly benefit) with the total outflow from the state's trust fund. Thus regular UI benefit payments are the product of five identifiable components.

The benefits module also includes relationships to determine EB benefit payments. Like payments from the regular UI program these are modeled as the product of the number of weeks compensated and the average weekly benefit. The latter is assumed to equal the weekly benefit from the regular UI program.

Several relationships enter the determination of EB weeks compensated. Washington is one of few states that can activate EB with two distinct unemployment measures: either the IUR (claims based) or the TUR (labor force survey-based) Both have activated EB in the past. The state share is also modeled since Washington is responsible for only half of its EB payments.

Payments of regular benefits and the state share of EB are then summed to arrive at a total outflow of benefit payments from the trust fund.

3. UI Taxes

As noted previously, the changes in UI taxes occasioned by 2ESB 6097 were wide-ranging. The previous tax system utilized seven separate tax rate schedules and an array allocation with 20 array categories to set rates for individual employers. The new system relies mainly on the benefit ratios of individual employers to determine experience-rated taxes and a separate explicit schedule to set taxes that cover socialized charges. To date, these far-reaching changes have not been incorporated into the Urban Institute model, and it is not used to make forecasts of future tax revenues.

The model developed in 1996 combined all taxable covered employers (experience rated and new employers) into a single group and determined the taxable wage proportion and the overall average tax rate. The taxable wage proportion (taxable wages as a fraction of total covered wages) among taxable employers was determined by a regression utilizing the ratio of the tax base to the average wage and a trend (reflecting increasing concentration of wages above the taxable wage base). The fit of the regression was extremely good so that taxable wages could be projected with little error.

The model derives quarterly detail on all major trust fund flows so that the trust fund balance on June 30th could be estimated. The balance on June 30th was then used to determine which tax schedule would be operative in the upcoming year. Multiplying the estimate of taxable wages times the average tax rate from the appropriate tax schedule would then determine tax receipts for the year.

Under current UI tax laws, the model would need to estimate the total amount of ineffectively assigned benefit charges in order to determine the average tax rate to cover these costs. At present, this area of the model has not been updated and there are no current plans to undertake an update. The forecast of tax revenues made by ESD relies upon both the ESD model and the DOL-OWS model.

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 was originally determined in the labor market module through a linkage with the rate of wage inflation. In recent years

(2004 and 2005), however, the interest rate was stable at just below 6.0 percent, but it is currently assumed the interest rate will be 4.63 percent during upcoming years, reflecting recent changes in yields on deposits held at the U.S. Treasury.

5. The Trust Fund Identity

The fifth module determines the annual end-of-year trust fund balance. 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. From 2002 onward, the fund balance identity recognizes the Reed Act distribution of 2002 and the appropriations of monies from this distribution for years starting in 2002. These appropriations were larger during 2005 than they will be during 2006 and later years. Recent UI legislation (ESSB 6885) will reduce future utilization of Reed Act monies to partially shield employers from costs of benefits paid under two quarter averaging.

This module also tracks trust fund deficits for simulations that produce deficits. The deficit and debt relationships provide an annual accounting of these flows in years when the model indicates the trust fund has a net deficit. Washington has not had experience with trust fund deficits since the early 1980s.

6. Urban Institute Model Summary

The Urban Institute model describes important aspects of UI taxes and benefits in Washington and traces developments in the UI trust fund balance. Three features of the model are noteworthy. 1) When unemployment changes, there are automatic responses of both UI benefit payments and of UI tax revenues. 2) Individual relationships were displayed in Appendix A of Vroman (1996), op. cit.. 3) The effects of changing individual variables or relationships in the model can be traced for single years or for longer periods. The model, in other words, produces deterministic simulations that can trace the effects of UI legislation and other policy changes over multiyear periods.

ESD Modeling: Comments and Suggestions

Washington State derives advantages from its long history of UI trust fund modeling activities. It has sufficient capacity and expertise to make detailed projections, examine the future under different cyclical conditions and respond to specific “what if”

questions. ESD is one of the few UI agencies able to routinely project future scenarios at the level of 35 detailed industries. Projections are available for future annual and quarterly time periods.

Modeling work is an ongoing activity with one current focus being the creation of an improved export display of simulated outcomes. When completed, this will yield automatic transfer of simulated outcomes to the output display panels without the need to manually transfer simulated detail with its attendant risk of transcription errors.

