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UNCOLLECTED SALES TAXES ON ELECTRONIC COMMERCE: A REALITY CHECK

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EXECUTIVE SUMMARY

Under the Supreme Court's 1992 *Quill* decision, online retailers are not required to collect sales taxes in states where they do not have a physical presence, or "nexus." As a result, state and local sales taxes are not collected on some proportion of interstate sales. Since the early days of the Internet, state and local governments have lobbied Congress to overturn *Quill* and force e-retailers to collect taxes on all sales, regardless of whether they have nexus.

The amount of uncollected taxes involved is central to the debate. Overturning *Quill* would impose significant administrative costs, especially on small businesses (where administrative costs account for as much as 13.5 percent of taxes collected), and would have other negative consequences as well. If, the resulting tax collections would be too small to materially affect state and local government finances, then governments arguably should look elsewhere for a solution to their fiscal difficulties.

In this study, we present an estimate of the amount of potential uncollected sales tax revenues for 2008, and a forecast of uncollected revenues through 2012. Our primary findings are:

- Total potential uncollected sales tax revenues in 2008 were approximately $3.9 billion, or less than three-tenths of one percent of state and local tax revenues.

- More than one third of uncollected revenues are associated with small businesses. If firms with less than $5 million in remote sales were exempt (as proposed by legislation introduced in recent Congresses), potential uncollected revenues fall to approximately $2.45 billion, or less than two-tenths of one percent of state and local tax revenues.

- Uncollected revenues are not rising rapidly. Uncollected revenues (from firms with more than $5 million in remote sales) will average approximately $2.67 billion over the 2008-2012 period, or about two tenths of one percent of total state and local tax revenues.

- The growth of "brick and click" retailing (i.e., brick and mortar retailers with substantial online sales) is likely to reduce the proportion of online sales on which taxes are not collected. In addition, states are using various tactics to promote tax collection by "out-of-state" firms. These two trends suggest that uncollected revenues are likely to fall over time – i.e., that the uncollected revenue problem is "solving itself."

- A few large firms account for the bulk of uncollected tax revenues. For example, the top 10 firms (ranked by uncollected taxes) account for approximately 47 percent of total uncollected revenues. This finding provides some support for those who have argued that the states should focus their efforts on firms with large uncollected tax revenues.

Our findings differ markedly from those of a recent study by a group at the University of Tennessee (the *Fox Study*), which estimated uncollected tax revenues associated with *Quill* at

over $7.7 billion in 2008, rising to as much as $12.7 billion in 2012. The differences can be attributed to three primary factors:

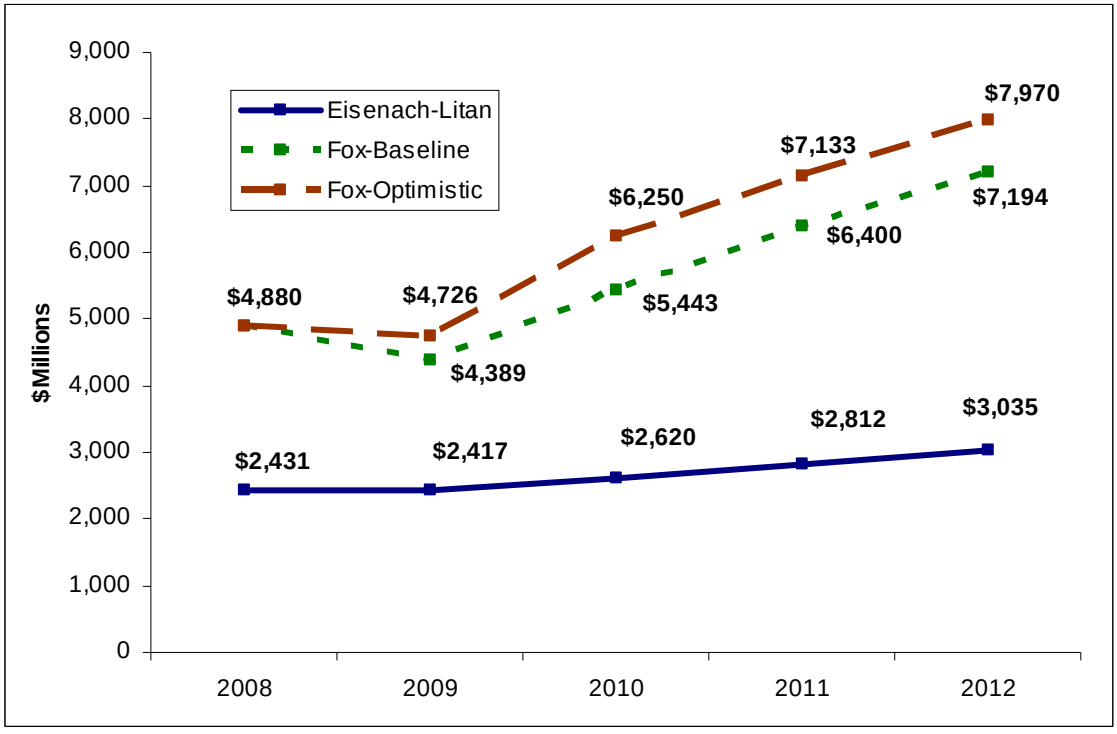
- First, the *Fox Study* substantially overstates uncollected taxes associated with business-to-business (B2B) online sales.

- Second, the *Fox Study* understates tax collections by small firms.

- Third, with respect to "out-year" projections, the *Fox Study* assumes an unrealistically high and unsustainable growth rate for online sales, especially considering the fact that the growth of broadband penetration among U.S. households – one of the primary drivers of online sales growth – is slowing as household broadband penetration approaches saturation.

The differences between our results and those of the *Fox Study* are summarized in the figure below. In our view, the most significant difference is in the rates of growth: Rather than growing rapidly, as the *Fox Study* suggests, our analysis demonstrates that uncollected revenues are, at most, growing slowly. Given that uncollected revenues account for such a small proportion of revenues, our assessment is that state and local tax collectors would be best served by focusing their efforts on other potential revenue sources.

POTENTIAL UNCOLLECTED REVENUE FORECASTS, 2008-2012



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I. INTRODUCTION

In its 1992 *Quill* decision,[1] the Supreme Court affirmed prior holdings that state sales tax regimes were so complex that forcing out-of-state firms to collect taxes would present an unreasonable burden on interstate commerce. Consequently, the court ruled that retailers could not be forced to collect sales taxes for states where they do not have a physical presence, or "nexus." While states also require buyers to pay "use taxes" in lieu of unpaid sales taxes, and businesses generally do so, use tax compliance is generally agreed to be relatively low among consumers. As a result, states and localities have long complained that the growth of e-commerce – a portion of which is comprised of remote sales – is depriving them of significant tax revenues, and have sought legislation that would overturn *Quill* and force online retailers to collect and remit state and local sales taxes on remote sales. Retailers, on the other hand, argue that the administrative costs of collecting taxes for several thousand state and local sales tax jurisdictions would be overly burdensome, especially for small businesses that likely have *de minimis* sales in many states.

Whether it makes sense to overturn *Quill* depends in part on how much additional tax revenue would actually be generated. If the potential increase in tax revenues is sufficiently large, some would argue that it would be worthwhile to incur the administrative costs (both public and private) required for collection; otherwise, the government should look elsewhere for revenue sources that involve lower welfare costs to society (as a share of taxes collected).[2]

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[1] 504 U.S. 298, 112 S.Ct. 1904.

[2] Of course, administrative costs are not the only consideration. In general, the most efficient taxes are those which generate the lowest deadweight losses, including the costs of economic distortions as well as administrative costs. See e.g., Edgar K. Browning and Jacqueline M. Browning, *Public Finance and the Price System* (New York: MacMillan Publishing, 1979) at 288-294.

Several studies have attempted to estimate the magnitude of uncollected sales taxes associated with out-of-state online sales. The most widely cited analysis, by Donald Bruce, William F. Fox, and LeAnn Luna at the University of Tennessee (the "*Fox Study*"), estimates that state and local governments will fail to collect between $44.8 billion and $49.1 billion in tax revenues on online sales over the five-year period between 2008 and 2012.[3] While these estimates are still quite low as a proportion of total state and local tax revenues (about 0.6 percent), or even state and local sales tax revenues (about 2.5 percent),[4] they are sufficiently large that states and localities have cited them in support of their efforts to promote Federal legislation. Other analysts have suggested these estimates are too high, that the actual amount of tax revenues foregone is much lower, and that the amount of additional taxes that might plausibly be collected is lower still, especially since Congressional proposals to mandate collection of remote sales tax have exempted small business retailers.[5]

In this study, we provide estimates of the potential state and local sales tax revenues from Internet retailers, using data from a range of sources, including a recent comprehensive survey of retailers doing business both on and off the Net (both pure Net retailers and those using the "bricks and clicks" model). Our estimates of lost revenue are far lower than those in the *Fox Study* – at $3.9 billion for 2008, slightly more than half. Moreover, assuming – as seems

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[3] Donald Bruce, William F. Fox, and LeAnn Luna, *State and Local Government Sales Tax Revenue Losses from Electronic Commerce, University of Tennessee Working Paper* (April 13, 2009) (hereafter *Fox Study*).

