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Sales Tax Facts: Revenue Gains and Job Losses in New Hampshire

Governor Jeanne Shaheen of New Hampshire has proposed the imposition of a 2.5% sales tax as part of her EXCEL NH (Excellence in Learning for New Hampshire) program, which would provide a long-term funding and improvement solution for state public schools.¹ Governor Shaheen expects the new tax to yield \$365 million in net revenue to the state in fiscal year (FY) 2003.

The purpose of this analysis is to provide independent estimates of the new revenue the tax would raise and of the expected effects on New Hampshire jobs. Table 1 provides our revenue estimates.²

Table 1
Estimates of Effects of Proposed New Sales Tax on New Hampshire Revenues, FY2003
(\$ million)

		Step (1) Static Estimate	Step (2) Estimate with Tax Base Erosion	Step (3) Estimate with Tax Base Erosion and Collateral Damage
New Revenue from Sales Tax	Scenario I: Normal Growth	371	318	288
	Scenario II: Slow Growth	365	313	283

We find that, when all incidental effects of the tax are considered — including tax base erosion and collateral revenue losses from other related tax sources, including gasoline, tobacco, liquor and meals — the state could expect to add no more than \$288 million to its FY 2003 revenue collections by imposing the tax. Should the economy slow below its expected normal rate of growth, it could expect to add no more than \$283 million.

We consider two economic growth scenarios; Normal Growth, which assumes the growth rates that we currently expect for the New Hampshire economy from now through 2003, and Slow

¹ State of New Hampshire, Governor's Office, Governor Announces EXCEL NH, February 7, 2001, available from <http://www.state.nh.us/governor/media/020701schoolfunding.html>.

² See Appendix for more information on the derivation of these estimates.

Growth which assumes lower growth rates. We then break our estimate for each growth scenario (Normal and Slow) into three steps. In Step 1, we estimate the revenue the state could expect to raise by imposing the tax, if there were no erosion of the sales base on which the tax was imposed and if there were no collateral damage to revenue collections as a result of the new tax. For Normal Growth, we find that this new revenue would be \$371 million.

Because New Hampshire retailers rely on out-of-state shoppers for a substantial portion of their business, the imposition of a New Hampshire sales tax could be expected to cause a substantial portion of that business to shift toward retailers in other states. The sales tax would also raise the cost of goods to New Hampshire shoppers, some of whom (particularly those who reside in New Hampshire) could be expected to shift their earnings from purchasing goods and toward saving. Both effects would erode the sales tax base. In Step 2, we estimate the revenue the state could expect to raise, given the expected erosion of the tax base but still assuming no collateral damage. For Normal Growth, we find this to be \$318 million.

Imposition of the sales tax would cause the state to lose tax revenue, as nonresidents make fewer trips into New Hampshire to purchase the newly taxed products and thus make fewer purchases of other products, such as liquor and meals, from which New Hampshire derives revenue. These collateral revenue losses are estimated to be \$30 million. This leaves us in Step 3 with a bottom-line Normal Growth estimate of \$288 million.

Table 2 summarizes our findings regarding another form of collateral damage. The imposition of a New Hampshire sales tax would cause job losses in retail sales and related sectors, particularly wholesale and transportation. It would cause further job losses in other sectors as potential workers are deterred from working in New Hampshire because of the reduced purchasing power of their earnings. Under Normal Growth, we expect the new tax to destroy a total of 32,992 jobs, of which 22,117 would be in retail, wholesale and transportation.

Table 2
Estimates of Effects of New Sales Tax on New Hampshire Employment, FY 2003

	Jobs Lost in Retail, Wholesale and Transportation	Jobs Lost in Other Sectors	All Lost Jobs
Scenario I: Normal Growth	22,117	10,875	32,992
Scenario II: Slow Growth ³	21,741	10,703	32,444

³ Due to the slower growth of the economy considered in Scenario II, there would be a smaller employment base in 2003 affected by the imposition of the tax. Fewer jobs to begin with mean fewer jobs lost under this scenario.

Appendix

There are three steps to predicting how the imposition of a new tax (or an increase in an existing tax) would affect future tax revenues: (1) estimation of the future tax base, given that the tax is not imposed (or increased); (2) estimation of the effect of imposition of the tax on the tax base and (3) estimation of imposition of the tax on other tax revenues. When the tax is broad-based, as with a sales or income tax, Step 1 depends on assumptions about expected economic growth over the period between the baseline and the year for which the prediction is made. Step 2, in which we measure erosion, requires us to estimate the elasticity or sensitivity of the tax base to the tax. Step 3, in which we measure collateral damage, requires us to estimate the elasticity of other elements in the state economy to the tax. We detail these steps here.

