



**Estimates of New Jersey Sales and Use Tax Losses
Resulting from E-Commerce**

**Submitted to:
New Jersey Retail Merchants Association**

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Executive Summary

This report presents the findings of Rutgers' examination of the potential revenue losses incurred by the state of New Jersey as the result of non-collection of Sales and Use Taxes due on Internet-based commerce (E-commerce). The report, commissioned by the New Jersey Retail Merchants Association, describes three analytical approaches used to estimate the magnitude of these losses, and provides additional discussion of other potential economic impacts for the state of the transfer of retail activity from in-state businesses to out-of-state Internet-based vendors.

The report's findings include:

- A sales-based approach that generates estimated foregone revenues of between \$52 million and \$171 million in 2009 due to non-payment by New Jersey residents of the Sales and Use Taxes due on Internet purchases of goods and services from out-of-state vendors.
- An analysis of estimated Use Tax obligations by income level reflected in the NJ-1040 income tax filing forms and instructions results in estimated annual foregone Use Tax revenues of \$158 million on out-of-state purchases (including Internet, catalog, phone order sales, and physical purchases made out of state) in 2008.
- An econometric equation measuring the relationship between broadband penetration into New Jersey households and Sales and Use Tax revenues generated a higher bound estimate of \$608 million in foregone Sales and Use Tax revenues in 2009. However, this estimate, unlike the two above estimates, incorporates taxes due both on out-of-state purchases by consumers *and* on business-to-business transactions.
- Some portion of the economic activity associated with the purchases of goods and services that are now made from out-of-state Internet vendors could return to New Jersey if Sales and Use Tax collections were enforced on those transactions. Estimates of the impacts from this additional economic activity include up to 1,440 jobs, up to \$44 million in income, and up to \$95 million in gross domestic product for the state annually.

I. Introduction

This report presents the findings of Rutgers' examination of the potential revenue losses incurred by the state of New Jersey as the result of non-collection of Sales and Use Taxes due on Internet-based commerce (E-commerce). The report, commissioned by the New Jersey Retail Merchants Association, combines revised versions of preliminary analyses previously submitted separately, and includes additional discussion of the analytical results.

Under the current tax code, companies that sell taxable goods and services to buyers in New Jersey over the Internet are only required to collect Sales Tax if the company maintains a physical presence (*nexus*) in the state. If a purchase is made by a New Jersey resident, but the company from which the purchase is made does not have a physical presence in the state, the *purchaser* is required to remit the Use Tax (equivalent to the Sales Tax) directly to the state.

The purpose of this study is to estimate the losses in state tax revenue that may result from failure of individuals and businesses to remit Use Tax payments and of sellers to collect Sales Tax if they maintain a physical presence in the state.

The report begins with a brief review of state and national growth trends in E-commerce.. This is followed by three estimates of New Jersey's foregone Sales and Use Tax revenues, each derived using a different analytical approach. The first approach synthesizes publicly available data and estimates from previous national studies to arrive at an estimate of foregone Sales and Use Tax revenues in New Jersey. The second estimate draws on information about estimated Use Tax obligations contained in New Jersey's income tax filing documents. The third approach uses a revised Sales Tax revenue equation from a large-scale econometric forecasting model of New Jersey to estimate the reduction in Sales and Use Tax revenues associated with the increasing rate of broadband penetration in the state. A brief discussion is then provided of the issue of *nexus*, followed by an examination of some other potential economic issues affecting the state as a result of the growth in E-commerce.

II. Background

Table 1 provides the growth in Internet retail (E-retail) sales of goods, and its share of total retail sales in the United States from 1999 to 2010.¹

Table 1
U.S. E-Retail, 1999-2010 (\$Billions)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
E-Retail Sales	\$15	\$28	\$34	\$45	\$58	\$73	\$92	\$114	\$137	\$142	\$143	\$165
Total Retail Sales	\$3,000	\$3,111	\$3,068	\$3,135	\$3,267	\$3,467	\$3,695	\$3,888	\$4,007	\$3,952	\$3,669	\$3,925
E-Sales as a % of Total	0.5%	0.9%	1.1%	1.4%	1.8%	2.1%	2.5%	2.9%	3.3%	3.6%	3.9%	4.2%
% Change E-Retail	-	86.7%	21.4%	32.4%	28.9%	26.4%	25.8%	23.5%	20.1%	3.9%	0.9%	14.8%
% Change Total Retail	-	3.7%	-0.6%	2.2%	4.2%	6.1%	6.6%	5.2%	3.1%	-1.4%	-7.2%	7.0%

Source: U.S. Census Bureau/E-Stats; February 2011.

This table, adapted from a previous study by Empiris LLC, indicates growth of 489% in E-retail sales over the decade from 2000 to 2010, including a 7% increase over the period of the recent severe national recession (2007-2009), versus a 2% decline in total retail sales during the recession.² (An annotated bibliography of studies estimating the Sales and Use Tax losses due to E-commerce at the national or state level is provided at the end of this report.)

Table 2 adapts the national E-retail shares of total retail purchases to New Jersey retail sales data for *goods*, with a 2010 estimate based on projected retail sales growth.

Table 2
E-Retail of Goods in New Jersey (Estimated)
1997, 2002, 2007, 2010 forecast, (\$Billions)

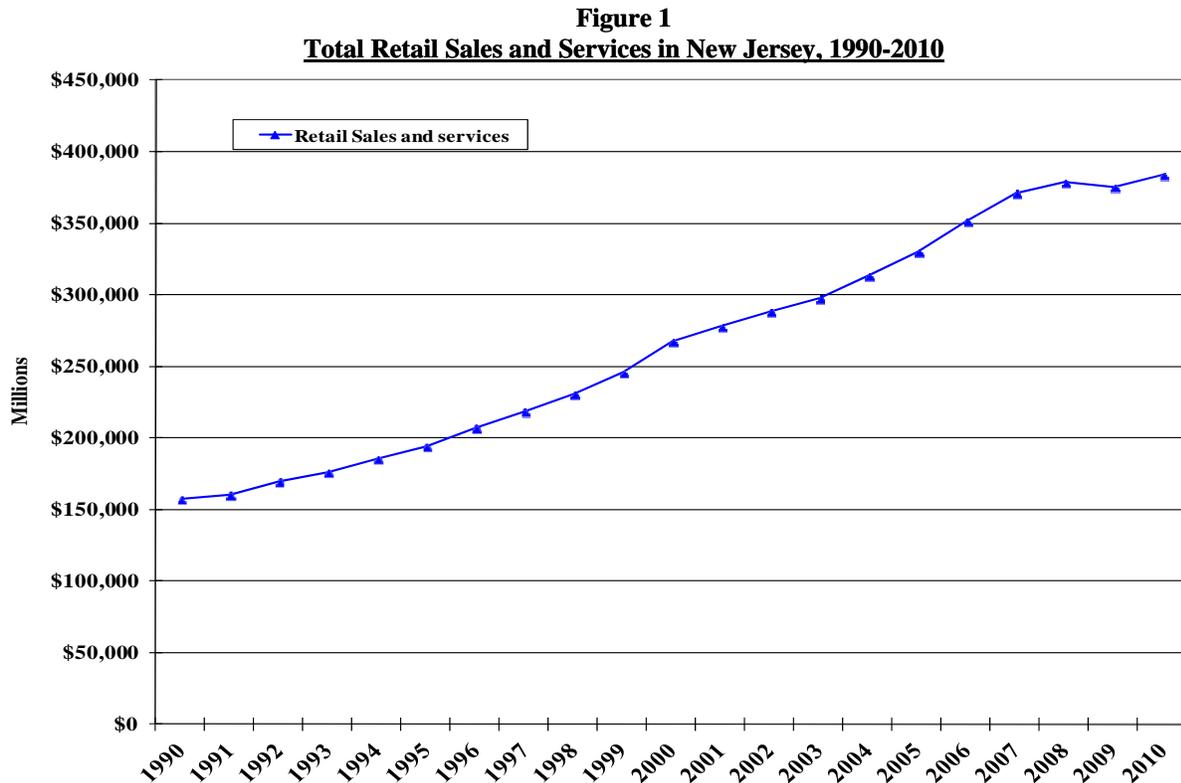
	1997	2002	2007	2010
E-Retail Sales	\$0.3	\$1.2	\$4.7	\$5.6
Total Retail Sales	\$79.9	\$102.2	\$124.8	\$120.6
E-Sales as a % of Total	0.4%	1.4%	3.8%	4.7%
Note: E-retail estimates assume that e-retail in NJ is same share of total electronic and mail order sales as in the US.				
Note: NJ forecast for 2010 assumes same rate of growth as in U.S.				
Source: U.S. Census Bureau; 2002 and 2007 Census of Retail Trade.				