[4] For example, the *Fox Study* estimates uncollected revenues of $7.26 billion in 2008. The Census Bureau reports total state and local tax revenues for the 12 months ended December 2008 were $1.304 trillion, and state and local sales and gross receipts taxes for this period were $305 billion. See U.S. Census Bureau, Federal, State and Local Governments: Quarterly Summary of State and Local Government Tax Revenue (http://www.census.gov/govs/www/qtax.html, viewed August 31, 2009).

[5] See, e.g., Billy Hamilton, "Internet Sales Tax: What If There's No There There," *State Tax Notes* 49 (September 1, 2008) at 627 and Peter A. Johnson, *Setting the Record Straight: The Modest Effect of Ecommerce on State and Local Sales Tax Collection* (Direct Marketing Association, January 19, 2008).

extremely likely – that a sales tax collection mandate would include an exemption for small businesses, the amount would be even less: Approximately $2.4 billion, or *less than two-tenths of one percent* of state and local government tax revenues. In the balance of this introductory section we explain why our estimates differ from the *Fox Study*, and in the rest of the paper, we provide the details.

The amount of revenue that would be generated by a mandate to collect remote sales tax depends on three primary factors: (1) The dollar amount of taxable e-commerce sales on which taxes currently are due, but not collected; (2) the applicable tax rates on these sales; and, (3) the "reach" of the mandate, i.e., the revenues that would be exempted if, for example, small businesses were not covered (or, realistically, if there was a significant amount of non-compliance). Unfortunately, none of these three magnitudes is directly observable, and it is therefore necessary to develop estimates. For example, while there are both public and private estimates of the total amount of retail online sales, it is necessary to estimate the proportion of these sales accounted for by products (e.g., food products, intangibles) that are exempt from state and local sales taxes. Of the remainder, it is necessary to estimate the proportion of sales for which taxes are already collected, either because they are made to customers in states where the seller has nexus, or because the buyer pays use taxes, which is typical for most business-to-business (B2B) sales. Once an estimate of untaxed sales is developed, the overall sales figure must be allocated across jurisdictions in order to apply the appropriate tax rates. Finally, in order to make going-forward projections of lost tax revenues, it is necessary forecast the key underlying variables for future periods.

In this study, we utilize data from a variety of sources to estimate the amount of uncollected sales taxes on electronic sales for 2008-2012. The starting point for our analysis is a

survey of sales tax collection practices of the largest online retailers as reported by *Internet Retailer*, which reports annual online sales revenues for the 500 largest Internet retailers, including both "pure play" online retailers (like Amazon.com) and "brick-and-click" or "multichannel" retailers (like Target and Wal-Mart). To ascertain the extent to which these firms collect sales taxes on online sales, we went beyond the data in the *Internet Retailer* report to survey the sales tax collection practices of 250 firms (including the top 150, the bottom 50 firms and 50 from the "middle" of the distribution) to ascertain the states in which sales taxes are already collected on online sales by the top 500 firms. We also develop estimates for uncollected taxes by smaller firms, which represent about $28 billion, or 21 percent, of 2008 online sales. Finally, we also forecast online sales and uncollected revenues for the five-year period 2008-2012.

As indicated, we estimate that uncollected sales taxes on state and local sales in 2008 totaled approximately $3.9 billion, slightly more than half of what is estimated by the *Fox Study*. Over the course of the five-year period from 2008-2012, our estimates diverge still further from those of the *Fox Study*. For example, the Fox Study estimates uncollected revenues could be as high as $12.7 billion in 2012, compared with our estimate of $4.7 billion. As we explain below, there are three major reasons for the differences between our estimates and those of the *Fox Study*: First, the *Fox Study* substantially overstates uncollected taxes associated with business-to-business (B2B) online sales; second, the *Fox Study* understates tax collections by small firms; third, with respect to "out-year" projections, the *Fox Study* assumes what we regard as an unrealistically high and unsustainable growth rate for online sales, especially considering the fact that the growth of broadband penetration among U.S. households – one of the primary drivers of online sales growth – is slowing as household broadband penetration approaches saturation.

The remainder of this paper is organized as follows. Section II describes our approach and key assumptions, and describes our data set and survey methodology. Section III presents our results for both the baseline (2008) estimate of uncollected taxes and our five-year (2008-2012) forecast. Section IV puts our results in context and briefly discusses policy implications. Section V presents a brief summary of our findings.

II. DATA, METHODOLOGY AND ASSUMPTIONS

Our central objective is to estimate the amount of online retail sales made by firms in states where they are not required to collect sales taxes, and then to estimate the taxes not being collected on those sales. To do so, we begin by establishing the size of the overall tax base (i.e., the universe of taxable online sales). Next, we estimate the proportion of sales that occur in states where the seller lacks nexus (and therefore is assumed not to collect sales taxes). Third, we distribute these sales across states, and multiply by the appropriate tax rates. In this section, we describe the data, methodology and assumptions we used in conducting each step. Where appropriate, we note where our approach differs from that adopted in the *Fox Study* and explain why we believe our approach is more appropriate for evaluating alternative sales tax policies.

A. Estimating the Tax Base

Our first step is to estimate total retail e-commerce sales which are subject to state and local sales and use taxes. The authoritative source of such data is the U.S. Census Bureau, which conducts both monthly and annual surveys of retail trade and, on the basis of those surveys, reports retail e-commerce on both a quarterly and annual basis. Quarterly reports are based on the Monthly Retail Trade Survey (MRTS), and annual reports are based on the Annual Retail

Trade Survey (ARTS).[6] While the Census publishes separate estimates for B2B and B2C e-commerce, its B2C estimates in fact count *all* retail e-commerce, including retail e-commerce involving sales from one business to another.[7] The Census online sales data are also comprehensive with respect to types of sellers, as they include "catalog and mail order operations, many of which sell through multiple channels; 'pure plays' (i.e., retail businesses selling solely over the Internet); and e-commerce units of traditional brick-and-mortar retailers (i.e., 'brick and click')."[8] Thus, we believe the Census Bureau data represents the best estimate of the total amount of e-commerce potentially subject to sales tax, although, as we explain below, there are some reasons to believe it represents an overestimate of the overall tax base. Table 1 below shows the Census Bureau's estimates of retail e-commerce from 1999 through the second quarter of 2009.

TABLE 1:
RETAIL E-COMMERCE 1999-2009 ($BILLIONS)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008*	2009**
E-Retail Sales	$15	$28	$34	$45	$57	$76	$87	$107	$127	$133	$128
% of Total Retail	0.5%	0.9%	1.1%	1.4%	1.8%	2.2%	2.4%	2.8%	3.2%	3.4%	3.6%
YOY % Change	-	86.7%	21.4%	32.4%	26.7%	33.3%	14.5%	23.0%	18.7%	4.7%	-3.8%

Source: U.S. Census Bureau/E-Stats
***Based on most recent revised quarterly reports.*
*** Annual rate based on Q1, Q2.*

Our estimate of retail e-commerce differs from the one advanced by the *Fox Study*, which takes a very different approach. For reasons which are not apparent (given that the Census Bureau retail sales data include B2B as well as B2C sales), the *Fox Study* begins by including all

[6] See http://www.census.gov/retail/mrts/www/data/pdf/09Q2.pdf and http://www.census.gov/econ/estats/2007/2007reportfinal.pdf.

[7] See http://www.census.gov/econ/estats/2007/2007reportfinal.pdf at 2 ("We estimate business-to-business (B-to-B) and business-to-consumer (B-to-C) e-commerce by making several simplifying assumptions: manufacturing and wholesale e-commerce is entirely B-to-B, *and retail and service e-commerce is entirely B-to-C*.")

[8] http://www.census.gov/econ/estats/2007/2007reportfinal.pdf at 3.

e-commerce sales, *including sales classified by the Census Bureau as B2B sales*. These sales have little or no potential for uncollected sales tax, for two reasons: First, wholesale sales or "inputs-to-production" generally are exempt from sales and use taxes.[9] Second, even if some retail sales are captured in the Census Bureau's B2B category, nearly all businesses file and pay the use tax due on their retail purchases, largely because state tax auditors can readily close use tax compliance gaps by examining business records.

Recognizing that its approach is over-inclusive, the *Fox Study* next attempts to exclude some B2B sales, based in part on a survey the authors conducted of state sales tax personnel, who were asked to estimate the proportion of various categories of B2B sales which might be subject to sales tax. Having conducted the survey, however, the *Fox Study* concludes that the results are unreliable, and discards many of the responses in favor of *ad hoc* corrections based on a subset of the data which more closely match the authors' *a priori* expectations.

The ultimate effect of the Fox Study's approach is to inflate the taxable base by including a substantial amount of B2B sales which are not subject to sales and use taxes, and then to apply an *ad hoc* and arbitrary approach to correcting the error.[10] In our view, the entire exercise is both unnecessary and inappropriate: While the Census Bureau data are labeled "B2C," they in fact include *all* retail sales, that is, all sales that are potentially subject to state and local sales and use taxes. There is no valid basis for adding in additional B2B sales.

