# Chainbridge's Approach to Modeling State Sales Tax Policy Changes

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**Chainbridge Software, LLC**
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## Introduction

With several states currently considering tax reform, accurately modeling the policy changes to ensure revenue targets are met is crucial and the sales tax in particular is looking to be a popular target for reform. The idea of eliminating the income tax in favor of an expanded sales tax has been put forward in more than one state while lowering or eliminating the sales tax on certain goods and services has been proposed in others. With so many policy initiatives always in play, policy makers need to be assured that the changes will produce the expected result on state tax revenues.

Accurately projecting the results for possible changes to tax policy is the modus operandi of tax modeling. Every state models policy changes and every approach provides varying degrees of success. The goal of every revenue estimator is to predict precisely as possible the net effect of a given tax policy change. It becomes clear that the most reliable and accurate modeling methodology should be employed to accomplish this goal. Of course we all labor in the real world where budgetary and political concerns need to be satisfied. To employ the most effective methodology may be fiscally unfeasible, so the nexus of efficacy and economics will always be the product. To be sure, the most accurate way to model the sales tax would be to have complete accounting on the full locus of transactions that occur within a state. To implement such a data collection program would currently be expensive for the state and onerous on businesses.[1] Given this reality, proxy data sources must be used to estimate sales taxes.

While most methodologies used to model the sales tax are easier on a state's budget than the methodologies used to model either individual or corporate income taxes, the sales tax remains a difficult tax to model effectively despite the fact that the sales tax law itself appears to be far less sophisticated than other types of tax laws[2]. The individual income tax especially at the federal level involves remarkably complicated tax policies, and to build a proper individual income tax database can require merging multiple data sources, and costly amounts of time. There's no question that to model the individual income tax as accurately as possible entails a lot of effort. However there is also fairly broad agreement on *how* to model the individual income tax effectively. This is not the case with the sales tax. Getting good information about detailed sales categories remains a challenge. Many states make use of econometric models which

[1] For example if retailers provided exacting receipts data to the state on every good purchased. As technology increases this type of accounting will likely be available.

[2] While some sales taxes are defined very specifically, there is nothing resembling the complexity of either the federal EIC or AMT in the sales tax.

can be very useful in providing economic forecasts but make a poor substitute for modeling specific tax policies. For example, how does one accurately model:

- A sales tax increase on candy purchased from vending machines?
- A sales tax increase on snacks purchased in movie theaters?
- Taxing services rendered to law firms?
- Eliminating the sales tax on heating oil?

Answering these questions usually involves beginning with accepted estimates and making some rather heroic assumptions along the way. Obviously it would be better if we had exact numbers regarding the sales of candy from vending machines in a particular state. Then we could easily look at the gross sales, examine the current tax, impose a policy change and voilà -- increased revenue accurately estimated. As mentioned above, at this point in time, the value gross sales from vending machines in a particular state is a number that is simply not available.

However -- there are publicly-available data sources that can be used to construct a state's economy accurately and provide answers to the types of questions posed above. At Chainbridge we have been using the following methodology for over ten years. This methodology has evolved over time and we continue to update it as we find better approaches to accurately modeling the sales tax base. In general, this method provides estimates of sales at very detailed economic categories, allowing revenue estimators to abandon 'heroic assumptions' in favor of sound economic theory.

Following are technical discussions of:

- Defining the sales tax,
- Building the sales tax base, and
- Applying the tax law

In addition to a conclusion, and a brief Appendix that provides some examples of the level of sales tax category detail that results from employing our approach.

**Defining the Sales Tax**

Few individuals outside of the realm of tax and economics are aware of the intricacy of the sales tax or even the definition of sales transactions. Sales transactions are effectively broken down into three broad categories:

- Business intermediate purchases,

- Business investment purchases, and
- Consumer purchases.

Business intermediate purchases are business purchases of goods and services used up in the creation of an end product or service. For example, lumber purchased by a furniture manufacturing company used to produce dining room tables or gasoline purchased by a charter fishing service constitute business intermediate purchases.

Business investment purchases represent business purchases of goods and services useable by the business; for example, purchasing office furniture, or purchasing telecommunications equipment. There is some debate as to what constitutes an investment 'good' but generally speaking it's often thought of as something that is in use for three or more years[3].

Consumer purchases represent purchases of a good or service by individuals; for example, if I personally buy lumber, a dining room table, gasoline, hire a charter boat, or hire an accountant to prepare my tax returns.

Delineating these types of purchases is essential to crafting good tax policy. Most states exempt manufacturing companies making intermediate purchases in an effort to encourage manufacturing. It is also crucial for revenue estimators to have good information on the economic picture regarding the types of purchases in order to produce accurate revenue estimates, especially as many states have extremely specific and detailed sales tax exemptions. For instance, in Maine a sales and use tax exemption is provided for sales of machinery and equipment for use by the purchaser directly and primarily in the generation of radio and television broadcast signals by broadcast stations regulated under 47 Code of Federal Regulations, Part 73.

At its most basic definition, the computation of the sales tax for a specific item sold can be defined as: tax base * tax rate * percentage exemption; or the dollar value of the sales transaction multiplied by the current sales tax rate multiplied by the percentage of the base that is taxable.

State and federal excise taxes are also levied on certain items such as tobacco products and gasoline. These taxes are levied according to the number of units sold (number of cigarettes or gallons of gasoline.) For example, under current law in Rhode Island every gallon of gasoline sold carries an additional levy of $0.33. This additional

[3] This is obviously an imperfect definition as many products that are clearly investment goods possess a shelf life shorter than three years.

levy amount is fed back into sales transaction base increasing the taxable base by $0.33 for every gallon sold.

