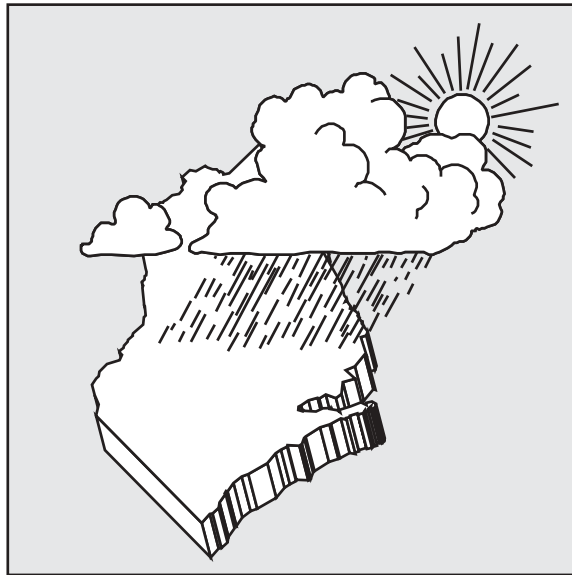


REVENUE FORECASTING AND THE STATE BUDGET IN WISCONSIN

SCOTT NIEDERJOHN

The only thing we know for sure is that this forecast will be wrong. We don't know how much or in what direction, but it will be wrong." These are the words of the former director of the Ohio Legislative Budget Office in an address to the Ohio State Legislature speaking about a state revenue forecast.¹ A similar remark could be made about any revenue forecast prepared in the state of Wisconsin. State revenue forecasts are inherently difficult to make. There are simply too many assumptions that must be made and risks to be considered to expect perfection. These risks take the form of the intrinsically volatile and unpredictable nature of the economy, political decisions, policy changes, terrorist acts, or a litany of other international events.

While some error in the budget is to be expected, reasonably accurate forecasting of tax revenue in Wisconsin is a critical function of state government. Because of the proclivity of the state to spend every dollar in the budget process, even small forecasting errors can have sizeable effects. The importance of this revenue estimation process is exacerbated by the lack of reserve funds that Wisconsin state government



maintains. Without a reserve fund, there is no margin for error in these revenue estimations.

When forecasters have erred on the side of underestimating revenue, the state has reaped discretionary funds that have been allocated to new spending programs.² However, when revenue shortfalls occur, tough decisions have been forced, as was the case with recent bud-

gets in Wisconsin. For example, the 2003-2005 budget experienced a \$3.2 billion deficit that had to be closed. Underestimations of revenue can help force programs to be cut, employees to be laid off, and/or taxes to be raised on the citizenry. Severe underestimation of available revenues can also force the entire state budget to be recast in mid-year.

In the fiefdom of the Wisconsin state budget, revenue forecasting is the king. Because of the state's penchant for spending every dollar that is available, this mundane process takes center stage every other year during the ritual that is the preparation of a new biennial state budget for Wisconsin. State senators and representatives, both Republican and Democrat,

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wait with anticipation while the final determination of available tax revenues for the impending two-year period is calculated. It is these estimates that will establish what new spending programs can be embarked upon or whether current services need to be cut.

Millions of Wisconsinites' lives are affected by the decisions made during this budget process—and it all starts, and in many ways ends, with the revenue forecast. Will senior citizen prescription drug costs be partially subsidized by the state? Can those who require medical assistance from the state continue to receive it? Will municipalities continue to receive the portion of shared state revenue they have become accustomed to? Are economic development ventures affordable? The answers, which to a great extent determine the quality of life in this state, are all found in the estimation of revenue made during each budget cycle.

While every budget prepared in Wisconsin has long-term implications for the future of the state, it is developed using short-term fiscal tools. No long-range strategy, essential to the fiscal planning of any private business, is undertaken at the state level. Instead, intrinsically volatile revenue forecasts are used to cast short-term budgets often finessed to meet the state's statutory requirement of a balanced budget. In addition, Wisconsin's lack of fiscal discipline in the creation of a budget reserve fund places still more pressure on the outcome of this innately flawed planning process. Wisconsin is doomed to repeat this predicament during the valleys of every business cycle unless this fundamentally flawed process is addressed.