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[9] For example, the Census Bureau's definition of "wholesale" establishments clearly excludes retailers, yet the *Fox Study* includes sales by such establishments in the tax base for retail commerce. See U.S. Census Bureau, 2002 NAICS Definitions, 42 Wholesale Trade (at http://www.census.gov/epcd/naics02/def/NDEF42.HTM#N42).

[10] The *Fox Study* does not document the methodology by which it arrives at its baseline estimates of the electronic commerce. Moreover, the study provides only an unlabelled bar graph showing historical electronic commerce data, making it impossible to compare the underlying data used in the study to actual data from the Census Bureau. As a result, it is not possible to estimate the precise amount by which the *Fox Study* overstates the tax base.

In fact, there at least three good reasons for believing the Census Bureau retail e-commerce estimates are over-inclusive with respect to taxable sales, even without adding in additional B2B sales. First, the Census Bureau's retail e-commerce data include sales by motor vehicle and parts dealers, which comprise 19 percent ($24 billion in 2007) of total retail e-commerce. Including these sales in the total likely overstates the potential tax base both because automobile sales – regardless of how they are conducted – are subject to taxation at the time of registration, and because many sales of automobile parts are likely B2B sales which are not subject to sales or use taxes in the first instance.

Second, while the Census Bureau data exclude online travel services, financial brokers and ticket sales agencies, they include sales of at least three types of items – food, clothing, and intangibles (e.g., downloaded software,) – which often are not subject to sales tax. The *Fox Study* attempts, through its survey of state finance department personnel, to estimate the proportion of B2C sales that are subject to taxation, and ultimately concludes that about 30 percent of B2C sales are exempt from sales and use taxes. While we agree that many B2C sales are not taxable, we do not believe the *Fox Study's* survey results are sufficiently reliable to form the basis for such a precise estimate.

Third, to the extent the Census Bureau data include B2B sales, it is likely that the purchasing businesses pay use taxes on purchases for which sales tax is not collected by the seller. Past research suggests that the use tax compliance rate among businesses is between 85 and 100 percent.[11]

We considered various approaches to adjusting for these issues of over-inclusion, including – for example – excluding e-commerce sales by automobile dealers, supermarkets and

[11] *See e.g.,* Johnson at 6.

online music services), but we ultimately chose not to make such adjustments because we lack the underlying data needed to do so with precision. As a result, our estimate of the overall retail e-commerce tax base is likely to be significantly above the true amount, meaning that our estimates of uncollected taxes are likely also biased upwards relative to the actual amount.

B. Establishing Nexus

The second step in our analysis is to ascertain the extent to which sales taxes are already being collected on retail e-commerce sales, that is, to determine the extent to which retail e-commerce involves sales to customers in states where the seller has nexus or is, for whatever reason, collecting sales taxes.[12] To do so, we began by researching the firms listed in the 2009 edition of *Internet Retailer Top 500 Guide*, which provides data on 2008 retail e-commerce sales by the largest online retailers, or all those with annual online sales exceeding $9 million.[13] Specifically, for 250 of the 495 U.S. firms listed in the guide,[14] we ascertained the states in which each firm collected sales taxes on online sales. For each firm, we followed the following sequence: First, we visited the firm's website and searched for a listing of states in which tax was collected; second, if the website data was inconclusive, we contacted the firm's customer service department; third, if customer service was unable or unwilling to provide the information, we

[12] As we discuss further below, "nexus" is an inexact and evolving concept. For example, New York has recently passed legislation defining nexus as including a situation where an online retailer has sales affiliates in the state (e.g., an Amazon advertisng partner). Amazon has sued the state over this law, and is collecting sales tax on sales to New York residents, pending the outcome of its lawsuit.

[13] Information on the *Guide* is available at www.internetretailer.com/top500.

[14] Five firms are Canadian and thus not subject to U.S. sales taxes or included in the U.S. Census Bureau data. Of the remainder, we surveyed each of the top 150 firms and bottom 50 firms, and an additional 50 firms ranked between 150 and 450.

researched the firm's website, its Securities and Exchange Commission filings, and other public data, for a list of states in which the firm in has a retail store or other physical presence [15]

Several findings from this portion of our analysis are worth highlighting. First, there is an extremely wide variance in the number of states where firms collect taxes. For the top 150 *Internet Retailer* firms, for example, 77 collect in 10 states or fewer, and 62 collect in 30 or more; only 11 collect in 11 or more states but fewer than 30. This bi-polar distribution reflects the distinction between "pure play" retailers (such as Amazon.com) which have nexus in very few states, and "brick and click" retailers (such as Staples) which collect taxes in most or all states. As shown in Table 2, most of the largest online retailers (ranked by 2008 U.S. online sales) are "brick and click" firms which collect taxes in most or all of the states with sales taxes.

[15] When no determination could be made, we assumed that the firm in question *did not* collect sales taxes in any state. Our approach was similar to that used by the *Fox Study*, though their data was based on the 2007 edition of *Internet Retailer*, and they surveyed only 100 firms (the top 50 plus 50 more chosen at random). See *Fox Study* at 20. Note that, like the Census Bureau data, the *Internet Retailer* guide excludes online travel agents and brokerages, but includes several categories of sellers (e.g., music and game download sites, grocery stores) whose sales are likely largely exempt from sales taxes.

TABLE 2:
STATES WHERE SALES TAXES ARE COLLECTED, TOP 20 E-RETAILERS

Firm	2008 Online Sales	States Where Taxes Are Collected
Amazon.com[16]	$10,228,000,000	5
Staples	$7,700,000,000	44
Dell	$4,830,000,000	47
Office Depot	$4,800,000,000	47
Apple	$3,642,118,080	47
OfficeMax	$3,083,730,683	47
Sears Holdings	$2,693,433,600	47
CDW	$2,600,122,100	47
Newegg	$2,100,000,000	3
Best Buy	$2,015,183,282	47
QVC	$1,993,361,800	47
SonyStyle.com	$1,827,577,534	47
Walmart.com	$1,740,000,000	47
Costco	$1,700,000,000	38
J.C. Penney Co.	$1,500,000,000	47
HP Home & Home Office Store	$1,497,000,000	47
Circuit City Stores *	$1,414,000,000	29
Victoria's Secret	$1,333,000,320	45
Target	$1,209,208,320	46
Systemax	$1,072,071,000	5

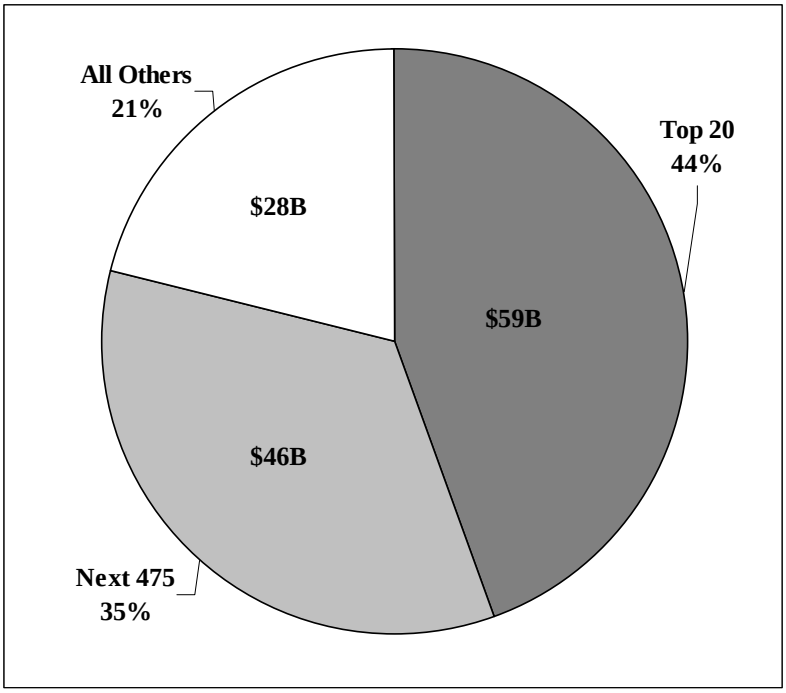
Source: Internet Retailer
**Circuit City Stores went through Chapter 7 in 2008*
Note: While it does not have a state sales tax, we count Alaska as a sales tax state, given that multiple local jurisdiction levy sales and use taxes.