**Building the Sales Tax Base**

To capture the numerous possible transactions that comprise the total sales base for a state economy, reliable data sources are needed. In some cases there are good data sources and in other cases there are simply the "best data sources available" which economists will readily affirm are unfortunately not always the same thing.

The types of good and reliable sales tax collections data that states generally collect are usually limited to total sales tax collections, individual excise tax collections, hotel and room tax collections, meals and beverages tax collections, and motor vehicles sales tax collections. So for sales taxes affecting other items, in many cases state revenue estimators are forced to use outside data sources to represent sales of specific items within their state's economy.

In our experience, the three organizations providing the best publicly-available data sources useful for constructing a model of a state's economy are the US Bureau of Economic Analysis (BEA), the US Bureau of the Census, and the US Department of Agriculture. The BEA remains the best source of economic data at the federal level and is used by the executive and legislative branches of the federal government as well as the Federal Reserve and the private business community. There's little dispute that the BEA is the best available data source for economic activity at the federal level, yet to be of use to a state there needs to be a way to determine what share of economic activity is attributable to the respective state.

In the interest of arriving at the best possible picture of a state's economy, we also substitute data from sources that may supersede the census for a given economic sector. It is to this end that we will use data collected by the US Department of Agriculture as they collect annual cash receipts by commodity at both the state and federal level. This Department of Agriculture data is used in lieu of the Census data for applicable agriculture categories to arrive at appropriate state levels of economic activity.

Following we provide discussions of:

- Building the business tax base matrices
- Building the personal consumption vector
- Applying the tax law

## Building the Business Tax Base Matrices

We begin by constructing the matrices that will sufficiently cover a state's economic activity with regard to all business transactions. These are the business intermediate purchases matrix and the business investment purchases matrix. The same five basic steps are employed to create these two matrices, including:

1. Obtain the most recent benchmark data that defines the matrix
2. Calculate growth rates to grow the benchmark year to the current year
3. Grow the benchmark matrix using the growth rates from step 2
4. Calculate ratios used to share the federal numbers down to the state level
5. Define the state's activity by applying the ratios from step 4 to the resulting table from step 3

In addition, there are a few steps specific to each matrix which are enumerated below.

**Building the Intermediate Purchases Matrix.** We begin with the benchmark data from the most recent benchmark year[4] entitled "Standard Make, Use and Direct Requirements Tables at the detailed level" (specifically, "IOUseDetail.txt.") The data in its native form exists in a matrix of 57,131 rows. This is the complete use matrix essentially "flattened." We construct a "square" (perfect) matrix out of this flat vector to enable better ease of use and comprehension. The resultant matrix is 430 rows by 430 columns wherein the rows represent the good or service being purchased and the columns represent the purchasing industry, providing the maximum amount of detail that is available from the BEA to model the purchase of business intermediate goods. It should be noted that additional breakouts are possible through further investigation. For example the good (and industry) "Petroleum Refineries" can be further divided into "Petroleum, Diesel, Jet Fuel, and Aviation Fuel"[5] by conducting additional research from supplementary data sources particular to the category. In this case the data source providing grounds for the above breakout is US Energy Information Administration.

Using the benchmark table, we now have a matrix representing the national consumption of business goods and services for intermediate purchases. Now the task is bring the benchmark year as far forward as we are able, to create our "base" year for generating forecasts. The BEA annually releases a table entitled "The Use of

[4] Currently 2002 is the most recent benchmark year although the 2007 benchmark table should be forthcoming by December of 2013.

[5] If the reader is interested in the difference between 'Jet Fuel' and 'Aviation Fuel', jet fuel is used by aircraft operating with turbine engines while aviation represents fuel used by aircraft operating piston engines.

Commodities by Industries after Redefinitions (Producers' Prices)". This matrix is 69 rows by 65 columns representing the use of all commodities by industries at the federal level. We obtain both the benchmark year and the most recent year available. By comparing the benchmark year to the current year we establish the growth rates necessary to "grow" our intermediate matrix to the desired base year. For example, the growth in the "Farming" industry purchasing "Utilities" will serve as our growth rate for growing "Oilseed Farming" purchasing from "Water, Sewage and other Systems" in the final intermediate business purchases matrix. Given the more general nature of the tables being used to produce growth rates compared to the more detailed intermediate business purchases matrix, the growth rates are appropriately mapped in a one to many relationship. The mapping of the growth rates to the appropriate cells is a rather tedious but necessary process. Fortunately this mapping will only need to be repeated with the advent of a new benchmark. Using these growth rates we can produce the most recent year of business intermediate purchases for all 184,900 business transactions modeled (number of cells in the 430 by 430 matrix).

Once the updated national-level business intermediate purchases matrix is determined, we need to "share" the national values down to the state level. The method that we employ to accomplish this goal is based upon a detailed analysis of *County Business Patterns* (CBP) from the US Bureau of the Census. The Census Bureau's website describes CBP as follows:

> "County Business Patterns (CBP) is an annual series that provides subnational economic data by industry. This series includes the number of establishments, employment during the week of March 12, first quarter payroll, and annual payroll. This data is useful for studying the economic activity of small areas; analyzing economic changes over time; and as a benchmark for other statistical series, surveys, and databases between economic censuses. Businesses use the data for analyzing market potential, measuring the effectiveness of sales and advertising programs, setting sales quotas, and developing budgets. Government agencies use the data for administration and planning.[6]"

