



# Oklahoma State Auditor & Inspector

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## Special White Paper Report

### Estimating Corporate Income Tax Revenues in Oklahoma

March 13, 2014

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This report is intended to be a timely flash report addressing the issues arising from the failures to predict corporate income tax revenue estimates in 2014 and 2015. It is not intended to be an exhaustive study as that would take far too long to be of any value in a process in which timeliness is essential.

Article X Section 23 of the Oklahoma Constitution sets forth the balanced budget provisions for the state. The State Board of Equalization has responsibility to estimate available revenues for the state's General Revenue Fund, 95% of which amount so certified is available to the legislature for appropriation. Traditionally, the Tax Policy Division of the Oklahoma Tax Commission (OTC) has had the responsibility of providing the Office of Management and Enterprise Services (OMES) and its predecessor, the Office of State Finance (OSF) with estimates of future expected revenues that fund the General Revenue Fund.

OMES presents the estimate to the State Board of Equalization for certification in December and February. These estimates become the foundation for building the state's proposed budget for the next fiscal year, and the February certification establishes the limit on how much is available for the Oklahoma Legislature to appropriate for the next fiscal year.

OTC staff has extensive experience in developing revenue estimates for the state, and according to a report issued by the Pew Center on the States (State's Revenue Estimating- Cracks in the Crystal Ball, 2011), Oklahoma's revenue estimation of the "Big 3" taxes (Personal Income, Sales, and Corporate Income taxes) had one of the lowest median percentages of error for the period 1987-2009.

While OTC is responsible for the ultimate estimation, OTC has contracted with Oklahoma State University (OSU) for econometric services which "have focused on both providing the Commission with current economic information upon which to base their revenue estimates and enhancing the analytical capability of the Commission in estimating the impact of changes in tax structure and state and national economic activity." OSU provides the OTC with a complete list of all equations in the model and a description of all variables and other specified services. Throughout the years, several top local economists have been involved in the process and have impacted the modeling and estimation services provided.

Recent characterizations that a single economist at Oklahoma State University has responsibility over the revenue estimation process for the state are both inaccurate and unfair to that individual. OTC clearly has had lead responsibility over the

revenue estimation process and ultimate responsibility ascends from OTC, through OMES on to the State Board of Equalization. While OTC officials clearly believe that OSU's contribution to the process continues to be positive, there have been several different individuals contributing to OSU's input over time, all of whom are recognized economic experts. Appendix 1 contains an OTC document that outlines the process of revenue estimation.

What should easily be agreed to by all parties involved is that the revenue estimation process is very important for many reasons and that the estimate of Corporate Income Tax revenues for FY 2014 missed original and revised estimates significantly and has raised concerns among executive leadership.

The two central questions this report will attempt to address are: why was the estimate so far off, and is there anything that can be implemented that might enhance the process going forward.

Probably the best starting point in discussing the issue is the inherent difficulty to estimate corporate income taxes. While analysis of past trends and current and anticipated economic factors and indicators are useful, they have inherent limitations in the area of corporate income tax estimation processes as will be discussed further. There are more than a few reasons for this but essentially it is due to the unpredictability of certain aspects and the lack of information as to if and when such aspects may arise.

As will be discussed later, economic volatility, and other unpredictable issues are making Corporate Income Tax revenue predictions more difficult. It will likely continue in the future.

What makes Corporate Income Taxes inherently difficult to predict?