To accomplish its forecasting and simulation responsibilities, ESD draws upon three UI trust fund models. The structure of coordination across the models is clear: the DOL-OWS model and Urban Institute model provide simulation results that enter into the ESD model. Common variables simulated by the two subsidiary models are compared for consistency and when results are similar, they pose no problems for entry into the ESD model. When differences are encountered, judgments by model users are made to select the "correct" time path to be utilized. There are also instances where only one of the subsidiary models is utilized, e g., EB payments are derived from the Urban Institute model while the distribution of employers and taxable wages across the 40 detailed benefit ratio-tax rate intervals are derived from the DOL model.

The modeling structure followed by ESD is logical. While some might question relying upon two different projections of claims workload, it allows ESD staff to incorporate more information than available from just the DOL-OWS model. The individual regression relationships in the ESD model have reasonable specifications and have good fits. In reviewing the model, no glaring problems were found.

When users conduct simulation analysis with UI trust fund models, certain variables can be projected with much greater certainty than others. There will always be questions about the future time path of statewide unemployment and the UI recipiency rate (the ratio of UI beneficiaries to total unemployment). Both are major determinants of total benefit payouts and both can be a cause for erroneous projections in future time periods. In contrast, the taxable wage proportion and the benefit replacement rate (the ratio of weekly benefits to weekly wages) are two variables that can be projected with much greater certainty if the future time paths of their main determinants are known (respectively the taxable wage base per employee and the maximum weekly benefit and

the statutory replacement rate). The comparative predictability of these latter variables is specific to the variables themselves, a situation present in all states, not just in Washington. A prudent approach to this situation is to acknowledge the uncertainties in making projections of variables like the unemployment rate and the recipiency rate and examine their effects under alternative time paths.

The area of greatest uncertainly in making model projections is uncertainty about the future time path of weeks compensated. Even with sound logic in deriving future projections, the potential for sizeable errors represents a continuing challenge. Uncertainty about future unemployment and the future UI recipiency rate both contribute to this uncertainty. It is not so much a matter of reestimating relationships based on historic data to improve the fits of the regressions as it is the problem of our limited ability to foresee future economic developments in Washington State (or elsewhere).

For the next few years, however, one additional area of uncertainty is bound to be present in Washington. The legislation of 2003 increased the importance of individual experience as a determinant of employer tax rates. This will cause the responsiveness of UI taxes to recession-related benefit payments to be higher than in the past under array allocation. The question is: how much more responsive? From the present vantage point (May 2006) it is clear that revenues during 2004 and 2005 have responded strongly and the state's trust fund has been rebuilt quickly. Since the tax legislation of 2003 only became operative during 2005, however, some of the strong response of revenues must be attributed to the tax statue operative prior to the 2003 legislation.

Besides greater tax revenue responsiveness, however, the decrease in unemployment and restrictions in benefit payments have also contributed to the trust fund's strong recovery since 2004. From the present perspective, it is not clear what weights should be assigned to the different factors in contributing to the trust fund's recovery. A good understanding of current arrangements for determining tax revenues will be developed only after more years of experience with these arrangements have accumulated. New analysis of tax collections during 2005 and 2006 (when data are fully available) might yield insights into how the responsiveness of revenues under the present system differs from past responsiveness.

After reviewing the models and how they are used in Washington, a few suggestions for analysis and changes can be offered. First, recognizing there is considerable usage of output from the ESD model, it would help users to have written documentation that describes how the model is structured, gives details of individual equations and describes how the different parts of the model interrelate. While readership is likely to be quite limited, having such a document would allow ESD to easily provide relevant details upon request. Task Force-related meetings that focused on forecasting models were held at ESD in the fall of 2005. They were well attended and ran long, indicators of strong interest in the ESD model and ESD modeling.

Since models inevitably evolve in light of recent experiences, legislative developments and new economic circumstances, having such a descriptive document would also allow ESD and users of model output to look back from future periods to note how the model has evolved. The document could also show what kinds of questions could be addressed relatively easily and what questions would not be suitable for addressing with the model.

With the recent changes in model staffing at ESD, a general review of the agency's approach to forecasting would seem to be timely. The review could include detailed descriptions of behavioral relations (regressions) within the ESD model, how the external information (from the other two models and other sources) is incorporated into the model and the interrelations between the model's different modules. Putting these observations into a paper that is reviewed by relevant ESD staff and perhaps by an external review would help ensure that all interested parties would operate from a common informational base. This review could initially start with and be limited to discussions among ESD staff before expanding to a wider participation.

