

Appendix B: Tax Model Methodology

Further Details on the TAIM^{eZ} Representative Firm Model

The TAIM^{eZ} model created by Profs. Alan Peters and Peter Fisher employs algorithms for the calculation of corporate taxes and incentives as they existed in an average city in each of the seven states. The “firms” in the model are actually a set of financial statements constructed to be representative of actual firms in each of eight manufacturing sectors. These representative firms are multi-locational and are assumed to be selling in national markets; sales to a given state are proportional to the state’s population, and a share of sales are to non-taxed locations (and therefore subject to throwback in some of the states), including exports.

The cash flow (profit on a cash basis) attributable to the new plant is calculated by running the model twice: first with a static firm, second with the same firm adding a new plant in the locality in question. The difference in cash flows represents the firm’s return on the investment in the new plant. The model computes the return on investment with and without taxes in the new plant state; the difference is how much taxes reduce the cash flow. The after-tax rates of return take into account the deductibility of local taxes on state income tax returns, and of state taxes on the firm’s federal income tax return.

The model excludes incentives not normally claimed by a new factory: e.g., historic preservation credits, credits for contributions to community development organizations, and similar credits. It also excludes two small payroll taxes: workers’ compensation and unemployment insurance.

The model includes the eight manufacturing sectors that are the focus of this study, but not the non-manufacturing sectors. This is because of gaps in available data. The model relies on sources such as corporate financial statements, data published by the Internal Revenue Service based on corporate tax returns, the Census of Manufactures, and data from state studies of manufacturing incentives. Some of these key statistics are not available for non-manufacturing firms, making it difficult to construct a theoretical firm that is equally representative. In particular, the fixed asset composition of the firm is very important — the relative proportions of manufacturing machinery, non-manufacturing machinery, furniture and fixtures, computers, and transportation equipment — because state practices vary substantially on whether these different kinds of property are subject to sales taxes and to property taxes. As well, the rates of these taxes vary greatly.

After-tax rates of return in our model vary substantially across firms. This is due to differences in the profitability of those sectors in 2007, and to differences in the investments in real and personal property that are needed for that sector and that

largely determine sales and property tax liability. Typical wages can also play a role, since some state incentive programs are keyed to firms that pay above a wage threshold. The employment to capital ratios also vary dramatically across sectors. This in turn can affect the relative importance of job-creation incentives (emphasized more in some states than others) versus capital incentives (such as investment tax credits). While some programs target small firms, others require a level of capital investment and/or job creation attainable by medium-sized or large firms. In our model, all firms construct a new plant employing 250 workers. Thus small firm incentives do not come into play, and minimum jobs thresholds are always met.

The Tax Systems as Modeled in the Seven States

PENNSYLVANIA

Corporate Net Income Tax

Top rate: 9.99%

Apportionment: 15% payroll, 15% property, 70% sales

General Credits

- Employment Incentive Credit

Percent of the first \$9,000 of wages of new hires who were welfare recipients:

30% year 1, 20% year 2, 10% year 3

Cannot exceed 90% of tax before credits

Unused credits carried forward 10 years

Assumption: 10% of new hires qualify as former welfare recipients

Capital Stock Tax

Base: Average of capitalized income (5-year average) and net worth

Rate: 0.089%

Note: The capital stock tax is being phased out; as of early 2009, the rate was scheduled to fall to .089% for tax year 2010.

Credits that apply to the combined Net Income and Capital Stock Tax

General Credits

- Job Creation Tax Credit

Firm must create at least 25 new jobs

Wage in 2008 must exceed 150% of federal minimum wage (1.5 X \$6.55 or \$9.83)

Credit: \$1,000 per qualifying job

Non-refundable; no carryforward

- Research and Development Credit

Credit of 10% of the increase in R&D spending over base period spending

Credit cannot exceed 50% of total current year R&D spending

Nonrefundable, but unused credits can be carried forward 15 years

Credit rises to 20% for a small business; none of the firms modeled qualifies

Geographically Targeted Credits

- Keystone Opportunity Zone (KOZ) Credits

Credit for the net income or capital stock tax attributable to operations in the KOZ. Corporation's PA net income tax is apportioned to the KOZ using equal-weighted 3-factor formula (Payroll in KOZ/payroll in PA, etc.). In our model, the new plant is the only PA operation of the corporation so credit offsets 100% of the net income tax.

City Business Privilege Tax

Base: Gross receipts within the city

Rate: Varies by locality.

Philadelphia: 0.1415% of gross receipts plus 6.45% of net income

Pittsburgh: 0.1% for 2009; phased out by 2010.

Other cities: Some up to 0.36%.