1. Corporate taxable income and tax payments are not easily correlated to corporate earnings as reported for financial purposes. Generally accepted accounting principles rules for reporting earnings differ from the determination of taxable income. These are typically referred to as book/ tax differences in accounting for income and expenditure items that result in differences in reported incomes for financial purposes as opposed to what is reported to tax authorities. Legislation often provides special favorable tax treatment where incentives are used to encourage certain activities. The oil and gas industry, which features prominently in the Oklahoma economy, has more than a few significant tax incentives that provide favorable tax treatment. While some of the differences are deemed “permanent” differences, most are what would be described as “timing” differences that make correlation difficult. There usually are significant differences between corporate financial earnings and corporate taxable incomes.
2. This is all perfectly legal and normal. Tax laws often provide different rules for reporting many transactions. Tax laws also provide rules that allow loss carryovers to future tax years that can cause significant differences in how much is taxed and collected in later years. Tax incentives in the form of special deductions and credits can also have impacts that can cause trend analysis to be more difficult. The timing of these and other events which often is discretionary make predictions more difficult. The result can often be that while a corporation is extremely profitable there can and will be times when such highly profitable corporations will pay little to no income taxes in the period that such high profits are reported. This has made national news more than a few times when major corporations reported record high profits and paid no federal income taxes because loss carryovers from prior years offset the current earnings. In addition, corporate tax filings and refunds sometimes are for prior years but yet affect current and future revenues and net collections. This plays havoc with predicting current revenues and collections using analysis techniques.
3. The PEW Center report State’s Revenue Estimating- Cracks in the crystal Ball, sheds much light on the unanticipated impact on state revenue estimation caused by the so called recent Great Recession and its aftermath. The overall conclusion of this report is that “State Revenues have become more difficult to predict accurately.” Among the different types of revenues

cited in the PEW study, corporate income tax revenues are inherently the most volatile and difficult to estimate. The Pew study also found that “states regularly misestimate revenue and that those errors are significantly greater in times of fiscal crisis...and their aftermath.” Despite having had such a great recent track record, clearly Oklahoma did miss significantly the revenue estimates for corporate income tax in 2014. However, most other states have been experiencing such inaccuracies for long periods of time.

4. Corporations also employ tax specialists to help minimize tax payments and also employ certain types of entities to minimize tax liabilities. The trend in oil and gas pipeline companies transferring the revenue producing side of the business into Master Limited Partnerships (MLP) is just one example. This can result in the corporate entity having little to no income tax liability.

Theoretically the tax liability, if any, is passed directly through to the investor. These have recently become a popular investment vehicle (and means of raising capital) because they are highly profitable for investors and have the tax advantage of avoiding the double taxation effect of first funneling the income through a corporation that pays taxes on the income and then to investors in the form of dividends and growth in the value of their stock shares with the individual having taxable implications. Another fall-out from this trend, the majority of investors are tax exempt institutional investors, so that not only are there decreasing corporate income taxes, there is no corresponding increase in personal income taxes.

This is just one example. Limited Liability Corporations (LLC's) are also being utilized to avoid paying income taxes at the corporate level. The moral of the story is that estimating corporate income taxes going forward will be even more difficult as these trends continue.

5. For Corporate taxpayers with calendar year ends (without doubt, the majority of all corporations), timing events for tax purposes closer to year end make estimating corporate income tax revenues in the summer and fall more difficult. Basically, some of the best information isn't yet available.

The original estimates for FY 2014 were made in June of 2013. As events later proved, it missed the mark by a large amount. The estimate made in December 2013 was also substantially off. It had the advantage of more information so it wasn't off as much as the earlier estimate. As the year end events and final estimated payments were being made in January, and as

well as early returns with substantial refunds were all subsequent to the December estimate, it should not be surprising that these included unexpected events that adversely affected the prior estimates. The result was that the February 2014 estimates were again significantly less than what was previously estimated. The time period around calendar year end and shortly thereafter contains critical information regarding corporate income tax revenue. This creates a dilemma as the state needs to start the estimation process early.

6. The predictability of when tax credits will be used also adds an element of uncertainty and error. OTC cannot accurately predict the timing or magnitude of tax credits that will be claimed. Carryover provisions and transferability characteristics in many state tax credits add a further element of unpredictability that can create volatility and unpredictability. The future impact of tax credits that have been authorized will cause difficulties going forward.
7. The recent moratorium on tax credits caused significant current impact as credits earned in past years were deferred and are now affecting current and future year's tax revenues. Because the amounts were not known, the impact of funding prior year obligations from future revenues makes estimation difficult.
8. The lack of any long term planning or controls over tax credits that were granted in the past, must invariably cause estimation problems going forward.
9. The Washington Congressional impasse that caused fears of expiration of certain tax advantages, i.e. the favorable treatment of capital gains for tax purposes, caused many corporations to time such events that affected the time periods involved and had an unanticipated effect on corporate income tax revenues.
10. Many of the above issues have been contributing factors to the unanticipated level of Corporate Income Tax refunds that have been claimed and paid in early calendar year 2014. Such refund amounts look like they may be well in excess of 200% of prior year amounts. Not only has this caused much havoc with the revenue estimation process, it is also causing significant operational inefficiencies at OTC in processing current returns and refunds. Refunds currently can only be paid out of the same revenue source (income tax