¹ Internet retail sales here measures only sales of goods from businesses to consumers.

² Eisenach, Jeffrey, and Robert Litan, *Uncollected Sales Taxes on Electronic Commerce: A Reality Check*, Empiris LLC, February 2010 (<http://www.amplify-pa.info/wp-content/uploads/eisenach-litan-e-commerce-taxes.pdf>). This data has been revised since the original Empiris study, such that the growth rate in E-retail sales from 2002 to 2009 has been revised upward from 184% at the time of the Empiris study to 218% as reported in the most recent U.S. Census E-Stats data.

Note that E-retail in New Jersey, exclusive of services (i.e., these figures reflect only sales of goods), grew by approximately 367% from 2002 to 2010, compared to a rate of 267% for the U.S. This accelerated rate of E-retail growth is likely attributable, at least in part, to New Jersey’s high level of broadband penetration, which at 12% of households in 2001 and 72% in 2009, is among the highest in the nation.³

Figure 1 shows the growth in combined retail sales and services in New Jersey from 1990 through 2010.



Given the high growth estimates for E-retail at both the national and state levels, and the steadily rising demand for both goods and services in New Jersey, it is expected that the state has foregone an increasing amount of Internet-based Sales and Use Tax revenue as on-line purchases have become more and more prevalent over the past decade.

³ *Exploring the Digital Nation: Home Broadband Internet Adoption in the United States*, U.S. Department of Commerce, 2010.

III. Sales-Based Approach

The first approach to estimating the uncollected Sales and Use Tax revenues accruing in New Jersey draws on available data on E-commerce (i.e., both Internet retail sales of goods and Internet sales of services), broadband penetration, and previous studies' estimates of the percentage of Sales and Use Tax revenues due that are uncollected. This methodology, which estimates the uncollected taxes on purchases by New Jersey consumers, is presented in Table 3. The bottom panel of the table presents alternative estimates based on more conservative assumptions about consumer E-commerce expenditures. Following is an explanation of the methodology for the 2009 estimates that appear in the middle column of the table. Estimates for 2001 and a projection for 2015 are also provided.

- The calculation begins with the estimate of broadband penetration (72% in 2009).⁴
- This percentage is then applied to the total number of New Jersey households to arrive at an estimate of the number of New Jersey households with a broadband Internet connection (2.3 million in 2009).
- This number is then multiplied by the number of adults over age 16 per household to obtain an estimate of total adult broadband users (4.7 million).⁵
- Next, the percentage of adults making monthly Internet purchases within a specified series of expenditure increments is applied to the number of adult broadband Internet users to generate an estimate of the weighted average of annual Internet retail expenditure per year for adult broadband users (\$2,328 in 2009).⁶ An alternative, more conservative estimate of \$1,344 for 2009 is also presented in the bottom panel of the table.⁷

⁴ Ibid.

⁵ Data on number of households, household size and proportion of adults is taken from *Annual Demographic Profile for New Jersey, 2000-2010*, New Jersey Department of Labor and Workforce Development, Division of Labor Market and Demographic Research, November 2010 (http://lwd.dol.state.nj.us/labor/lpa/dmograph/adprof/adp_index.html).

⁶ *The Digital Future Report 2010 (Surveying the Digital Future – Year Nine)*, The Center for the Digital Future, USC Annenberg School of Communication and Journalism, 2010.

⁷ This more conservative approach takes the mid-point of the two monthly expenditure ranges (\$1 to \$100 and \$101 to \$1000)

Table 3
Sales-Based Approach to Estimating Tax Losses in New Jersey

	2001	2009	2015
NJ Broadband Penetration (% of Households)	12%	72%	90%
New Jersey Households	3,056,000	3,199,400	3,290,100
Implied # of New Jersey Broadband Households	366,720	2,303,568	2,961,090
Implied # of Adult Broadband Users	704,454	4,709,414	6,053,652
<u>% of Adults making Internet purchases (US)</u>			
\$0/month	49%	35%	20%
\$1-\$100/month	43%	54%	64%
\$101-\$1000/month	7%	11%	14%
>\$1000/month	1%	1%	2%
<u>Implied \$/month/user (\$s in category 2 and 3 are maxima)</u>			
\$0/month	\$0	\$0	\$0
\$1-\$100/month	\$100	\$100	\$100
\$101-\$1000/month	\$1,000	\$1,000	\$1,000
>\$1000/month	\$2,500	\$3,000	\$3,500
Average/month/user	\$138	\$194	\$274
Average/year/user	\$1,656	\$2,328	\$3,288
Implied e-Sales Total \$year	\$1,166,576,571	\$10,963,516,768	\$19,904,409,078
% Taxable	59.8%	63.6%	63.6%
Implied Tax	\$41,866,524	\$488,445,361	\$886,778,986
@35% non-collection	\$14,653,283	\$170,955,877	\$310,372,645
Internet Sales Taxes Collected	\$27,213,240	\$317,489,485	\$576,406,341
Total Sales Taxes Collected	\$5,701,600,000	\$7,376,000,000	\$9,214,000,000
%Non-Collection	0.3%	2.3%	3.4%
@17.5% non-collection	\$7,326,642	\$85,477,938	\$155,186,323
Internet Sales Taxes Collected	\$34,539,882	\$402,967,423	\$731,592,664
Total Sales Taxes Collected	\$5,701,600,000	\$7,376,000,000	\$9,214,000,000
%Non-Collection	0.1%	1.3%	1.7%

