A Simulation of Business Taxes in New York City and Other Locations

Final Technical Report

Prepared for the Citizens Budget Commission

June 2, 2007

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Summary of results

This report describes the results of a model that simulates major state and local taxes on businesses in New York City and 8 additional locations. It also simulates taxes in a fictitious "federal tax only" location where firms are subject to the federal corporate income tax but not to state and local taxes, to isolate the role of these taxes.

The locations examined are:

- New York City
- A location in the Metropolitan Transportation Authority region (Westchester County)
- An upstate New York location (Albany County)
- California (Los Angeles)
- Connecticut (Hartford)
- Florida (Miami-Dade)
- Massachusetts (Boston)
- New Jersey (Newark)
- Texas (Houston)

The model is designed to examine business taxes taking into account important complexities:

- Multiple taxes – state and local corporate income taxes, sales taxes on business purchases, property taxes, unemployment insurance taxes, and the federal corporate income tax
- Interactions among taxes – such as deductibility of state and local taxes against the federal corporate income tax
- The dynamic nature of taxes - taking into account features that can change over time, such as depreciation deductions and investment tax credits

Simple comparisons such as top tax rates, or tax revenue as a percentage of the economy in a single year, or analysis of a single tax, do not take these complexities into account. To account for important features of the tax system, the model examines the impact of multiple taxes – state and local corporate income taxes, sales taxes, property taxes, unemployment insurance taxes, and the federal corporate income tax – over a 60-year period following a 10 percent business expansion in each of the possible locations. It then computes the after-tax rate of return for the expansion in each location, and computes effective tax rates (the percentage reduction in the rate of return).

The key conclusions are:

- Combined federal, state, and local taxes reduce the rate of return on new business investment significantly – about 36-50 percent, depending on location and industry
- Most of this is due to federal tax – typically 34-36 percentage points. State and local taxes account for the remainder
- Differences across locations often are relatively small. In most cases the after-tax rate of return in the highest-tax jurisdiction is about 0.9 to 1.5 percentage points lower

than rate of return in the lowest-tax jurisdiction. (While seemingly small, over many years the cumulative impact of differences of this magnitude can be substantial.)

- New York City had the highest or second-highest state-local taxes in most industries examined, under most scenarios examined.

The tables on the following pages show the main results from the analysis for 2006, and for changes between 1994 and 2006. A series of appendix tables provide detailed results for both years.

The model was also used to simulate the key elements of the corporate tax changes adopted by New York State with the 2007-08 state budget. Among other things, those changes will reduce the top state corporate tax rate from 7.5 percent to 7.1 percent, provide a 6.5 percent rate for manufacturers (effective in 2008), and accelerate the adoption of a single-receipts factor for apportioning income to New York. These changes will reduce overall effective tax rates throughout the state, including New York City. For the representative firms included in the model, the changes would reduce the average combined federal-state-local effective tax rate in New York City from 42.1 percent (as shown in the tables below for 2006) to 40.9 percent, with manufacturing firms generally doing somewhat better than other firms. In most cases, the change to the apportionment formula generally would have a larger impact than the rate change. The changes would be significant enough to move New York City from the number 1 ranking to the number 2 ranking in several industries, although it would retain its overall ranking as the highest-tax location.

Figure 1

After-tax internal rate of return (%) for expansion in different locations, 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	15.0	13.9	14.1	13.7	13.9	14.0	13.5	14.4	14.4	13.7
Printing & publishing	15.3	14.2	14.2	13.9	14.2	14.3	13.8	14.7	14.6	14.0
Chemicals & allied products	14.9	14.0	14.3	13.8	14.0	14.0	13.7	14.5	14.4	13.9
Machinery, except electric	15.2	14.2	14.5	14.2	14.2	14.5	14.0	14.8	14.7	14.0
Electronic machinery	15.1	14.3	14.6	14.3	14.2	14.4	14.0	14.7	14.7	14.3
Professional & scientific equipment	14.2	13.2	13.5	13.2	13.2	13.4	12.9	13.6	13.6	13.0
Apparel & other textile products	14.9	14.0	14.4	14.1	13.9	13.9	13.7	14.4	14.4	13.8
Retail trade	14.4	13.4	12.8	13.2	13.0	12.7	12.1	13.1	13.1	12.7
Securities, commodity contracts, investments	14.0	13.3	13.8	13.4	13.2	13.2	12.5	13.3	13.4	13.8
Real estate	12.6	11.6	10.8	11.3	10.9	10.9	9.9	11.2	11.1	11.4
Professional and technical services, except advertising	13.1	12.1	11.2	11.8	11.9	11.5	11.0	11.9	11.9	11.7
Average	14.4	13.5	13.5	13.3	13.3	13.3	12.8	13.7	13.7	13.3

Figure 2

Effective federal-state-local tax rates (%) for expansion in different locations, 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	34.0	38.7	38.1	39.8	38.8	38.3	40.5	36.5	36.8	39.9
Printing & publishing	33.7	38.6	38.4	39.8	38.4	38.1	40.0	36.3	36.5	39.2
Chemicals & allied products	34.1	38.2	37.0	39.3	38.4	38.3	39.7	36.1	36.3	38.8
Machinery, except electric	33.9	38.1	37.0	38.3	38.1	37.1	39.2	35.8	35.9	38.9
Electronic machinery	34.2	38.0	36.4	37.9	38.3	37.3	39.3	35.9	36.0	38.0
Professional & scientific equipment	34.1	38.8	37.3	38.8	38.7	37.9	40.2	36.8	36.9	39.5
Apparel & other textile products	34.3	38.2	36.7	38.1	38.9	38.8	39.8	36.5	36.6	39.2
Retail trade	35.7	40.1	43.0	40.9	42.1	43.4	46.2	41.4	41.5	43.4
Securities, commodity contracts, investments	35.4	38.5	36.3	37.8	39.0	39.0	42.3	38.3	38.0	36.3
Real estate	36.5	41.6	45.5	43.3	45.2	45.3	50.4	43.4	44.2	42.7
Professional and technical services, except advertising	35.2	40.2	44.4	41.8	41.3	43.0	45.6	41.2	41.2	42.3
Average	34.7	39.0	39.1	39.6	39.7	39.7	42.1	38.0	38.2	39.8

Figure 3

Effective tax rate rank (1=highest rate), 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	5	7	3	4	6	1	9	8	2
Printing & publishing	4	6	2	5	7	1	9	8	3
Chemicals & allied products	6	7	2	4	5	1	9	8	3
Machinery, except electric	5	7	3	4	6	1	9	8	2
Electronic machinery	3	7	5	2	6	1	9	8	4
Professional & scientific equipment	4	7	3	5	6	1	9	8	2
Apparel & other textile products	5	7	6	3	4	1	9	8	2
Retail trade	9	4	8	5	2	1	7	6	2
Securities, commodity contracts, investments	4	9	7	3	2	1	5	6	8
Real estate	9	2	7	4	3	1	6	5	8
Professional and technical services, except advertising	9	2	5	6	3	1	7	8	4
Average	7	6	5	3	4	1	9	8	2

Figure 4

Effective tax rate rank (1=highest rate), 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	7	2	3	5	6	1	8	9	4
Printing & publishing	7	2	3	5	6	1	8	9	4
Chemicals & allied products	7	2	3	4	6	1	8	9	5
Machinery, except electric	7	2	3	5	6	1	8	9	4
Electronic machinery	6	2	4	3	4	1	8	9	7
Professional & scientific equipment	6	2	4	5	7	1	8	9	3
Apparel & other textile products	6	2	7	4	3	1	8	9	5
Retail trade	9	3	8	7	2	1	4	6	5
Securities, commodity contracts, investments	7	2	8	6	3	1	4	5	9
Real estate	9	5	7	3	2	1	4	6	8
Professional and technical services, except advertising	9	2	7	8	3	1	4	5	6
Average	9	2	5	4	3	1	6	8	7

Figure 5

Effective federal-state-local tax rates (%) for expansion in different locations, Change 1994 to 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	(5.2)	(4.5)	(8.0)	(5.1)	(5.3)	(5.5)	(6.7)	(6.5)	(5.8)	(4.5)
Printing & publishing	(5.2)	(4.4)	(7.8)	(5.1)	(5.2)	(5.5)	(6.8)	(6.4)	(5.8)	(4.5)
Chemicals & allied products	(5.1)	(4.7)	(8.2)	(4.9)	(5.1)	(4.9)	(6.9)	(6.4)	(5.9)	(4.5)
Machinery, except electric	(5.1)	(4.6)	(8.1)	(5.1)	(5.1)	(5.7)	(6.9)	(6.3)	(6.0)	(4.5)
Electronic machinery	(5.1)	(4.8)	(8.3)	(5.0)	(5.0)	(5.6)	(7.0)	(6.4)	(6.0)	(4.6)
Professional & scientific equipment	(5.1)	(4.7)	(8.1)	(4.9)	(5.0)	(5.5)	(6.9)	(6.2)	(5.9)	(4.5)
Apparel & other textile products	(5.1)	(4.8)	(8.0)	(4.9)	(4.9)	(5.1)	(7.0)	(6.4)	(6.0)	(4.5)
Retail trade	(4.1)	(3.8)	(3.7)	(3.7)	(3.9)	(4.2)	(4.6)	(5.2)	(4.7)	(3.2)
Securities, commodity contracts, investments	(4.0)	(3.9)	(7.6)	(3.8)	(3.8)	(4.7)	(4.9)	(5.2)	(5.1)	(3.9)
Real estate	(4.1)	(3.7)	(3.6)	(3.8)	(4.5)	(4.9)	(4.0)	(5.8)	(4.2)	(3.4)
Professional and technical services, except advertising	(4.0)	(3.7)	(3.2)	(3.7)	(3.7)	(4.0)	(4.6)	(4.9)	(4.8)	(3.3)
Average	(4.7)	(4.3)	(6.8)	(4.6)	(4.7)	(5.0)	(6.0)	(6.0)	(5.5)	(4.1)

Notes regarding results

Some of the results from the tables above and the appendix tables may be surprising. Here are the main explanations for several notable observations.