Specifically, the annual payroll values from the CBPs will be used to calculate ratios attributable to the respective business transaction categories from the BEA. Another mapping process is required. North American Industry Classification System (NAICS) codes must be mapped to the corresponding BEA categories. Once again this process is tedious but is generally speaking a onetime investment.[7] Using this map, (a many to

[6] http://www.census.gov/econ/cbp/
[7] As new NAICS codes are added or redefined the NAICS to BEA map will need to be adjusted accordingly.

one relationship -- many NAICS codes to one BEA category) the annual payroll numbers for the respective NAICS are summed both for the national and the state series and then the appropriate wage ratio computed. For example by examining the NAICS code 2361 "Residential Building Construction" for the state of North Carolina[8] we might find an annual payroll of $683,731,000 as compared to $22,523,911,000 nationally. We can then compute a wage ratio of 3.04 percent. This number will correspond well to the BEA intermediate business purchase category "Residential permanent site single- and multi-family structures". So now we have our proxy that allows us to determine the state value for this purchasing industry. It is important to remember to substitute the Department of Agriculture ratios where applicable.

**Building the Investment Purchases Matrix.** To build the investment purchases matrix the same general pattern of the steps involved in developing the intermediate purchases matrix will is followed with the exception of the data sources used. Specifically the benchmark matrix used as our starting point is the capital flows benchmark. This matrix represents "Business Investment by Industry in the U.S. Economy[9]". To grow this table to our base year we once again return to the table we used to determine the intermediate growth rates "The Use of Commodities by Industries after Redefinitions (Producers' Prices)".

We compute our growth rates using the column "Private fixed investment." As described above with respect to the intermediate purchases matrix, we compare the benchmark year to the current year and calculate our growth rates. This process also requires another mapping that while remaining tedious is not quite as arduous as the mapping required for the intermediate as we will map the 68 growth rates only into 180 investment product rows.

Once our base year matrix has been produced some areas of concern need to be accounted for, for example adjusting for used automobiles and distributing value added services to the appropriate industries.

The capital flows table represents value added which in most cases also accurately represents the sales base but in the case of automobiles the value added will only capture new vehicles and ignore a substantial amount of economic activity from the used auto industry. To adjust for this we will need to account for used vehicles using one of the supplemental tables from the BEA - Table 7.2.4.B Price Indexes for Motor Vehicle Output – as well as the merchandise line sales from the Census Bureau.

[8] North Carolina was chosen randomly, Chainbridge currently holds no contract with the state of North Carolina and all data sources are publicly available.
[9] http://www.bea.gov/industry/capflow_data.htm

One final adjustment to be made to our investment matrix is to account for goods and services representing cost margins added to an external good or service. Given the nature of the matrix, the "Air Transportation" row represents the air transportation costs involved in the purchase of a good or service. To better account for the total cost associated with a particular good or service we need to distribute these rows across the goods and services within a purchasing industry. For example the product category "Wholesale Trade" might have a value 4,904 in the purchasing industry "Crop Production" in the investment matrix. This value is distributed pro rata across the purchasing industry "Crop Production."

Once these steps have been completed we share the investment matrix elements down to state levels following the same steps outlined for the intermediate purchases matrix above.

### Building the Personal Consumption Vector

The process for constructing a state sales base for personal consumption expenditures employs methods similar to those used to develop the business intermediate purchases and business investment purchases sales bases. The initial phase involves sharing national level consumption data down to the state level using state to national sales ratios. After the sales base has been produced, individual categories can be adjusted to match any specific data collected by the state.

The source of national level data is compiled by the Bureau of Economic Analysis (BEA) and can be found in the National Income and Product Account (NIPA) tables (Tables 2.4.5 and 2.4.5U)[10]. The underlying detail table provides 219 distinct categories organized as durable goods, nondurable goods and services. Data is collected on a quarterly basis allowing for no more than a one year lag in the data utilized.

[10] It is important to note that the BEA provides the following caution when using the underlying detail tables:

> "Cautionary note on the use of underlying detail -- The tables provided include detailed estimates of underlying NIPA series that appear regularly in the national income and product account (NIPA) tables published elsewhere on this Web site www.bea.gov and in the Survey of Current Business. The Bureau of Economic Analysis (BEA) does not include these detailed estimates in the published tables because their quality is significantly less than that of the higher level aggregates in which they are included. Compared to these aggregates, the more detailed estimates are more likely to be either based on judgmental trends, on trends in the higher level aggregate, or on less reliable source data."

While the trade-off for using the underlying detail results in less confidence in the base, it is better than the alternative of pulling a number out of thin air when the need for greater detail is required.

Sharing data down to the state level requires a defined relationship between the national level and state level consumption amounts. Fortunately, the Census Bureau conducts a five year survey of businesses which includes total sales by type of establishment and product at both the national and state level. Using this data source, it is then straightforward to produce ratios for sharing down the national level consumption values. Ratios are matched manually between the Census and NIPA categories by referencing NAICS codes and field descriptions. Once the ratios are applied to the national data a state personal consumption profile emerges.

While the categories supplied by the original NIPA table are the best available source for personal consumption data, it may be desirable to produce breakouts of some categories to acquire additional detail. Typically, the need for breakouts is the result of different tax rates applied based on the source of the purchase (e.g. purchases from vending machines) or by specific sub-product (e.g. tobacco sub-products include cigarettes, cigars and snuff) which are not available in the original NIPA structure. In these instances, imputations can often be made using available data supplied by other agencies or publications including: Merchandise Line Sales from the Census Bureau, the US Energy Information Administration (EIA), the Tax Burden on Tobacco[11] and the Beer Institute.