Second, as shown in Figure 1, the distribution of e-retail sales is heavily skewed towards the largest retailers. Overall, we found that the top 20 internet retailers accounted for nearly $59 billion in 2008 sales (44 percent of the $133 billion total), and the top 495 firms accounted for approximately $105 billion in sales, or 79 percent of all sales. The remaining retail e-commerce

[16] We adjusted Amazon's total sales to reflect the fact that approximately 47 percent of its $19 billion in sales (about $9 billion) are made outside the United States. See Amazon.Com, Inc., *Form 10-K for the Fiscal Year Ended December 31, 2008* at 30.

sales ($28 billion) are associated with smaller firms, i.e., those with less than $9 million in online sales.[17]

FIGURE 1:
DISTRIBUTION OF RETAIL E-COMMERCE BY FIRM SIZE, 2008



C. Apportioning Sales Among States

Uncollected tax revenues in any given state are the product of online sales in the state upon which taxes are not collected and the applicable tax rate. Thus, the next step in our analysis is to apportion each company's sales among the states. We do so by assuming that individual firm e-commerce revenues are distributed across the 50 U.S. states (and Washington D.C.) in the

[17] As we discuss further below, the *Fox Study* cites a recent draft working paper which argues that the Census Bureau data underestimates sales by small firms. (*See* Joe Bailey *et al*, "The Long Tail is Longer than You Think: The Surprisingly Large Extent of Online Sales by Small Volume Sellers," Draft, University of Maryland, May 12, 2008.) While a complete critique of that paper is beyond the scope of this study, it is clear that it suffers from numerous methodological problems which make its results unreliable. (To cite just one example, the Bailey paper relies on comScore data on web sales by the top 140 online retailers (with average annual online sales of *$675 million*) to estimate sales by firms with sales *below $1 million*.) While the *Fox Study* relies on the Bailey paper to estimate the distribution of sales by firm size, it does not embrace the Bailey paper's contention that the Census Bureau underestimates overall e-commerce sales and does not rely on the Bailey paper for its estimate of total online sales.

same proportions as overall 2008 total retail sales, as reported by the Census Bureau. That is, for example, if a particular state accounts for five percent of retail commerce in the United States, we attribute five percent of each firm's online sales to that state.[18]

We considered other approaches to apportioning sales across states. The *Fox Study*, for example, apportions sales on the basis of total state and local sales tax collections, thus weighting sales towards states with higher tax rates. The authors defend this approach on the basis of studies which show that consumers in high tax states are more likely to shop online than consumers in low tax states, presumably to avoid paying sales taxes.[19] One problem with this approach is that tax rates are only one of many factors that affect the geographic distribution of online sales, including (for example) the proximity of the retailer to the buyer,[20] and demographic factors such as personal income, Internet penetration and broadband adoption.[21] Thus, while there is some evidence that people in high tax states are more likely to shop online *other things equal*, there is no evidence we are aware of that suggests that differences in tax rates explain a significant portion of the variation in online retail sales across states. Moreover, we suspect one of the strongest determinants of the distribution of firm sales across states is domicile – that is, given the growing significance of "brick and click" retailing, we suspect many retailers' online sales are concentrated in states where customers can visit their affiliated retail stores to preview items and seek the convenience of returning or exchanging items they have

[18] We deviated from this method in the case of only three firms in our sample: Peapod, Safeway, and FreshDirect. These three firms are brick and click grocers with very specific areas of operations. We contacted these firms and determined the states in which they provide their online grocery service and applied their total online sales, as listed in *Internet Retailer*, only to those states.

[19] *See*, e.g., 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..

[20] See, e.g., Glenn Ellison and Sara Ellison. "Internet Retail Demand: Taxes, Geography, and Online-Offline Competition," (Massachusetts Institute of Technology Department of Economics Working Paper Series, May 2006).

[21] See e.g., John Horrigan, *Online Shopping* (Pew Project on the Internet and American Life, February 2008) (available at http://www.pewinternet.org/Reports/2008/Online-Shopping/01-Summary-of-Findings.aspx?r=1).

purchased online. This phenomenon which would tend to work against the *Fox Study's* bias of allocating more sale to high-tax states. In the end, rather than introducing spurious (or even biased) variation into our data set (as we believe the approach taken by the *Fox Study* does), we elected to simply apportion online sales according to overall retail sales.

III. ESTIMATES OF UNCOLLECTED TAXES

The next steps in our analysis are to calculate estimates of uncollected taxes for 2008, based on the estimates of underlying variables discussed above, and then to forecast uncollected taxes into the future, i.e., for the period from 2009-2012.

A. Uncollected Revenues in 2008

To estimate uncollected revenues for 2008, we begin by estimating uncollected revenues for the large firms covered in the *Internet Retailer* report, and then add an estimate for smaller firms (those with revenues below $9 million). We note, however, that the estimate for smaller firms is, in a sense, less significant, as there appears to be general agreement that the administrative costs of collecting from smaller firms is much higher than for larger firms (For example, a survey commissioned by the Streamlined Sales Tax Project found that firms with annual retail sales of between $150,000 and $1 million incur collection costs averaging 13.5 cents for every dollar of sales tax they collect.[22]), and that even if larger firms were to be required to collect taxes on out-of-state sales, smaller firms would be exempted.

To estimate uncollected revenues for large firms, we multiplied state-specific retail e-commerce revenues for each firm by the applicable sales tax rates for each state.[23] Thus, for

[22] See PriceWaterhouseCoopers, *Retail Sales Tax Compliance Costs: A National Estimat*e (April 7, 2006) at 18 (available at http://www.netchoice.org/library/cost-of-collection-study-sstp.pdf).

[23] We utilized the same source for sales tax rates as in the Fox Study, namely the Sales Tax Clearinghouse. Rates represent statewide rates plus local tax rates divided by the state sales tax base, i.e., they represent blended state and local sales tax rates for each state. See http://www.thestc.com/STrates.stm.

each firm, we calculated the amount of taxes that would be owed in each state, if the firm had nexus in that state. Next, for each firm, we sum this amount across all states in which the firm does not collect sales taxes. As shown in Table 3 below, the total for the top 150 firms in 2008 was $1.985 billion; for the bottom 50 firms, the total was $27 million. For the middle group of 300 firms, we first calculated the average ratio of taxes collected to potential taxes due for the 50 firms whose tax collection practices we sampled from this group, and applied this ratio to all 300 firms. On that basis, we estimate the total for the 300 middle firms at $418 million.

The last step in our analysis was estimate the ratio of taxes collected to potential taxes for smaller firms, or those not included in the *Internet Retailer 500* survey. As noted above, we estimate these firms constitute approximately 21 percent (or $28 billion in 2008) of retail e-commerce sales.

We considered but rejected the approach adopted in the *Fox Study*, which was to simply assume extremely small tax compliance rates for small firms. Specifically, the *Fox Study* assumes, without any empirical basis, that "medium-sized firms" (those with online revenues of less than $10 million) pay taxes only in their home states, and thus (dividing 1 by 50) the *Fox Study* assigns these firms a two-percent compliance rate – even if their home state is California; and, it assumes that "small" firms (online revenues less than $1 million) only pay half of the taxes due even in their home states (on average), and hence have a compliance rate of one percent. In our view, these assumptions are arbitrary and unsupportable, and at odds with our research on states where the top 500 e-retailers already collect sales tax.

We believe the *Fox Study* errs in this regard primarily by assuming (or seeming to assume) that all or almost all firms with relatively low online sales fit some combination of two criteria: (a) they are exclusively or almost exclusively "pure play" online retailers, with few if

any brick and mortar retail outlets; or (b) they are small firms that lack rigorous tax compliance programs, and/or are not subject to tax audits by state governments. This characterization, however, simply does not comport with the data. While some firms with small online revenues meet these criteria, others are actually large, multi-state brick-and-click retailers that collect taxes in multiple jurisdictions. For example, both Hancock Fabrics and Sur La Table have less than $10 million in online sales, as reported by Internet Retailer. Yet, Hancock Fabrics collects taxes in 36 states, and on 92 percent of its sales, while Sur La Table collects taxes in 21 states, and on 73 percent of its sales. To assume, as the *Fox Study* does, that both of these firms collect taxes on only two percent of sales clearly biases upward their estimate of uncollected sales tax.

Upon examination of the data, we found only a weak correlation between online sales revenues and the proportion of taxes collected. Accordingly, we assumed that the ratio of taxes collected to potential tax collections for smaller firms (those with revenues less than $9 million) is the same as for the "bottom 50" firms in the Internet Retail 500 (firms with online sales of between $9 million and $11.8 million in 2008 online sales), or approximately 26 percent. On that basis, as shown in Table 3, we estimate uncollected taxes among these firms at less than $1.5 billion, assuming no *de minimis* exemption.

TABLE 3:
RETAIL SALES AND POTENTIAL UNCOLLECTED TAXES, BY FIRM SIZE, 2008

Size Category (Ranked by 2008 E-Retail Sales)	e-Retail Sales ($millions)	Potential Uncollected Sales Tax ($millions)
Large (Top 150)	$95,145	$1,985
Middle (Next 300)	$9,351	$418
Small (Bottom 50)	$514	$27
Subtotal (Internet Retailer 500)	*$105,010*	*$2,430*
Micro (Sales under $9 million)	$27,990	$1,477
Total	**$133,000**	**$3,907**

As the table indicates, summing across these four classes of firms, we estimate total uncollected revenues for 2008 at $3.9 billion.