Recent History

A short review of Wisconsin budgets over the last five years provides ample evidence of the instability of the Wisconsin economy. Let us begin this tale in July 1999 when economic conditions were strong in Wisconsin.

In that month, a memo was issued by the director of the Legislative Fiscal Bureau (LFB) that indicated a budget surplus of \$568.1 mil-

lion through the end of the upcoming 1999-2001 biennium.³ In effect, this update of the previous forecast made in January 1999, gave the state legislature a huge sum of cash to appropriate in the form of new spending programs and/or tax cuts. By May 1999 this surplus had ballooned to \$1 billion and plans were made to return much of it to the taxpayers.⁴ About \$700 million were sent to taxpayers in January 2000 as part of a tax rebate program passed in 1999. In addition to this, the popular property tax rent credit was reenacted in 1999 beginning in the 2001 fiscal year. Personal income tax rates were also cut in 1999 and became active in the 2001 fiscal year, as well.

In short, everything was going great for Wisconsin's citizens and the state government. Everyone had a job and incomes were rising fast. There was plenty of money to satisfy both spenders and tax cutters. During early 2000, the Wisconsin economy continued to generate a surplus. This time the dollar amount was about \$154 million.⁵ Unlike the previous surpluses, some administration leaders argued that this money should be saved in order to handle looming structural deficits the state expected in the near future.⁶ These leaders were concerned about the possibility of deficits in the 2001-2003 budget due to the rising cost of spending commitments the state had made which had previously been dealt with through the huge budget surpluses that resulted from the economic boom.

By November 2000 the Wisconsin Department of Revenue (DOR) was beginning to see a drop in tax collections, especially sales tax receipts. This situation led to the projection of a \$574 million deficit for the 2001-2003 budget. It turns out that what the DOR was actually seeing in its forecast was the leading edge of a recession that was to begin in the Wisconsin economy within a few months.

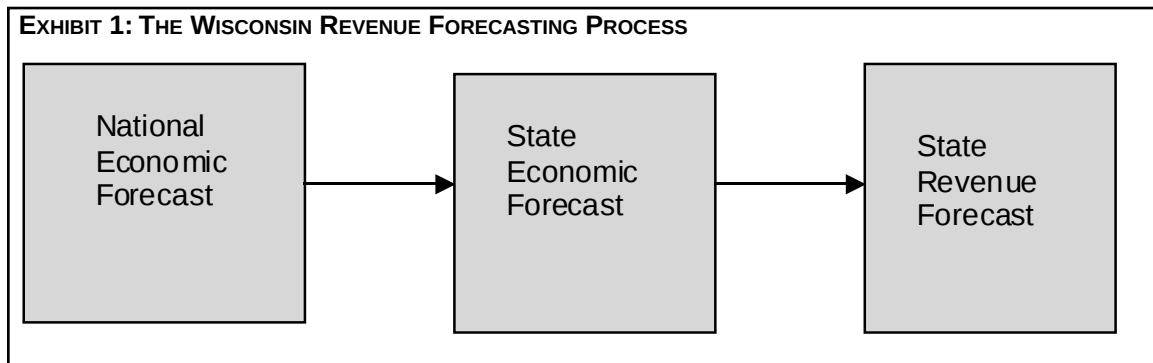
New spending and tax cuts of the late 1990s, while popular and seemingly prudent at the time, eventually played a role in the nearly \$3.23 billion shortfall facing the 2003-2005 biennial budget. How could the state's prospects change so quickly? It almost seemed

as though the Wisconsin state finances went directly from surplus to deficit. And, in many ways, they actually did. The predisposition of the state to use short-term fiscal planning tools breeds this type of feast-or-famine budgeting. Tax collections are inherently volatile — directly linked to the current state of the economy. Because of the difficulty in predicting changes in the economy, and therefore in revenue collections, Wisconsin will continue to go through these boom-and-bust cycles until a more reasonable long-term approach is applied to the budget process. The moral of this sordid tale is that it is okay to blow all of the money when you have it, but you must be prepared for the invertible crisis when you don't.