Conservative Expenditure Estimate

<u>Implied \$/month/user (\$s in category 2 and 3 re midpoints)</u>	2001	2009	2015
\$1-\$100/month	\$50	\$50	\$50
\$101-\$1000/month	\$550	\$550	\$550
>\$1000/month	\$2,500	\$3,000	\$3,500
Average/year/user	\$1,020	\$1,410	\$2,148
Implied e-Sales Total \$year	\$718,543,540	\$6,640,274,331	\$13,003,245,347
% Taxable	59.8%	63.6%	63.6%
Implied Tax	\$25,787,351	\$295,836,752	\$579,319,119
@35% non-collection	\$9,025,573	\$103,542,863	\$202,761,692
Internet Sales Taxes Collected	\$16,761,778	\$192,293,889	\$376,557,427
Total Sales Taxes Collected	\$5,701,600,000	\$7,376,000,000	\$9,214,000,000
%Non-Collection	0.2%	1.4%	2.2%
@17.5% non-collection	\$4,512,787	\$51,771,432	\$101,380,846
Internet Sales Taxes Collected	\$21,274,565	\$244,065,321	\$477,938,273
Total Sales Taxes Collected	\$5,701,600,000	\$7,376,000,000	\$9,214,000,000
%Non-Collection	0.1%	0.7%	1.1%

- Multiplying this weighted average by the total number of adult broadband users gives estimated total E-retail expenditures for the state of \$11 billion in 2009 (\$6.3 billion in the conservative expenditure scenario).
- Next, the estimates of total E-commerce sales are multiplied by the estimated percentage of E-commerce sales that are subject to state Sales and Use tax. Based on E-commerce estimates for selected services and retail trade from the 2008 “E-Stats” reports, it is estimated that approximately 63.6% of New Jersey E-commerce business-to-consumer transactions were taxable in 2009 (based on 2008 data).⁸ This gives estimates of total Sales and Use Taxes due of \$488.4 million for 2009 (\$295.8 million in the conservative expenditure scenario).⁹
- Finally, two estimates of rates of non-collection of Sales and Use Taxes on E-commerce are applied. The first estimate – 35% – is taken from a 2009 University of Tennessee study of nationwide state and local Sales and Use Tax losses due to E-commerce. The study estimates a 65.6% sales-tax compliance rate in New Jersey for business-to-consumer E-commerce transactions involving large retailers.¹⁰ This rate results in estimated foregone Sales Tax revenues of approximately \$171 million in 2009 (or \$103.5 million in the conservative expenditure scenario).
- Because the 35% estimate is based on compliance by large retailers and does not necessarily apply to services, it may be overstated, as the compliance rate for online service purchases is expected to be higher than that for retail goods. Other studies have also argued that the University of Tennessee study overestimates the Sales Tax revenues foregone as a result of E-commerce.¹¹ Accordingly, in order to provide an even more conservative estimate of New Jersey’s Sales Tax losses, we employ a second non-compliance rate of 17.5%. This rate, which is only half of the Tennessee study rate of 35%, yields an estimated annual Sales Tax loss of

⁸ These percentages are based on review of U.S. Census E-Stats data on Internet retail and service sales and New Jersey Division of Taxation Sales Tax information.

⁹ Estimate based on the 7% Sales Tax rate in 2009.

¹⁰ Bruce, Donald, William F. Fox and LeAnn Luna, *State and Local Government Sales Tax Revenue Losses from Electronic Commerce*, University of Tennessee, April 2009, p. 22.

¹¹ See Eisenach, Jeffrey, and Robert Litan, *Uncollected Sales Taxes on Electronic Commerce: A Reality Check*, Empiris LLC, February 2010 (<http://www.amplify-pa.info/wp-content/uploads/eisenach-litan-e-commerce-taxes.pdf>).

\$85.5 million in 2009. In the conservative expenditure scenario, this results in estimated non-collection of \$51.8 million.

- Thus, using a range of non-compliance rates and expenditure levels results in a range of \$51.8 million to \$171 million in estimated annual losses in New Jersey Sales Tax collections in 2009. The econometric approach presented later in this study results in a higher estimate. However, that estimate incorporates losses from both business-to-business and business-to-consumer transactions. The estimated tax losses of \$51.8 million to \$171 million are based only on business-to-consumer sales.
- Table 4 presents the aggregate four-year Sales Tax loss estimate for New Jersey based on the 2.3% loss as a ratio of total collections as estimated in the analysis for 2009.¹² At the 35% non-collection rate over the four-year period, estimated aggregate Sales and Use Tax losses would total over three-quarters of a billion dollars (\$763.1 million).

Table 4
E-Commerce Sales Tax Losses from Non-Collection in New Jersey, 2009-2012

Year	2009	2010	2011	2012	Total
Sales Tax Due on E-commerce (\$millions)	488.4	529.7	564.3	598.0	\$2,180.4
Tax Loss (\$millions)	171.0	185.4	197.5	209.3	\$763.1
% Tax Loss	35%	35%	35%	35%	-
% Tax Loss of Total Collections	2.3%	2.3%	2.3%	2.3%	-
Total Collections	7,376.0	7,998.4	8,521.0	9,030.0	-

¹² The 2015 projection provided in Table 3 assumes an increasing loss as a percentage of total Sales and Use Tax collections due to the increasing level of broad band penetration and growing E-commerce purchases. This increase is not incorporated into the 2009 to 2012 estimates in Table 4.

IV. Estimated Use-Tax Reporting Approach

The approach presented in this section estimates potential losses in New Jersey state tax revenue due to non-collection of the Use Tax portion of the state's Sales and Use Tax. It begins with a brief review of the state's Use Tax requirement. This is followed by an analysis of information contained in New Jersey's Form NJ-1040 income tax filing documents and the accompanying instructional materials, and a comparison to New Jersey Division of Taxation estimates of Use Tax collections through annual individual income tax filings.

Caveat: Attempts to ascertain the origin and underlying data on which the material analyzed in this section is based have to date been unsuccessful. As such, this analysis should be considered only as an additional approach to estimating the potential Use Tax collections foregone by the state as a result of E-commerce. In the absence of detailed information about the source of and computations underlying the New Jersey Division of Taxation Use Tax estimates described below, however, it should not be considered a confirmation or validation of other estimates presented as part of this or other studies.

Background

Under the current tax code, companies that sell taxable goods and services to buyers in New Jersey over the Internet are only required to collect Sales Tax if the company maintains a physical presence (*nexus*) in the state. If a purchase is made by a New Jersey resident, but the company from which the purchase is made does not have a physical presence in the state, the *purchaser* is required to remit the Use Tax (equivalent to the Sales Tax) directly to the state. The *magnitude* of the uncollected taxes on such purchases is *independent of the legal issue of nexus*. That is, the amount of tax revenue due and foregone is assumed to be the same, whether it is the obligation of the seller or the buyer to collect and/or remit the required tax on these purchases.

The information presented herein is based on estimates of uncollected Use Tax *implicit* in the Estimated Use Tax Chart provided with the filing instructions accompanying the NJ-1040 Resident Income Tax Return since 2004. As such, the analysis addresses *only* foregone *Use Tax collections* – i.e., those Sales and Use Tax payments due on out-of-state purchases made by New Jersey residents that sellers are *not* obliged to collect. It does not include estimates of unremitted Sales Tax payments that sellers have failed to collect.