New Jersey's relatively low taxes (ranked 5, 6, or 7 in several industries) may be surprising. The main reason for this is New Jersey's relatively low property tax on business property – the base is narrow, as is New York's, only applying to land and structures, and the effective rate is lower than in New York City and most other locations. (By contrast, New Jersey's property taxes on residences are much higher than those in other states.)

Upstate New York's low taxes also may be surprising, given New York's reputation as a high-tax state. This is mostly the result of the state's significant investment tax credit, which keeps taxes on new business investment by manufacturers relatively low.

Why are MTA taxes lower than upstate taxes for several industries? Depending on the asset composition of a firm, lower property taxes in the MTA location (Westchester county-average property taxes are lower than those in Albany county) plus a lower sales tax rate can more than offset the higher corporate income taxes in the MTA region. This could vary considerably depending on the locations chosen – sales taxes in the cities of Westchester county are higher than those in many upstate areas, but outside the cities these taxes are lower. Property taxes can vary considerably within counties, too. Finally, the higher corporate taxes in the MTA region may not play as large a role on new business investment by manufacturers as might be expected – the MTA surcharge is imposed on the state corporate income tax, after credits, and if the state investment tax credit is available it can be many years before the MTA corporate income tax rises.

Why did Texas's relative position worsen between 1994 and 2006? Property taxes in Houston increased slightly, and other taxes stayed about the same, for a small net increase in taxes – compared with declines in most other locations examined.

Earlier runs of the model – not presented here - did not allow manufacturers and financial services firms in Connecticut in 2006 to apportion income using a single receipts factor, and instead used the more-generally applicable 3-factor formula with receipts double-weighted. Since the expansions in this model are all export-oriented this had a large impact on results – without single-weighting of receipts, overall taxes on businesses in Connecticut were often quite high because of Connecticut's relatively high property taxes on business property, which were nearly twice the still-high property taxes in New York City. This reflected the broad base of the Connecticut property tax, which includes most equipment and motor vehicles, which are not taxed in New York or most other locations. However, once the single receipts factor was allowed for Connecticut, the lower corporate tax more than offset higher property taxes and made Connecticut a relatively low-tax location. This raises an important caveat: the structure of an individual firm (e.g., the extent to which it is export-oriented) and industry-specific provisions (e.g., single receipts factor for specific industries) can have a significant impact on results.

Conclusions

The main conclusions from this analysis are:

- Federal, state, and local taxes on businesses impose a substantial effective tax rate on business expansion, ranging from about 36 percent to 50 percent in 2006.
- The vast majority of this is driven by the federal corporation income tax. The variation across potential expansion sites is much less - often only a few percentage points - but this may still be large enough to have an important influence on investment decisions.
- Taxes in New York City were the highest in all industries in 2006 under the assumptions presented in this report, and were highest or second-highest under virtually all scenarios examined. By contrast, taxes in other New York locations often were lowest or nearly lowest among the locations compared. The state investment tax credit is the main reason for this result.
- New York City's relative tax rates improved slightly between 1994 and 2006, but not by enough to change its overall ranking. In both years taxes were highest in New York in every industry examined.
- Taxes in all the evaluated locations fell between 1994 and 2006, reflecting a drop in the federal corporate income tax rate, and in some cases additional state and local tax reductions.
- The tax changes adopted in the 2007-08 state budget would lower taxes for all of the representative firms in the model, in some cases by enough to improve New York City's ranking by one position, but it would retain its overall number one ranking. (Note that some provisions in the state budget could increase taxes on certain firms with complex corporate structures, but those changes will not affect not modeled here.)

While this analysis includes the largest taxes imposed in New York City, it does leave several taxes out that, if included, would be likely to make New York City look worse. In particular, the commercial rent tax (for properties in locations subject to the tax), the real property transfer tax, and the mortgage recording tax are not included. The other locations studied either do not have these taxes, or have much lower counterparts.

In addition, this analysis does not take into account the "pass through effect" of taxes that could make the prices of business inputs more expensive in New York City than elsewhere. For example, city taxes on utilities place upward pressure on energy prices in the City, but these price effects are not considered in the model. Finally, New York City imposes taxes on unincorporated businesses that are often much higher in the City than elsewhere, and they are not incorporated in the analysis.

This analysis applies to "plain vanilla" business corporations. It assumes that the tax law can be applied with reasonable consistency to their financial data as estimated for purposes of this project. Firms that engage in aggressive tax planning often have ways to reduce tax liabilities far below the amounts that are estimated in the model. This may not affect all locations the same way – corporations may be more likely to engage in aggressive tax planning in high-tax locations such as New York City, where they stakes are high, than they might be in lower-tax locations.

In any event, the rate-of-return model developed for this project suggests that major taxes on business expansions in New York City are much higher than those imposed in the other locations analyzed. If the model were extended to include other taxes, the differential would be likely to be greater still. This analysis cannot answer the question, of course, of whether taxes are too high, or whether the benefits from New York City services and the New York City business environment more than compensate for its higher taxes.

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Appendix: Detailed simulation model results

The tables below present summary results from the simulation model for 2006 and 1994, and analyze changes between 1994 and 2006.

2006 results: After tax rate of return

Figure 6

After-tax internal rate of return (%) for expansion in different locations, 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region
Food and kindred products	15.0	13.9	14.1	13.7	13.9	14.0	13.5	14.4	14.4
Printing & publishing	15.3	14.2	14.2	13.9	14.2	14.3	13.8	14.7	14.6
Chemicals & allied products	14.9	14.0	14.3	13.8	14.0	14.0	13.7	14.5	14.4
Machinery, except electric	15.2	14.2	14.5	14.2	14.2	14.5	14.0	14.8	14.7
Electronic machinery	15.1	14.3	14.6	14.3	14.2	14.4	14.0	14.7	14.7
Professional & scientific equipment	14.2	13.2	13.5	13.2	13.2	13.4	12.9	13.6	13.6
Apparel & other textile products	14.9	14.0	14.4	14.1	13.9	13.9	13.7	14.4	14.4
Retail trade	14.4	13.4	12.8	13.2	13.0	12.7	12.1	13.1	13.1
Securities, commodity contracts, investments	14.0	13.3	13.8	13.4	13.2	13.2	12.5	13.3	13.4
Real estate	12.6	11.6	10.8	11.3	10.9	10.9	9.9	11.2	11.1
Professional and technical services, except advertising	13.1	12.1	11.2	11.8	11.9	11.5	11.0	11.9	11.9
Average	14.4	13.5	13.5	13.3	13.3	13.3	12.8	13.7	13.7

Figure 7

"Federal tax only" after-tax return minus rate elsewhere, 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	1.1	0.9	1.3	1.1	1.0	1.5	0.6	0.6	1.3
Printing & publishing	1.1	1.1	1.4	1.1	1.0	1.5	0.6	0.6	1.3
Chemicals & allied products	0.9	0.7	1.2	1.0	0.9	1.3	0.5	0.5	1.1
Machinery, except electric	0.9	0.7	1.0	0.9	0.7	1.2	0.4	0.4	1.1
Electronic machinery	0.9	0.5	0.8	0.9	0.7	1.2	0.4	0.4	0.9
Professional & scientific equipment	1.0	0.7	1.0	1.0	0.8	1.3	0.6	0.6	1.2
Apparel & other textile products	0.9	0.5	0.9	1.1	1.0	1.3	0.5	0.5	1.1
Retail trade	1.0	1.6	1.2	1.4	1.7	2.4	1.3	1.3	1.7
Securities, commodity contracts, investments	0.7	0.2	0.5	0.8	0.8	1.5	0.6	0.6	0.2
Real estate	1.0	1.8	1.4	1.7	1.7	2.8	1.4	1.5	1.2
Professional and technical services, except advertising	1.0	1.9	1.4	1.2	1.6	2.1	1.2	1.2	1.4
Average	1.0	1.0	1.1	1.1	1.1	1.6	0.7	0.8	1.1

