

## LAFFER'S INVALID CASE

### FOR PHASING OUT OKLAHOMA'S PERSONAL INCOME TAX

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In an attempt to bolster income tax repeal efforts in Oklahoma, supply-side economist Arthur Laffer and associates – Arduin, Laffer and Moore Econometrics (ALME) - produced an analysis for the Oklahoma Council of Public Affairs (OCPA) that predicted huge economic gains as a result of cutting state personal income taxes.<sup>1</sup> Persuaded by this analysis, Oklahoma state legislators introduced legislation in the 2011-2012 session - SB 1751, authored by Senator Clark Jolley; HB 3038, submitted by Representative Leslie Osborn, and HB 3061, a measure developed by Governor Mary Fallin's staff and referred to often as the Fallin Plan - aimed at phasing out and eventually eliminating the state's personal income tax. None of these measures were adopted, but proponents have acknowledged that the fight is far from over. Given the stakes at issue - Oklahoma's personal income tax accounts for about one-third of state revenue - a careful evaluation of the OCPA/ALME study is in order.

The OCPA/ALME report proposed, first, a revenue-neutral conversion of the current graduated personal income tax to a flat tax of 3 percent levied on all taxable income.<sup>2</sup> This rate would be reduced by 0.75 percentage points in 2013 and then by 0.25 percentage point each year for nine years, eliminating the personal income tax by 2022. The proposed tax rate cut would be financed by an equal-size cut in government expenditure – a method that would keep the state's budget balanced, but significantly shrink the size of state government.

The OCPA/ALME report claims that phasing out the personal income tax would produce a large economic growth dividend from 2013 to 2022, culminating in a \$47.4 billion (20.6 percent) gain in real personal income in 2022. The study also claims that this growth dividend would indirectly generate enough non-personal-income tax revenue (all tax revenue subject to appropriation, except personal income tax revenue) to replace 23.8 percent of the loss in personal income tax revenue.<sup>3</sup>

If these claims sound too good to be true, it's because they are, as I will demonstrate. The results of this analysis should be a clear signal to policy makers in Oklahoma and in other states that the ALME research provides no valid basis for radical changes in state personal income taxes.

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<sup>1</sup> Oklahoma Council of Public Affairs and Arduin, Laffer and Moore Econometrics (OCPA/ALME), "Eliminating the State Income Tax in Oklahoma: An Economic Assessment," November, 2011.

<sup>2</sup> That would be accomplished by eliminating various credits and exemptions. This conversion may affect economic growth and other social objectives, but it is not examined in this study.

<sup>3</sup> The OCPA/ALME report also claims a \$53.4 billion increase in state GDP and 312,200 additional jobs in 2022. These claims are not addressed here because they depend on the validity of the analysis of state personal income - the subject of this article.

## The Basis of the OCPA/ALME Growth Dividend

The basis for the OCPA/ALME claims of a large positive growth dividend is the equation appearing on page 16 of the report:

$$(1) \text{ PI} = 0.2681 + 0.84789 * \text{POP} - 0.31871 * \text{PIT} - 0.51153 * \text{EXP},$$

in which PI is the annual percent change in real personal income, POP is the annual percent change in state population, PIT is the annual percent change in the combined top bracket federal and state personal income tax rate, and EXP is the annual percent change in the ratio: total state and local government expenditure divided by real state personal income.

The effect of the proposed tax cut is measured by the coefficient of PIT. The effect of the method of financing the tax cut is measured by the coefficient of EXP. The values of the coefficients indicate that a one percent decrease in the top combined personal income tax rate would increase PI by 0.31871 percent, and that a one percent decrease in the ratio, state and local government expenditures divided by real personal income, would increase PI by 0.51153 percent. Thus, according to equation (1) not only would a tax cut increase PI, but the increase in PI will be even greater if the tax cut is financed by reducing government expenditure.

Equation (1) may appear to provide scientific validity to the findings reported in the OCPA/ALME study. It fails do so, however, in three important ways.

First, the measure used for PIT, combined with the data used to estimate the coefficient for PIT, guarantees a negative relationship between a reduction in taxes and personal income, producing a biased estimate of the effect of the tax cut.

Second, the measure used for EXP guarantees a negative relationship between a reduction in government spending and personal income, producing a biased estimate of the effect of a cut in government spending.

Third, the annual impacts derived from this biased estimate are improperly added, resulting in impacts that are both inconsistent with the equation and greatly exaggerated.

Normally, these errors would be the subject of discourse among economists. In this case, however, their application produces an estimate of the economic growth dividend and associated outcomes that are so greatly exaggerated that policy makers deserve no less than full disclosure.