Use Tax Treatment in NJ-1040 Resident Income Tax Return and Instructions

Line 44 of the NJ-1040 Resident Income Tax Return reads: “Use Tax Due on Out-of-State Purchases (See instruction page 38). If no Use Tax, enter ZERO (0.00).” The relevant section of the NJ-1040 Instructions provides the following guide to calculation of an individual’s Use Tax obligation:

If you owe Use Tax and are remitting it with Form NJ-1040, compute the amount of Use Tax due as follows:

Step 1

Items or services costing less than \$1,000 each.

If you know the amount of your purchases in this category, calculate the exact amount of Use Tax due by multiplying the amount of your purchases by 7% (.07). **OR**, if you have incomplete or inaccurate receipts for your purchases, you may use the Estimated Use Tax Chart to estimate the amount of Use Tax due.

Note: Using the Estimated Use Tax Chart to determine the amount of Use Tax you report on Line 44 does not preclude the Division of Taxation from auditing your account. New Jersey does have access to records maintained by out-of-State businesses, and if additional tax is due, you may receive an assessment for the amount of Use Tax owed, plus applicable penalties and interest.

Step 2

Items or services costing \$1,000 or more each.

You must calculate the exact amount of Use Tax due on all purchases in this category.

Step 3 Total Use Tax due.

Add the amounts determined in Steps 1 and 2. Enter the result on Line 44, Form NJ-1040. If you do not owe Use Tax, you must enter “0.00” on Line 44.

The Estimated Use Tax Chart cited in the Instructions is presented below (Figure 1).

Figure 1

Estimated Use Tax Chart (for Step 1 computation only)	
If your New Jersey gross income is:	Use Tax
up to \$15,000	\$ 7
\$15,001 – \$30,000	22
\$30,001 – \$50,000	32
\$50,001 – \$75,000	42
\$75,001 – \$100,000	53
\$100,001 – \$150,000	67
\$150,001 – \$200,000	85
\$200,001 and over0426% (.000426) of income, or \$247, whichever is less.

Based on the instructions for Step 1 of computing one's Use Tax obligation, it is assumed that the Estimated Use Tax Chart (Figure 1) embodies the New Jersey Division of Taxation's current estimates of the Use Tax due on out-of-state purchases (of less than \$1,000) made by New Jersey residents of varying income levels from sellers lacking a physical presence in New Jersey. By applying these estimates to the distribution of New Jersey income tax returns by income level in 2008 (the most recent year for which data are publicly available), it is possible to derive an estimate of the total Use Tax obligations *implicit* in the estimates presented in the Chart. The estimate derived in this manner is presented in Table 1.

Table 1
Application of Estimated Use Tax to Income Tax Returns by Gross Income, 2008¹³

Gross Income	Est. Use Tax	Returns	Total Tax Due	.0426% of Income	Implied Taxable Out-of-State Purchases
Up to \$15,000	\$7	1,027,650	\$7,193,550		\$102,765,000
\$15,001 - \$30,000	\$22	628,150	\$13,819,300		\$197,418,571
\$30,001 - \$50,000	\$32	655,100	\$20,963,200		\$299,474,286
\$50,001 - \$75,000	\$42	525,400	\$22,066,800		\$315,240,000
\$75,001 - \$100,000	\$53	312,800	\$16,578,400		\$236,834,286
\$100,001 - \$150,000	\$67	404,600	\$27,108,200		\$387,260,000
\$150,000 - \$200,000	\$85	184,700	\$15,699,500		\$224,278,571
\$200,001 and over	<i>Lesser of 0.0426% or \$247</i>				
\$225,000 (\$200,000 - \$250,000)	0.0426%	82,400	\$7,898,040	\$95.85	\$112,829,143
\$325,000 (\$250,000 - \$400,000)	0.0426%	85,125	\$11,785,556	\$138.45	\$168,365,089
\$450,000 (\$400,000 - \$500,000)	0.0426%	20,775	\$3,982,568	\$191.70	\$56,893,821
\$750,000 (\$500,000 - \$1,000,000)	\$247	31,000	\$7,657,000	\$319.50	\$109,385,714
\$1,500,000 (\$1,000,000 - \$2,000,000)	\$247	16,000	\$3,952,000	\$639.00	\$56,457,143
Total		3,973,700	158,704,114		\$2,267,201,625

The estimated Use Tax revenues due on out-of-state purchases based on this approach total approximately \$158 million in 2008. It should be noted, however, that *not all of these estimated revenues due can necessarily be attributed to E-commerce*. Some may be attributable to goods physically purchased outside the state, then transported into the state. Others may be attributable to phone-based or mail-order purchases. However, in light of the high and rapidly increasing level of broadband penetration (72% in New Jersey in 2009), it is reasonable to assume that a considerable portion, if not most, of these latter sales are now made using the

¹³ Because the detailed data on tax returns by income bracket and the income brackets used in the Estimated Use Tax Chart do not coincide in all cases, it was necessary to allocate some returns across brackets in order to assign an estimated Use Tax to them. A detailed description of this allocation is provided in Appendix I. The table in Appendix II also provides estimates of the average amount of out-of-state purchases by individuals in each income group.

Internet. It is also possible that the volume of such sales has increased significantly as a result both of the ease of access provided by broadband Internet connection, and of the concomitant opportunity to avoid payment of Sales Tax on such purchases which is effectively a 7% reduction in the price of the goods or services. Regardless of what portion of this estimate is directly attributable to E-commerce, it represents a significant loss in revenue for the state. The New Jersey Division of Taxation's Statistics of Income for 2008 reports ***total Use Tax collections on out-of-state purchases of \$1.4 million***. That is, ***the state collected less than 1% of the total Use Tax estimate*** implied by the Estimated Use Tax Chart in Figure 1 and the distribution of returns by gross income bracket provided in the Statistics of Income.

Need for Further Research and Analysis

The reporting of Use Tax on out-of-state purchases through the NJ-1040 is intended to provide individuals with a means to report and remit Use Tax due. However, this is not the only means of reporting. Individuals may also report and remit Use Tax on out-of-state purchases within 20 days of bringing the purchases into the state, using NJ Form ST-18. While information on Use Tax payments using Form ST-18 was not available at the time of this report, we do not believe that these amounts are likely to be significant. Nevertheless, it would be appropriate to add any such amounts to the \$1.4 million reported through the NJ-1040 in order to more accurately depict the total Use Tax collections from individuals.

It is also worth noting that Use Tax amounts listed in the Estimated Use Tax Chart have not changed since 2007 (as of the 2010 NJ-1040 Instructions). Thus, the number of filers and their distribution in any given year will affect the total estimate of Use Tax due. However, because of the constant nature of the Use Tax amounts appearing in the NJ 1040 instruction table, the implicit estimates of out-of-state purchases over time by individuals at each income level may not reflect the full tax revenue losses. This is because the magnitude of out-of-state purchases may have grown due to the increases in both broadband connectivity and in E-commerce activity over time.