Figure 8

After-tax internal rate of return minus NYC rate, 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	1.5	0.4	0.6	0.2	0.4	0.5	0.9	0.8	0.1
Printing & publishing	1.5	0.3	0.4	0.0	0.4	0.4	0.9	0.8	0.2
Chemicals & allied products	1.3	0.3	0.6	0.1	0.3	0.3	0.8	0.8	0.2
Machinery, except electric	1.2	0.3	0.5	0.2	0.3	0.5	0.8	0.8	0.1
Electronic machinery	1.2	0.3	0.7	0.3	0.2	0.5	0.8	0.8	0.3
Professional & scientific equipment	1.3	0.3	0.6	0.3	0.3	0.5	0.8	0.7	0.2
Apparel & other textile products	1.3	0.4	0.7	0.4	0.2	0.2	0.8	0.7	0.1
Retail trade	2.4	1.4	0.7	1.2	0.9	0.6	1.1	1.1	0.6
Securities, commodity contracts, investments	1.5	0.8	1.3	1.0	0.7	0.7	0.9	0.9	1.3
Real estate	2.8	1.8	1.0	1.4	1.1	1.0	1.4	1.2	1.5
Professional and technical services, except advertising	2.1	1.1	0.3	0.8	0.9	0.5	0.9	0.9	0.7
Average	1.6	0.7	0.7	0.5	0.5	0.5	0.9	0.9	0.5

Figure 9

Rank of after-tax internal rate of return (1=worst), 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	5	7	3	4	6	1	9	8	2
Printing & publishing	4	6	2	5	7	1	9	8	3
Chemicals & allied products	5	7	2	4	5	1	9	8	3
Machinery, except electric	4	7	3	4	6	1	9	8	2
Electronic machinery	3	7	5	2	6	1	9	8	4
Professional & scientific equipment	3	7	3	5	6	1	9	8	2
Apparel & other textile products	5	7	6	3	4	1	9	8	2
Retail trade	9	4	8	5	2	1	7	6	2
Securities, commodity contracts, investments	4	8	7	2	2	1	5	6	8
Real estate	9	2	7	4	3	1	6	5	8
Professional and technical services, except advertising	9	2	5	6	3	1	7	7	4
Average	6	6	4	3	5	1	9	8	2

2006 results: Effective tax rates

Figure 10

Effective federal-state-local tax rates (%) for expansion in different locations, 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	34.0	38.7	38.1	39.8	38.8	38.3	40.5	36.5	36.8	39.9
Printing & publishing	33.7	38.6	38.4	39.8	38.4	38.1	40.0	36.3	36.5	39.2
Chemicals & allied products	34.1	38.2	37.0	39.3	38.4	38.3	39.7	36.1	36.3	38.8
Machinery, except electric	33.9	38.1	37.0	38.3	38.1	37.1	39.2	35.8	35.9	38.9
Electronic machinery	34.2	38.0	36.4	37.9	38.3	37.3	39.3	35.9	36.0	38.0
Professional & scientific equipment	34.1	38.8	37.3	38.8	38.7	37.9	40.2	36.8	36.9	39.5
Apparel & other textile products	34.3	38.2	36.7	38.1	38.9	38.8	39.8	36.5	36.6	39.2
Retail trade	35.7	40.1	43.0	40.9	42.1	43.4	46.2	41.4	41.5	43.4
Securities, commodity contracts, investments	35.4	38.5	36.3	37.8	39.0	39.0	42.3	38.3	38.0	36.3
Real estate	36.5	41.6	45.5	43.3	45.2	45.3	50.4	43.4	44.2	42.7
Professional and technical services, except advertising	35.2	40.2	44.4	41.8	41.3	43.0	45.6	41.2	41.2	42.3
Average	34.7	39.0	39.1	39.6	39.7	39.7	42.1	38.0	38.2	39.8

Figure 11

Effective tax rate minus rate in "federal tax only" jurisdiction, 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	4.6	4.1	5.8	4.8	4.3	6.5	2.5	2.8	5.9
Printing & publishing	4.9	4.7	6.2	4.7	4.4	6.4	2.6	2.9	5.6
Chemicals & allied products	4.1	2.9	5.2	4.3	4.1	5.6	2.0	2.2	4.7
Machinery, except electric	4.1	3.1	4.4	4.2	3.2	5.3	1.9	2.0	5.0
Electronic machinery	3.8	2.2	3.7	4.1	3.1	5.1	1.7	1.8	3.8
Professional & scientific equipment	4.7	3.2	4.7	4.6	3.8	6.1	2.6	2.8	5.4
Apparel & other textile products	3.9	2.4	3.8	4.6	4.5	5.6	2.3	2.3	4.9
Retail trade	4.4	7.3	5.2	6.4	7.6	10.5	5.7	5.8	7.6
Securities, commodity contracts, investments	3.2	0.9	2.5	3.6	3.6	6.9	2.9	2.6	0.9
Real estate	5.1	8.9	6.8	8.6	8.7	13.9	6.9	7.7	6.2
Professional and technical services, except advertising	5.0	9.2	6.7	6.1	7.8	10.4	6.1	6.0	7.1
Average	4.4	4.4	5.0	5.1	5.0	7.5	3.4	3.5	5.2

Figure 12

NYC effective tax rate minus rate elsewhere, 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	6.5	1.9	2.4	0.7	1.7	2.2	4.0	3.7	0.6
Printing & publishing	6.4	1.4	1.7	0.2	1.6	1.9	3.8	3.5	0.8
Chemicals & allied products	5.6	1.5	2.7	0.4	1.3	1.5	3.6	3.5	0.9
Machinery, except electric	5.3	1.2	2.2	0.9	1.2	2.2	3.4	3.3	0.4
Electronic machinery	5.1	1.3	3.0	1.4	1.1	2.1	3.4	3.3	1.4
Professional & scientific equipment	6.1	1.4	2.9	1.4	1.5	2.3	3.5	3.3	0.7
Apparel & other textile products	5.6	1.6	3.2	1.7	0.9	1.0	3.3	3.3	0.6
Retail trade	10.5	6.1	3.2	5.3	4.1	2.9	4.8	4.7	2.9
Securities, commodity contracts, investments	6.9	3.8	6.1	4.5	3.3	3.3	4.0	4.3	6.0
Real estate	13.9	8.8	5.0	7.1	5.3	5.2	7.0	6.2	7.7
Professional and technical services, except advertising	10.4	5.4	1.2	3.8	4.3	2.6	4.4	4.4	3.3
Average	7.5	3.1	3.0	2.5	2.4	2.5	4.1	4.0	2.3

Figure 13

Effective tax rate rank (1=highest rate), 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	5	7	3	4	6	1	9	8	2
Printing & publishing	4	6	2	5	7	1	9	8	3
Chemicals & allied products	6	7	2	4	5	1	9	8	3
Machinery, except electric	5	7	3	4	6	1	9	8	2
Electronic machinery	3	7	5	2	6	1	9	8	4
Professional & scientific equipment	4	7	3	5	6	1	9	8	2
Apparel & other textile products	5	7	6	3	4	1	9	8	2
Retail trade	9	4	8	5	2	1	7	6	2
Securities, commodity contracts, investments	4	9	7	3	2	1	5	6	8
Real estate	9	2	7	4	3	1	6	5	8
Professional and technical services, except advertising	9	2	5	6	3	1	7	8	4
Average	7	6	5	3	4	1	9	8	2

1994 results: After tax rate of return

Figure 14

After-tax internal rate of return (%) for expansion in different locations, 1994

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	13.8	12.9	12.3	12.5	12.7	12.8	12.0	13.0	13.0	12.7
Printing & publishing	14.1	13.1	12.4	12.7	13.0	13.0	12.3	13.2	13.3	13.0
Chemicals & allied products	13.8	12.9	12.4	12.6	12.8	12.9	12.1	13.0	13.1	12.8
Machinery, except electric	14.0	13.2	12.6	13.0	13.1	13.2	12.4	13.3	13.4	13.0
Electronic machinery	14.0	13.2	12.7	13.1	13.0	13.1	12.4	13.3	13.3	13.2
Professional & scientific equipment	13.1	12.2	11.8	12.1	12.1	12.2	11.4	12.3	12.3	12.1
Apparel & other textile products	13.8	12.9	12.6	13.0	12.8	12.8	12.1	13.0	13.1	12.8
Retail trade	13.5	12.6	11.9	12.4	12.1	11.8	11.0	12.0	12.1	12.0
Securities, commodity contracts, investments	13.1	12.4	12.1	12.6	12.4	12.2	11.4	12.2	12.3	12.9
Real estate	11.8	10.9	10.1	10.5	10.0	9.9	9.1	10.1	10.3	10.7
Professional and technical services, except advertising	12.3	11.3	10.6	11.0	11.1	10.7	10.1	10.9	10.9	11.0
Average	13.4	12.5	12.0	12.3	12.3	12.2	11.5	12.4	12.5	12.4