refunds must come from income tax collections). The “run” at the bank has caused OTC at times to exhaust funds available to pay refunds on income taxes. This can easily cause delays in processing other income tax related business and delay refund payments to other taxpayers. Without the ability to draw on other funds, OTC could be forced to impose a slow down on processing income tax refunds causing operational inefficiencies. Statutory changes may be necessary to alleviate this situation to allow OTC to temporarily draw on other cash reserves during such periods.

11. While this list is likely not exhaustive, it does reflect that certain significant issues that were not likely to be subject to predictability were having a significant effect on FY 2014 corporate income tax revenues. This has contributed to the unexpectedly large amount of corporate income tax refund claims in early 2014.

By necessity, the state must begin the revenue estimation process early to allow for an orderly planning and progression of the budget and appropriation process. However, the best information for estimating corporate income tax revenue doesn't become known until late in the calendar year and in the early portions of the following calendar year. Even then, estimating corporate income tax revenues can be a challenge. The estimate of corporate income tax revenues made for fiscal 2014 at various stages are indicative. In June of 2013, it was known that for certification purposes, actual corporate income tax revenues for FY 2013 were going to be approximately \$450 million. It was known that corporations were experiencing profitable earnings and trend analysis would almost certainly predict an increase for fiscal year 2014, barring some indication to the contrary.

As more and better information became available it became clear that collections were not going to experience the anticipated growth. Quite to the contrary, it became apparent that 2014 corporate income tax revenues were going to be less than in 2013. The estimates were revised accordingly.

a. Estimate made on June 24, 2013	\$481 million
b. Estimate made on December 19, 2013	\$375 million
c. Estimate made on February 18, 2014	\$307 million

The original estimate of June 24, 2013 was \$174 million more than the latest estimate made on February 18, 2014. Any way you slice it it's a significant difference. As the state's budgetary/ appropriation process builds in a 5% cushion for such contingencies, this fortunately did not cause any mandatory revision of current fiscal year 2014 operations/ budgets.

As FY 2014 is the base and lead in for estimating FY 2015 estimates, this has by necessity caused downward revisions in the FY 2015 estimates. The estimate made on December 19, 2013 for FY 2015 corporate income taxes of \$420 million was revised downward to \$375 million on February 18, 2014 as a reflection of the knowledge gained from 2014 collections and the above discussed issues.

While it is logical to wonder why an estimate in December can be off by so much, 2 months later, there are some explanations for it. Some of the issues such as loss carryovers and tax credits may or may not occur and are not easily subject to estimation. Further, the magnitude is not predictable. Loss carryovers and tax credit issues could and will affect future estimates as well. The increasing trend to transfer corporate earnings to non-corporate entities to avoid corporate income

taxation is likely to accelerate. Again, the timing and magnitude will be difficult to predict going forward.

While the OTC has generally done a good job of predicting state revenues in the past, the volatility and unpredictability of corporate income taxes will continue to be a problem going forward.

The PEW report (see appendix 3) shows that Oklahoma does not use consensus forecasting. For many states that approach involved legislative input. In many cases it involved non-government and academic experts. Sometimes it involved both.

Though the PEW study does suggest “casting a wide net for expert economic analysis,” it also noted that those states that did so were no more successful at predicting revenues than those states that did not. This should not preclude consideration of doing so however. In any event, it couldn’t hurt.