The last step is to estimate the impact of applying a *de minimis* exemption. As noted above, even proponents of overturning *Quill* recognize that the administrative burdens placed on small sellers (and tax collection agencies) would be very high relative to the amount of taxes collected; and, since some proposals contemplate reimbursing businesses for the collection charges, at least some of those collection costs would have the effect ultimately of reducing net tax collections, thus defeating the purpose altogether. Accordingly, most proposals would create a small business exemption which, for example, would exempt all firms with gross remote (i.e., out-of-state) sales of less than $5 million.[24]

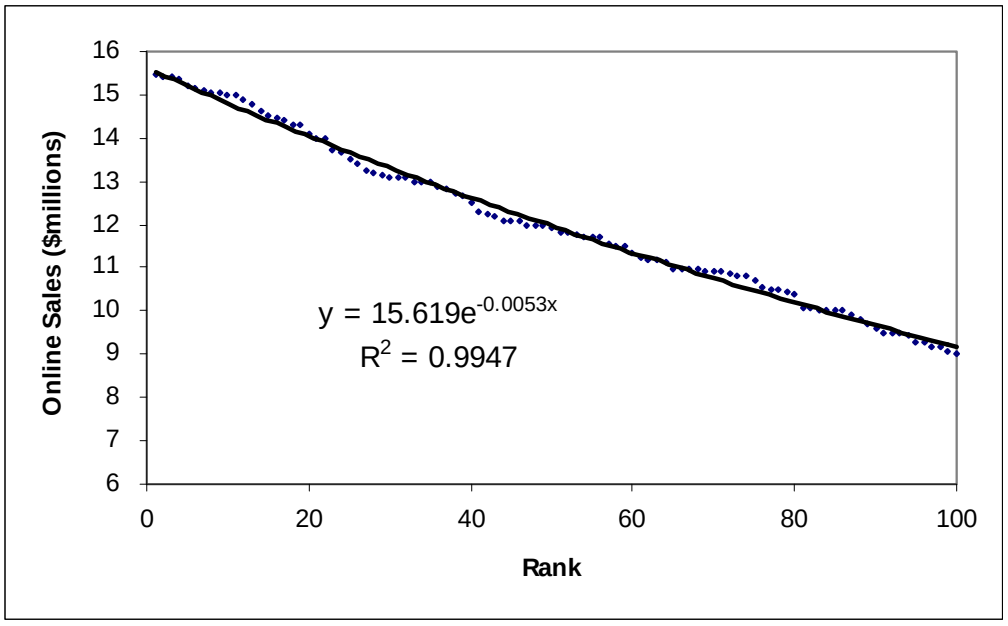
To estimate the impact of such an exemption, we first estimated the amount of remote sales for each firm on the *Internet Retailer 500* list. Then, for firms with less than $5 million in remote sales, we summed our firm-specific estimates of uncollected sales taxes across the firms with less than $5 million in sales. We identified 39 firms out of the top 500 that (a) had less than

[24] See, e.g., H.R. 3184, 108th Congress, 1st Session, Sec. 4(b).

$5 million in remote sales and (b) did not collect taxes in one or more states.[25] The estimated uncollected taxes for these 39 firms totaled only $4 million.

To assess the impact of a $5 million exemption for those retailers which are not on the *Internet Retailer 500* list, we first estimated the shape of the size distribution (based on online sales) for smaller firms. To do so, we fitted an exponential curve (i.e., a regression equation) based on the bottom 100 firms in the *Internet Retailer 500*, and used the regression coefficients to estimate the sales revenues of the next 500 firms. The results of the regression analysis are shown in Figure 2, which demonstrates that our regression model is an excellent fit, with the R-squared statistic indicating we have explained approximately 99 percent of the variation in firm size over the relevant range.

FIGURE 2:
REGRESSION ANALYSIS OF FIRM SIZE



[25] Note that these firms include both "large" and "small" firms as ranked by overall sales, since the criterion for exemption is that a firm have less than $5 million in *remote* sales.

The results of applying the regression coefficients in Figure 2 to estimate the size of the "next 500" online retailers are shown in Table 4. As the table indicates, the bottom 500 firms on the *Internet Retailer 500* list (firms ranked 401-500) have average e-commerce sales of $12.1 million; the next 100 (ranked 501-600) have estimated average sales of $7.2 million; the next 100 (601-700) have estimated average sales of $4.1 million, and so forth.

TABLE 4:
ESTIMATED RETAIL E-COMMERCE SALES BY FIRM SIZE

Firm Rank	Total e-Commerce Sales	Average e-Commerce Sales
401-500	$1,208,032,677	$12,080,327
501-600 (est.)	$717,102,300	$7,171,023
601-700 (est.)	$413,539,010	$4,135,390
701-800 (est.)	$243,411,117	$2,434,111
801-900 (est.)	$143,272,993	$1,432,730
901-1000 (est.)	$84,977,289	$849,773
Total (501-1000) (est.)	$1,602,302,708	$3,204,605

One important implication of the data in Table 4 is the fact that estimated retail e-commerce sales for the "second 500" – firms ranked 501-1000 in online sales – total only about $1.6 billion annually, accounting for only 5.7 percent of the $28 billion in online sales we attribute to firms with less than $9 million in sales, based on the Census Bureau and *Internet Retailer* data. Thus, our estimates are consistent with the notion that there is indeed a "long tail" of small online retailers, for example, a tail consisting of five million sellers averaging $5,280 in online sales per year, or a total of $26.4 billion for all firms outside the top 1000.[26]

To assess the impact of a small business exemption on this group of firms, we assumed that small retailers had the same ratio of in-state to out-of-state sales as the bottom 50 in the

Internet Retailer list (that is that remote sales accounted for 74 percent of total sales), and on that basis estimate that firms with more than $6.76 million in online sales (= $5 million/0.74) would be required to collect sales taxes and all others would be exempt. There are 58 such firms, with estimated remote sales revenues of $339 million. Applying the national average tax rate (7.13%) to these sales yields potential uncollected revenues from these firms of approximately $24 million.

With these estimates in hand, we can now calculate the impact of a $5 million small business exemption. We begin with our total estimate of potential uncollected revenues of $3.9 billion, which includes $2.4 billion from the top 500 firms and $1.5 billion from all other firms. As explained above, we estimate that a small business exemption would reduce collections from the top 500 firms by only $4 million. For all other firms it would reduce collections by $1.477 billion minus $24 million, or $1.453 billion. Thus, for 2008, we estimate a small business exemption would reduce potential collections by a total of $1.457 billion. Accordingly, we estimate that the maximum amount of additional revenue that would result from overturning *Quill,* assuming a small business exemption is adopted, is $2.45 billion.[27]

B. Forecast of Uncollected Revenues, 2009-2012

We developed two forecasts for uncollected revenues for the period 2009-2012. The first (baseline) forecast is based on the projected growth of online sales over this period, assuming all other variables remain unchanged. The second (adjusted) forecast is based on the assumption

[26] Indeed, projecting our results to the next 1,000 firms suggests the average online sales of firms ranked 1001-2000 are only $120,000, with the 2000th firm having less than $35,000 in sales; total sales in this group are only about $120 million.

[27] The *Fox Study* also calculates the effect of a *de minimis* exemption. While it takes a very different approach (for example, it appears to base its exemption thresholds on total online sales rather than remote online sales), the effect is, coincidentally, entirely consistent with our estimate: Both methods find that a $5 million *de minimis* exemption would reduce collections by 37 percent of total uncollected revenues.

that current trends with respect to collection rates continue – that is, that the proportion of online sales for which firms collect and remit state and local sales taxes continues to increase.

To arrive at our baseline projection, we estimated a simple model of the level of retail e-commerce, variations in which we hypothesize can be explained by (a) overall retail sales and (b) the level of household broadband penetration. Accordingly, we collected data quarterly data on retail e-commerce, total retail commerce, and broadband penetration from 2000 through 2009. We acquired the e-commerce data and total retail commerce data from the Census Bureau's Quarterly E-Commerce Reports.[28] We acquired household broadband penetration data from the Pew Internet & American Life Project's Broadband at Home Survey.[29] Using these data, we specified a regression model where retail e-commerce was the dependent variable and total retail commerce and broadband penetration were the independent variables. Table 5 depicts the results of this analysis:

TABLE 5:
REGRESSION ANALYSIS OF RETAIL E-COMMERCE

Variable	Coefficient	T-Stat	P-Value
Constant	17396.6	3.47	0.00
Retail Commerce	0.029	4.45	0.000
Broadband Penetration	37110.7	11.54	0.000
Adjusted R-Squared	*0.95*		
Observations	*38*		