Figure 15

"Federal tax only" after-tax return minus rate elsewhere, 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	0.9	1.6	1.3	1.1	1.0	1.8	0.9	0.8	1.2
Printing & publishing	0.9	1.7	1.4	1.1	1.1	1.8	0.9	0.8	1.1
Chemicals & allied products	0.8	1.4	1.1	1.0	0.9	1.7	0.7	0.7	0.9
Machinery, except electric	0.8	1.4	1.0	0.9	0.8	1.6	0.7	0.6	1.0
Electronic machinery	0.8	1.2	0.8	0.9	0.8	1.6	0.7	0.6	0.8
Professional & scientific equipment	0.9	1.3	1.0	1.0	0.9	1.7	0.8	0.8	1.0
Apparel & other textile products	0.8	1.2	0.8	1.0	1.0	1.7	0.8	0.7	1.0
Retail trade	0.9	1.6	1.1	1.4	1.7	2.5	1.5	1.4	1.5
Securities, commodity contracts, investments	0.7	1.0	0.5	0.7	0.9	1.7	0.9	0.8	0.2
Real estate	0.9	1.7	1.3	1.8	1.9	2.8	1.7	1.5	1.1
Professional and technical services, except advertising	1.0	1.7	1.3	1.2	1.6	2.2	1.4	1.4	1.3
Average	0.9	1.4	1.1	1.1	1.2	1.9	1.0	0.9	1.0

Figure 16

After-tax internal rate of return minus NYC rate, 1994

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	1.8	0.9	0.3	0.5	0.7	0.8	1.0	1.1	0.7
Printing & publishing	1.8	0.9	0.2	0.4	0.7	0.8	1.0	1.0	0.7
Chemicals & allied products	1.7	0.8	0.3	0.5	0.7	0.8	0.9	1.0	0.7
Machinery, except electric	1.6	0.8	0.2	0.6	0.7	0.8	0.9	1.0	0.6
Electronic machinery	1.6	0.8	0.4	0.8	0.7	0.8	0.9	1.0	0.9
Professional & scientific equipment	1.7	0.8	0.4	0.7	0.7	0.8	0.9	0.9	0.7
Apparel & other textile products	1.7	0.9	0.5	0.9	0.7	0.7	0.9	1.0	0.7
Retail trade	2.5	1.5	0.9	1.4	1.1	0.7	0.9	1.0	1.0
Securities, commodity contracts, investments	1.7	1.0	0.7	1.2	0.9	0.8	0.8	0.9	1.5
Real estate	2.8	1.8	1.1	1.5	1.0	0.9	1.0	1.2	1.7
Professional and technical services, except advertising	2.2	1.3	0.5	0.9	1.1	0.7	0.8	0.9	0.9
Average	1.9	1.1	0.5	0.9	0.8	0.8	0.9	1.0	0.9

Figure 17

Rank of after-tax internal rate of return (1=worst), 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	7	2	3	5	6	1	8	9	4
Printing & publishing	7	2	3	5	6	1	8	9	4
Chemicals & allied products	7	2	3	4	6	1	8	9	5
Machinery, except electric	7	2	3	5	6	1	8	9	3
Electronic machinery	6	2	4	3	5	1	8	9	7
Professional & scientific equipment	6	2	4	4	6	1	8	9	3
Apparel & other textile products	6	2	7	4	3	1	8	9	5
Retail trade	9	3	8	7	2	1	4	6	5
Securities, commodity contracts, investments	7	2	8	6	3	1	4	5	9
Real estate	9	5	7	3	2	1	4	6	8
Professional and technical services, except advertising	9	2	7	8	3	1	4	5	6
Average	9	2	5	4	3	1	7	8	6

1994 results: Effective tax rates

Figure 18

Effective federal-state-local tax rates (%) for expansion in different locations, 1994

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	39.2	43.2	46.1	44.8	44.1	43.8	47.3	43.0	42.6	44.4
Printing & publishing	38.9	43.0	46.1	45.0	43.6	43.5	46.8	42.6	42.4	43.8
Chemicals & allied products	39.3	42.9	45.2	44.2	43.5	43.2	46.6	42.5	42.2	43.3
Machinery, except electric	39.1	42.7	45.2	43.4	43.2	42.7	46.1	42.1	41.9	43.4
Electronic machinery	39.3	42.8	44.7	42.9	43.3	42.9	46.3	42.3	42.0	42.6
Professional & scientific equipment	39.3	43.5	45.4	43.7	43.7	43.5	47.1	43.0	42.8	44.0
Apparel & other textile products	39.4	43.1	44.7	43.0	43.8	43.9	46.8	42.9	42.6	43.7
Retail trade	39.8	43.9	46.7	44.7	45.9	47.6	50.8	46.6	46.2	46.5
Securities, commodity contracts, investments	39.4	42.5	43.8	41.7	42.8	43.7	47.2	43.5	43.0	40.2
Real estate	40.6	45.3	49.1	47.1	49.7	50.2	54.5	49.2	48.4	46.1
Professional and technical services, except advertising	39.2	43.9	47.5	45.5	45.0	47.0	50.2	46.1	46.0	45.6
Average	39.4	43.3	45.9	44.2	44.4	44.7	48.1	44.0	43.6	44.0

Figure 19

Effective tax rate minus rate in "federal tax only" jurisdiction, 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	4.0	6.9	5.6	4.9	4.6	8.0	3.8	3.4	5.1
Printing & publishing	4.1	7.3	6.1	4.7	4.7	7.9	3.7	3.5	4.9
Chemicals & allied products	3.7	6.0	4.9	4.3	3.9	7.3	3.2	2.9	4.1
Machinery, except electric	3.6	6.1	4.3	4.1	3.7	7.1	3.1	2.8	4.3
Electronic machinery	3.5	5.4	3.6	4.0	3.6	7.0	3.0	2.7	3.3
Professional & scientific equipment	4.3	6.2	4.5	4.5	4.2	7.8	3.8	3.6	4.8
Apparel & other textile products	3.7	5.3	3.6	4.5	4.5	7.4	3.5	3.2	4.3
Retail trade	4.2	7.0	4.9	6.2	7.8	11.0	6.8	6.4	6.8
Securities, commodity contracts, investments	3.1	4.5	2.3	3.4	4.3	7.8	4.1	3.7	0.8
Real estate	4.6	8.4	6.5	9.0	9.6	13.8	8.6	7.8	5.5
Professional and technical services, except advertising	4.7	8.4	6.3	5.8	7.8	11.0	6.9	6.8	6.4
Average	4.0	6.5	4.8	5.0	5.3	8.8	4.6	4.3	4.6

Figure 20

NYC effective tax rate minus rate elsewhere, 1994

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	8.0	4.1	1.2	2.4	3.2	3.5	4.3	4.6	2.9
Printing & publishing	7.9	3.8	0.7	1.8	3.2	3.3	4.2	4.5	3.0
Chemicals & allied products	7.3	3.7	1.4	2.4	3.0	3.4	4.1	4.4	3.3
Machinery, except electric	7.1	3.5	1.0	2.7	3.0	3.4	4.0	4.3	2.8
Electronic machinery	7.0	3.5	1.6	3.4	3.0	3.4	4.0	4.3	3.7
Professional & scientific equipment	7.8	3.6	1.7	3.4	3.4	3.6	4.1	4.3	3.1
Apparel & other textile products	7.4	3.7	2.1	3.8	3.0	2.9	3.9	4.2	3.1
Retail trade	11.0	6.8	4.1	6.1	4.8	3.2	4.2	4.6	4.2
Securities, commodity contracts, investments	7.8	4.7	3.3	5.5	4.4	3.5	3.7	4.2	7.0
Real estate	13.8	9.2	5.4	7.4	4.8	4.3	5.2	6.1	8.4
Professional and technical services, except advertising	11.0	6.3	2.7	4.7	5.2	3.3	4.1	4.2	4.6
Average	8.8	4.8	2.3	4.0	3.7	3.4	4.2	4.5	4.2

Figure 21

Effective tax rate rank (1=highest rate), 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	7	2	3	5	6	1	8	9	4
Printing & publishing	7	2	3	5	6	1	8	9	4
Chemicals & allied products	7	2	3	4	6	1	8	9	5
Machinery, except electric	7	2	3	5	6	1	8	9	4
Electronic machinery	6	2	4	3	4	1	8	9	7
Professional & scientific equipment	6	2	4	5	7	1	8	9	3
Apparel & other textile products	6	2	7	4	3	1	8	9	5
Retail trade	9	3	8	7	2	1	4	6	5
Securities, commodity contracts, investments	7	2	8	6	3	1	4	5	9
Real estate	9	5	7	3	2	1	4	6	8
Professional and technical services, except advertising	9	2	7	8	3	1	4	5	6
Average	9	2	5	4	3	1	6	8	7