To me there is also a question of updating the information used in projections. Between April and November 2005 the monthly unemployment rate in Washington State fluctuated within a narrow band between 5.4 and 5.8 percent but then it decreased to 5.2 percent in December. The average for the year was 5.54 percent. The Economic Forecast Council's projection of the unemployment rate for the year 2005 (available in early 2005) was 5.76 percent or 0.22 percentage points higher than the annual average. As each year

unfolds, the accuracy of the projection can be assessed and mid-year modifications of the unemployment rate assumption used in the ESD model could be considered.

The importance of considering changes in the unemployment rate should be obvious. Many of ESD's projections are flat line projections that assume an unchanging unemployment rate for near term years. Since the annual average for 2005 was 5.54 percent (not 5.76 percent), this means projections of trust fund balances through 2007 or 2009 would have unemployment rates and associated benefit payments that are "too high" not only for 2005 but also for each of the future years starting in 2006.

I recognize that there are advantages in using Forecast Council projections as input into the ESD projections. It takes ESD out of the business of seeming to forecast the state unemployment rate. However, it also can lead to systematic errors in short term forecasts of recipiency and benefit payments. In the situation discussed here, benefit payments for 2006 and later years will have a tendency to be "too high" and the fund balance to be "too low" under a 5.76% TUR as opposed to a 5.54% TUR. Some users would certainly be interested in knowing what the estimates of future trust fund balances would be if a revised (and more accurate) unemployment rate was used.

To avoid the appearance of "making up the numbers" ESD could provide documentation on unemployment developments subsequent to the date when the Forecast Council's estimates are released. If the release date were, say, March and based on unemployment through January, ESD could show unemployment for something like 6 months following the last date of the available historic data that entered the Forecast Council's projection. If there was a difference of 0.2 or 0.3 percent, as there was in 2005, the argument for using more recent information would be strong.

In a similar vein, the projections of future wage growth used in the ESD model can also be questioned. Currently, the projections assume wages grow at the same rate as recent growth in per-capita income in Washington, a rate of about 1.0 percent per year.[23] During the 20 years from 1985 to 2004, growth in the average weekly wage (of taxable and reimbursable employers) averaged 3.9 percent. It grew by more than 3.0 percent in 13 years and by less than 1.0 percent in just three years (1993, 2001 and 2004). To me,

[23] Readers should note the average weekly wage projections appearing in Table 2 in this paper which are based upon the Forecast Council's projection of wage growth from early 2005.

the assumed rate of future wage growth is clearly "too low." Again, I recognize the advantage of using the Forecast Council's assumption, but ESD could show how simulation results would differ under alternative assumptions. When wage data from the full year 2005 become available, it would be a good time to revisit this wage growth assumption.

A final comment concerns projections of socialized charges in the ESD model. Socialized charges are currently treated as a residual in the model. As noted previously, total benefit payments are projected as the product of weeks compensated times the weekly benefit amount with an estimate of reimbursable benefits removed from total estimated payouts. Experience-rated taxes are estimated as the product of an overall average tax rate multiplied by taxable wages. These taxes are subtracted from total benefits to yield an estimate of the social charges that need to be financed by the social tax. If there are errors in the estimate of either total benefits payments or of experience rated taxes, the error will enter the estimate of socialized charges.

This situation will tend to concentrate errors in the estimates of socialized charges. While I do not have a suggestion for an alternative approach, I note the risk in making erroneous projections of socialized charges. This should be monitored carefully, especially in the next few years as greater experiences accumulate with the present system for assigning tax rates to employers. Three or four years of added experiences are probably required before an informed perspective on this situation can be developed.

In summary, four final observations can be offered. 1) Written documentation of the ESD model should be developed. 2) Because of uncertainty in projecting the unemployment rate and the recipiency rate, combinations of alternative assumptions about their future time paths should be explored. 3) ESD should consider following alternative procedures for projecting the unemployment and wage growth for future periods, including use of mid-year adjustments when cumulative information over several (perhaps six) months show large deviations from Forecast Council projections. 4) The estimates of socialized charges should be closely monitored to note if any systematic biases emerge from use of present procedures. If biases are found, a new procedure may need to be developed.

Overall, the system used to make UI trust fund forecasts in Washington is strong, but modifications that follow the four preceding suggestions should be considered. If implemented they would improve understanding of how forecasts are made among interested users of model output.