These revenue estimates by the DOR also set the stage for subsequent estimates by the Legislative Fiscal Bureau in the following January.⁷ The LFB estimates are used by the Joint Committee on Finance while they are debating and marking up the budget submitted by the Governor, which is developed using the DOR forecasts.

General Fund tax estimates are developed according to a three-step process. This process includes a national economic forecast and a state economic forecast which then leads to a state revenue forecast.

The national economic forecast is prepared for the state by the national economic forecasting firm Global Insight. Wisconsin has used



The Revenue Forecasting Process in Wisconsin

The Wisconsin Department of Revenue is the state agency statutorily responsible for the revenue forecasting process at the executive level. By statute, revenue estimates are required by November 20th of each even numbered year as an input into the biennial budget process. On this date in November, the DOR is responsible for forecasting revenue collections over the next biennium, which begins in July of the following year. In other words, analysts in the Division of Research and Policy at the Department of Revenue must forecast revenue collections over a time horizon that extends approximately thirty-one and a half months into the future.

Global Insight as a national economic forecasting consultant since 1976. These national forecasts are used by many of the states. Wisconsin state government subscribes to a monthly forecast by Global Insight that contains estimates of many economic variables for up to five years into the future. Global Insight prepares their forecast using a large-scale econometric model⁸ of the national economy. This model includes over one thousand equations, and yields estimates of national economic variables like: Gross Domestic Product, Consumer Price Index, Employment, Unemployment, Income, Money Supply, Corporate Profits, etc. These variables are then used as inputs into a Wisconsin econometric forecasting model.

The Department of Revenue keeps an econometric model of the Wisconsin economy.

This model is used to forecast employment and income in Wisconsin using approximately two hundred equations. This model relies heavily on the national economic forecasts, on a number of variables from Global Insight as inputs, in order to forecast employment and income growth in Wisconsin.

The DOR uses the econometric forecasts of employment and income from the state models to then produce actual tax revenue estimates for the upcoming budget period. This is the end that the state endeavored to achieve through the execution of these complicated analytical steps, and is the piece of the puzzle that is required to actually develop a state budget.

Finally, the specific sales, individual income, corporate, and excise taxes are again forecast using econometric techniques. The sales tax estimate is calculated using a forecast of relative prices of products subject to Wisconsin sales taxes and the previous econometric forecast of income. The individual income tax is forecast based on the estimate of personal income and employment. The corporate income tax is forecast based on the national estimates of corporate profits. The excise taxes (cigarettes, liquor, etc.) are estimated using information on the individual excise tax rate and a forecast of the tax base.

Wisconsin Revenue Forecasting Accuracy

As described in the previous sections, revenue estimations are prepared in Wisconsin by both the Department of Revenue and the Legislative Fiscal Bureau. Table 1 presents these estimates for fiscal years 1989-1990 to 2002-2003. A previous study⁹ analyzed these estimates in detail while being met with criticism from some in the state government forecasting community. The central concern raised by these analysts was whether it is valid to calculate forecasting error considering only revenue growth as was done in this study. It was suggested that the people who prepare forecasts in other settings, most commonly measure their accuracy by calculating the combination of base revenue plus revenue growth. The reason for analyzing revenue growth in the report was centered around its importance to

the upcoming budget deliberations, particularly in an age of structural deficits. In any case, while this may make for interesting discussion among statisticians and mathematicians, the people of Wisconsin are concerned with how close the revenue estimates are to the actual collections. Armed with this information, they can then judge whether appropriating every dollar that is forecast to a spending initiative is sound public policy. In order to facilitate this understanding, Table 1 calculates errors in terms of dollars.

It can be seen that over the fourteen-year period analyzed, the average absolute yearly forecast error made by the Department of Revenue in their statutorily mandated November estimates was \$427.1 million. The Legislative Fiscal Bureau average yearly error over this same time period was \$132.4 million. The LFB data analyzed was for their estimates made in January of even-numbered¹⁰ years, more than a year later than the DOR estimates were made, which may account for their improved accuracy.