Change from 1994 to 2006

Figure 22

Effective federal-state-local tax rates (%) for expansion in different locations, Change 1994 to 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	(5.2)	(4.5)	(8.0)	(5.1)	(5.3)	(5.5)	(6.7)	(6.5)	(5.8)	(4.5)
Printing & publishing	(5.2)	(4.4)	(7.8)	(5.1)	(5.2)	(5.5)	(6.8)	(6.4)	(5.8)	(4.5)
Chemicals & allied products	(5.1)	(4.7)	(8.2)	(4.9)	(5.1)	(4.9)	(6.9)	(6.4)	(5.9)	(4.5)
Machinery, except electric	(5.1)	(4.6)	(8.1)	(5.1)	(5.1)	(5.7)	(6.9)	(6.3)	(6.0)	(4.5)
Electronic machinery	(5.1)	(4.8)	(8.3)	(5.0)	(5.0)	(5.6)	(7.0)	(6.4)	(6.0)	(4.6)
Professional & scientific equipment	(5.1)	(4.7)	(8.1)	(4.9)	(5.0)	(5.5)	(6.9)	(6.2)	(5.9)	(4.5)
Apparel & other textile products	(5.1)	(4.8)	(8.0)	(4.9)	(4.9)	(5.1)	(7.0)	(6.4)	(6.0)	(4.5)
Retail trade	(4.1)	(3.8)	(3.7)	(3.7)	(3.9)	(4.2)	(4.6)	(5.2)	(4.7)	(3.2)
Securities, commodity contracts, investments	(4.0)	(3.9)	(7.6)	(3.8)	(3.8)	(4.7)	(4.9)	(5.2)	(5.1)	(3.9)
Real estate	(4.1)	(3.7)	(3.6)	(3.8)	(4.5)	(4.9)	(4.0)	(5.8)	(4.2)	(3.4)
Professional and technical services, except advertising	(4.0)	(3.7)	(3.2)	(3.7)	(3.7)	(4.0)	(4.6)	(4.9)	(4.8)	(3.3)
Average	(4.7)	(4.3)	(6.8)	(4.6)	(4.7)	(5.0)	(6.0)	(6.0)	(5.5)	(4.1)

Figure 23

Effective tax rate minus rate in "federal tax only" jurisdiction, Change 1994 to 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	0.7	(2.8)	0.2	(0.1)	(0.3)	(1.5)	(1.2)	(0.6)	0.8
Printing & publishing	0.8	(2.5)	0.1	0.0	(0.2)	(1.6)	(1.1)	(0.6)	0.7
Chemicals & allied products	0.5	(3.0)	0.2	0.0	0.2	(1.7)	(1.2)	(0.8)	0.6
Machinery, except electric	0.5	(3.0)	0.1	0.1	(0.5)	(1.8)	(1.2)	(0.8)	0.6
Electronic machinery	0.3	(3.2)	0.1	0.1	(0.5)	(1.9)	(1.3)	(0.9)	0.5
Professional & scientific equipment	0.4	(3.0)	0.2	0.1	(0.4)	(1.8)	(1.1)	(0.8)	0.6
Apparel & other textile products	0.3	(2.9)	0.2	0.2	0.0	(1.9)	(1.3)	(0.9)	0.6
Retail trade	0.2	0.3	0.3	0.2	(0.1)	(0.5)	(1.1)	(0.6)	0.9
Securities, commodity contracts, investments	0.1	(3.6)	0.1	0.2	(0.7)	(0.9)	(1.2)	(1.1)	0.1
Real estate	0.5	0.5	0.3	(0.4)	(0.8)	0.1	(1.7)	(0.0)	0.7
Professional and technical services, except advertising	0.3	0.8	0.3	0.3	0.0	(0.6)	(0.9)	(0.8)	0.7
Average	0.4	(2.0)	0.2	0.1	(0.3)	(1.3)	(1.2)	(0.7)	0.6

Figure 24

NYC effective tax rate minus rate elsewhere, Change 1994 to 2006

	Federal tax only (no state or local)	California	Connecticut	Florida	Massachusetts	New Jersey	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	(1.5)	(2.2)	1.2	(1.7)	(1.5)	(1.3)	(0.3)	(1.0)	(2.3)
Printing & publishing	(1.6)	(2.4)	1.0	(1.6)	(1.6)	(1.3)	(0.4)	(0.9)	(2.2)
Chemicals & allied products	(1.7)	(2.2)	1.3	(1.9)	(1.7)	(1.9)	(0.5)	(0.9)	(2.3)
Machinery, except electric	(1.8)	(2.3)	1.2	(1.8)	(1.8)	(1.2)	(0.6)	(0.9)	(2.4)
Electronic machinery	(1.9)	(2.2)	1.4	(1.9)	(1.9)	(1.3)	(0.6)	(0.9)	(2.3)
Professional & scientific equipment	(1.8)	(2.2)	1.3	(2.0)	(1.9)	(1.3)	(0.6)	(0.9)	(2.4)
Apparel & other textile products	(1.9)	(2.1)	1.0	(2.0)	(2.0)	(1.9)	(0.6)	(0.9)	(2.5)
Retail trade	(0.5)	(0.7)	(0.8)	(0.8)	(0.7)	(0.4)	0.6	0.1	(1.4)
Securities, commodity contracts, investments	(0.9)	(1.0)	2.7	(1.1)	(1.1)	(0.2)	0.3	0.2	(1.0)
Real estate	0.1	(0.4)	(0.4)	(0.2)	0.5	0.9	1.8	0.1	(0.6)
Professional and technical services, except advertising	(0.6)	(0.9)	(1.4)	(0.9)	(0.9)	(0.6)	0.3	0.1	(1.3)
Average	(1.3)	(1.7)	0.8	(1.5)	(1.3)	(1.0)	(0.1)	(0.5)	(1.9)

Figure 25

Change in effective tax rate ranking 1994 to 2006 (# of positions moved - positive=improvement)

	California	Connecticut	Florida	Massachusetts	New Jersey	New York City	New York - MTA region outside NYC	New York upstate - outside MTA region	Texas
Food and kindred products	(2)	5	-	(1)	-	-	1	(1)	(2)
Printing & publishing	(3)	4	(1)	-	1	-	1	(1)	(1)
Chemicals & allied products	(1)	5	(1)	-	(1)	-	1	(1)	(2)
Machinery, except electric	(2)	5	-	(1)	-	-	1	(1)	(2)
Electronic machinery	(3)	5	1	(1)	2	-	1	(1)	(3)
Professional & scientific equipment	(2)	5	(1)	-	(1)	-	1	(1)	(1)
Apparel & other textile products	(1)	5	(1)	(1)	1	-	1	(1)	(3)
Retail trade	-	1	-	(2)	-	-	3	-	(3)
Securities, commodity contracts, investments	(3)	7	(1)	(3)	(1)	-	1	1	(1)
Real estate	-	(3)	-	1	1	-	2	(1)	-
Professional and technical services, except advertising	-	-	(2)	(2)	-	-	3	3	(2)
Average	(2)	4	-	(1)	1	-	3	-	(5)

Appendix: Methodology

This document describes a simulation of business-related taxes in New York City and 9 other locations: the MTA region outside NYC (Westchester County), upstate New York (Albany County), California (Los Angeles), Connecticut (Hartford), Florida (Miami), Massachusetts (Boston), New Jersey (Newark), Texas (Houston), and a fictitious "no state-local tax" region.

The taxes modeled are state and local corporate franchise taxes, the property tax, sales taxes on business purchases, the unemployment insurance tax, and the federal corporate income tax. Property tax incentives are not modeled. The model takes into account interactions among taxes, as appropriate, such as deductibility of state and local taxes against the federal corporate income tax.

The model examines how taxes affect the rate of return on new investment, taking into account multiple taxes, tax interactions, and multiple time periods. This model is similar in approach to models in Boyd and Barrese (1995), Brooks (1993), and Burress, Oslund, and Middleton (2004), Papke, James A. and Leslie E. Papke (1984), Policy Economics Group, KPMG (1994), and Tannenwald (1994). (See bibliography.)

General approach

The general approach was to develop relevant data for representative firms in various industries from sources described below, and then to assume each firm expands in its current location or a different location. The model then calculates pre- and post-expansion taxes in the "home" and expansion jurisdiction for each of 60 years (allowing depreciation deductions, investment tax credits, and other tax-law characteristics to vary over time). The model computes pre-tax and after-tax cash flow attributable to the expansion, for each year, and the pre- and post-tax internal rate of return for the expansion. Finally , it computes the effective tax rate as the percentage difference between the pre-tax and post-tax rate of return. It repeats this for every home-site/expansion-site combination and then compares effective tax rates across expansion sites.

Business assumptions

The key business assumptions are:

- The financial structure of each firm is assumed to be the same regardless of where located, to isolate role of taxes.
- The pre-tax return on "earning assets" is 25 percent (consistent with other models)
- The firm makes annual replacement investments sufficient to offset economic depreciation.
- Assets have the following economic lives:

Structures	30 years
Equipment	12 years
Motor vehicles	5 years

- The firm expands all aspects of operations at the same rate (the expansion requires support from the business)

- The firm is an "exporter," consistent with other models. This is assumed to be the most "footloose" sort of firm, most likely to be influenced in its location decision by differences in taxes. Pre-expansion, 100 percent of assets and payroll are in the "home" location and 10 percent of sales are elsewhere in nation. The entire payroll and assets attributable to the expansion are in the expansion location, while sales attributable to the expansion are assumed to be made elsewhere in the nation.

Industries of representative firms

The representative firms are in the following industries:

Manufacturing
- Food and kindred products
- Printing & publishing
- Chemicals & allied products
- Machinery, except electric
- Electronic machinery
- Professional & scientific equipment
- Apparel & other textile products

Nonmanufacturing
- Retail trade
- Securities, commodity contracts, investments
- Real estate
- Professional and technical services, except advertising

See the related appendix for descriptions of the industries.