The Governor's appointment of a subcommittee of the State Board of Equalization (Director of OMES and the State Treasurer) is a step towards consensus forecasting. However, without in house economic experts and solid modeling techniques and analysis, the value of additional input may be otherwise limited. It would appear that close liaison between OTC and OMES is a positive factor and the state could explore any possible enhancement.

The current process does appear to have had involvement from several leading local academic experts. It may be possible to expand this by utilizing opinions of additional academic experts.

As for involvement of the legislative branch in the process, several problems may arise. The legislative branch does not currently appear to have in house expertise, or the modeling capability to add value. Further, there may be an issue of separation of powers, which would make it unconstitutional to involve the legislature in an otherwise constitutional executive branch responsibility.

It might be possible to include non-government entities or individuals from private industry that have a good feel for the pulse of key economic sectors such as the oil & gas industry, where new trends or considerations might be gleaned. However, it might be a false expectation to anticipate that private enterprise entities would disclose information to a governmental taxing authority/ entity, or to make information available that could become known to competitors.

Based on discussions with OTC staff, it would seem that adding one additional in house expert FTE should be explored. In addition, as the key individual at OTC with decades of experience in revenue estimation is contemplating retirement in the near future, this should be addressed immediately so as to facilitate as much transfer of institutional knowledge as possible.

## Appendices

1. OTC document- A DESCRIPTION OF METHODOLOGIES USED TO FORECAST THE MAJOR REVENUE SOURCES FUNDING THE STATE OF OKLAHOMA GENERAL REVENUE FUND.
2. State's Median Errors, 1987-2009, Pew Center of the States Report, State's Revenue Estimating: Cracks in the Crystal Ball.
3. Revenue Estimating Methods and Use of Consensus Forecasting, Pew Center of the States Report, State's Revenue Estimating: Cracks in the Crystal Ball.

## A DESCRIPTION OF METHODOLOGIES USED TO FORECAST THE MAJOR REVENUE SOURCES FUNDING THE STATE OF OKLAHOMA GENERAL REVENUE FUND

The Tax Policy Division, Oklahoma Tax Commission (OTC), has the responsibility of providing the Office of Management and Enterprise Services (OMES) with estimates of future expected revenues that fund the General Revenue Fund. OMES takes these numbers and estimates from other revenue-collecting agencies and assembles a document that represents a "best judgment" of expected funding for the next fiscal year. This estimate is then presented to the State Board of Equalization for their approval. This amount sets the upper limit that the Oklahoma Legislature may appropriate for the next fiscal year.

The OTC revenue estimating process is based on the use of statistical and mathematical models. Some of the statistical analysis is generated within the OTC and some analysis is provided by contracting with outside entities. The data used in these analyses is also both internally generated and purchased from outside vendors.

The Oklahoma State University Spears College of Business is under contract with OTC to provide estimates of these major revenue sources:

- Individual Income Tax
- Corporate Income Tax
- Motor Vehicle Collections
- State Sales Tax
- State Use Tax

Oklahoma State University, using a product they call the Oklahoma State Econometric Model (OSEM), makes annual estimates of future economic activity including these selected state tax collections. In most cases, the technique used is econometric time series-ordinary least squares analysis. They also provide us with the data bases that support the OSEM. OTC uses these data bases for our own internal analyses. Our contract with OSU also finances the purchase of national and international data bases from IHS Global Insights, Inc. – U.S. Economic Services. These data bases support both the OSU – OSEM and our internal statistical modeling.

The Oklahoma Tax Commission maintains monthly data bases on all the tax types it collects. These data bases form the basis for our analysis and projections. They also provide the history of the dependent variables that OSU uses to model our tax equations. We analyze patterns in collections on a monthly basis. Attached to this report is a copy of an internally developed program we call Revenue Tracking. The foundation of this program is a monthly list of collections of a particular tax type by state fiscal year. Collections are shown on an individual monthly basis and on a cumulative monthly basis. Our present base year is Fiscal Year 2001. The program provides calculations of percentage changes by various methods, various averages and deviation from these averages, and the percent each months collections are of total annual collection on a monthly and cumulative monthly basis. This last data item forms the basis for a technique called cumulative shares analysis.