V. Econometric Approach

Another approach to estimating the Sales Tax revenue impact of the use of broadband connections to make on-line purchases of goods and services is to use the R/ECON™ Forecasting Model of the New Jersey economy. This econometric model consists of over 300 equations based on quarterly data from 1970 through 2009, reflecting the long-term performance of employment, output, income, price, fiscal conditions, and individual business sectors of the state's economy. It is used routinely to provide both short and long term forecasts of the state's economy and to examine the effects of economic events and changes for a wide variety of purposes.¹⁴

Within the R/ECON™ Model is an equation that estimates New Jersey Sales Tax revenues. That equation uses a number of explanatory variables to gauge the individual impact of various economic conditions on Sales Tax revenues. Variables such as the Sales Tax rate, the level of retail sales, the composition of consumer spending, the level of wages and salaries, the average income tax rate, and other factors are included in the equation. Using conventional econometric techniques, the equation is able to quantify the individual contributions of these variables on Sales Tax revenues.

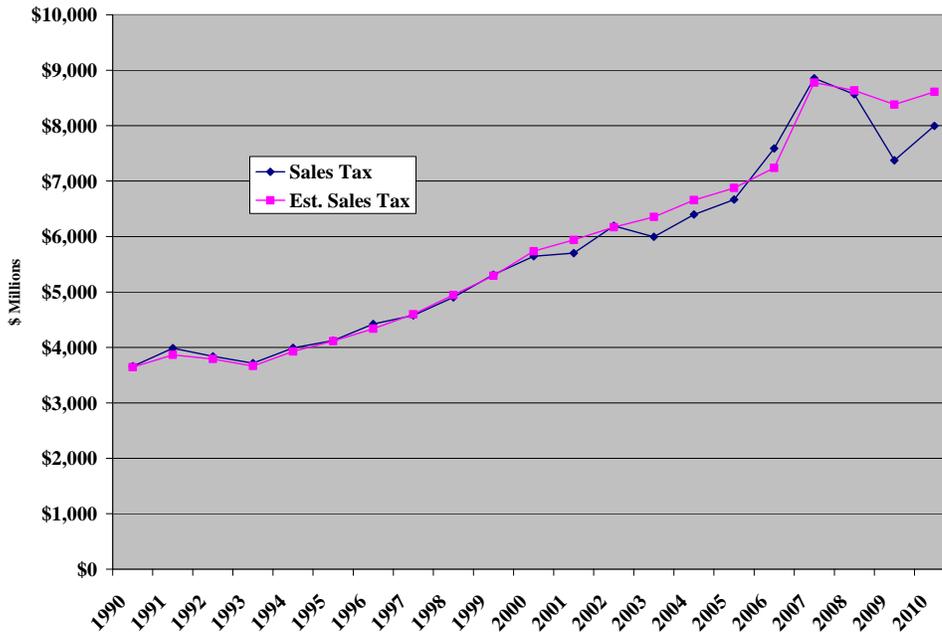
For this project, the equation was modified to include a new variable, namely, the share of New Jersey households that have broadband connection to the Internet.¹⁵ Accordingly, a new Sales Tax revenue equation was estimated with this variable. The expected effect on Sales Tax revenues is inverse; that is, as the share of households with broadband connection increases, Sales Tax revenues will decline, *other factors remaining the same*. In effect, the new equation seeks to use broadband penetration to explain, in part, the gap between expected Sales Tax revenues and actual Sales Tax revenues during the early and mid-2000s as reflected in Figure 2.¹⁶

¹⁴ The model is described briefly in Appendix III. It has been used, for example, to estimate the effects of public policies (e.g., implementing a renewable energy portfolio standard), major private investments, and also for tax revenue forecasting.

¹⁵ In 2001, that share was estimated at 12%. By 2009, the share of New Jersey households with broadband connection had risen to 72%.

¹⁶ There are many influences that potentially may explain the gap in Figure 2. The addition of the broadband penetration variable in the equation seeks to determine if changes in that factor are a statistically significant determinant of actual sales tax collections.

Figure 2
New Jersey Estimated Sales Tax vs. Actual Collections, 1990-2010



In the new equation, the estimated effect of the broadband variable on Sales Tax revenues was negative, as expected.¹⁷ The new equation was then used to answer to the following question: What would New Jersey Sales Tax revenues in 2009 have been with and without the presence of a 72% broadband connection rate for New Jersey households? The estimated Sales Tax revenue loss in 2009 from the 72% broadband connection rate in New Jersey was \$608 million, or approximately 8.2% of Sales Tax collections that year.

Table 5
Econometric Equation Results
Estimated Sales and Use Tax Losses, 2009

	2009
Estimated Sales Tax Loss	\$608 million
% of Annual Sales Tax Revenues	8.2%
Broadband Penetration Rate	72%

This estimate is significantly larger than the estimate derived using the sales-based approach presented earlier in this report, and as such, should be interpreted *only* as additional evidence that the growth in broadband connectivity has negatively impacted New Jersey Sales

¹⁷ The coefficient of the broadband connection variable was -.001, with a standard error of .0006. The full equation is reported in Appendix IV.

Tax collections. However, it is also possible that a portion of the discrepancy may be attributable to uncollected Sales Taxes on business-to-business E-commerce transactions.

The value of business-to-business E-Commerce transactions is very large - the University of Tennessee study estimates the level of such sales at \$2.2 trillion (or 93.3% of all E-commerce transactions) nationally in 2009, versus \$161.3 billion (6.7%) for business-to-consumer E-commerce transactions. However, most business-to business E-commerce transactions are not subject to Sales Tax. The University of Tennessee study estimates that, nationally, 13% of business-to-business E-commerce transactions are subject to Sales Tax. Using the national share of business-to-consumer E-commerce transactions (6.7%) estimated by the University of Tennessee and the \$11 billion estimate of business-to-consumer transactions derived in the sales-based approach presented earlier in this report, we estimate total business-to-business E-commerce transactions in New Jersey valued at \$163.6 billion. Using the estimate of 13% of these transactions being taxable, New Jersey's 7% Sales Tax rate, and a compliance rate of 78% for business-to-business transactions, produces an estimate of \$327.6 million in uncollected Sales Taxes for business-to-business transactions in New Jersey in 2009. A higher estimated business-to-business compliance rate of 90% would still result in estimated tax losses of about \$150 million.¹⁸ Losses of this magnitude would account for much of the \$437 million gap between the \$171 million in losses estimated using the sales-based (business-to-consumer only) approach (Table 3) and the \$608 million estimate derived from the econometric equation that implicitly also contains business-to-business transactions (Table 5).

As the scale of broadband penetration becomes nearly universal as can be expected in a state like New Jersey with its significantly above average levels of education and income, as the technical sophistication of broadband users increases, and as the convenience and time saving advantages of online purchases rise, it is reasonable to expect that larger shares of retail sales and other consumer purchases will be made using the Internet. Thus, these estimates, based on past relationships, may, in fact, prove conservative.

¹⁸ The estimated 78% business-to-business compliance rate is based on an analysis of the business-to-consumer retail and total state compliance rates cited in the University of Tennessee study. The 90% alternative compliance rate is offered for comparison, but is not derived from the data published in the study.

VI. Other Economic Impacts

A central purpose of this report has been to estimate the reduction in New Jersey Sales and Use Tax collections attributable to E-commerce purchases. There are, however, other economic and fiscal implications from E-commerce sales. Several of these impacts are discussed in this section.