Features of the tax system included

The model incorporates the features of state and local tax systems listed below. See a later appendix for specific assumptions used in the model. The rules incorporated into the model, of necessity, are less complicated than those that apply in the real world, which are designed to apply to many specific cases.

Property tax – treatment of:
- Real property
- Inventories
- Manufacturing equipment
- Other equipment
- Motor vehicles

Sales tax on business purchases – treatment of:
- Manufacturing equipment
- Non-manufacturing equipment
- Repair services
- Software and related expenses

- Telecommunications services
- Utilities

Unemployment insurance tax:
- Uses new employer tax rate and wage base

State (and local) corporation taxes:
- Depreciation schedules
- Deduction for state corporate taxes
- QPAI (Qualified Production Activities Income) treatment
- Apportionment factors
- Tax rate(s)
- Broadly available credits (ITC)

Calculations and summaries of results

Each run of the model involves the following calculations

	11	# firms
x	5	kinds of taxes
x	10	home-site locations
x	10	expansion-site locations
x	60	years for each scenario
x	2	scenarios (baseline, expand 10%)
x	2	tax regimes (2006 law and 1994 law)

equals 1.32 million tax calculations per run,
plus rate-of-return calculations

The model produces 1,100 effective tax rates (each of 11 firms initially located in any of 10 places then expands in any of 10 places). The analytic focus is on how expensive it is to expand in a given location. Therefore the model summarizes, for each firm and expansion site, the after-tax rate of return averaged over the 10 possible "home" sites and the effective tax rate averaged over the 10 possible home sites.

Constructing representative firms

Balance sheet:
- Total assets, liabilities, net worth, depreciable assets, and other major components by industry were taken from the *Corporation Source Book*, 2003 (IRS) www.irs.gov/pub/irs-soi/03co07nr.xls
- Assets broken down further (structures, equipment, equipment by major category) by industry based on 2003 relationships in *Detailed Fixed Assets Tables* from the Bureau of Economic Analysis www.bea.gov/bea/dn/FA2004/Details/xls/detailnonres_stk1.xls

Expenses and outlays:

- Major items (business receipts, salaries) by industry were taken from the *Corporation Source Book*, 2003 (IRS) www.irs.gov/pub/irs-soi/03co07nr.xls
- Additional details (e.g., data processing, manufacturing machinery purchases) were filled in as follows:
    - Expense items by industry were based on relationships in the "Use" table from the most recent (1997) Benchmark Input-Output Accounts of the U.S. Economy from Bureau of Economic Analysis www.bea.gov/bea/pn/ndn0306.zip
    - Capital outlays by industry were based on relationships in Historical-Cost Investment in Private Nonresidential Fixed Assets for 2003 from Bureau of Economic Analysis www.bea.gov/bea/dn/FA2004/Details/xls/detailnonres_inv1.xls

Employment:

Estimated by dividing:

- Industry wages and salaries from *Corporation Source Book*, 2003 (IRS) by
- Industry average wage from Table 6.6D of the National Income and Products Accounts (Wage and Salary Accruals Per Full-Time Equivalent Employee by Industry) – obtained from www.bea.gov/bea/dn/nipaweb/TableView.asp#Mid

Information sources for tax assumptions

Sources for property tax assumptions

- Tax rules: Commerce Clearing House, 2006 State Tax Handbook, (Chicago: CCH Incorporated, 2006). tax.cchgroup.com, reviews of individual state websites, conversations/email with tax officials
- Effective tax rates on real property (and, as appropriate, personal property) :
    - NYC and largest urban area in other states:
    - Center for Public Finance Research, *50-State Property Tax Comparison Study, Payable Year 2004*, Minnesota Taxpayers Association, January 2005. mntax.org/research/property.php (Will update to 2005 or 2006 depending on availability.)
- Non-NYC MTA area and non-MTA areas in NY:
    - Office of the State Comptroller of New York, Overlapping Real Property Tax Rates for Fiscal Year 2005, Table 2, osc.state.ny.us/localgov/orptbook/taxrates.htm
    - Effective tax rates on motor vehicles: state websites and National Conference of State Legislatures, *State and Local Value-Based Taxes on Motor Vehicles* [1998] www.ncsl.org/programs/fiscal/autotaxs.htm

Sources for corporate tax assumptions

- Initial pass at tax rules from Commerce Clearing House, *2006 State Tax Handbook*, (Chicago: CCH Incorporated, 2006) (based on 2005 law). tax.cchgroup.com

- Initial pass at tax rates for 2006 from Urban-Brookings Tax Policy Center, *State Corporate Marginal Income Tax Rates, 2006*, www.taxpolicycenter.org/TaxFacts/TFDB/Content/Excel/state_corporate_income.xls
- Initial pass at apportionment rules for 2006 from Federation of Tax Administrators, State Apportionment of Corporate Income, www.taxadmin.org/fta/rate/corp_app.html
- Supplemented by examination of state web sites, and telephone and email conversations with state tax officials

Sources for sales tax assumptions

- Initial pass at tax rates for 2006 from Urban-Brookings Tax Policy Center Sales Tax Rates, State and Local 2006, http://www.taxpolicycenter.org/TaxFacts/TFDB/Content/Excel/state_local_sales_tax.xls
- Confirming and additional rate information from Federation of Tax Administrators, www.taxadmin.org/FTA/rate/sales.html and New York State Department of Taxation and Finance, *New York State Sales and Use Tax Rates by Jurisdiction*, Publication 718, 2006.
- Initial pass at tax rules for specific goods and services from Commerce Clearing House, *2006 State Tax Handbook*, (Chicago: CCH Incorporated, 2006). tax.cchgroup.com: Computer software (pp.635)+, manufacturing and machinery (pp.650+)
- Supplemented by examination of state web sites, and telephone and email conversations with state tax officials

Sources for unemployment insurance tax assumptions

U.S. Department of Labor Employment and Training Administration, Significant Provisions of State Unemployment Insurance Laws July 2006, www.doleta.gov

Appendix: Key tax assumptions

Figure 26 Corporate tax assumptions, 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Tax rate(s)	8.84% on apportioned net income	9% on apportioned net income (7.5% plus 20% surcharge)	5.5% of apportioned federal taxable income	9.5% on apportioned net income	9% on apportioned net income	NYS tax plus 17% of NYS tax after credits, but recomputed at 9% max combined rate of 9.03% (7.5% + 17%*9%)	7.5% on apportioned net income	NYS plus MTA tax, plus 8.85% on apportioned net income - max combined rate of 17.88%	0.25% of apportioned capital, or 4.5% of apportioned net taxable earned surplus, whichever is greater;
Depreciation	Class ADR: Modeled with structures life of 45 years, 150% declining balance, 10% salvage; equipment 10 year life, 150% DB, 10% salvage	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	Federal MACRS generally, for property placed in service in 1985 or later. Assume structures use non-residential real property table, equipment uses 10 year life	Federal MACRS generally, for property placed in service in 1985 or later. Assume structures use non-residential real property table, equipment uses 10 year life	Federal MACRS generally, for property placed in service in 1985 or later. Assume structures use non-residential real property table, equipment uses 10 year life	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life
Deduction for state income-based taxes	No	No (only MI's Single Business Tax)	No (only MI's Single Business Tax)	No	No	No	No	No	Yes
Qualified Production Activities Income (QPAI) deduction for manufacturers (2006 only - not available in 1994)	No	Federal - 3% of QPAI in 2006	Federal - 3% of QPAI in 2006	No	No	Federal - 3% of QPAI in 2006	Federal - 3% of QPAI in 2006	Federal - 3% of QPAI in 2006	No
Apportionment	Sales, property, payroll, with sales double-weighted	Nonmanufacturers : Sales, property, payroll, with sales double-weighted Manufacturers: single factor based on sales	Sales, property, payroll, with sales double-weighted	Sales, property, payroll, with sales double-weighted	Sales, property, payroll, with sales double-weighted	Income is implicitly apportioned to NYS by NYS formula. (For a part-MTA firm, NYS tax is then allocated to MTA region via 3-factor (single-weighted) formula)	60% sales, 20% assets, 20% payroll in 2006, moving to 100% sales in 2008	Federal taxable income is allocated to NYC using single-weighted 3-factor formula for non-manufacturer, and can use double-weighted receipts if manufacturer	Single sales factor
Broadly available credits	6% ITC (MIC - Manufacturer's Investment Credit) on manufacturing EQUIPMENT of manufacturers (SIC), with carryforward generally up to 8 years	5% credit for fixed capital investment in tangible personal property - EQUIPMENT but not structures, limited to 70% of tax before credits, 5-year carryforward	Selective credits available, not modeled	3% ITC on manufacturing equipment AND STRUCTURES limited to 50% of tax before credits, 3-year carryforward	2% ITC on manufacturing equipment (not structures), followed by two years of 3% credits; carryforward for 7 years; $1m cap assumed not binding; $1k cap per incremental job assumed not binding	NYS ITC is implicitly allowed for MTA surcharge, as it is based on NYS tax after credit	5% ITC on manufacturing equipment and structures, followed by 2 years of up to 2.5% credits if certain employment requirements are met. Indefinite carryforward	No (but NYS and MTA corporate tax do reflect ITC)	No