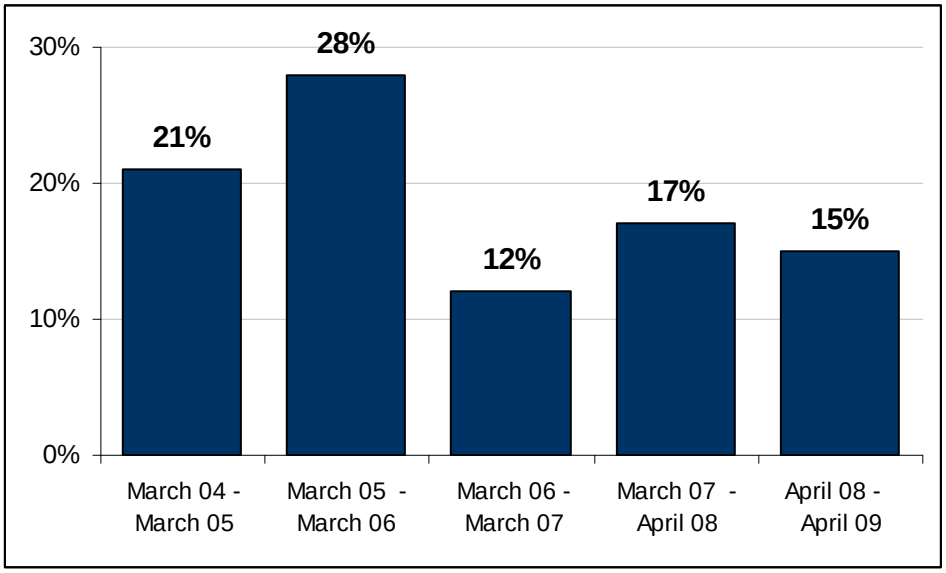
[28] U.S Census Bureau, *Quarterly Retail E-Commerce Sales*, Q1 2000 - Q2 2009. We note that data for prior years are often restated in subsequent reports. In these cases, we used the data reported in the most recent available E-commerce report.

[29] Pew Internet & American Life Project, *Broadband at Home, 2000-2009*. The Pew survey data is reported in different months across different years. Thus, we used a two step algorithm to match the Pew broadband survey data to the census bureau's quarterly e-commerce reports. First, we looked to see if for each quarter there was a survey date that was within that quarter. If there was we assigned that value to the quarter. If there were two surveys within a quarter, we assigned the later survey date. For quarters that were missing survey data, we used the value of the *next* quarter with available data.

As the data in Table 5 indicate, our two-variable regression analysis explains approximately 95 percent of the variation in retail e-commerce over the nine-year period. Regression coefficients on both of the explanatory variables are, as expected, positive, and t-statistics indicate that they are significantly different from zero at a confidence level of greater than 99 percent. In short, our model is statistically robust and explains nearly all of the variation in retail e-commerce over the sample period.

We then used this model to forecast retail e-commerce sales for each quarter from Q2 2009 to Q4 2012, using forecasted broadband growth data from Gartner Research and forecasted nominal GDP growth data from the Congressional Budget Office (CBO). With respect to broadband adoption, our forecasts – from the Gartner Group – are consistent with the slowing growth of broadband penetration in recent years. For example, the latest data from the Pew Project on the Internet and American Life, shown in Figure 3, shows that the average annual growth in broadband penetration has fell by nearly 50 percent between 2005-6 and 2008-9, from 28 percent to only 15 percent.

FIGURE 3:
GROWTH IN BROADBAND PENETRATION, 2004-2009[30]



Specifically, we based our estimates of broadband penetration on forecasts from Gartner Research, which predicts that U.S. household broadband penetration in 2012 will be 77 percent.[31] Thus, for the purposes of projecting broadband growth we assigned Gartner's penetration estimate of 77 percent to Q4 2012, and allocated the difference between this final projection and Pew's Q2 2009 survey estimate of 63 percent linearly across the remaining quarters.

To project total Retail Commerce through Q4 2012 we simply grew total retail commerce in each quarter by the nominal GDP growth rate projected by the CBO relative to the same quarter in the previous year.[32] Thus, Q3 2009 would simply be total retail sales in Q3 2008 plus the projected 2009 CBO growth rate times total retail sales in Q3 2008. Our projections for 2009-2012 are shown in Table 6 below.

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[30] Source: Pew Project on the Internet and American Life.

[31]. Gartner Research, *Gartner Says 17 Countries to Surpass 60 Percent Broadband Penetration into the Home by 2012*, Jul. 24, 2008, *available at* http://www.gartner.com/it/page.jsp?id=729907 (Last visited Aug. 31, 2009).

TABLE 6
RETAIL E-COMMERCE BASELINE FORECAST, 2008-2012 ($BILLIONS)

	2008	2009	2010	2011	2012
Retail Commerce					
Level	$3,973	$3,726	$3,834	$3,988	$4,199
YOY % Change		-6.2%	2.9%	4.0%	5.3%
Broadband Penetration					
Level*	57.3%	63.8%	67.5%	71.5%	75.5%
YOY % Change		11.3%	5.8%	5.9%	5.6%
Retail E-Commerce					
Level	$133	$131**	$142	$152	$164
YOY % Change		-1.5%	8.4%	7.0%	7.9%

** Note that annual BB penetration represents the average value for the year based on our estimates derived from Pew and Gartner.*
***Note that this figure differs from the 2009 value given in Table 1 because the retail e-commerce figure listed in this table was predicted based on our model's estimates for Q3 and Q4, 2009, while in Table 1 the 2009 projection was created by multiplying the sum of e-retail sales in Q1 and Q2, 2009 by two. The close proximity of the two values serves as a good robustness check on accuracy of our model.*

Table 7 compares our projections for e-commerce growth with those used in the *Fox Study*. Our projections vary substantially, but we believe appropriately, from those advanced in the *Fox Study*, which projects dramatically higher growth in retail e-commerce.

TABLE 7:
COMPARISON OF FOX VS. EISENACH-LITAN PROJECTED E-RETAIL GROWTH RATES

	2008	2009	2010	2011	2012	CAGR (2008-2012)
Fox Baseline	6.6%	-10.0%	24.0%	17.6%	12.4%	10.2%
Fox Optimistic	6.9%	-3.1%	32.2%	14.1%	11.7%	13.0%
Eisenach-Litan	3.9%*	-1.3%	8.4%	7.3%	7.9%	5.5%

**Actual, as reported by Bureau of the Census, E-Stats*

The *Fox* estimates are based on a regression model which the authors develop by "regressing the log of e-commerce shipments on the log of nominal GDP and the real GDP

[32] Congressional Budget Office, *Table 2.1: CBO's Economic Projections for Calendar Years 2009 to 2019, available at* http://www.cbo.gov/doc.cfm?index=10521 (Last visited Aug. 31, 2009).

growth rate for 1999 through 2006," and then applying projections for GDP growth from a private forecaster, Global Insight, to forecast e-commerce from 2007 through 2012. The result, as shown in Figure 4, is a "hockey-stick" shaped forecast, with a dramatic and unexplained surge in growth in 2010 and beyond. We find no basis for projecting such high growth rates into the future, especially given the slowdown in broadband penetration growth, which effectively limits the growth of "new shoppers" entering the online marketplace.[33]

Applying our projected growth rates to our baseline estimate of $3.9 billion in uncollected 2008 revenues, and assuming no other changes in the makeup of online sales, tax policy, or otherwise, we estimate potential uncollected revenues for the period 2008-2012 will average approximately $4.24 billion annually. Assuming enactment of a small business exemption, however, reduces the figure to an average of $2.67 billion annually. As shown in Table 8, our estimates are substantially less than the *Fox Study's* forecasts over the same period.

TABLE 8:
COMPARISON OF EISENACH-LITAN VS. FOX PROJECTED UNCOLLECTED TAXES
($BILLIONS, 2008-2012)

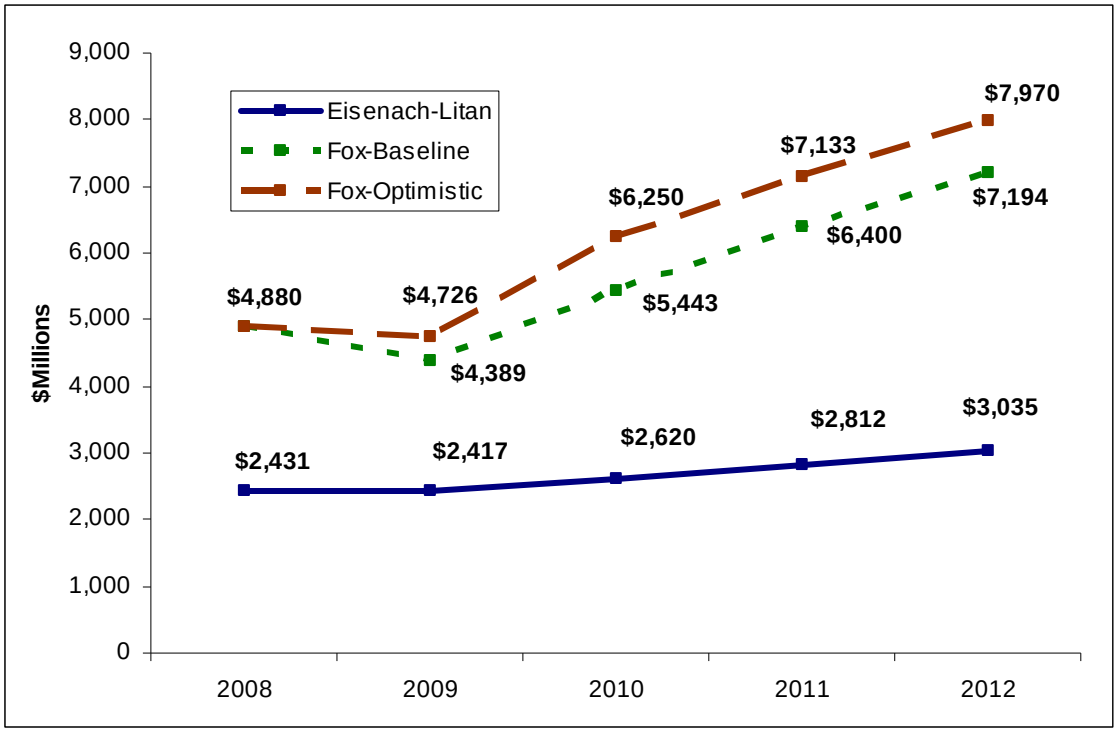
	2008	2009	2010	2011	2012	Average
Without Small Business Exemption						
Eisenach-Litan	$3.91	$3.85	$4.17	$4.48	$4.83	$4.25
Fox Baseline	$7.73	$6.95	$8.62	$10.14	$11.39	$8.97
Fox Optimistic	$7.75	$7.50	$9.92	$11.32	$12.65	$9.83
With Small Business Exemption						
Eisenach-Litan	$2.45	$2.42	$2.62	$2.81	$3.04	$2.67
Fox Baseline	$4.88	$4.39	$5.44	$6.40	$7.19	$5.66
Fox Optimistic	$4.88	$4.73	$6.25	$7.13	$7.97	$6.19