### Biased Estimate of the Effect of Changes in the Tax Rate

The variable used for PIT - the top bracket rate for the personal income tax – is debatable; studies of the elasticity of the personal income tax indicate that significant effects of rate changes are most likely confined to individuals with the highest incomes, but studies of the effect of rate changes on the labor supply indicate that effects are concentrated on lower-income

and secondary workers.<sup>4</sup> Therefore, the measure used for PIT, the combined top bracket rate for the combined state and federal personal income taxes, is also debatable. But the critical reservation about the measure used for PIT lies not in its definition, but in the data used for this measure. The data, the combined state and federal rates for the time period, 2001-2008, contain a serious flaw. The top federal rate was reduced by 4.1 percentage points in 2001-2003. By including the federal rate in the data, the combined rate fell by 4.1 percentage points, even with no reduction in state tax rates. Thus, the measure used for PIT, combined with the data used to estimate its importance, automatically produces a negative relationship between reductions in the personal income tax and personal income (PI). The bias of this estimate is revealed in a recent study which shows that when PIT is corrected to include only the variation in top bracket state rates, the coefficient of PIT has a positive and insignificant value instead of the negative and significant value estimated in OCPA/ALME.<sup>5</sup> That is, reducing the personal income tax could either reduce, or have no effect on, personal income.

### Biased Estimate of the Effects of Reducing Government Expenditures

The variable, EXP, is especially troublesome. My simulation of the change in personal income based on equation (1) shows that the coefficient of EXP accounts for 90 percent of the impact on personal income claimed by OCPA/ALME. However, like PIT, the measure used for EXP produces a negative relationship between government spending and PI by definition. Recall that EXP equals state and local government expenditure divided by real personal income. Thus, if real personal income (the denominator of the ratio) increases, as it did in every state of the union every year from 2002 to 2008 (the period used for empirical analysis), EXP will automatically decrease, producing a negative relationship between EXP and PI. The estimated sign of the coefficient of EXP is, therefore, true by design. Thus, one cannot conclude on the basis of this estimate, that a reduction in government spending will have a positive effect on personal income. In fact, it is hard to escape a verdict of bias in the direction of the estimated effect since ALME committed the same error in a study of a proposed property tax reduction in Florida and this error was revealed in the literature five years ago.<sup>6</sup>

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<sup>4</sup> There is a huge literature on the elasticity of taxable income (ETI) with respect to marginal tax rates. This literature has been thoroughly reviewed by Emmanuel Saez, Joel Slemrod and Seth Giertz ("The Elasticity of Taxable Income with Respect to Marginal Tax Rates: A Critical Review," National Bureau of Economic Research Working Paper 15012 – forthcoming in the *Journal of Economic Literature*. They concluded that "...the ETI is higher for high-income individuals..." (p 58). The literature on the effect of tax rate changes on the labor supply may be even larger. A good summary of the differences in labor supply responses by income level and worker status is provided in Table 2, p. 6, of "The Effect of Tax Changes on Labor Supply in CBO's Microsimulation Tax Model, Congressional Budget Office, Apr. 2007.

<sup>5</sup> Institute on Taxation and Economic Policy, "Arthur Laffer Regression Analysis is Fundamentally Flawed, Offers No Support for Economic Growth Claims," Feb. 2012, 1.

<sup>6</sup> See Iris J. Lav and Kim S. Rueben, "Lower Taxes and Economic Growth: Response to a Flawed Analysis," Center for Budget and Policy Priorities (March 20, 2007) in which they examined Arduin, Laffer and Moore Econometrics, "An Analysis of the Proposed Property Tax Cut in Florida," and concluded that a variety of methods that corrected for the inclusion of real personal income on both sides of the equation used in that study produced a positive and statistically significant effect of changes in EXP. In other words, they found that PI decreased when EXP was reduced. They also pointed out many studies in the economics literature in which the authors have found a positive relationship between government spending and personal income.

There is nothing, moreover, in the ALME model that establishes the direction of causation. The OCPA/ALME study claims that lower government expenditures cause higher PI, but it may well be that higher PI causes lower government expenditures; for example, in the form of lower welfare and medical payments.

### Incorrect Addition of Annual Impacts

The OCPA/ALME study also errs in its use of the estimates based on equation (1). Equation (1) produces only a one-year estimate of PI. For example, if both PIT and EXP were to decrease by 1 percent in 2013, PI would increase by the sum of 0.31871 percent and 0.51153 percent, or 0.83024 percent in 2013 only. The 10-year impacts of the income tax phase out should be reported, then, as a series of annual, or one-year, impacts. However, the OCPA study reports, and claims, the cumulative sum of the annual impacts.<sup>7</sup> Table 1 illustrates the difference this makes.

The numbers in column 3 are the cumulative sums of the numbers in column 2. For example, 3,000 in 2014 is the sum of 1,300 in 2013 and 1,700 in 2014. For the period as a whole, 47,400 is the sum of all the impacts from 2013 through 2022. The numbers in column 2 are not reported in the OCPA study, but they are the bases for the numbers reported in column 3.<sup>8</sup> What this means is that the impact in 2022 is not a 20.6 percent increase in real personal income relative to the real personal income baseline (real personal income without the income tax cut), but only a 4.4 percent increase ( $= (10,100/47,400) * 0.206$ ). Thus, the growth dividend claimed in the OCPA/ALME study is greatly exaggerated by the authors' use of improper arithmetic.