The final step in the process involves the use of state collection data to overwrite estimates computed from the BEA NIPA table. Often, states compile detailed monthly or annual collections of certain categories such as motor vehicle sales, excise tax categories or hotels and meals. The sales base can be computed from these revenue collections using price imputations, tax rates and exemption parameters. Data produced in this manner will provide a more accurate value for estimating future revenue collections where such data exist.

**Applying the Tax Law**

Once the sales base has been constructed we are ready to research and apply the applicable sales tax law. The law will define how much of the base is taxed and the tax rate that is applied. For business investment and business intermediate purchases, this step triggers yet another tedious action as the law for all purchasing industries and available products will need to be applied to these robust matrices. As mentioned above, thinking about this in terms of a perfect matrix is helpful, particularly at the point of use.

[11] The economic consulting firm Orzechowski and Walker is now producing The Tax Burden on Tobacco.

The personal consumption expenditures will need less work in terms of the number of parameter modifications yet still requires some finesse with regards to the application of exemption or percent-in-base assignments. For example, the category “Newspapers and Magazines” might be exempt from taxation unless the magazine is a quarterly or annual publication. The amount of the sales base taxed under this scenario would require the percent of the total base that is attributed to quarterly or annual publications. Sources of these percentages include third party sources or trends in national or regional data.

After the tax law has been applied, the resulting computation of total tax should roughly equate to tax collections for the base year of data. Since the model assumes 100 percent compliance, the revenue predicted by the model will be greater than actual collections[12].

## Conclusion

The above approach is the very best method available to confer revenue estimators the ability to model the sales tax by providing very detailed categories. Additional research into specific economic sectors can further define broader categories into even more detail. With the ever increasing advancement of technology, economic institutions will continue to iterate their data collecting and as economists we need to continue to take advantage of better data and improved techniques as they become available. While a statement like this may seem obvious and unnecessary, too often occupational torpor sets in and we fail to evolve. Although we believe this to be the best comprehensive method, we will work to remain observant of difficulties with this approach and how better data can supplement or advance an already useful methodology.

[12] We recommend researching the Minnesota Sales Tax Gap Study for further information on the tax gap. http://www.revenue.state.mn.us/research_stats/Pages/Sales-Tax-Gap-Study.aspx

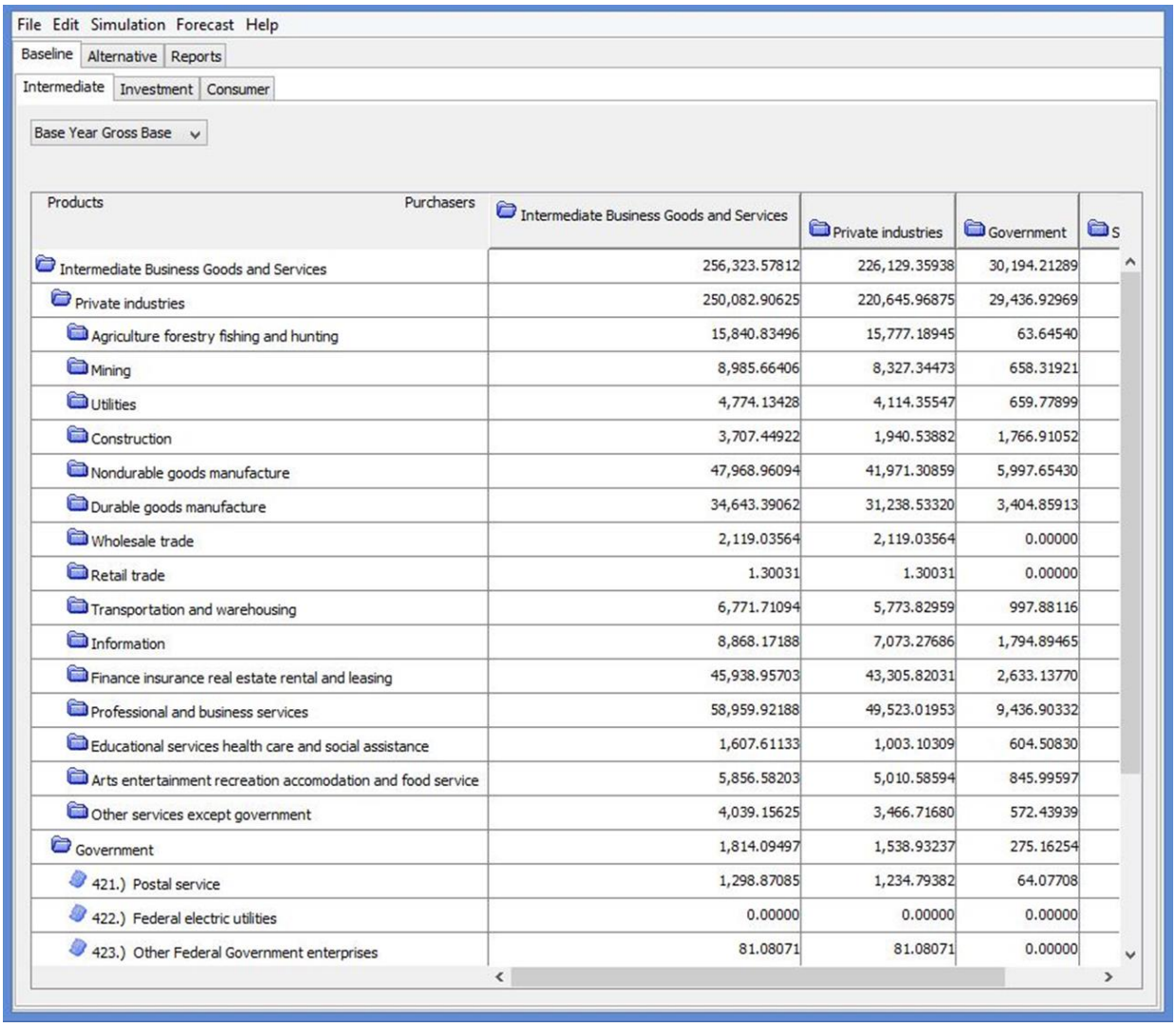
# Appendix

This Appendix provides examples of detailed sales tax categories for:

- Business intermediate purchases,
- Business investment purchases, and
- Personal consumption expenditures

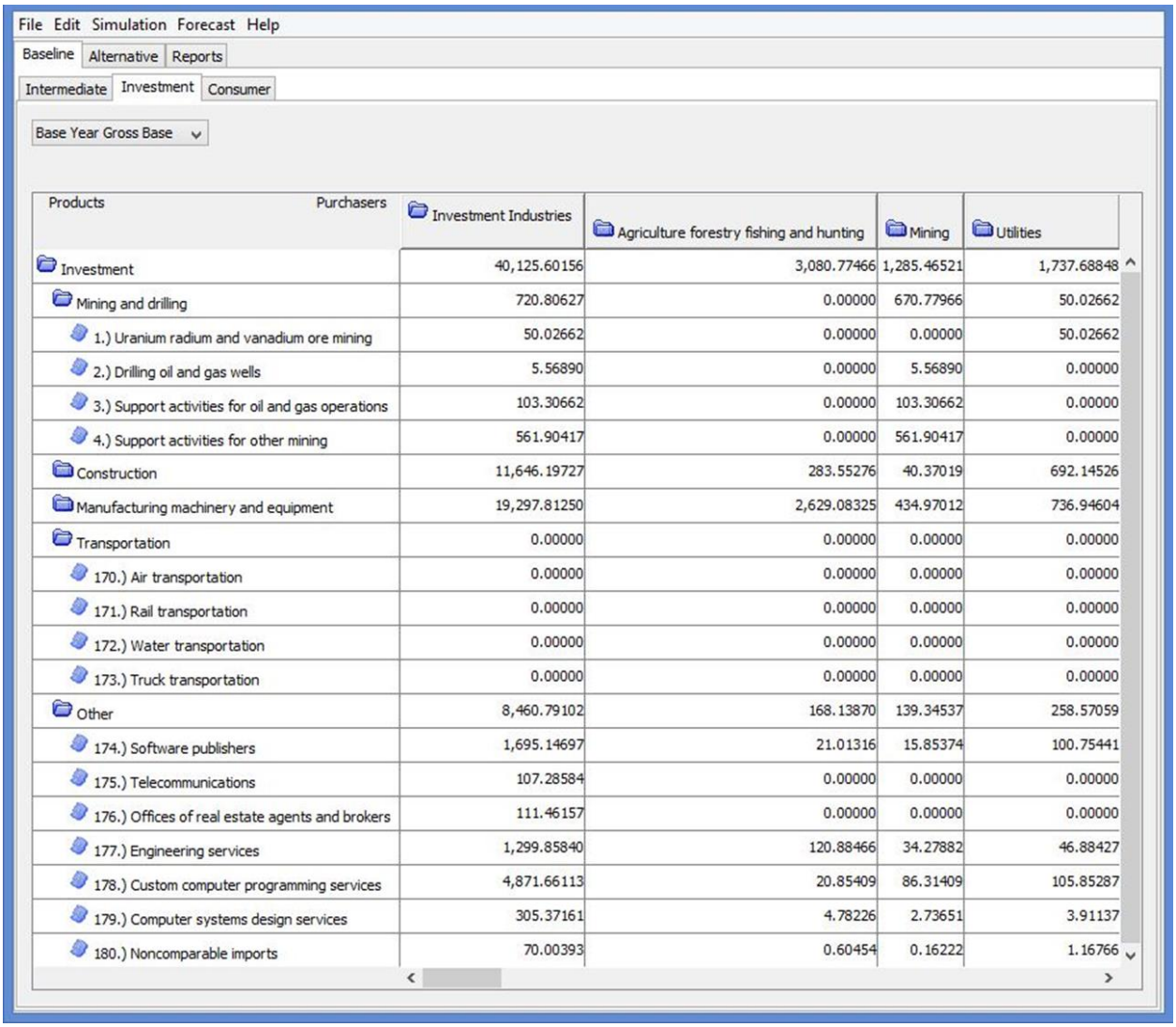
that are supported by our approach, along with an example Sales Tax Summary output table.