Rebound Effect

One of the several reasons that consumers have increasingly turned to E-commerce purchases over time is the ability that on-line purchasing offers to avoid Sales and Use Tax obligations for some goods and services. As noted previously, not paying the New Jersey Sales Taxes is equivalent to a 7% decrease in the total price to the consumer. Accordingly, if a new policy resulted in improved collection of the currently foregone Sales and Use Tax in New Jersey, some consumers may shift their out-of-state E-commerce purchases back to in-state brick-and-mortar retailers (or, back to in-state on line retailers). This is because the online purchases from out-of-state vendors would no longer carry the 7% price advantage. The increased sales generated by this rebound of in-state retail activity would result in increased employment and other direct and indirect economic impacts.

A study of the potential rebound effect for California found that these economic impacts could be significant.¹⁹ The study relied on an estimate of the rebound effect that indicated that for every one percentage point change in the Sales Tax, 2.3% of on-line consumers would switch back to in-state purchases.²⁰ Thus, using this estimate of the tax price elasticity, any policy which effectively restores the New Jersey 7% Sales Tax on those E-commerce consumers currently not paying the Sales Tax (or not complying with the Use Tax), would result in a 16.1% rebound of consumers back to New Jersey in terms of retail purchases. If we further assume that these consumers are typical of all New Jersey consumers with respect to how much they spend, then 16.1% of the estimated E-commerce sales would return to the state.

The estimate of the size of the rebound effect can be questioned. The 2.3% elasticity was based on a consumer survey taken over 14 years ago (1997) when using the Internet for retail

¹⁹ See, "Flawed System: Online Sales Tax Collection, Economic Impact upon California Businesses and Employees," prepared for Taxpayers Advocate (www.taxpayersadvocate.org), Richard A. Parker, Rea & Parker Research, August 2010. This study estimated that over \$4 billion in sales would return to in-state vendors in 2010.

²⁰ See, "In a World Without Borders: the Impact of Taxes on Internet Commerce," Austan Goolsbee, *Quarterly Journal of Economics*, Vol. 115, May 2000, pp. 561-576.

and related purchases by consumers was less advanced technologically (e.g., it was much more reliant on dial-up connectivity), and was not as familiar, convenient, or perhaps, trusted as much by consumers in terms of security. Since the time of that survey, higher inconvenience costs of shopping at bricks and mortar stores (e.g., traffic congestion, higher real gasoline prices, value of time), and other similar factors may make the return of consumers to in-store purchases less sensitive to an effective increase in the retail price of goods and services.²¹

Accordingly, in order to be conservative, we use a range of estimates of the tax price elasticity. We use the 2.3% estimate, but also another estimate that is only half of this value, 1.15%. We apply these two tax price elasticities to the 2009 range of estimates of \$739.6 million to \$2.44 billion in untaxed E-commerce purchases by New Jersey consumers (based on the estimated range of \$51.8 million to \$171 million in foregone Sales and Use Tax revenues presented in Table 3). We then use estimates of economic impacts per million dollars of retail output (approximately 19% of sales), derived from the RIMS II Multipliers published by the U.S. Bureau of Economic Analysis, to obtain estimates of the annual impacts on the New Jersey economy (Table 6) that would occur from the rebound effect.²² The higher sales tax elasticity (2.3%) estimates are shown in the top panel and the lower estimates (1.15%) in the bottom panel.

Table 6
Estimated Economic Impacts of Out-of-State E-Commerce, 2009

Uncollected Tax (\$)	51,771,432	170,955,877
Implied Sales (\$)	739,591,886	2,442,226,814
16.1% Sales Rebound (2.3% elasticity)	119,074,294	393,198,517
Output (19% of Sales Rebound)	22,624,116	74,707,718
Employment	437	1,442
Compensation (\$)	13,341,441	44,055,141
Compensation/Job (\$)	30,544	30,544
Gross Domestic Product (\$)	28,660,230	94,639,737
8.05% Sales Rebound (1.15% elasticity)	59,537,147	196,599,259
Output (19% of Sales Rebound)	11,312,058	37,353,859
Employment	218	721
Compensation (\$)	6,670,721	22,027,571
Compensation/Job (\$)	30,544	30,544
Gross Domestic Product (\$)	14,330,115	47,319,869

²¹ Of course, this argument does not apply to all consumers currently making on-line purchases. Some of the consumers would return to on-line vendors with a nexus in, e.g., California, or in New Jersey.

²² While the implied sales totals include both goods and services, the estimated per-million-dollar impacts are derived from the RIMS II multipliers for the retail sector only. Depending on the mix of services also included in the sales totals, the multipliers may to some degree either over- or under-estimate the total impacts. Regional Input-Output Modeling System (RIMS II), Regional Product Division, U.S. Bureau of Economic Analysis.

The impacts provided in Table 6 are economy-wide. That is, they are not limited to the retail and service sectors, but represent the employment and related economic activity that would be re-gained throughout the economy based on the return of the sales to the state. Thus, it is estimated that the rebound of sales caused by full collection of the foregone Sales and Use Tax Revenues would result in gains of between 218 and 1,442 jobs with associated compensation of between \$6.7 million and \$44.1 million. In addition, it is estimated that the rebounded sales would generate an additional \$14.3 million to \$94.6 million in gross domestic product for the state.²³

It should be noted that, from a national perspective, the above estimates of impacts are more complex. First, a switch of E-commerce purchases back to New Jersey obviously means that E-commerce sales that were being made elsewhere are reduced, dollar for dollar. This reduction would lower overall economic activity elsewhere in the nation by the appropriate multipliers of E-commerce activity. For example, the reduced E-commerce revenues would no longer support jobs and associated income in warehousing, shipping, customer service, programming, etc., presently associated with current levels of Internet retailing. As a result, this redistribution of purchases from out-of-state vendors to in-state vendors would not necessarily yield a net gain in jobs, or in the other economic impacts, when measured on a *national* basis. Second, any improved Sales and Use Tax collection protocol in New Jersey is likely to be part of a national effort whereby tax collections on E-commerce purchases, in time, are improved in all, or in many, of the affected states across the country.

Any improvement in national collections further complicates the problem of estimating the employment and other economic and fiscal impacts in an individual state.²⁴ The reason is that a national redistribution of E-commerce sales among the states would change the *relative prices* of on-line purchases across all the states due to differences in Sales and Use Tax rates and differences in coverage. The result of this *simultaneous change* in relative retail Sales Tax prices across all states could yield significantly different rebound effects than those estimated here for a single state.

²³ A state's Gross Domestic Product is the sum of the value added of its industries. "Value added measures the gross output of an industry or a sector less its intermediate inputs; the contribution of an industry or sector to gross domestic product (GDP). Value added by industry can also be measured as the sum of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus." U.S. Bureau of Economic Analysis.

State Tax Revenues and State Government Employment

Any increase in the compliance rates for Sales and Use Tax obligations will raise Sales Tax revenues. This report provides a range of estimates for the annual increase that could result from improved collection protocols. The *use* of these additional revenues by state government could result in additional economic and fiscal impacts on New Jersey.