What this procedure implicitly assumes is a pattern of impacts that simply cannot be supported by equation (1). Column 2 in Table 2 shows how long the impact from each year's reduction in the personal income tax lasts, based on equation (1) – exactly one year in all cases. Column 3 shows the duration of each year's impact that is implicit in cumulating the annual impacts. There is no basis in equation (1) for that pattern.

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<sup>7</sup> OCPA/ALME, *supra* note 1, Figure 3, page 10.

<sup>8</sup> The OCPA/ALME report does not reveal this arithmetic, but I have used equation (1) to determine both the annual impacts and the cumulative impact of the income tax phase out. My estimate for the latter is \$44.9 billion; as noted, the OCPA study reports \$47.4 billion. I have been unable, using the information provided in the study, to determine the source of the difference, but the difference seems small enough to support my claim that the \$47.4 billion is a cumulative sum.

TABLE 1 Impacts of Income Tax Phase Out		
Year	Annual Increase in Real Personal Income: (\$million)	Cumulative Sum of Annual Increases: OCPA Report (\$million)
2012		
2013	1,300	1,300
2014	1,700	3,000
2015	2,300	5,300
2016	2,900	8,200
2017	3,700	11,900
2018	4,500	16,400
2019	5,600	22,000
2020	6,900	28,900
2021	8,400	37,300
2022	10,100	47,400

Table 2 Duration of Impact		
Year of Impact	Duration, in Years, Based on EQ (1)	Duration, in Years, Implicit in Cumulative Summation
2013	1	10
2014	1	9
2015	1	8
2016	1	7
2017	1	6
2018	1	5
2019	1	4
2020	1	3
2021	1	2
2022	1	1

## The Induced Increase in Non-Personal-Income Tax Revenues is Greatly Overstated

An exaggerated economic growth dividend also produces an overestimate of induced revenue gains attributable to the income tax phase out. The OCPA study claims that the economic growth dividend would increase non-personal- income taxes by 23.8 percent by 2022. My calculations, based on equation (1) and summarized in Table 3, indicate that when the increase in non-personal-income taxes is based (correctly) on the annual economic growth dividend, the impact in 2022 is only 8.9 percent.

Year (1)	Annual Decrease in Income Tax Revenues with No Growth Dividend (\$thousand) <sup>1</sup> (2)	Annual Growth Dividend (\$thousand) <sup>2</sup> (3)	Annual Average Non- Personal- Income Tax Rate Before Growth Dividend <sup>3</sup> (4)	Annual Increase in Non- Personal- Income Tax Revenues from Annual Growth Dividend (\$thousand) <sup>4</sup> (5)	Non- income Tax Growth Dividend/ Income Tax Cut <sup>5</sup> (6)
2012	0	0	0.0000	0	
2013	504,301	1,300,000	0.0293	38,120	0.076
2014	705,812	1,700,000	0.0290	49,374	0.070
2015	932,599	2,300,000	0.0290	66,701	0.072
2016	1,183,825	2,900,000	0.0290	83,981	0.071
2017	1,454,071	3,700,000	0.0288	106,589	0.073
2018	1,738,735	4,500,000	0.0285	128,379	0.074
2019	2,043,639	5,600,000	0.0282	158,015	0.077
2020	2,383,650	6,900,000	0.0280	193,312	0.081
2021	2,736,635	8,400,000	0.0277	232,785	0.085
2022	3,133,262	10,100,000	0.0275	278,077	0.089
<sup>1</sup> Relative to Baseline Individual Income Tax Revenues <sup>2</sup> Calculated from OCPA Study, Figure 3 <sup>3</sup> Baseline Non-Personal-Income Tax Revenue/Baseline Personal Income <sup>4</sup> Non-Personal-Income Tax Rate*Growth Dividend <sup>5</sup> Column (5)/Column (2)					

### Conclusion

The claims of the OCPA/ALME report are based on an econometric analysis that fails to meet generally accepted standards of economic inquiry. The authors use measures for taxes and

expenditures, and data representing those measures that produce invalid estimates of the annual effects on personal income. They then improperly add these estimates to produce greatly exaggerated impacts on personal income and non-personal-income taxes in 2022.

Even if their analysis were correct, the 2022 increase in personal income would be only 4.4 percent, not the 20.6 percent claimed in the report, and the 2022 increase in non-personal-income tax revenue would be 8.9 percent, rather than 23.8 percent. Their analysis is incorrect, however, and the study provides no valid evidence that a reduction in taxes and expenditures will generate any growth – large or small - in income, output, employment and revenue. Consequently, the OCPA/ALME study's econometric analysis fails to provide justification for a change in Oklahoma's tax structure. Advocates of reducing reliance on the personal income tax in Oklahoma and in other states, as well, should take note.