Modeled: rate of 0.1%

Keystone Opportunity Zone (KOZ) Credits

Credit for 100% of the business privilege tax attributable to operations in the KOZ

Property Tax

Base: Real property only

Effective statewide average rate on 100% of value: 2.5%

Sales Tax

Rate: 6.0% state plus 0.25% local for 6.25% total

Manufacturing machinery and equipment: Exempt

Other personal property: Taxed (but exempt in a KOZ)

Fuel and electricity used directly in manufacturing: Exempt

Other fuel and electricity: Taxed (but exempt in a KOZ)

OHIO

Commercial Activity Tax

Tax: \$150 on first \$1 million of gross receipts plus 0.26% of gross receipts in excess of \$1 million.

Note: The Ohio corporate income tax is being phased out and replaced with the Commercial Activity Tax. By 2010, the corporate income tax will no longer exist and the CAT will be fully phased in. This is the tax regime modeled.

General Credits

- Refundable Jobs Creation Credit

Firm must create at least 25 new jobs (all modeled firms qualify)

Wage in 2008 must exceed 150% of federal minimum wage (1.5 X \$6.55 or \$9.83)

Credit: 68% of the wages withheld from new employees each year for first 6 years.

Note: The terms are negotiable; these are the average terms awarded by the Ohio Department of Development according to the 2008 Job Creation Tax

Credit Annual Report published in May 2009.

- Research and Development Credit

Credit of 7% of the increase in R&D spending over base period spending

Nonrefundable, but unused credits can be carried forward 7 years

Local Corporate Income Tax

Base: State taxable income apportioned to the city based on sales to the city

Rate: 1.5% (the median rate)

Property Tax

Base: Real property only (Tangible Personal Property Tax phased out in 2008)

Statewide average effective rate on 100% of value: 1.8%

Sales Tax

Rate: 5.5% state plus 1.35% local for 6.85% total rate

Manufacturing machinery and equipment: Exempt

Other personal property¹: Exempt

Fuel and electricity used directly in manufacturing: Exempt

Other fuel and electricity: Exempt

NORTH CAROLINA

Corporate Net Income Tax

Top rate: 6.9%

Apportionment: 25% payroll, 25% property, 50% sales

Franchise Tax

Base: Largest of: (1) stockholders' equity apportioned to N.C., (2) book value of tangible property in NC, or (3) 55% of appraised value of N.C. property and investments.

Rate: 0.15%

Credits against the net income or franchise tax

Article 3J Credits

Eligibility: Firms in manufacturing, information technology or research and development that pay above the county wage standard and pay half of health insurance premiums. In our model we provide incentives only to firms in the appropriate sectors but assume those firms meet the wage and health insurance standards.

Geographic Targeting: Credits have lower thresholds and higher benefits in more economically distressed counties. NC counties are separated into 3 “tiers”: Tier 1 includes the 40 most distressed counties, Tier 3 includes the 20 most prosperous, and tier 2 consists of the 40 counties in the middle. The default in our model is a Tier 2 county; when we model the most generous spatially targeted incentives (such as enterprise zones in other states) we assume location in a tier 1 county and within an Urban Progress Zone or Agrarian Growth Zone.

- **Job Creation Tax Credit**

Firm must create at least 5-15 new jobs

Credit: \$2,000 per qualifying job in a tier 2 county; \$13,500 in a UPZ in a tier 1 county.

One-fourth of credit taken each year for 4 years; can be carried forward 5 years.

- **Investing in Business Property Credit**

Minimum investment of \$1 million in tangible personal property (machinery and equipment) in a tier 2 county; no minimum in a tier 1 county.

Credit: 5% of qualified investment in a tier 2 county, 7% in a tier 1 county.

One-fourth of credit taken each year for 4 years; can be carried forward 5 years.

- **Investment in Real Property Credit**

Must invest in \$10 million in real property (land and buildings) and create 200 jobs

Credit: 30% of investment in real property

One-seventh of credit taken each year for 7 years; can be carried forward 5 years.

- Research and Development Credit

Credit: 3.25% of total R&D spending in a tier 1 county; in other counties credit is 1.25% of the first \$50 million in R&D, 2.25% of the next \$150 million, and 3.25% of R&D spending in excess of \$200 m.

Unused credit can be carried forward 15 years

Since credit applies to total R&D rather than increases in R&D we assume that the base level R&D spending occurs every year.

All credits: Ceiling

All 4 Article 3J credits combined cannot exceed 50% of the firm's combined pre-credit net income and franchise tax liability in any given year. Our model assumes the firm takes the Article 3J credits first, including amounts carried forward, before taking any R&D credit since the latter can be carried forward 15 years.