[33] We also note that the *Fox Study* authors have dramatically overestimated e-commerce growth rates in their previous studies. See, e.g., Johnson at 2.

The differences in these projections are both quantitative and qualitative in nature. As shown in Figure 5, the *Fox Study* – based on its "hockey stick" forecast for the growth of electronic commerce – forecasts that uncollected tax revenues will grow rapidly in the future. Our forecast, which is based on what we believe to be a far more realistic forecast for e-commerce growth, shows uncollected revenues growing only modestly. Indeed, our five-year forecast shows *nominal* uncollected revenues growing at only about 5.2 percent per year, only slightly higher than recent inflation rates – that is, in real terms, uncollected revenues are growing very slowly, if at all. Perhaps most importantly, our estimates show uncollected revenues – assuming no changes in either state tax collection policies or in the makeup of online sales – remaining nearly constant as a proportion of state and local revenues, remaining below 0.22 percent (one quarter of one percent) of total state and local revenues, and below one percent of sales and use tax revenues, throughout the projection period.[34]

[34] These ratios assume state and local taxes grow at the same rate as Gross Domestic Product throughout the period, i.e., at the same rate assumed in our e-commerce forecast for total retail sales.

FIGURE 5:
POTENTIAL UNCOLLECTED REVENUE FORECASTS, 2008-2012
(ASSUMING *DE MINIMIS* EXEMPTION)



IV. DISCUSSION AND IMPLICATIONS

Our results have several important policy implications.

Most importantly, our results suggest that uncollected sales taxes are much smaller than previously thought, and that they are growing, if at all, at a much slower rate. Indeed, two factors we have not yet mentioned suggest uncollected sales tax revenues are likely to fall over time, at least as a proportion of all taxes. First, there is some evidence that the online sales of the brick–and-click retail model are growing more rapidly than those of "pure play" purveyors such as Amazon.com. For example, according to a survey conducted by the LakeWest Group, nearly three quarters of the top 100 retailers have embraced multichannel retailing and that "[o]f retailers who operate websites, 60 percent have at least some integration between store and Web

site, and more than half allow returns to cross channel."[35] To confirm this trend, we analyzed the growth of sales by "pure play" versus "brick and click" retailers in the *Internet Retailer 500* list, and found that firms that paid taxes on more than 50 percent of their online sales did indeed grow faster between 2007 and 2008 than firms that paid taxes on less than 50 percent of their online sales. These results are consistent with other research suggesting that online sales growth is occurring most rapidly among firms that collect sales taxes on large proportions of their sales. Johnson, for example, concludes that "the future of Internet growth has been shown to be in multi-channel, clicks and bricks,"[36] citing studies performed by Forrester Research that demonstrate "consumers' desire to couple 'clicks'-based shopping with 'bricks'-based merchandise pick-ups and returns."[37] Thus, there are strong reasons to believe that the proportion of online commerce associated with out-of-state sales is falling and will continue to fall over time.

Second, states are not standing still waiting for *Quill* to be overturned, but instead are moving aggressively to use the tools at their disposal. For example, in April 2008, New York State passed legislation asserting nexus for any retailer that has sales affiliates in the state that generate a combined total of $10,000 or more annually in revenues for the retailer.[38] In 2009, at least two state legislatures (Rhode Island and North Carolina) have enacted laws that assert nexus when remote retailers compensate in-state websites for displaying the retailer's advertisements.[39] In July 2009, California Governor Arnold Schwarzenegger signed legislation

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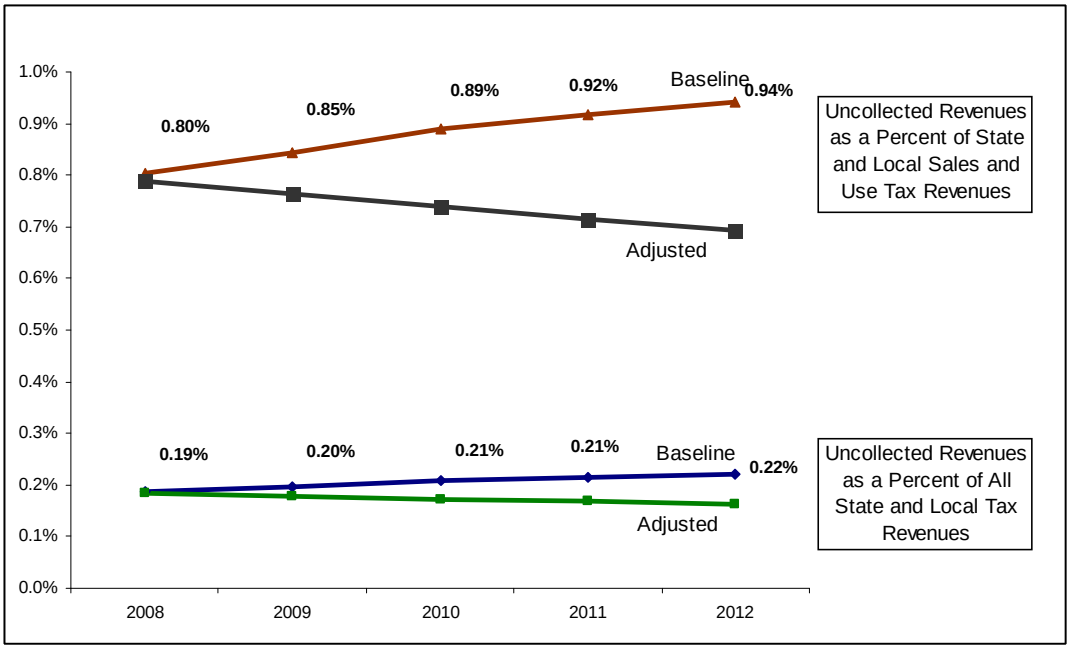
35 See Hamilton at 4.
36 Johnson at 6.
37 *Id.*
38 See Hamilton at 5.
39 See North Carolina GEN. STAT. § 105-164.8, as amended 7-Aug-2009. See also North Carolina Departmetn of Revenue, Form E-505 (9-09) at 2-3 (available at at http://www.dornc.com/downloads/e505_8-09.pdf), and Rhode Island Division of Revenue, Department of Taxation, "Important Notice: Definition of Sales Tax 'Retailer' Amended" (available at http://www.tax.state.ri.us/notice/Retailer_definition_NoticeC.pdf).

to improve business compliance with the state's use tax. The California Board of Equalization estimated the new legislation, along with ongoing measures aimed at shrinking the "tax gap," would reduce uncollected revenues from businesses by over 60 percent in the next two years.[40] Furthermore, in recent years, some states have used their leverage as large purchasers to force sales tax collection by online retailers.[41]

Taken together, these two factors suggest that, rather than growing very slowly, as our uncorrected baseline estimates suggest, uncollected sales tax revenues may actually be declining as a proportion of state and local tax revenues, as illustrated in Figure 6 below.

FIGURE 6:
POTENTIAL UNCOLLECTED REVENUE AS A PROPORTION OF STATE AND LOCAL TAX COLLECTIONS, 2008-2012
(ASSUMING SMALL BUSINESS EXEMPTION)



[40] State of California, Board of Equalization, *Electronic Commerce and Mail Order Sales* (November 3, 2009) (available at http://www.boe.ca.gov/legdiv/pdf/e-commerce-11-09.pdf). The Board of Equalization estimates uncollected revenues in 2012 at $1.0 billion, far below the *Fox Study's* baseline estimate of $1.9 billion.