Given the size of the entire state budget, it should be documented that these forecasts are reasonably accurate. The errors are, in fact, a small percentage of the total budget. Acknowledging this fact is interesting, but misses the larger point of both this paper and the aforementioned previous study. The problem with the budget process does not rest primarily with the quality of revenue estimates; some margin for error must be expected given all of the risks and assumptions in the forecasting process. These results clearly appear to fall within a reasonable error margin. The focus should be on the fact that revenue forecasting as a discipline is beset with these uncertainties which are not reflected in Wisconsin budgeting. While a \$427.1 million (\$132 million using the LFB numbers) error is a small portion of the entire yearly budget, over a biennial budget cycle, these errors can multiply into a significant shortfall.

Further, while the average absolute yearly error in the DOR estimations was about \$427 million, obviously there are years when the

TABLE 1: ACCURACY OF STATE REVENUE ESTIMATES

(1) Fiscal Year	(2) Date of DOR Revenue Estimate	(3) DOR Revenue Estimate (\$ Millions)	(4) Date of LFB Revenue Estimate	(5) LFB Revenue Estimate (\$ Millions)	(6) Actual General Fund Tax Collections (\$ Millions)	(7) DOR Error in Estimate (\$ Millions)	(8) LFB Error in Estimate (\$ Millions)
2002-2003	Nov. 2000	11,826.5	Jan. 2002	10,515	10,200.0	1,626.5	315.0
2001-2002	Nov. 2000	11,067.8	Jan. 2002	10,210	10,020.2	1,047.6	189.8
2000-2001	Nov. 1998	9,700.8	Jan. 2000	10,281	10,063.4	-362.6	217.6
1999-2000	Nov. 1998	10,266.8	Jan. 2000	10,793	10,947.3	-680.5	-154.3
1998-1999	Nov. 1996	9,263.0	Jan. 1998	9,663	9,948.1	-685.1	-285.1
1997-1998	Nov. 1996	9,096.3	Jan. 1998	9,350	9,528.4	-432.1	-178.4
1996-1997	Nov. 1994	8,659.7	Jan. 1996	8,664	8,816.6	-156.9	-152.6
1995-1996	Nov. 1994	8,212.8	Jan. 1996	8,231	8,235.6	-22.8	-4.6
1994-1995	Nov. 1992	7,543.5	Jan. 1994	7,700	7,806.9	-263.4	-106.9
1993-1994	Nov. 1992	7,144.1	Jan. 1994	7,305	7,287.6	-143.5	17.4
1992-1993	Nov. 1990	6,700.6	Jan. 1992	6,725	6,871.0	-170.4	-146.0
1991-1992	Nov. 1990	6,238.1	Jan. 1992	6,314	6,339.6	-101.5	-25.6
1990-1991	Nov. 1988	5,981.6	Jan. 1990	6,097	6,073.0	-91.4	24.0
1989-1990	Nov. 1988	5,455.1	Jan. 1990	5,613	5,649.5	-194.4	-36.5
AVERAGE ABSOLUTE ERROR						427.1	132.4

Notes

Data for column (3) are from the Wisconsin Department of Revenue. These data have been updated for changes in tax laws. Data for column (5) are from the Legislative Fiscal Bureau. The estimate errors in columns (7) and (8) are calculated by subtracting the actual from the estimate. A positive error occurs when the estimate is greater than the actual and a negative error occurs when the estimate is less than the actual. The average absolute errors for column (7) and column (8) are calculated as a sum of the yearly errors, ignoring the signs, and divided by the 14 years analyzed.

estimates are better than this and years when they are worse. The 2001-2003 biennial budget estimates shown in Table 1 illuminate the potential problem with using these estimates to develop a budget without additional reserves. The November 2000 estimate of revenue for the 2001-2002 fiscal year was \$1,047.6 million above actual while the estimate for the 2002-2003 fiscal year, made on this same date, was \$1,626.5 million too high. This undoubtedly led to a significant overestimation of revenue for the entire 2001-2003 biennial budget. Through this example it is apparent that this budget process, and its reliance on precise estimates of tax revenues for determining state spending, was an exacerbating factor in the fiscal crisis that had to be dealt with during the development of the present 2003-2005 budget.