Property Tax

Base: Real and personal property, excluding inventories

Statewide average effective rate on 100% of value: 1.075%

Sales Tax

Rate: 5.75% state plus 2.0% local, for 7.75% total (as of October 2009)

Manufacturing machinery and equipment: Subject only to 1% privilege tax

Other personal property: Taxed fully

Fuel and electricity used directly in manufacturing: 0.8% state rate only

Fuel and electricity for other purposes: 3.0% state rate only

NEW JERSEY

Corporate Net Income Tax

Top rate: 9.0% plus surcharge of 4% of net tax after credits

Apportionment: 25% payroll, 25% property, 50% sales

General Credits

- New Jobs Investment Tax Credit (NJITC)

Minimum new jobs: 50

Minimum wage: \$39,400 (2008)

Credit: 1% of investment in plant and equipment, taken over 5 years, and 50% of new plant property taxes

Ceiling: 50% of NJ income tax

Note: small firms (sales under \$11.6 million and payroll under \$5.8 million) qualify for 20% credit. None of the modeled firms fall under these thresholds.

- Manufacturing Equipment and Employment ITC (MITC)

Credit in first year: 2% of investment in manufacturing machinery and equipment, up to a limit of \$1 million.

Credit in years 2 and 3: 3% of investment in manufacturing machinery and equipment or \$1,000 per new employee, whichever is less.

Ceiling: 50% of NJ income tax after NJITC and UEZ

- Research and Development Credit (R&D)

Base: Increase in R&D expense over base year or 50% of current year total R&D, whichever is less

Credit: 10%

Ceiling: 50% of state tax less NJITC, MITC, and UEZ, with 7 year carryforward of unused credits

Geographically Targeted Credits

- Urban Enterprise Zone Employee Credit (UEZ)

Credit: \$1500 per new job filled by person unemployed at least 90 days or on public assistance; otherwise \$500 per job filled by person who was unemployed. Model assumes 30% of hires qualify for \$1500, another 10% for the \$500 credit.

Ceiling: 50% of NJ income tax, with unused credits carried forward

- Economic Recovery Tax Credit (ERTC)

Eligibility: Firms in a qualified municipality not receiving UEZ credit

Credit: \$2,500 in first year, \$1,250 second year, with unused credits carried forward 5 yrs

Property Tax

Base: Real property only

Statewide average effective rate on 100% of value: 1.8%

Sales Tax

Rate: 7.0%

Manufacturing machinery and equipment: Exempt

Other personal property: Taxed (but exempt in a UEZ)

Fuel and electricity used directly in manufacturing: Taxed (but exempt in a UEZ)

Other fuel and electricity: Taxed (but exempt in a UEZ)

NEW YORK

Note: The tax system modeled for New York state is meant to represent the average tax system outside of New York City, which has its own corporate income tax.

Firm pays whichever of the following four taxes is largest.

Corporate Net Income Tax

Top rate: 7.1%

Apportionment: 100% sales

Capital Base Tax

Base: Capital apportioned to NY

Rate: 0.15%

Maximum tax: \$350,000 for manufacturers

Minimum Taxable Income Base Tax

Base: Entire net income plus preference income

Rate: 1.5%

Fixed Dollar Minimum Tax

Tax: Up to \$5,000 (for firms with gross receipts exceeding \$25 million)

General Credits

- Regular Investment Tax Credit and Employment Incentive Credit

Base: New plant and equipment

First Year Credit: 5% of first \$350 million; 4% of property in excess of \$350 million.

Second and third year credit: From 1.5% to 2.5% of investment, depending on percentage increase in employment.

Ceiling: Income tax after geographically targeted credits

Carryforward: 15 years

Geographically Targeted Credits

- Empire Zone (EZ) Wage Tax Credit

Credit: \$3,000 per employee who meets targeting criteria; \$1500 for other employees. Model assumes 30% meet criteria for \$3,000 credit.

Taken each year for 5 years

Ceiling: 50% of NY income tax, with unlimited carryforward

- EZ Investment Tax Credit and Employment Incentive Credit

Base: New plant and equipment

First year credit: 10%

Credit in years 2, 3 and 4: 3% of investment

Ceiling: NY income tax after all other credits; unlimited carryforward.

- Qualified Empire Zone Enterprise (QEZE) Tax Reduction Credit

Credit for up to 100% of NY income taxes apportioned to the zone, each year for up to 10 years, with the credit then phased out in years 11-15.

- QEZE Credit for Real Property Taxes

Credit for up to 100% of property taxes on new investment in real property in an EZ, each year for up to 10 years, with the credit then phased out in years 11-15.

Ceiling is the greater of: (1) 25% of wages and benefits of new employees (up to maximum of \$40,000 per employee) or (2) 10% of the investment in real property in the EZ.

Credit is refundable.