Step 1: Estimation of Tax Base

Information about Step 1 can be found in the *Report of the New Hampshire Commission on Education Funding*, which was issued on January 8, 2001. The Governor's estimate of \$365 million in new revenue for FY 2003 is based on estimates offered there for a narrow-based sales tax.⁴ The Commission assumed that the sales tax base would grow by 6.7%, 6.3% and 6.1% in calendar years (CY) 2001, 2002 and 2003, respectively, in making these estimates.

One difference between our FY 2003 prediction and that of the Governor stems from our determination that the slowing pace of the economy requires these assumptions to be revised downward. We assume that the base would grow by 5.3%, 5.4% and 5.5% in CY 2001, 2002 and 2003 under the Normal Growth scenario. The corresponding growth rates for the Slow Growth scenario are 3.2%, 3.8% and 5.0%.

Another difference stems from the manner in which the base was constructed. In order to collect \$365 million at 2.5¢ per dollar of sales, the state must have \$14.6 billion in sales to tax. Given the elasticity of 3.4 suggested in commission work papers, the tax base would have to be \$16.0 billion *before* the tax is imposed if there were to be \$14.6 billion in sales to tax *after* the tax is imposed.

It seems likely, however, that the commission estimated the tax base before the specifics concerning the contents of that base were known. These specifics are now spelled out in New Hampshire House Bill 767.⁵ Our reading of this bill leads us to conclude that the sales tax base would be substantially less than \$16.0 billion, even before considering the erosion of the base that the tax would bring about.

Taking into consideration the goods and services excluded from taxation by House Bill 767 and using the most recent U.S. Census data on the size and origin of New Hampshire retail sales, we estimate the pre-tax FY 2003 base to be \$14.8 billion.⁶

Step 2: Estimation of Erosion

⁴ Ibid, 79. The Commission estimates that, for each percentage point increase in the sales tax rate, the state would get \$142 million and \$150 million in CY 2000 and 2003, respectively. The Governor estimates FY 2003 revenue of \$365 million by averaging these amounts and multiplying by 2.5.

⁵ An Act establishing the excellence in learning in New Hampshire school funding and improvement program and making an appropriation therefor.

⁶ The U.S. Bureau of the Census provides data on retail sales by state and by type of establishment most recently for 1997. See <http://www.census.gov/prod/ec97/97r44-nh.pdf>. We estimate that 53% of 1997 retail sales would have been taxable under the bill. Taxable retail sales comprise only a portion of the tax base, however. We assume that nonretail sales comprise 20% of the base. Thus we compute the tax base by multiplying taxable retail sales by 1.25.

The elasticity of the tax base with respect to the tax rate is defined as the percentage decrease in the tax base that results from every 1 percentage-point increase in the tax rate. The commission recognized, in accordance with economic theory and evidence, that imposition of a sales tax could be expected to cause erosion of the base on which the tax is imposed. As mentioned, the commission appears at one point to have assumed an elasticity of 3.4.

We reviewed the literature on sales taxes in other states and found estimates ranging from 2.0 to 7.0.⁷ We believe the elasticity pertaining to New Hampshire falls at the upper end of this range, perhaps even substantially above the upper end. First, New Hampshire currently imposes no sales tax while it is bordered by three states — Massachusetts, Maine and Vermont — each of which imposes a sales tax of 5%.

Second, New Hampshire depends to an unusual degree on retail sales to fuel its economy. The ratio of retail sales to gross state product is 42% for New Hampshire and only 30% for the four-state economy that consists of New Hampshire and its three neighboring states. The ratio of retail sales to GSP is only 26% for Massachusetts, the largest of the four states and an important source of customers for New Hampshire retailers. On the basis of our examination of the literature and of these comparisons, we estimate the elasticity of taxable sales to the sales tax to be 5.69.⁸

We can assess the reasonableness of this estimate by considering a study of West Virginia cross-border grocery sales, in which the authors found an elasticity of 5.88.⁹ Groceries are untaxed in Massachusetts and would remain untaxed in New Hampshire under the new tax. Because nonresidents who shop in New Hampshire typically shop for items that exceed, in price, the cost of a normal trip to the grocery store, and because these nonresidents are the source of a substantial portion of New Hampshire retail sales, we expect the elasticity could well exceed 5.88.