Two other analytical methods we use to study the various time series are exponential smoothing and Box-Jenkins. Both of these methodologies handle trended and seasonal data. Box-

Jenkins is a correlational technique. It extrapolates correlations of the data from the past to the future. If these correlations are strong, homogenous and stable, Box-Jenkins will likely outperform exponential smoothing. However, exponential smoothing usually works better for irregular or volatile data. Selecting between these methods begins with a thorough graphical analysis of the data.

The OSU-OSEM is a quarterly model. Thus we get two runs during the major part of the revenue estimating process – one in November and one in January. The models run by the OTC are on a monthly and quarterly basis. The variable that is being estimated for each tax type is “total amount apportioned”. In the case of OTC, we run the “components” as well as the final amount. So, for example, for corporate income tax we would make the following runs:

- Estimated Corporate Payments
- Final Corporate Payments
- Corporate Refunds
- Net Corporate Receipts
- Total Amount Apportioned – Corporate

Finally, allowances must be made for Federal and Oklahoma law changes that are not yet reflected in the historical tax data. The OTC maintains an individual income tax micro-simulation model for significant changes in this tax type. A team of tax policy analysts provide fiscal impact statements for all tax legislation passed in the legislative session just prior to the fiscal year being estimated. The impacts from this legislation is then added or subtracted from the estimate for the appropriate fiscal year.

## APPENDIX B

### Appendix B

### States' Median Errors, 1987–2009

This table lists the states' median revenue estimating errors for the personal income, sales and corporate income taxes (the "Big 3" taxes). Across the 50 states, the median percentage error for this period was 1.5 percent. States vary in terms of their reliance on the taxes examined in this study. The states that are highlighted were above the median of 67.4 percent in terms of their reliance on the Big 3 taxes.

	Median percentage error	Big 3 taxes as a percentage of total revenue		Median percentage error	Big 3 taxes as a percentage of total revenue
ALABAMA	1.45	54.4	MONTANA	6.14	38.7
ALASKA	10.53	16.7	NEBRASKA	1.47	71.4
ARIZONA	<b>1.23</b>	63.1	NEVADA	<b>3.90</b>	16.3
ARKANSAS	2.19	70.6	NEW HAMPSHIRE	<b>2.23</b>	12.8
CALIFORNIA	<b>2.85</b>	76.0	NEW JERSEY	1.35	73.2
COLORADO	<b>1.61</b>	76.3	NEW MEXICO	<b>0.93</b>	63.8
CONNECTICUT	<b>3.05</b>	76.8	NEW YORK	(2.07)	74.9
DELAWARE	(0.09)	41.6	NORTH CAROLINA	<b>2.76</b>	72.4
FLORIDA	(0.43)	61.3	NORTH DAKOTA	2.69	52.5
GEORGIA	<b>1.48</b>	85.7	OHIO	<b>1.29</b>	69.8
HAWAII	<b>1.29</b>	80.6	OKLAHOMA	0.49	60.9
IDAHO	1.62	68.7	OREGON	<b>3.81</b>	74.0
ILLINOIS	<b>0.70</b>	64.8	PENNSYLVANIA	<b>0.36</b>	68.5
INDIANA	<b>0.88</b>	79.2	RHODE ISLAND	(0.52)	70.9
IOWA	<b>1.75</b>	78.6	SOUTH CAROLINA	0.72	67.1
KANSAS	<b>1.11</b>	72.4	SOUTH DAKOTA	0.72	46.7
KENTUCKY	(0.20)	65.2	TENNESSEE	<b>0.49</b>	70.1
LOUISIANA	1.99	61.6	TEXAS	2.62	50.2
MAINE	<b>1.10</b>	71.6	UTAH	<b>2.56</b>	80.8
MARYLAND	<b>1.60</b>	70.2	VERMONT	<b>5.01</b>	52.7
MASSACHUSETTS	<b>3.52</b>	80.7	VIRGINIA	1.34	72.9
MICHIGAN	(1.19)	61.8	WASHINGTON	1.34	45.9
MINNESOTA	<b>1.94</b>	73.6	WEST VIRGINIA	<b>1.55</b>	57.4
MISSISSIPPI	<b>1.61</b>	56.1	WISCONSIN	0.92	78.1
MISSOURI	0.41	68.5	WYOMING	2.39	22.7

SOURCE: Pew Center on the States and The Nelson A. Rockefeller Institute of Government, 2011, based on data from the National Association of State Budget Officers and National Governors Association.