Property Tax

Base: Real property only

Statewide average effective rate on 100% of value: 3.7%

Sales Tax

Rate: 4.0% state plus 4.25% local (the most common rate)

Manufacturing machinery and equipment: Exempt

Other personal property: Taxed (but EZ firms exempt from state portion)

Fuel and electricity used directly in manufacturing: Exempt

Other fuel and electricity: Taxed (but EZ firms exempt from state portion)

MARYLAND

Corporate Net Income Tax

Top rate: 8.25%

Apportionment: 25% payroll, 25% property, 50% sales

General Credits

- Research and Development Credit

Credit: 3% of R&D spending up to the base level; 10% of spending above the base

- Job Creation Tax Credit

Firm must create at least 50 jobs paying at least 150% of minimum wage

Credit: 2.5% of wages up to a maximum of \$1,000 per job

Credit taken over 2 years, with unused credits carried forward for 6 years

- Employment Opportunity Tax Credit

Eligible employees: TANF recipients (model assumes 10% qualify)

Credit in year one: 30% of first \$6,000 in wages

Credit in year 2: 20% of first \$6,000 in wages

Ceiling: MD income tax, with 5 year carryforward

Geographically Targeted Credits

- Enterprise Zone Employee Credit

Standard Credit: \$1,000 per new employee, one year only

Credit for disadvantaged employees: \$3,000 year 1, \$2,000 year 2, \$1,000 year 3; model assumes 30% qualify as disadvantaged employees.

Ceiling: MD income tax, with unused credits carried forward 5 years

Credit increases in a “Focus Area” to \$1500 standard, and to \$4,500, \$3,000 and \$1,500 for disadvantaged workers.

- Job Creation Tax Credit

Credit increases to 5% of wages up to \$1,500 per job in a revitalization area.

- One Maryland Economic Development Tax Credit

For facility investment that exceeds \$500,000 in a distressed county and for start-up costs associated with that investment

Jobs must pay at least 150% of minimum wage

Maximum project costs eligible for credit: \$5 million

Maximum start-up costs eligible: \$500,000, with ceiling of \$10,000 per employee

Credit: 100% of eligible project costs and start-up costs

Ceiling: MD tax liability attributable to the project, with unused credits carried forward up to 14 years.

Refundable portion: In years 6 through 15, if jobs pay at least 250% of minimum wage, unused project cost credits are then refundable, as are unused start-up cost credits up to the amount of MD income tax withheld from qualified employees.

Property Tax

Base: Real and personal property

Statewide average effective rate on 100% of value:

Real property: 1.3%

Inventories: 0.75%

Manufacturing machinery and equipment: 0.87%

Other personal property: 3.0%

Sales Tax

Rate: 6.0% state

Manufacturing machinery and equipment: Exempt

Other personal property: Taxed fully

Fuel and electricity used directly in manufacturing: Exempt

Other fuel and electricity: Taxed

WEST VIRGINIA

Corporate Net Income Tax

Top rate: 8.5%

Apportionment: 25% payroll, 25% property, 50% sales

Franchise Tax

Base: Stockholders' Equity

Rate: 0.41%

General Credits

- Research and Development Credit

Credit is greater of 3% of total R&D expense, or 10% of increase in R&D expense over base year.

- Economic Opportunity Tax Credit

Base: New plant and equipment (equipment with a class life less than 8 years at a reduced percentage)

Credit: 20% of investment (up to 30% for firms creating over 280 jobs); one-tenth of this amount taken each year for 10 years

Ceiling: 100% of franchise or income tax attributable to the new plant (80% if the jobs pay less than \$32,723) with unused credits carried forward 12 years.

- Economic Opportunity Tax Credit for High Tech Industries

Eligible firms in our model: NAICS codes 3341 and 3344

Minimum median compensation: \$45,000 (2008)

Ceiling: 100% of WV franchise or income tax after all other credits.

- Manufacturing Investment Tax Credit

Base: New plant and equipment (equipment with a class life less than 8 years at a reduced percentage)

Credit: 5% of investment; one-tenth of this amount taken each year for 10 years

Ceiling: 60% of franchise or income tax, or 100% of the franchise or income tax remaining after other credits, whichever is less. No carryforward.

- Inventory Property Tax Credit

Credit for up to 100% of the local property tax paid on inventories, applied to income and franchise taxes.

Ceiling: Income or franchise tax due after all other credits. No carryforward.

Property Tax

Base: Real and personal property, including inventories

Statewide average effective rate on 100% of value: 1.7%

Sales Tax

Rate: 6.0% state

Manufacturing machinery and equipment: Exempt

Other personal property: Taxed fully

Fuel and electricity used directly in manufacturing: Exempt

Other fuel and electricity: Exempt

NOTES

1 “Other personal property” includes furniture and fixtures, computers, non-manufacturing machinery, and motor vehicles. It does not include inventories.