[41] See, e.g., Institute for Local Self-Reliance, "Internet Sales Tax Fairness - State Purchasing Provision - North Carolina" (available at http://www.newrules.org/retail/rules/internet-sales-tax-fairness/internet-sales-tax-fairness-state-purchasing-provision-north-carolina).

A second implication of our research is to provide some support for those who have suggested imposing a collection obligation on only those e-retailers with the highest amounts of uncollected sales tax. Our analysis of 2008 data shows that the ten firms with the largest amounts of uncollected taxes account for 47.3 percent of all uncollected taxes for the *Internet Retailer 500* e-retailers, and 46.9 percent of uncollected revenues for all firms not subject to a $5 million small business exemption.

V. CONCLUSIONS

Taxation of remote sales is a hotly debated issue, and as states and localities experience the fiscal stresses associated with the current economic downturn, it is not surprising to hear renewed calls for overturning *Quill* and forcing e-retailers to collect taxes on out-of-state sales. However, a decision to impose such an mandate would have costs as well as benefits. The costs would include increased compliance costs for businesses, increased administrative costs for tax collection agencies, higher vendor compensation payments, and, of course, higher taxes for price-sensitive consumers who rely on online shopping. On the other side of the scale, state and local tax collections would increase. From the perspective of state and local governments, the relevant question is whether the increase in collections would more than outweigh the higher costs. Our research suggests that the increased collections associated with overturning *Quill* would be substantially lower than previously thought – approximately $2.5 billion annually rather than the $7 billion or more estimated in the *Fox Study*. Moreover, our analysis shows that uncollected taxes are not growing rapidly and, indeed, are likely constant or even shrinking as a proportion of state and local tax revenues. With this data in mind, policymakers should consider carefully whether the benefits of overturning *Quill* would exceed the costs.

APPENDIX: STATE-BY-STATE ESTIMATES OF POTENTIAL UNCOLLECTED REVENUE

In addition to the national estimates presented in the text, we also estimated potential uncollected revenues on a state-by-state basis. As explained in the text, our survey of firms' tax collection practices in each state allowed us, for the firms surveyed, to directly estimate uncollected taxes on a firm-by-firm basis. (Indeed, our national estimates for these firms represent the summation of uncollected taxes across states and firms.) For firms not surveyed, i.e., un-surveyed firms from the *Internet Retailer 500* and firms in the "tail," we estimated potential uncollected revenues though a two-step process. First, we applied our sampling methodology for estimating the taxes avoided for the middle 300 *Internet Retailer* firms on a state-by-state basis.[42] The reason for applying this state-by-state method was that it allowed for variation in each state's ratio of sample avoided taxes to sample total taxes, creating a more accurate portrayal of the each state's estimated avoided taxes. Adding the estimated avoided taxes for the middle 300 firms to the avoided taxes for the top 150 and bottom 50 firms within each state yielded the total avoided tax for the top 500 internet retailers in each state. Second, we then distributed the avoided taxes attributable to firms in the "tail" by allocating the total estimated avoided taxes for firms in the tail on a pro-rata basis according to each state's proportion of taxes avoided by the top 500 internet retailers.

Having arrived at baseline estimates for 2008, we next calculated an estimate of the impact of applying the small business exemption (SBE). To do so, we first adjusted potential uncollected taxes on a state-by-state basis to omit the surveyed firms in the Internet Retailer Top 500 from the state-by-state calculation, and then calculated potential uncollected taxes for the

[42] That is, for the 50 firms we surveyed in the middle 300, we calculated for each state the proportion of those firms' sales upon which they collected taxes, and then applied that percentage to the estimated state-by-state sales of all 300 firms.

"tail" by allocating to the states only those potential revenues that would not be affected by the SBE.

Finally, we calculated estimated uncollected revenues for 2012 by applying our national projected growth rate for uncollected revenues to the 2008 estimate for each state.

Our estimates, as well as the 2008 and 2012 baseline estimates from the *Fox Study*, are presented in Table A-1. As the data there indicate, our estimates are substantially below those of the *Fox Study* for every state other than Alaska; and, for some key states, they are dramatically lower. For example, the Fox Study's baseline estimate suggests that uncollected revenues in California could reach $1.9 billion by 2012, whereas our estimate of less than $390 million (assuming an SBE) is only one fifth as high. Similarly, the *Fox Study's* baseline estimate indicates state and local governments in New York State could lose as much as $865 million, while our SBE-adjusted results show the correct figure is approximately $105 million. To the extent state revenue collectors and fiscal authorities have viewed the repeal of *Quill* as a "silver bullet" that would make up for a significant portion of current budget shortfalls, the figures in Table A-1 clearly demonstrate otherwise.

TABLE A-1:
STATE-BY-STATE ESTIMATES OF POTENTIAL UNCOLLECTED REVENUES
($MILLIONS, 2008, 2012)

	2008			2012		
State	Fox (baseline)	Eisenach-Litan	Eisenach-Litan with SBE	Fox (baseline)	Eisenach-Litan	Eisenach-Litan with SBE
Alabama	$115.5	$75.3	$46.8	$170.4	$92.8	$57.8
Alaska	$1.0	$3.6	$2.0	$1.5	$4.4	$2.4
Arizona	$250.8	$79.3	$49.5	$369.8	$97.8	$61.1
Arkansas	$77.2	$49.6	$30.6	$113.9	$61.2	$37.7
California	$1,291.6	$503.9	$316.1	$1,904.5	$621.4	$389.8
Colorado	$117.1	$67.8	$42.4	$172.7	$83.6	$52.2
Connecticut	$43.2	$48.2	$30.1	$63.8	$59.4	$37.1
DC	$24.1	$3.5	$2.2	$35.5	$4.4	$2.7
Florida	$545.1	$227.7	$142.9	$803.8	$280.8	$176.2
Georgia	$278.2	$117.2	$73.5	$410.3	$144.5	$90.6
Hawaii	$40.7	$16.2	$9.6	$60.0	$19.9	$11.8
Idaho	$31.4	$17.8	$11.1	$46.4	$21.9	$13.7
Illinois	$343.7	$196.1	$123.0	$506.8	$241.8	$151.7
Indiana	$132.5	$95.9	$59.9	$195.3	$118.2	$73.8
Iowa	$60.1	$48.7	$30.1	$88.7	$60.1	$37.1
Kansas	$96.9	$29.5	$18.4	$142.9	$36.3	$22.6
Kentucky	$74.6	$36.0	$22.4	$109.9	$44.4	$27.6
Louisiana	$268.5	$95.9	$60.1	$395.9	$118.2	$74.1
Maine	$21.7	$18.3	$11.2	$32.1	$22.6	$13.8
Maryland	$124.9	$69.4	$43.5	$184.1	$85.6	$53.6
Mass.	$89.0	$87.9	$55.1	$131.3	$108.4	$68.0
Michigan	$96.0	$134.0	$83.9	$141.5	$165.2	$103.4
Minnesota	$159.6	$86.2	$54.0	$235.3	$106.2	$66.5
Miss.	$91.5	$40.6	$24.9	$134.9	$50.1	$30.8
Missouri	$142.9	$87.6	$54.7	$210.7	$108.0	$67.4
Nebraska	$41.6	$28.5	$17.5	$61.3	$35.1	$21.6
Nevada	$114.6	$40.6	$25.4	$168.9	$50.0	$31.3
New Jersey	$137.3	$123.0	$77.0	$202.5	$151.7	$94.9
New Mexico	$81.7	$26.4	$16.5	$120.5	$32.6	$20.3
New York	$586.9	$135.3	$84.8	$865.5	$166.8	$104.6
N. Carolina	$145.0	$112.4	$70.2	$213.8	$138.6	$86.6
N. Dakota	$10.4	$9.0	$5.5	$15.3	$11.1	$6.7
Ohio	$208.8	$156.1	$97.7	$307.9	$192.5	$120.4
Oklahoma	$95.5	$60.4	$37.4	$140.8	$74.5	$46.1
Pennsylvania	$234.6	$157.0	$98.5	$345.9	$193.6	$121.4
Rhode Island	$19.7	$16.8	$10.5	$29.0	$20.7	$12.9
S. Carolina	$84.5	$63.6	$39.7	$124.5	$78.4	$49.0
S. Dakota	$20.2	$13.2	$8.1	$29.8	$16.2	$10.0
Tennessee	$278.6	$105.1	$65.7	$410.8	$129.6	$81.0
Texas	$590.3	$319.6	$200.4	$870.4	$394.1	$247.2
Utah	$60.0	$35.3	$21.8	$88.5	$43.5	$26.8
Vermont	$17.0	$11.3	$6.8	$25.1	$13.9	$8.3
Virginia	$140.4	$71.9	$45.1	$207.0	$88.7	$55.6
Washington	$191.2	$78.3	$49.1	$281.9	$96.5	$60.6
W. Virginia	$34.3	$24.2	$14.8	$50.6	$29.9	$18.3
Wisconsin	$96.4	$66.9	$41.9	$142.1	$82.5	$51.7
Wyoming	$19.4	$7.9	$4.8	$28.6	$9.8	$5.9