# Example Business Intermediate Purchases




| Products / Purchasers | Intermediate Business Goods and Services | Private industries | Government | S |
|---|---|---|---|---|
| Intermediate Business Goods and Services | 256,323.57812 | 226,129.35938 | 30,194.21289 | |
| Private industries | 250,082.90625 | 220,645.96875 | 29,436.92969 | |
| Agriculture forestry fishing and hunting | 15,840.83496 | 15,777.18945 | 63.64540 | |
| Mining | 8,985.66406 | 8,327.34473 | 658.31921 | |
| Utilities | 4,774.13428 | 4,114.35547 | 659.77899 | |
| Construction | 3,707.44922 | 1,940.53882 | 1,766.91052 | |
| Nondurable goods manufacture | 47,968.96094 | 41,971.30859 | 5,997.65430 | |
| Durable goods manufacture | 34,643.39062 | 31,238.53320 | 3,404.85913 | |
| Wholesale trade | 2,119.03564 | 2,119.03564 | 0.00000 | |
| Retail trade | 1.30031 | 1.30031 | 0.00000 | |
| Transportation and warehousing | 6,771.71094 | 5,773.82959 | 997.88116 | |
| Information | 8,868.17188 | 7,073.27686 | 1,794.89465 | |
| Finance insurance real estate rental and leasing | 45,938.95703 | 43,305.82031 | 2,633.13770 | |
| Professional and business services | 58,959.92188 | 49,523.01953 | 9,436.90332 | |
| Educational services health care and social assistance | 1,607.61133 | 1,003.10309 | 604.50830 | |
| Arts entertainment recreation accomodation and food service | 5,856.58203 | 5,010.58594 | 845.99597 | |
| Other services except government | 4,039.15625 | 3,466.71680 | 572.43939 | |
| Government | 1,814.09497 | 1,538.93237 | 275.16254 | |
| 421.) Postal service | 1,298.87085 | 1,234.79382 | 64.07708 | |
| 422.) Federal electric utilities | 0.00000 | 0.00000 | 0.00000 | |
| 423.) Other Federal Government enterprises | 81.08071 | 81.08071 | 0.00000 | |