While the amount of additional Sales Tax revenues is significant, it is relatively small compared to total tax revenues collected by the state (e.g., the estimated tax revenue in New Jersey from all sources in fiscal year 2012 is \$29.4 billion). Accordingly, it is not likely that the increase in Sales and Use Tax collections attributable to improved sales collection protocols for E-commerce would replace existing tax revenues (i.e., that the additional collections would be used to decrease other taxes²⁵).

A more likely assumption is that some, if not all of the increased Sales and Use Tax collections would be spent by state government. This increase in state government expenditures would likely result in some additional public sector employment. This additional public sector employment and its associated payroll would in turn have further multiplier effects, generating additional employment.

If we assume, reasonably, that the additional Sales and Use Tax revenues collected are spent across all the existing expenditures of state government in the same proportion as current expenditures, we can use the relationship between New Jersey state expenditures and employment reflected in U.S. Bureau of Labor statistics employment data and New Jersey Treasury Department tax revenue data to estimate the direct public sector employment effects. Using the range of estimates of between \$51.8 million and \$171 million annually in additional Sales and Use Tax collections (Table 3), which is then assumed to be spent proportionally across all state government expenditure categories, yields an estimate of additional employment of between 828 and 2,735 jobs.²⁶

²⁵ If this did occur, then the impacts could be measured by treating the reduction in taxes as an increase in personal income which, went spent, would generate additional employment and other economic gains in the state.

²⁶ These estimates may be high, since not all of the estimated lost Sales and Use Tax revenues would be realized under the new collections protocols. For example, any exemption from the Sales Tax responsibility for small vendors (a likely part of any new protocol) would reduce collections below the amount used above.

Appendix I – Allocation of Use Tax Estimates by Gross Income Bracket

Because the detailed data on tax returns by income bracket and the income brackets used in the Estimated Use Tax Chart do not coincide in all cases, the number of returns by income bracket provided in the New Jersey Division of Taxation Statistics of Income for 2008 were allocated to the Use Tax estimates from the Estimated Use Tax Chart as follows:

- All of the non-taxable returns with income of \$10,000 or less, and half of the taxable and non-taxable returns with income between \$10,000 and \$20,000 were allocated to the \$0 - \$15,000 income range (\$7 Use Tax estimate).
- Half of taxable and non-taxable returns with income between \$10,000 and \$20,000, all taxable returns with income between \$20,000 and \$30,000, and two-thirds of taxable returns with income between \$20,000 and \$35,000 were allocated to the \$15,000-\$30,000 income range (\$22 Use Tax estimate).
- All taxable returns with income between \$30,000 and \$50,000, one-third of non-taxable returns with income between \$20,000 and \$35,000, and all non-taxable returns with income between \$35,000 and \$50,000 were allocated to the \$30,000-\$50,000 income range (\$32 Use Tax estimate).
- All taxable and non-taxable returns with income between \$50,000 and \$75,000 were allocated to the \$50,000-\$75,000 income range (\$42 Use Tax estimate).
- All taxable and non-taxable returns with income between \$75,000 and \$100,000 were allocated to the \$75,000-\$100,000 income range (\$53 Use Tax estimate).
- All taxable returns with income between \$100,000 and \$150,000 and half of non-taxable returns with income between \$100,000 and \$200,000 were allocated to the \$100,000-\$150,000 income range (\$67 Use Tax estimate).

- All taxable returns with income between \$150,000 and \$200,000 and half of non-taxable returns with income between \$100,000 and \$200,000 were allocated to the \$150,000-\$200,000 income range (\$85 Use Tax estimate).
- The NJ-1040 Estimated Use Tax Chart stipulates that, for incomes over \$200,000, either the Use Tax should be estimated as the lesser of 0.0426% of gross income *or* \$247. For income ranges over \$200,000, the 0.0426% estimate was applied to the midpoint of the range.
- All taxable and non-taxable returns with income between \$200,000 and \$250,000 were allocated to the \$200,000-\$250,000 income range (\$95.85 Use Tax estimate based on 0.0426% of \$325,000 gross income).
- All taxable returns with income between \$250,000 and \$400,000 and three-quarters of non-taxable returns with income between \$250,000 and \$500,000 were allocated to the \$250,000-\$400,000 income range (\$138.45 Use Tax estimate based on 0.0426% of \$325,000 gross income).
- All taxable returns with income between \$400,000 and \$500,000 and one-quarter of non-taxable returns with income between \$250,000 and \$500,000 were allocated to the \$400,000-\$500,000 income range (\$191.7 Use Tax estimate based on 0.0426% of \$425,000 gross income).
- All taxable returns with income between \$500,000 and \$1,000,000 and all non-taxable returns with income over \$500,000 were allocated to the \$500,000-\$1,000,000 income range (\$247 Use Tax estimate, based on the lesser of \$247 and $0.0426\% * \$750,000 = \319.50).
- All taxable returns with income over \$1,000,000 were allocated to the \$1,000,000-\$2,000,000 income range (\$247 Use Tax estimate, based on the lesser of \$247 and $0.0426\% * \$1,500,000 = \639.00).

Appendix II – Implied Taxable Out-of-State Purchases

Table A-1
Implied Taxable Out-of-State Purchases per Individual Income Tax Filer

Gross Income	Est. Use Tax	Implied Purchases
Up to \$15,000	\$7	\$100.00
\$15,001 - \$30,000	\$22	\$314.29
\$30,001 - \$50,000	\$32	\$457.14
\$50,001 - \$75,000	\$42	\$600.00
\$75,001 - \$100,000	\$53	\$757.14
\$100,001 - \$150,000	\$67	\$957.14
\$150,000 - \$200,000	\$85	\$1,214.29
\$200,001 and over	<i>Lesser of 0.0426% or \$247</i>	
\$225,000 (\$200,000 - \$250,000)	0.0426%	\$1,369.29
\$325,000 (\$250,000 - \$400,000)	0.0426%	\$1,977.86
\$450,000 (\$400,000 - \$500,000)	0.0426%	\$2,738.57
\$750,000 (\$500,000 - \$1,000,000)	\$247	\$3,528.57
\$1,500,000 (\$1,000,000 - \$2,000,000)	\$247	\$3,528.57

Appendix III – R/ECON™ Forecasting Model

R/ECON™ is an econometric model comprised of over 300 equations, which are solved simultaneously. The equations are based on historical data for New Jersey and the US. The historical data used to produce the model covers the period from 1970 to the present. The sectors included in the model are:

- Employment and gross state product for 40 industries
- Wage rates and price deflators for major industries
- Consumer price index
- Personal income and its components
- Population, labor force and unemployment
- Housing permits, construction contracts, and housing prices and sales
- Energy prices and usage
- Motor vehicle registrations and stocks, and
- State tax revenues by type of tax, and current and capital expenditures.

The heart of the model is a set of equations modeling employment, wages, and prices by industry. In general, employment in an industry depends on demand for that industry's output, and on the state's wages and prices relative to the nation's wages and prices. Demand can be represented by a variety of variables including (but not limited to) New Jersey personal income, New Jersey population, New Jersey sectoral output, or U.S. employment in the sector. Growth in population is driven by total employment in the state and by state prices relative to national prices.