APPENDIX C

Appendix C

Revenue Estimating Methods and Use of Consensus Forecasting

In 2008, the Pew Center on the States released a report that included a survey of states on the processes and methods used in forecasting; these responses are shared below. The data on use of consensus forecasting come from the National Association of State Budget Officers and National Governors Association *Budget Processes in the States* survey, also from 2008.

	Simple trend analysis	Time series modeling	Linear regression modeling	Simulation	Nominal group technique	Delphi or expert judgment	Private consultant	Consensus forecasting
ALABAMA	o		o	o		o		
ALASKA	NR	NR	NR	NR	NR	NR		
ARIZONA	o					o		
ARKANSAS			o					
CALIFORNIA	NR	NR	NR	NR	NR	NR		
COLORADO	o	o	o			o		
CONNECTICUT	o		o			o		
DELAWARE	o	o	o	o		o	o	
FLORIDA	NR	NR	NR	NR	NR	NR	NR	o
GEORGIA	o	o	o					
HAWAII	NR	NR	NR	NR	NR	NR		
IDAHO			o					
ILLINOIS	o	o	o			o	o	
INDIANA			o		o		o	
IOWA	o	o	o		o		o	
KANSAS	o	o	o			o	o	o
KENTUCKY	NR	NR	NR	NR	NR	NR	NR	o
LOUISIANA	o	o	o			o	o	o
MAINE				o			o	o
MARYLAND	o	o	o		o		o	o
MASSACHUSETTS		o	o	o		o	o	o
MICHIGAN	o			o			o	o
MINNESOTA	o	o	o	o		o	o	
MISSISSIPPI	o	o	o				o	o
MISSOURI	o	o	o			o	o	

NOTE: NR = not reported

(continued)

APPENDIX C

Revenue Estimating Methods and Use of Consensus Forecasting

(continued)

	Simple trend analysis	Time series modeling	Linear regression modeling	Simulation	Nominal group technique	Delphi or expert judgment	Private consultant	Consensus forecasting
MONTANA	o	o	o	o		o		
NEBRASKA		o	o	o		o	NR	
NEVADA		o	o					
NEW HAMPSHIRE	o				o			
NEW JERSEY	o	o	o	o		o		
NEW MEXICO	o	o		o			o	
NEW YORK	NR	NR	NR	NR	NR	NR	NR	o
NORTH CAROLINA			o			o	o	
NORTH DAKOTA	o	o	o	o	o	o	o	o
OHIO	o	o	o	o				
OKLAHOMA	o	o	o	o		o		
OREGON		o						
PENNSYLVANIA	NR	NR	NR	NR	NR	NR	NR	
RHODE ISLAND	NR	NR	NR	NR	NR	NR	NR	o
SOUTH CAROLINA	o	o	o	o				o
SOUTH DAKOTA	NR	NR	NR	NR	NR	NR	NR	
TENNESSEE	o	o	o	o		o	o	o
TEXAS	NR	NR	NR	NR	NR	NR	NR	
UTAH	o	o	o	o		o	o	o
VERMONT		o				o	o	o
VIRGINIA		o						o
WASHINGTON			o					o
WEST VIRGINIA	o		o	o		o		
WISCONSIN	o	o	o					
WYOMING			o				o	

NOTE: NR = not reported

SOURCE: All data are self reported by states. Use of methods from the Pew Center on the States Government Performance Project *Grading the States Survey 2008*. Use of consensus forecasting as published by National Association of State Budget Officers/National Governors Association in *Budget Processes in the States 2008*.