Figure 27 Corporate tax assumptions, 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Tax rate(s)	9.3% on apportioned net income	12.65% on apportioned net income (11.5% plus 10% surcharge)	5.5% of apportioned federal taxable income	9.5% on apportioned net income	9% on apportioned net income	NYS tax plus 17% of NYS tax after credits, but recomputed at 9% (w/o state surcharge) - max combined rate of 11.655%	10.125% on apportioned net income (9% plus 12.5% surcharge)	NYS plus MTA tax, plus 8.85% on apportioned net income - max combined rate of 20.505%	0.25% of apportioned capital, or 4.5% of apportioned net taxable earned surplus, whichever is greater;
Depreciation	Class ADR: Modeled with structures life of 45 years, 150% declining balance, 10% salvage; equipment 10 year life, 150% DB, 10% salvage	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	YES for new investment - Federal MACRS - structures use non-residential real property table, equipment uses 10 year life	Allows federal ACRS, MACRS, accelerated, and bonus	Federal MACRS generally, for property placed in service in 1985 or later. Assume structures use non-residential real property table, equipment uses 10 year life		Federal MACRS - structures use non-residential real property table, equipment uses 10 year life
Deduction for state income-based taxes	No	No (only MI's Single Business Tax)	No (only MI's Single Business Tax)	No	No	No	No	No	Yes
Qualified Production Activities Income (QPAI) deduction for manufacturers (2006 only - not available in 1994)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Apportionment	Sales, property, payroll, with sales double-weighted	3 factors with sales double-weighted	Sales, property, payroll, with sales double-weighted	Sales, property, payroll, with sales double-weighted	Sales, property, payroll, single-weighted	Income is implicitly apportioned to NYS by NYS formula. (For a part-MTA firm, NYS tax is then allocated to MTA region via 3-factor (single-weighted) formula)	Sales, property, payroll, with sales double-weighted	Federal taxable income is allocated to NYC using single-weighted 3-factor formula	Single sales factor
Broadly available credits	6% ITC (MIC - Manufacturer's Investment Credit) on manufacturing EQUIPMENT of manufacturers (SIC), with carryforward generally up to 8 years	Selective credits available, not modeled	Selective credits available, not modeled	3% ITC on manufacturing equipment AND STRUCTURES limited to 50% of tax before credits, 3-year carryforward	2% ITC on manufacturing equipment (not structures), followed by two years of 3% credits; carryforward for 7 years; $1m cap assumed not binding; $1k cap per incremental job assumed not binding	NYS ITC is implicitly allowed for MTA surcharge, as it is based on NYS tax after credit	5% ITC on manufacturing equipment and structures, followed by 2 years of up to 2.5% credits if certain employment requirements are met. Indefinite carryforward	No (but NYS and MTA corporate tax do reflect ITC)	No

Figure 28 Property tax assumptions, 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Location	Los Angeles	Hartford	Miami-Dade	Boston	Newark	Westchester County	Albany County	NYC	Houston
Land	1.250%	3.052%	2.490%	3.308%	2.730%	2.237%	3.040%	4.700%	2.963%
Structures	1.250%	3.052%	2.490%	3.308%	2.730%	2.237%	3.040%	4.700%	2.963%
Inventories	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	2.963%
Manufacturing equipment	1.250%	3.052%	2.490%	0.000%	0.000%	0.000%	0.000%	0.000%	2.963%
Other equipment (other than vehicles)	1.250%	3.052%	2.490%	0.000%	0.000%	0.000%	0.000%	0.000%	2.963%
Motor vehicles	0.650%	2.450%	0.000%	2.250%	0.000%	0.000%	0.000%	0.000%	0.000%

Figure 29 Property tax assumptions, 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Location	Los Angeles	Hartford	Miami-Dade	Boston	Newark	Westchester County	Albany County	NYC	Houston
Land	1.050%	2.651%	2.652%	4.100%	3.397%	3.010%	2.539%	4.380%	2.755%
Structures	1.050%	2.651%	2.652%	4.100%	3.397%	3.010%	2.539%	4.380%	2.755%
Inventories	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	2.755%
Manufacturing equipment	1.050%	2.651%	2.652%	0.000%	0.000%	0.000%	0.000%	0.000%	2.755%
Other equipment (other than vehicles)	1.050%	2.651%	2.652%	0.000%	0.000%	0.000%	0.000%	0.000%	2.755%
Motor vehicles	2.000%	2.438%	0.000%	2.250%	0.000%	0.000%	0.000%	0.000%	0.000%

Figure 30 Sales tax assumptions, 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Combined state-local rate used in model	8.250%	6.000%	7.000%	5.000%	6.460%	7.375%	8.000%	8.375%	8.250%
Canned software	8.250%	6.000%	7.000%	5.000%	6.460%	7.375%	8.000%	8.375%	8.250%
Custom/modified software	0.000%	1.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	8.250%
Manufacturing machinery	0.000%	0.000%	3.500%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Motor vehicles	8.250%	6.000%	7.000%	5.000%	6.460%	7.375%	8.000%	8.375%	8.250%
Nonmanufacturing machinery	8.250%	6.000%	7.000%	5.000%	6.460%	7.375%	8.000%	8.375%	8.250%
Office machinery	8.250%	6.000%	7.000%	5.000%	6.460%	7.375%	8.000%	8.375%	8.250%
Repairs	0.000%	0% if manufacturing firm, 6% otherwise	7.000%	0.000%	6.460%	7.375%	8.000%	8.375%	8.250%
Telecommunications services	0.000%	6.000%	6.800%	5.000%	6.460%	7.375% on intrastate; interstate exempt	8% on intrastate; interstate exempt	8.375% on intrastate; interstate exempt	8.250%
Utility services	0.000%	0% if manufacturing or farming firm, 6% otherwise	7.000%	0% if manufacturing firm, 5% otherwise	6.460%	0% if manufacturing firm, 7.375% otherwise	0% if manufacturing firm, 8% otherwise	8.375%; corporate tax credit for utilities used in production (modeled as sales tax exemption)	0% if manufacturing firm, 8.25% otherwise

Figure 31 Sales tax assumptions, 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Combined state-local rate used in model	8.250%	6.000%	6.500%	5.000%	6.000%	6.750%	8.000%	8.250%	8.250%
Canned software	8.250%	6.000%	6.500%	5.000%	6.000%	6.750%	8.000%	8.250%	8.250%
Custom/modified software	0.000%	6.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	8.250%
Manufacturing machinery	0.000%	0.000%	6.500%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
Motor vehicles	8.250%	6.000%	6.500%	5.000%	6.000%	6.750%	8.000%	8.250%	8.250%
Nonmanufacturing machinery	8.250%	6.000%	6.500%	5.000%	6.000%	6.750%	8.000%	8.250%	8.250%
Office machinery	8.250%	6.000%	6.500%	5.000%	6.000%	6.750%	8.000%	8.250%	8.250%
Repairs	0.000%	0% if manufacturing firm, 6% otherwise	6.500%	0.000%	6.000%	6.750%	8.000%	8.250%	8.250%
Telecommunications services	0.000%	6.000%	7.000%	5.000%	6.000%	6.75% on intrastate; interstate exempt	8% on intrastate; interstate exempt	8.25% on intrastate; interstate exempt	8.250%
Utility services	0.000%	0% if manufacturing or farming firm, 6% otherwise	6.500%	0% if manufacturing firm, 5% otherwise	0% if manufacturing firm, 6% otherwise	0% if manufacturing firm, 6.75% otherwise	0% if manufacturing firm, 8% otherwise	8.25%; corporate tax credit for utilities used in production (modeled as sales tax exemption)	0% if manufacturing firm, 8.25% otherwise

Figure 32 Unemployment insurance tax assumptions, 2006

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Wage base	7,000	15,000	7,000	14,000	25,800	8,500	8,500	8,500	9,000
Rate	3.400%	2.900%	2.700%	2.530%	2.683%	3.400%	3.400%	3.400%	2.700%

Figure 33 Unemployment insurance tax assumptions, 1994

	California	Connecticut	Florida	Massachusetts	New Jersey	NY - MTA Region	NY - Upstate	NYC	Texas
Wage base	7,000	7,100	7,000	10,800	17,600	7,000	7,000	7,000	9,000
Rate	3.400%	3.100%	2.700%	3.100%	3.300%	4.300%	4.300%	4.300%	2.700%

Appendix: Industry definitions for prototypical firms

Most data sources used in this project defined industries using the North American Industry Classification System (NAICS). The sections below provide NAICS descriptions of industries used to form the hypothetical firms. (These definitions may be found at http://www.census.gov/econ/census02/data/industry/index.html.)

311 & 312 Food and kindred products

311 Food Manufacturing

Industries in the Food Manufacturing subsector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products.

The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers, but establishments primarily engaged in retailing bakery and candy products made on the premises not for immediate consumption are included.

Establishments primarily engaged in manufacturing beverages are classified in Subsector 312, Beverage and Tobacco Product Manufacturing.