# Example Business Investment Purchases



File Edit Simulation Forecast Help

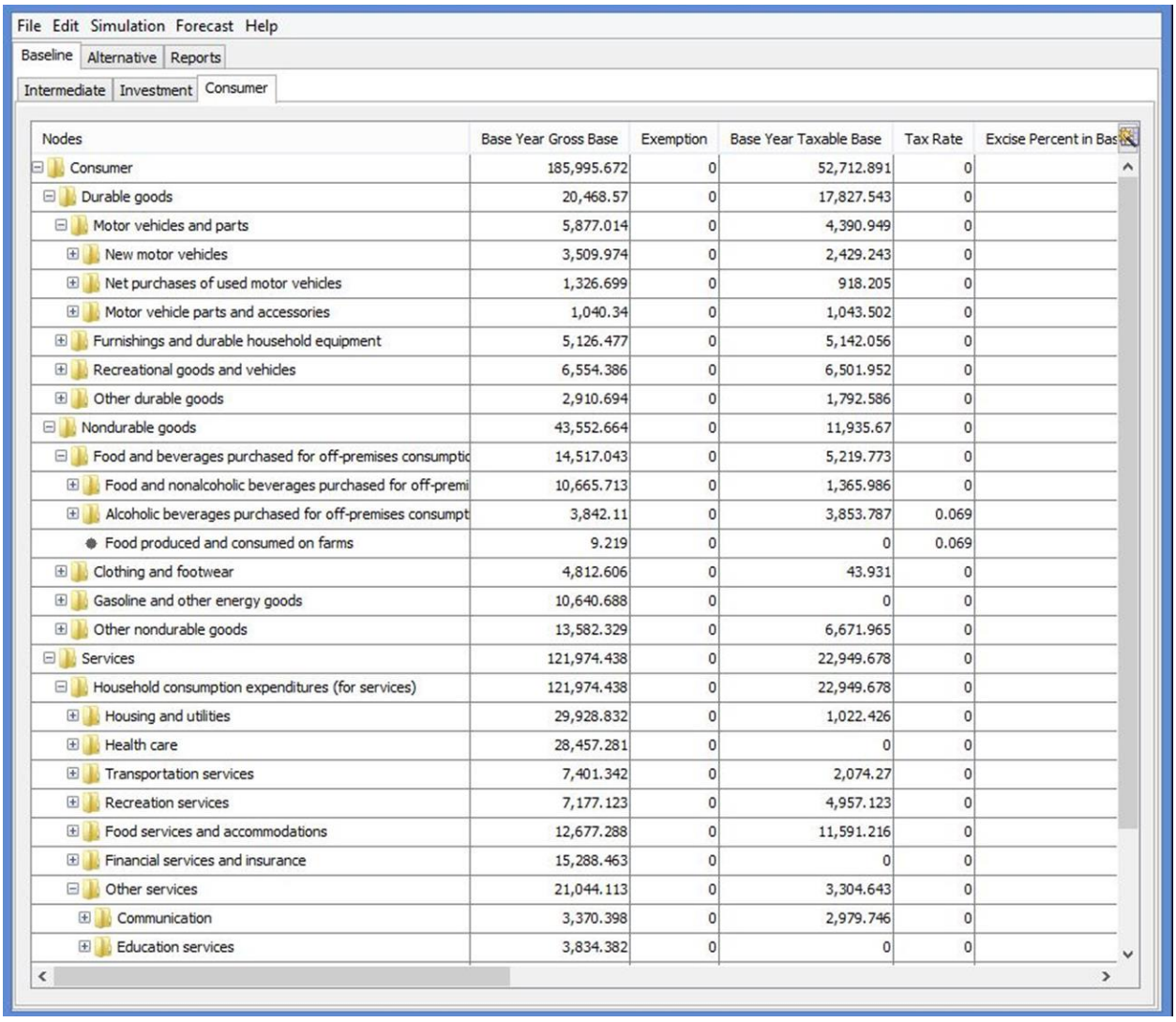
Baseline | Alternative | Reports

Intermediate | Investment | Consumer

Base Year Gross Base

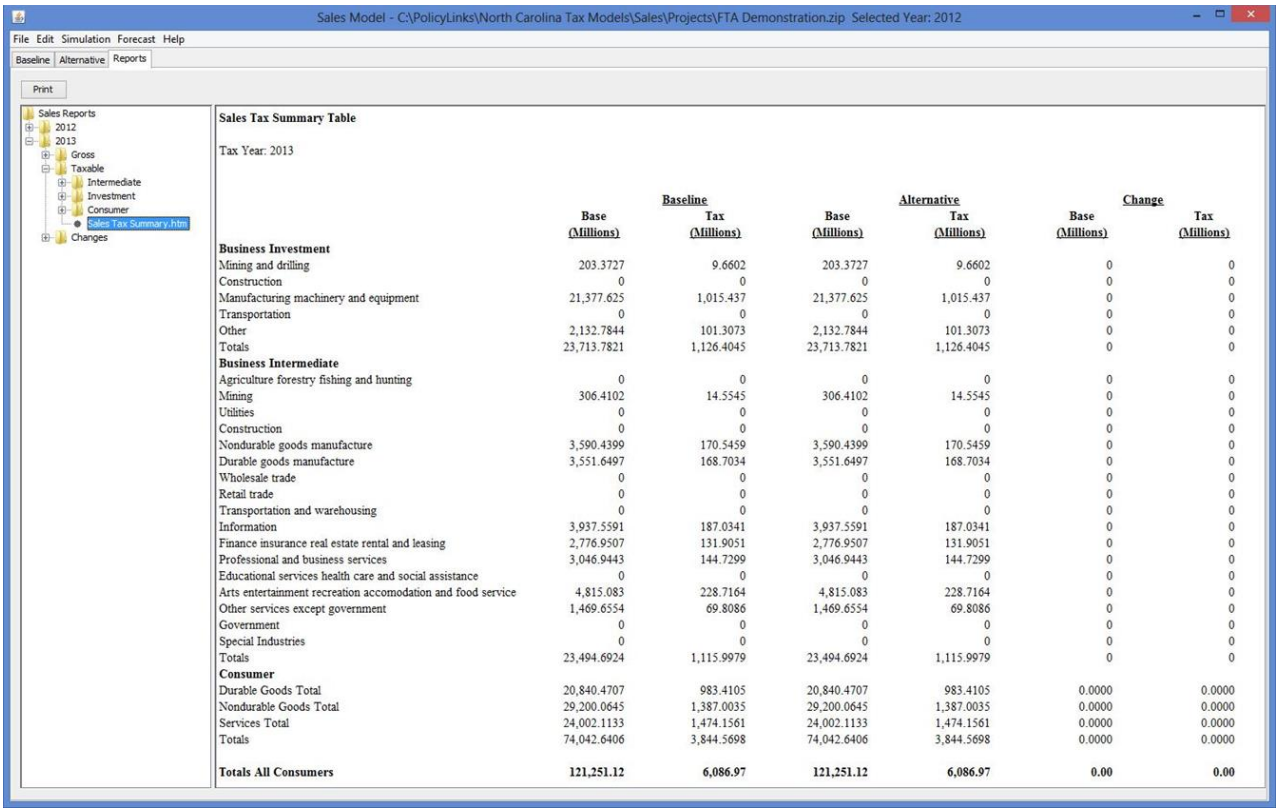
| Products / Purchasers | Investment Industries | Agriculture forestry fishing and hunting | Mining | Utilities |
|---|---|---|---|---|
| Investment | 40,125.60156 | 3,080.77466 | 1,285.46521 | 1,737.68848 |
| Mining and drilling | 720.80627 | 0.00000 | 670.77966 | 50.02662 |
| 1.) Uranium radium and vanadium ore mining | 50.02662 | 0.00000 | 0.00000 | 50.02662 |
| 2.) Drilling oil and gas wells | 5.56890 | 0.00000 | 5.56890 | 0.00000 |
| 3.) Support activities for oil and gas operations | 103.30662 | 0.00000 | 103.30662 | 0.00000 |
| 4.) Support activities for other mining | 561.90417 | 0.00000 | 561.90417 | 0.00000 |
| Construction | 11,646.19727 | 283.55276 | 40.37019 | 692.14526 |
| Manufacturing machinery and equipment | 19,297.81250 | 2,629.08325 | 434.97012 | 736.94604 |
| Transportation | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 170.) Air transportation | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 171.) Rail transportation | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 172.) Water transportation | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| 173.) Truck transportation | 0.00000 | 0.00000 | 0.00000 | 0.00000 |
| Other | 8,460.79102 | 168.13870 | 139.34537 | 258.57059 |
| 174.) Software publishers | 1,695.14697 | 21.01316 | 15.85374 | 100.75441 |
| 175.) Telecommunications | 107.28584 | 0.00000 | 0.00000 | 0.00000 |
| 176.) Offices of real estate agents and brokers | 111.46157 | 0.00000 | 0.00000 | 0.00000 |
| 177.) Engineering services | 1,299.85840 | 120.88466 | 34.27882 | 46.88427 |
| 178.) Custom computer programming services | 4,871.66113 | 20.85409 | 86.31409 | 105.85287 |
| 179.) Computer systems design services | 305.37161 | 4.78226 | 2.73651 | 3.91137 |
| 180.) Noncomparable imports | 70.00393 | 0.60454 | 0.16222 | 1.16766 |