Other States

The majority of states use a process quite similar to that of Wisconsin for forecasting state revenue. As mentioned earlier, most states purchase national economic forecasts from Global Insight as an input to their state economic models. The basic process of purchasing a national economic forecast, tailoring it to the individual state's economy, and then using this state economic forecast to estimate revenue collections is the standard.¹¹ How effective each state is at executing this process is really the key, and subtle differences between the states may make a large difference in this regard.

One major distinction between state revenue forecasting processes is the required frequency of the estimate updates. In Wisconsin, a single estimate is required by statute every two years (in preparation for the biennial budget process). This is the least stringent statutory requirement for updating revenue projections of all fifty states. In fact, no other state law allows more than one year between re-estimations.

While an update of revenue estimates is only required by law every two years, more frequent forecasts are typically prepared in Wisconsin by both the Department of Revenue and the Legislative Fiscal Bureau. For example,

the DOR made four separate estimates of revenue for fiscal year 1994-1995. Estimates were prepared in November 1992, January 1993, January 1994, and November 1994. However, for other fiscal years, only the statutorily required November estimate was made by DOR. The Legislative Fiscal Bureau follows a more regular schedule for updating their estimations. The LFB prepares estimates each January as well as in May of each budget year.

Frequent revenue estimate updates are useful and help policymakers quickly respond to changing economic conditions affecting state government finances. However, without a requirement in state statute, forecasts can be prepared on the schedule of politicians and government analysts instead of a timetable set by law. While the LFB follows a regular pattern for forecast updates, it would be useful for the DOR to do the same. Without a requirement in state statute, there is the potential for politicians to request revenue estimate updates when they believe the result will fit their goals, while ignoring tax collections forecasts when a problem may be revealed.

Table 2 shows the distribution of revenue update requirements for the fifty states.¹² It can be seen that Wisconsin is the only state that requires their revenue estimations to be updated every two years and only one other state makes this requirement as infrequently as annually. The majority of states, 48% of them, require revenue updates on a semiannual basis in law. Twenty-eight percent choose to update their models quarterly. There is even one state, Connecticut, which requires revenue updates on a monthly basis.

A second area of dissimilarity between state revenue forecasting processes is the use of a forecast advisory council by many of the states.¹³ The purpose of the forecast advisory council is to provide a wider range of inputs into the forecasting process. Instead of a forecast being prepared exclusively by government analysts and an econometric model, a formal and independent body (potentially made up of academic economists, business leaders, members of the local Federal Reserve

Bank, and staff from national forecasting firms or others with expertise on the local economy) is drawn upon during the preparation of the revenue estimate. This type of group provides a range of advantages including an outside check on the rationality of the model estimates, a wider range of opinions, and greater consensus among stakeholders in the estimating process. It is also likely that the public would have more confidence if a diverse group of experts were used in the forecasting process in addition to a computer model that few understand. Research shows that twenty-nine of the fifty states use some type of forecast advisory council in their revenue estimating practices.¹⁴ These councils range from a Governor's Council of Economic Advisors to a Business Advisory Panel.

Suggestions for Improvement

Forecasting state revenues is a very tricky venture. The sources of error in the process are numerous and the risks are immeasurable. The analysis in this paper shows that while Wisconsin follows a reasonable process in executing this task, there is room for improvement in the overall budget process. The following suggestions are submitted in an effort to make substantive improvements in the process.

1. Require Revenue Estimates More Frequently in State Statute

Given how quickly both the national and state economy can fluctuate, requiring revenue forecast updates every two years is simply not enough. Every other state in the nation recognizes this, with the bulk of them calling, by statute, for semiannual updates. Wisconsin should adopt a system of requiring state revenue estimates by law on either a semiannual basis or, more preferably, a quarterly basis.

