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SUBJECT: An Analysis of a Change to the Corporate Income Tax Apportionment Formula

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Proposed Change in the Apportionment Formula

A proposal has been advanced to change the corporate income tax apportionment formula from the current double-weighted sales factor formula to one that would weight the sales factor by 80 percent and the other two factors by 10 percent each for the period 2006-2007 and then changes to a 100 percent weighting of the sales factor. This memorandum provides an estimate of the revenue effect of such a change assuming the change becomes effective in 2006. For an analysis of the apportionment formula, and an earlier estimate of the revenue effect of a shift to a single factor formula, see Edmiston (2001).

Static Revenue Estimate

To estimate the effect on corporate income tax revenue we used the actual corporate income tax returns for 1995 through 2001. (Returns for 2002 are not complete and therefore were not used.) We proceeded as follows.

1. We calculated the tax liability for multi-state firms under the current doubled weighted sales factor formula, under the proposed 80 percent weighted sales factor formula, and under the single factor formula. Table 1 shows the loss in revenue for each year 1995-2001 under the two alternative formulas.

TABLE 1. CALCULATED REVENUE LOST 1995-2001

Year	Switch from Current to 80 ---Percent Weight Formula--		Switch from Current to ----Single Factor Formula----	
	Millions of \$	Percent Loss	Millions of \$	Percent Loss
1995	\$38.0	91.4%	\$63.9	85.5%
1996	37.9	91.4	63.4	85.0
1997	44.0	91.3	73.5	85.4
1998	50.3	91.4	88.6	84.8
1999	66.5	89.1	111.3	81.8
2000	79.0	86.4	133.0	77.1
2001	46.9	90.0	76.5	83.5

2. Next, we calculated the ratio of the tax liability of multi-state firms under doubling weighting to total corporate income tax revenue. The average value of that ratio is 72.8 percent. We used this ratio for years beyond 2001.
3. We calculated the ratio of tax liability of multi-state firms under 80 percent weighting to the tax liability under doubling weighting for each year 1995-2001. That ratio varied from 91.4 percent to 86.4 percent. There is a slight downward trend to this ratio, but we used the average value of this ratio, 90.0 percent. We also calculated an equivalent ratio under doubling weighting. That ratio varied from 85.3 percent to 77.1 percent. There is also a slight downward trend to this ratio, but we again used the average value of this ratio, 83.3 percent. If the trend is due to the effects of the recession, the trend may be reversed in the future. However, if the downward trend continues, the estimated revenue losses will be larger than reported here.
4. We forecasted corporate income tax revenue for 2006 and assumed that in subsequent years corporate tax revenue would increase each year by the same percentage as corporate income tax revenue increased each year after the 1990 recession.
5. We applied the percentage calculated above to estimate multi-state firm tax liability under the current and proposed apportionment formulas.

For the 10-year period, 2006-2015, we estimate that corporate income tax revenue will decrease by a total of \$955.6 million, or an average of \$95.6 million per year. Table 2 shows the estimated revenue change by year. Note that for 2006 and 2007, the revenue loss is from a shift to an 80 percent weight on the sales factor, while for the rest of the period the revenue loss is from a shift to a 100 percent weight on the sales factor.

TABLE 2. REVENUE LOSS FROM SWITCH TO ALTERNATIVE APPORTIONMENT FORMULA

Year	Revenue Loss (in millions of \$)
2006	39.8
2007	48.9
2008	89.6
2009	91.0
2010	96.4
2011	103.0
2012	110.0
2013	117.5
2014	125.5
2015	134.0

Distribution of Changes in Tax Liability

We calculated the distribution for 2001 of the calculated change in tax liabilities for multi-state firms that would result from the proposed change in the apportionment formula. Most firms would have a small change in their tax liability, but some firms would see very large decreases in tax liability while several firms would have large increases. Seventeen firms would see more than a \$1 million reduction in corporate income taxes, while 31 firms would have their corporate taxes increased by more than \$250,000. The distributions for other years are similar.

Dynamic Response

The proposed change in the apportionment formula alters the effective tax rate faced by multi-state firms. In particular, reducing the weight on the payroll factor reduces the implicit tax imposed by the apportionment formula on a firm's Georgia payroll. Using the Georgia corporate tax returns, Edmiston and Arze (2004) estimated the effect of changes in the apportionment factors on multi-state firms' Georgia payrolls. They find an elasticity of -0.069, that is, that a 10 percent reduction in the effective tax rate on payrolls arising from a change in the formula-apportioned corporate income tax would, on average, lead to a 0.69 percentage increase in payrolls.

The proposed change to an 80 percent weight on the sales factor amounts to a 60 percent change in the effective tax rate on payrolls. Applying the estimated elasticity to this change in effective tax rate implies that Georgia payroll would increase by 3.9 percent. We assume that the change in payrolls is phased in over a three-year period and that payrolls will increase 4.2 percent per year during the forecasting period.

This increase in payroll will result in an increase in income tax revenue. We use two alternative income tax rates to estimate the increase in income tax revenue. One rate assumes that the increase in payroll is associated mainly with new employment, while the other assumes that the increase in payroll goes mainly to existing workers. The income tax rates we use are 2.36 percent and 4.797 percent.

Table 3 shows the estimated increase in income tax revenue for 2006-2015 for the two effective tax rates. The estimated 10-year revenue increase is \$696 million assuming the lower income tax rate and \$1.415 billion assuming the higher income tax rate. Under the higher income tax rate, the estimated additional income tax revenue exceeds the estimated revenue loss in corporate income tax revenue. However, we urge that these estimates be used with caution since our confidence in them is low.

TABLE 3. ESTIMATED INCREASE IN PERSONAL INCOME TAX REVENUE

Year	Estimated Income Tax Revenue Increase ------(in millions of \$)-----	
	Low Estimate	High Estimate
2006	\$21.7	\$44.0
2007	44.2	98.8
2008	67.9	138.1
2009	70.8	143.9
2010	73.8	149.9
2011	76.8	156.2
2012	80.0	162.9
2013	83.4	139.6
2014	86.9	176.7
2015	90.6	184.2

References

Edmiston, Kelly D. (2001). "A Single Factor Sales Apportionment Formula in the State of Georgia." FRC Report #55. Fiscal Research Center, Andrew Young School of Policy Studies, Georgia State University, Atlanta GA.

Edmiston, Kelly D. and F. Javier Arze (2004). "Economic Effects of Apportionment Formula Changes: Results From a Panel of Corporate Income Tax Returns." Unpublished working paper.