# Example Personal Consumption Expenditures




| Nodes | Base Year Gross Base | Exemption | Base Year Taxable Base | Tax Rate | Excise Percent in Bas |
|---|---|---|---|---|---|
| Consumer | 185,995.672 | 0 | 52,712.891 | 0 | |
| Durable goods | 20,468.57 | 0 | 17,827.543 | 0 | |
| Motor vehicles and parts | 5,877.014 | 0 | 4,390.949 | 0 | |
| New motor vehicles | 3,509.974 | 0 | 2,429.243 | 0 | |
| Net purchases of used motor vehicles | 1,326.699 | 0 | 918.205 | 0 | |
| Motor vehicle parts and accessories | 1,040.34 | 0 | 1,043.502 | 0 | |
| Furnishings and durable household equipment | 5,126.477 | 0 | 5,142.056 | 0 | |
| Recreational goods and vehicles | 6,554.386 | 0 | 6,501.952 | 0 | |
| Other durable goods | 2,910.694 | 0 | 1,792.586 | 0 | |
| Nondurable goods | 43,552.664 | 0 | 11,935.67 | 0 | |
| Food and beverages purchased for off-premises consumptic | 14,517.043 | 0 | 5,219.773 | 0 | |
| Food and nonalcoholic beverages purchased for off-premi | 10,665.713 | 0 | 1,365.986 | 0 | |
| Alcoholic beverages purchased for off-premises consumpt | 3,842.11 | 0 | 3,853.787 | 0.069 | |
| Food produced and consumed on farms | 9.219 | 0 | 0 | 0.069 | |
| Clothing and footwear | 4,812.606 | 0 | 43.931 | 0 | |
| Gasoline and other energy goods | 10,640.688 | 0 | 0 | 0 | |
| Other nondurable goods | 13,582.329 | 0 | 6,671.965 | 0 | |
| Services | 121,974.438 | 0 | 22,949.678 | 0 | |
| Household consumption expenditures (for services) | 121,974.438 | 0 | 22,949.678 | 0 | |
| Housing and utilities | 29,928.832 | 0 | 1,022.426 | 0 | |
| Health care | 28,457.281 | 0 | 0 | 0 | |
| Transportation services | 7,401.342 | 0 | 2,074.27 | 0 | |
| Recreation services | 7,177.123 | 0 | 4,957.123 | 0 | |
| Food services and accommodations | 12,677.288 | 0 | 11,591.216 | 0 | |
| Financial services and insurance | 15,288.463 | 0 | 0 | 0 | |
| Other services | 21,044.113 | 0 | 3,304.643 | 0 | |
| Communication | 3,370.398 | 0 | 2,979.746 | 0 | |
| Education services | 3,834.382 | 0 | 0 | 0 | |

# Example Output Table – Sales Tax Summary




**Sales Tax Summary Table**

Tax Year: 2013

| | Baseline | | Alternative | | Change | |
|---|---|---|---|---|---|---|
| | Base (Millions) | Tax (Millions) | Base (Millions) | Tax (Millions) | Base (Millions) | Tax (Millions) |
| **Business Investment** | | | | | | |
| Mining and drilling | 203.3727 | 9.6602 | 203.3727 | 9.6602 | 0 | 0 |
| Construction | 0 | 0 | 0 | 0 | 0 | 0 |
| Manufacturing machinery and equipment | 21,377.625 | 1,015.437 | 21,377.625 | 1,015.437 | 0 | 0 |
| Transportation | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 2,132.7844 | 101.3073 | 2,132.7844 | 101.3073 | 0 | 0 |
| Totals | 23,713.7821 | 1,126.4045 | 23,713.7821 | 1,126.4045 | 0 | 0 |
| **Business Intermediate** | | | | | | |
| Agriculture forestry fishing and hunting | 0 | 0 | 0 | 0 | 0 | 0 |
| Mining | 306.4102 | 14.5545 | 306.4102 | 14.5545 | 0 | 0 |
| Utilities | 0 | 0 | 0 | 0 | 0 | 0 |
| Construction | 0 | 0 | 0 | 0 | 0 | 0 |
| Nondurable goods manufacture | 3,590.4399 | 170.5459 | 3,590.4399 | 170.5459 | 0 | 0 |
| Durable goods manufacture | 3,551.6497 | 168.7034 | 3,551.6497 | 168.7034 | 0 | 0 |
| Wholesale trade | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail trade | 0 | 0 | 0 | 0 | 0 | 0 |
| Transportation and warehousing | 0 | 0 | 0 | 0 | 0 | 0 |
| Information | 3,937.5591 | 187.0341 | 3,937.5591 | 187.0341 | 0 | 0 |
| Finance insurance real estate rental and leasing | 2,776.9507 | 131.9051 | 2,776.9507 | 131.9051 | 0 | 0 |
| Professional and business services | 3,046.9443 | 144.7299 | 3,046.9443 | 144.7299 | 0 | 0 |
| Educational services health care and social assistance | 0 | 0 | 0 | 0 | 0 | 0 |
| Arts entertainment recreation accomodation and food service | 4,815.083 | 228.7164 | 4,815.083 | 228.7164 | 0 | 0 |
| Other services except government | 1,469.6554 | 69.8086 | 1,469.6554 | 69.8086 | 0 | 0 |
| Government | 0 | 0 | 0 | 0 | 0 | 0 |
| Special Industries | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 23,494.6924 | 1,115.9979 | 23,494.6924 | 1,115.9979 | 0 | 0 |
| **Consumer** | | | | | | |
| Durable Goods Total | 20,840.4707 | 983.4105 | 20,840.4707 | 983.4105 | 0.0000 | 0.0000 |
| Nondurable Goods Total | 29,200.0645 | 1,387.0035 | 29,200.0645 | 1,387.0035 | 0.0000 | 0.0000 |
| Services Total | 24,002.1133 | 1,474.1561 | 24,002.1133 | 1,474.1561 | 0.0000 | 0.0000 |
| Totals | 74,042.6406 | 3,844.5698 | 74,042.6406 | 3,844.5698 | 0.0000 | 0.0000 |
| **Totals All Consumers** | **121,251.12** | **6,086.97** | **121,251.12** | **6,086.97** | **0.00** | **0.00** |