312 Beverage and Tobacco Product Manufacturing

Industries in the Beverage and Tobacco Product Manufacturing subsector manufacture beverages and tobacco products. The industry group, Beverage Manufacturing, includes three types of establishments:

1. those that manufacture nonalcoholic beverages;
2. those that manufacture alcoholic beverages through the fermentation process; and
3. those that produce distilled alcoholic beverages.

Ice manufacturing, while not a beverage, is included with nonalcoholic beverage manufacturing because it uses the same production process as water purification.

In the case of activities related to the manufacture of beverages, the structure follows the defined productive processes. Brandy, a distilled beverage, was not placed under distillery product manufacturing, but rather under the North American Industry Classification System (NAICS) class for winery product manufacturing since the productive process used in the manufacturing of alcoholic grape-based beverages produces both wines (fermented beverage) and brandies (distilled beverage).

The industry group, Tobacco Manufacturing, includes two types of establishments:

1. those engaged in redrying and stemming tobacco and

2. those that manufacture tobacco products, such as cigarettes and cigars.

315 Apparel Manufacturing

Industries in the Apparel Manufacturing subsector group establishments with two distinct manufacturing processes:

cut and sew (i.e., purchasing fabric and cutting and sewing to make a garment), and
the manufacture of garments in establishments that first knit fabric and then cut and sew the fabric into a garment.
The Apparel Manufacturing subsector includes a diverse range of establishments manufacturing full lines of ready-to-wear apparel and custom apparel: apparel contractors, performing cutting or sewing operations on materials owned by others; jobbers performing entrepreneurial functions involved in apparel manufacture; and tailors, manufacturing custom garments for individual clients are all included. Knitting, when done alone, is classified in the Textile Mills subsector, but when knitting is combined with the production of complete garments, the activity is classified in Apparel Manufacturing.

323 Printing and Related Support Activities

Industries in the Printing and Related Support Activities subsector print products, such as newspapers, books, labels, business cards, stationery, business forms, and other materials, and perform support activities, such as data imaging, platemaking services, and bookbinding. The support activities included here are an integral part of the printing industry, and a product (a printing plate, a bound book, or a computer disk or file) that is an integral part of the printing industry is almost always provided by these operations.

Processes used in printing include a variety of methods used to transfer an image from a plate, screen, film, or computer file to some medium, such as paper, plastics, metal, textile articles, or wood. The most prominent of these methods is to transfer the image from a plate or screen to the medium (lithographic, gravure, screen, and flexographic printing). A rapidly growing new technology uses a computer file to directly "drive" the printing mechanism to create the image and new electrostatic and other types of equipment (digital or nonimpact printing).

In contrast to many other classification systems that locate publishing of printed materials in manufacturing, the North American Industry Classification System (NAICS) classifies the publishing of printed products in Subsector 511, Publishing Industries (except Internet). Though printing and publishing are often carried out by the same enterprise (a newspaper, for example), it is less and less the case that these distinct activities are carried out in the same establishment. When publishing and printing are done in the same establishment, the establishment is classified in Sector 51, Information, in the appropriate NAICS industry even if the receipts for printing exceed those for publishing.

This subsector includes printing on clothing because the production process for that activity is printing, not clothing manufacturing. For instance, the printing of T-shirts is

included in this subsector. In contrast, printing on fabric (or grey goods) is not included. This activity is part of the process of finishing the fabric and is included in the NAICS Textile Mills subsector in Industry 31331, Textile and Fabric Finishing Mills.

325 Chemical Manufacturing

The Chemical Manufacturing subsector is based on the transformation of organic and inorganic raw materials by a chemical process and the formulation of products. This subsector distinguishes the production of basic chemicals that comprise the first industry group from the production of intermediate and end products produced by further processing of basic chemicals that make up the remaining industry groups.

This subsector does not include all industries transforming raw materials by a chemical process. It is common for some chemical processing to occur during mining operations. These beneficiating operations, such as copper concentrating, are classified in Sector 21, Mining. Furthermore, the refining of crude petroleum is included in Subsector 324, Petroleum and Coal Products Manufacturing. In addition, the manufacturing of aluminum oxide is included in Subsector 331, Primary Metal Manufacturing; and beverage distilleries are classified in Subsector 312, Beverage and Tobacco Product Manufacturing. As in the case of these two activities, the grouping of industries into subsectors may take into account the association of the activities performed with other activities in the subsector.

333 Machinery Manufacturing

Industries in the Machinery Manufacturing subsector create end products that apply mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes, such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine. Moreover, complex assembly operations are an inherent part of the production process.

In general, design considerations are very important in machinery production. Establishments specialize in making machinery designed for particular applications. Thus, design is considered to be part of the production process for the purpose of implementing the North American Industry Classification System (NAICS). The NAICS structure reflects this by defining industries and industry groups that make machinery for different applications. A broad distinction exists between machinery that is generally used in a variety of industrial applications (i.e., general purpose machinery) and machinery that is designed to be used in a particular industry (i.e., special purpose machinery). Three industry groups consist of special purpose machinery--Agricultural, Construction, and Mining Machinery Manufacturing; Industrial Machinery Manufacturing; and Commercial and Service Industry Machinery Manufacturing. The other industry groups make general-purpose machinery: Ventilation, Heating, Air Conditioning, and Commercial Refrigeration Equipment Manufacturing; Metalworking

Machinery Manufacturing; Engine, Turbine, and Power Transmission Equipment Manufacturing; and Other General Purpose Machinery Manufacturing.

334 Computer and Electronic Product Manufacturing

Industries in the Computer and Electronic Product Manufacturing subsector group establishments that manufacture computers, computer peripherals, communications equipment, and similar electronic products, and establishments that manufacture components for such products. The Computer and Electronic Product Manufacturing industries have been combined in the hierarchy of the North American Industry Classification System (NAICS) because of the economic significance they have attained. Their rapid growth suggests that they will become even more important to the economies of all three North American countries in the future, and in addition their manufacturing processes are fundamentally different from the manufacturing processes of other machinery and equipment. The design and use of integrated circuits and the application of highly specialized miniaturization technologies are common elements in the production technologies of the computer and electronic subsector. Convergence of technology motivates this NAICS subsector. Digitalization of sound recording, for example, causes both the medium (the compact disc) and the equipment to resemble the technologies for recording, storing, transmitting, and manipulating data. Communications technology and equipment have been converging with computer technology. When technologically-related components are in the same sector, it makes it easier to adjust the classification for future changes, without needing to redefine its basic structure. The creation of the Computer and Electronic Product Manufacturing subsector will assist in delineating new and emerging industries because the activities that will serve as the probable sources of new industries, such as computer manufacturing and communications equipment manufacturing, or computers and audio equipment, are brought together. As new activities emerge, they are less likely therefore, to cross the subsector boundaries of the classification.

Professional & scientific equipment

This industry group comprises establishments primarily engaged in manufacturing medical equipment and supplies. Examples of products made by these establishments are laboratory apparatus and furniture, surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, dentures, and orthodontic appliances. This industry relied in part on data from industry 3391 - Medical Equipment and Supplies Manufacturing.

452 General Merchandise Stores

Industries in the General Merchandise Stores subsector retail new general merchandise from fixed point-of-sale locations. Establishments in this subsector are unique in that they have the equipment and staff capable of retailing a large variety of goods from a single location. This includes a variety of display equipment and staff trained to provide information on many lines of products.

523 Securities, Commodity Contracts, and Other Financial Investments and Related Activities

Industries in the Securities, Commodity Contracts, and Other Financial Investments and Related Activities subsector group include establishments that are primarily engaged in one of the following: (1) underwriting securities issues and/or making markets for securities and commodities; (2) acting as agents (i.e., brokers) between buyers and sellers of securities and commodities; (3) providing securities and commodity exchange services; and (4) providing other services, such as managing portfolios of assets; providing investment advice; and trust, fiduciary, and custody services.

531 Real Estate

Industries in the Real Estate subsector group include establishments that are primarily engaged in renting or leasing real estate to others; managing real estate for others; selling, buying, or renting real estate for others; and providing other real estate related services, such as appraisal services.

Establishments primarily engaged in subdividing and developing unimproved real estate and constructing buildings for sale are classified in Subsector 236, Construction of Buildings. Establishments primarily engaged in subdividing and improving raw land for subsequent sale to builders are classified in Subsector 237, Heavy and Civil Engineering Construction.

Real Estate Investment Trusts (REITS) are classified in Subsector 525, Funds, Trusts, and Other Financial Vehicles, because they are considered investment vehicles.

541 Professional, Scientific, and Technical Services

Industries in the Professional, Scientific, and Technical Services subsector group establishments engaged in processes where human capital is the major input. These establishments make available the knowledge and skills of their employees, often on an assignment basis, where an individual or team is responsible for the delivery of services to the client. The individual industries of this subsector are defined on the basis of the particular expertise and training of the services provider.

The distinguishing feature of the Professional, Scientific, and Technical Services subsector is the fact that most of the industries grouped in it have production processes that are almost wholly dependent on worker skills. In most of these industries, equipment and materials are not of major importance, unlike health care, for example, where "high tech" machines and materials are important collaborating inputs to labor skills in the production of health care. Thus, the establishments classified in this subsector sell expertise. Much of the expertise requires degrees, though not in every case.