When we apply our elasticity of 5.69 to the base of \$14.8 billion, we find that imposition of the tax would cause that base to shrink by 14.2% to \$12.7 billion. FY 2003 revenue would fall to \$318 million. Because our elasticity is probably lower than the true elasticity, this probably underestimates the erosion of the sales tax base and overestimates the revenue that the state would collect once that erosion took place.

Step 3: Estimation of Collateral Damage

Imposition of a sales tax has effects beyond the erosion of taxed sales. In order to determine the effect of a sales tax on state tax revenues, it is necessary to consider how imposition of that tax could affect revenues from other sources and cause erosion of economic activity outside the taxed sectors.

A worker making \$40,000 per year can, absent any taxes, purchase \$40,000 worth of New Hampshire goods. With a sales tax of 2.5%, however, his earnings permit him to buy only \$39,024 worth of goods. The tax reduces the purchasing power of his earnings by almost \$1,000 and, to that extent, deters him from entering the New Hampshire labor force. The imposition of (or increase in)

⁷ A review of the literature can be found in New York State Department of Taxation and Finance, Office of Tax Policy Analysis, *The Effects of Tax Differentials on Cross Border Sales*, available from http://www.tax.state.ny.us/statistics/policy-special/clothing/clothing_effect_cross-border.htm.

⁸ We obtained this estimate by determining the erosion of New Hampshire sales that would take place if its retail-GSP ratio fell from 42% to 30%, the four-state average. Assuming that this erosion would take place under a 5% New Hampshire sales tax and that the entire tax base consists of retail sales, the elasticity would be — . Because we assume nonretail sales to comprise 20% of the base and because those sales are less sensitive to interstate differences in sales tax rates, we adjust this elasticity downward by computing —

⁹ Michael J. Walsh and Jonathan D. Jones, *More Evidence on the Border Tax Effect: The Case of West Virginia, 1979-84*, *National Tax Journal*, 41 (June 1988), 261-65.

a sales tax can, on this reasoning, be expected to reduce the number of workers who are willing to enter the labor force of the state imposing that tax.¹⁰

The Beacon Hill Institute (BHI) has developed a State Tax Analysis Modeling Program (STAMP) for determining the effects of state tax changes on employment and other economic indicators. BHI has applied STAMP to several states that impose sales taxes, including California, New York, Pennsylvania, Texas and Virginia.¹¹ On the average, we find that a one percentage-point increase in the sales tax in these states will cause a 1.85% fall in employment. Applied to 2.5% New Hampshire tax, this finding implies that the state would lose 32,992 jobs under the Normal Growth scenario and 32,444 under the Slow Growth scenario.

In order to determine the share of this job loss that can be attributed to shrinkage in the retail sector and in related (wholesale and transportation) sectors, we assume that retail employment decreases by 100% of the shrinkage in the sales tax base and that wholesale employment and transportation employment decrease, respectively, by 25% and 10% of the shrinkage in the sales tax base. This yields an estimate, under Normal Growth, of a loss of 22,117 jobs in these sectors, about two-thirds of the total.

There remains, then, the problem of determining collateral revenue losses. Because there will be job losses throughout the New Hampshire economy, not just in the taxed retail and nonretail sectors, there will be corresponding losses in state revenues derived from economic activities that take place outside these sectors. Here, though, we consider only revenues associated with items that strongly complement taxable purchases by out-of-state shoppers. These are motor fuels, tobacco, meals and alcoholic beverages.

We estimate that, under Normal Growth and absent a sales tax, New Hampshire will collect \$519 million in revenue from these sources in FY 2003. We further estimate that, because of the sensitivity of this revenue to the expected shrinkage in taxable retail sales, the applicable elasticity is 1.25 times the elasticity applicable to jobs. Thus collateral damage equals $1.25 \times .0462 \times \519 million or \$30 million. When this damage is taken into account, the revenue gain to the state shrinks to \$288 million.

The difference between the Step 1 revenue estimates and the Step 3 revenue estimates is about 22%. Additionally, Governor Sheehan's estimate of the net gain to the state from the proposed sales tax is also about 22% too high. In the light of what we know now about the slowing of the economy and about the applicable elasticities, her estimate probably exaggerates the true revenue gain by an even larger margin.

¹⁰ This is a consequence of the inefficiency effects of a sales tax. George R. Zodrow, *State Sales and Income Taxes: An Economic Analysis* (College Station, Texas: Texas A&M University Press, 1999), 13, explains how, in this connection, Sales and excise taxes on consumption commodities typically distort individual consumption decisions as well as the choice between labor and leisure.

¹¹ See <http://www.beaconhill.org> for further detail.