TABLE 2: FREQUENCY OF REVENUE ESTIMATION UPDATES

Frequency	Number of States	Percentage of States
Every two years	1	2%
Annual	1	2%
Semiannual	24	48%
Quarterly	14	28%
Three times per year	4	8%
Bimonthly	1	2%
Monthly	1	2%
As necessary	4	8%

2. Implement an Economic Advisory Council

The forecasts made by the State of Wisconsin would benefit greatly from input by a more diverse group of economists and business leaders. It only makes sense to utilize the nationally known academic economists in the University of Wisconsin system, or other state institutions of higher education, in addition to financial experts from industry. The forecasts would also gain some credibility in the mind of the public if members of the local Federal Reserve Bank were on this panel. While computer-generated statistical models are a reliable way to generate the estimates, a thoughtful check that could be provided by others with first-hand experience in the Wisconsin economy would be beneficial. A council was used in 2001 and 2002 but discontinued by the Doyle Administration. This council should be brought back immediately.

3. Create a Budget Reserve Fund

The 2001-2002 budget established a statutory requirement that mandates 50% of unanticipated revenue growth to be allocated to a budget reserve fund. This provision is only as enduring as the current legislature, since a simple statutory change would eliminate it. Nevertheless, an adequate reserve fund is needed. Without this fund, Wisconsin will continue to be beholden to the inherently volatile economy. The feast-or-famine pattern of budgeting prevalent in the state will continue into

the future as business cycles oscillate from growth to contraction.

Conclusion

Insanity is often defined as doing the same thing over and over again, while expecting a different result. In many ways, this definition fits the current budget process in the State of Wisconsin. Every other year the state government's focus turns to the process of crafting the next biennial budget. This process will begin again in earnest this fall as the governor and legislators begin the process of writing the 2005-2007 state budget. Each time this process is executed, the attention of all in Madison turns to the estimates of state revenue over the upcoming budget cycle. Invariably, the budget is built around spending virtually the entire amount of revenue forecast. This paper shows that while these forecasts of revenue are both credible and reasonably accurate, to expect them to be perfectly precise is misguided. Revenue forecasting is a particularly difficult venture, subject to a litany of risks and assumptions that make precise results an impossible goal. Instead, let us hope that, given these vagaries of revenue forecasting, the governor and legislature substantially increase the size of the state's budget reserve in this upcoming budget cycle.

Notes

1. From William J. Shkurti, "A User's Guide to State Revenue Forecasting," *Public Budgeting and Finance*, Spring 1990.
2. In the 2001-2003 Wisconsin budget, a statutory requirement was enacted that requires 50% of unanticipated revenue growth be allocated to a budget reserve fund.
3. This memo was issued by Robert Lang on July 12, 1999 to the members of the Wisconsin Joint Committee on Finance.
4. Dennis Chaptman, "Chvala plan discards income tax

cuts," *Milwaukee Journal Sentinel*, November 6, 1999.

5. Dennis Chaptman, "Wisconsin economy generates \$154 million surplus," *Milwaukee Journal Sentinel*, September 1, 2000.
6. Former Secretary of Administration George Lightbourn and Revenue Secretary Cate Zeuske argued for this in a memo sent to Governor Tommy G. Thompson.
7. The Legislative Fiscal Bureau is not bound by any statutory requirement to issue revenue estimations; however, they typically issue such estimations each January. During the odd-numbered years these estimations are used in preparation of the upcoming biennial budget and are frequently reestimated in May as the Joint Committee on Finance is concluding work on the next budget. In even-numbered years, these estimates are used as a check on the current status of the forecast and to determine whether a budget adjustment bill is required.
8. Econometrics refers to the branch of economics that is concerned with applying statistical theories to the empirical testing of economic relationships. Models are created of the economy, using historical data, which are used to forecast future levels of these economic variables.
9. Scott Niederjohn, *State Revenue Forecasting in Wisconsin: A Critical Examination*, Wisconsin Policy Research Institute, Volume 17, Number 3, May 2004.
10. A better comparison with the November DOR estimates would be to use the LFB estimates made in odd numbered years during the crafting of the state budget. These numbers were not available corrected for tax law changes.
11. William J. Shkurti, "A User's Guide to State Revenue Forecasting," *Public Budgeting and Finance*, Spring 1990.
12. *The Book of the States*, 1999-2000.
13. Wisconsin implemented a forecast advisory council in 2001 and 2002. The Doyle Administration elected to discontinue the use of this council.
14. *The Book of the States*, 1999-2000.