Appendix IV – Broadband Regression Equation

Dependent Variable: LOG(TXSALES); Method: Least Squares

Sample (adjusted): 1990Q1 2009Q4

Included observations: 80 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(TXSALES(-1))	0.101726	0.041571	2.447033	0.0171
LOG(TXRSALES)	1.040056	0.095834	10.85268	0.0000
LOG(YWWSDNJ(-1)-TXRGITAVG(-1)/100*YWWSDNJ(-1)/PTTTNJ(-1)*PTTTNJ(-1))	0.114013	0.032533	3.504552	0.0008
LOG(RETSALESNJ*(CD+CNOO)/(CD+CN))	0.579200	0.093501	6.194562	0.0000
LOG(((CSVFAAC+CSVOCT+CSVOO+CSVREC)/(CSV-CSVH-CSVHC-CSVFIN))*CSV*YRPICNJ/1000/YP)	0.233934	0.107023	2.185829	0.0324
S1	-0.140579	0.007851	-17.90672	0.0000
DUM08Q2	0.269190	0.029728	9.055067	0.0000
DUM07Q2	0.207792	0.029991	6.928412	0.0000
DUM06Q4	0.166500	0.030899	5.388548	0.0000
DUM02Q1	0.095401	0.029777	3.203875	0.0021
DUM06Q3	0.125719	0.030834	4.077261	0.0001
DUM06Q2	0.121378	0.030184	4.021301	0.0002
DUM96Q2	0.108148	0.029064	3.721071	0.0004
BROADBAND	-0.000999	0.000621	-1.609491	0.1123
R-squared	0.992048	Mean dependent var	7.197668	
Adjusted R-squared	0.990482	S.D. dependent var	0.290623	
S.E. of regression	0.028354	Akaike info criterion	-4.130470	
Sum squared resid	0.053061	Schwarz criterion	-3.713616	
Log likelihood	179.2188	Durbin-Watson stat	1.788103	

Variable Definitions

Txsales: Sales Tax Revenue per Quarter

Txrsales: Sales Tax Rate

Ywwsdnj: Wages and Salaries

Txrgitavg: Average Income Tax Rate

Ptttnj: Population

Ret-sales: Retail Sales in NJ (Estimated after 1995)

CD: US Consumption of Durables

CNOO: US Consumption of other other non-durables (excludes pharmaceuticals and tobacco)

CD: US Consumption of non-durables

CSFAAC: US Consumption of services--food and accomodations

CSVOCT: US Consumption of services--telecommunications

CSVOO: US Consumption of services--other (excludes telecommunications)

CSVREC: US Consumption of services--recreation

CSV: US Consumption of services

Yrpicnj: NJ Personal Income

YP: US Personal Income

Broadband: % of homes in NJ with Broadband

Annotated Bibliography

Bruce, Donald, William F. Fox and LeAnn Luna, *State and Local Government Sales Tax Revenue Losses from Electronic Commerce*, University of Tennessee. April 2009.

The authors estimate total sales tax losses of \$7.5 billion for the U.S. and \$133 million for New Jersey in 2009.

Eisenach, Jeffrey and Litan, Robert. *Uncollected Sales Tax on Electronic Commerce: A Reality Check*. Empiris LLC. February 2010.

The authors estimate uncollected Sales and Use Taxes from online purchases at \$3.9 billion nationwide in 2008, with a lower adjusted estimate of \$2.45 billion if small-businesses are exempted, as is proposed in some legislation. The authors estimate that in 2012, New Jersey will lose \$151.7 million in uncollected Sales and Use Taxes on Internet-based transactions.

Austan Goolsbee, 2000. "In a World Without Borders: The Impact of Taxes on Internet Commerce," *Quarterly Journal of Economics* 115;2 (May 2000) 561-576.

<http://faculty.chicagobooth.edu/austan.goolsbee/research/intertax.pdf>

This article analyzes a survey of consumer online purchase patterns and concludes that Internet sales are very sensitive to local tax rates. People who live in locations with high sales tax rates are more likely to purchase goods online. If existing sales taxes were applied to Internet purchases, online retail could be reduced by as much as 24 percent.

Ellison, Glenn and Ellison, Sara. "Internet Retail Demand: Taxes, Geography, and Online-Offline Competition." Massachusetts Institute of Technology Department of Economics Working Paper Series. May 2006.

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=901852

This paper concludes that sales taxes on traditional retail purchases are a significant driver of Internet retail. States that levy high sales taxes on purchases in brick and mortar stores experience higher levels of e-commerce. If sales tax is applied to Internet purchases, e-retail demand could be reduced by 25 percent or more.

Nobbs, Jeff. "The REAL Numbers Behind the Internet Sales Tax Debate." Extrabux.com Blog. Extrabux.com April 13, 2011.

<http://www.extrabux.com/blog/2011/04/the-real-numbers-behind-the-Internet-sales-tax-debate/>

Using their own data, Extrabux.com, an Internet service that seeks out the lowest available retail prices, estimates that in fiscal year 2010, 31 of 44 states currently facing a budget shortfall would be able to reduce their deficit by at least 9 percent if the state collected sales tax on purchases made online by their residents. Without any legislative changes, by 2015 more than \$15 billion in remote sales tax revenues will not be collected. The study estimates that New Jersey will lose \$378.0 million in uncollected Sales and Use Tax revenues on E-commerce in FY 2012.

Hale, Kathleen, and McNeal, Ramona. *Technology, politics, and e-commerce: Internet sales tax and interstate cooperation*. Government Information Quarterly. Vol. 28 Issue 2 262 – 270. April 2011.

“Tax revenue from Internet and remote sales are important to states; sales tax revenue losses from the growth e-commerce are projected to reach \$50 billion by 2011 (Swain & Hellerstein, 2006).” (263)

Omar, A., Bhutta, M. K. S., & Sanchez, T. (2009). The impact of e-taxation policy on state and local government revenue. *Electronic Government an International Journal*, 6(4), 378-390.

<http://inderscience.metapress.com/app/home/contribution.asp?referrer=parent&backto=issue,3,6;journal,7,30;linkingpublicationresults,1:110845,1>

“Our research indicated that the loss of taxes amounting to \$13.3 billion in 2001 will rise to \$62.1 billion by 2011, unless taxation policies are changed.”

Parker, Richard. *Flawed System: Online Sales Tax Collection*. Rea & Parker Research. August 2010.

<http://www.rea-parker.com/documents/Internet-Sales-CA-Economic-Impact-Report-August-24-2010.pdf>

This is an analysis of sales in California lost to Internet retailers and the indirect and induced impacts of these losses. The study looks at the impact of online sales on California’s overall economic activity, jobs lost to other states, commercial real estate values in California, and payroll losses in state.

Horrigan, John. *Online Shopping*. Pew Internet & American Life Project. February 13, 2008.

<http://www.pewInternet.org/Reports/2008/Online-Shopping/01-Summary-of-Findings.aspx?r=1>

This study examines use of Internet services such as online retail and banking. The study found that two-thirds of American purchased a product online, many agreeing that online shopping is convenient and saves them time. Three-quarters of those using the Internet are concerned about sending personal credit card information over the Internet. Over half of online shoppers have been either confused, frustrated, or overwhelmed by an online shopping experience. Other findings speak to users’ trust of the online retail environment, perceptions of online shopping among low-income online shoppers, and the rapid expansion of shopping and banking as Internet activities.