Information Brief

To Collect Sales Tax or Not: Indiana’s Ecommerce Conundrum—
Determining the State’s Lost Sales Tax Revenue and Weighing the Amazon Tax Policy

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November 2011
Acknowledgements
This work has benefitted from advice and assistance of Senator Luke Kenley and Indiana Office of Management and Budget Director Chris Ruhl. We are especially thankful to several others for freely and generously making their work available to other researchers. These include Bob Lain at the Indiana OMB and Don Bruce, Matt Murray, Bill Fox and LeAnn Luna at the University of Tennessee. We also thank Victoria Meldrum and the CBER publications staff for the formatting and design of this publication.
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Introduction

Black Friday traditionally is the biggest shopping day for many brick-and-mortar retailers across Indiana, which means a big sales-tax haul for the state, too. In recent years Cyber Monday has become the online equivalent of Black Friday, a day when shoppers muster the same frenzy by computer that they showed the day after Thanksgiving. But Cyber Monday doesn’t produce nearly the same sales-tax revenue for Indiana, and there is the rub. Many of those transactions don’t include Indiana’s seven percent sales tax. Federal law has exempted online retailers from the responsibility of collecting and remitting state sales taxes unless they have a physical presence (or nexus) in that state. This has touched off a policy debate that rings from the Statehouse to the U.S. Capitol and, recently, back to the county courthouse. Local retailers claim their online competitors that don’t collect sales tax enjoy a price advantage while politicians weigh whether the cost of lost sales tax revenue is worth the additional jobs provided by Amazon.com and others that ship goods from Indiana warehouses after conducting their business in virtual stores. Even as the tax equity question is debated between retailers, another tussle rages over the proper venue for any new tax laws—Congress or state legislatures.

This is not an esoteric discussion in Indiana, which is why the Indiana Fiscal Policy Institute and Ball State University’s Center for Business and Economic Research have teamed up to produce this report. In it we attempt to determine how much sales tax the state loses through online sales and other forms of ecommerce. The report also determines the effect of the so-called Amazon Tax, which would require online firms with operations in the state to collect sales tax from Hoosiers.

Estimates of Indiana’s sales tax revenue lost to online sales widely vary, from as little as $33 million a year to as much as $398 million. Using existing data and new methods for analyzing the data, this report shows Indiana loses between $40 million and $114 million in sales tax revenue from online sales with a similar amount likely lost to traditional mail-order sales.

The recent lawsuit filed by Indianapolis-based Simon Property Group highlights the tensions between traditional retailers and their online counterparts. Simon, the nation’s largest mall developer and owner, sued Indiana, demanding that the state require online retailers to collect and remit sales taxes on transactions. Amazon has long argued it should be exempt from collecting state sales taxes and Indiana has agreed, which Amazon has acknowledged played a role in its decision to locate four warehouses in the state. This study, however, determines that there is no apparent connection between enforcement of state sales tax collections and location decisions.

The sales tax is a relatively simple concept, but technology and circumstance have complicated its enforcement. By determining more precisely how much sales tax revenue the state is losing and by debunking the notion that the exemption for online retailers is what causes them to locate operations in Indiana, it is hoped that policy makers will be able to address questions of tax equity and neutrality more effectively.

Background

Estimates of ecommerce sales by the United States Census reveal a startling growth of sales over the past decade. These sales comprise such staples as business-to-business transactions, food, medicine, and consumer goods such as clothing, sporting equipment and consumer electronics. See Figure 1 (page 2).

Importantly for our purposes, ecommerce transactions are often not subject to state-level sales and use taxes. This was decided in the Quill v. North Dakota case in 1992, which determined, in effect, that firms with no physical nexus in a state cannot be subject to that state’s tax laws. As a consequence, the sale of an item purchased through the internet, or a mail order catalog from a state in which the firm does not have a physical presence, cannot be taxed. The growth in ecommerce has accompanied an erosion of sales tax collections across the country. Over the past several years a number of important studies have focused attention on the foregone tax revenues due to ecommerce. The best of these studies are reports and peer-reviewed work from several authors at the University of Tennessee’s Center for Business and Economic Research. These are frequently updated and provide a basis for analyzing the costs associated with the current tax system in terms of state tax revenues foregone. We will review them in more detail later in the study.

The expansion of ecommerce in recent years has led many mail order or ecommerce-related firms to deploy warehousing, distribution and customer service facilities in a number of states. This is done to reduce transportation costs, access available workers and to place resources closer to larger population centers where customers reside. Such familiar companies as Amazon.com, Barnes and Noble and others have then expanded their physical nexus significantly in recent years. This has raised important taxing issues for states who both wish to see these firms locate within their state and also want to receive the tax revenues from all sales by that firm to in-state residents. Several states have also changed the legal definition of nexus, to include firms that facilitate trade (such as distribution facilities, marketing and internet providers). These are often referred to as Amazon Taxes because Amazon.com is the largest ecommerce firm without a physical retail presence.

The interaction of declining tax revenues and unclear interpretation of nexus, along with pressure from non-internet retailers (brick
and mortar locations) have begun a significant push for aggressive state action and perhaps federal legislation mandating the collection of interstate taxes.

In the absence of federal legislation, state policy makers are faced with a difficult balance of the desire to attract more employers and the need to prevent the continued erosion of the sales tax base. This policy dilemma, in part, motivates our analysis. We are also concerned with larger issues of equity in taxation, which are defined as treating like economic activities similarly in the tax structure. Likewise we are concerned with the neutrality of the tax code. A non-neutral tax code impels behavior that is unrelated to the revenue goals of the tax. For example, the choice to not locate a distribution center within a large state because that would result in all ecommerce and mail order transactions in that state being taxed is non-neutral. Finally, we worry about the tax base. A prime hallmark of an effective public finance system is a broad base and low rate. Exemption of mail order or ecommerce-related sales from taxation requires that higher tax rates be placed on a narrower set of economic activity to provide for the public goods and services in Indiana.

Earlier Studies Relevant to Ecommerce Taxation

The problem of defining the point of sales and firm nexus for tax and regulatory purposes has a long pedigree. Gregory (1904) outlines more than three decades of case law on the Collect On Delivery (C.O.D.) sale of regulated goods. At the time, the interaction of our public mail service and the growth of C.O.D. methods gave rise to significant legal concerns. The most critical of these reported by Gregory were in the sale of alcoholic beverages and butterine (margarine), which were items regulated by state and county governments for whom the definition of ‘point of sale’ determined criminal and taxation issues (Gregory 514).

A direct examination of the role of federal and state taxation was offered by Boyle (1915). This early treatment of the growing connectedness of tax administration argued that increases in interstate commerce led to important taxation issues. He noted:

In Chicago there are certain great mail order houses whose sales run up into the millions, probably hundreds of millions of dollars a year. These houses do business in every state in the Union and in foreign countries as well. In reality this

1. Reference to State v. Intoxicating Liquors, 73, N.Y. 252; Pilgreen v. State (1884) 71, Alabama, 368; United States v. Shriver 23, Feolo 134 (license tax case), among others.
gigantic business is interstate. But in actual practice, under our uncoordinated systems of state and federal taxation, this business is assessable only at its domicile in the state of Illinois (Boyle 60).

Boyle’s recommendation included a significant degree of tax rate harmonization across jurisdictions, which later research argued is inappropriate in a federal system. However, many of his arguments regarding the administrative considerations of cross border taxation echo the current debate:

Cooperation in assessment and collection of taxes, as outlined in the preceding pages, will lead to a division of the field of taxation, a division based on administrative experience, not on preconceived theory. It will also lead, it is hoped, to a business-like coordination of the federal administrative machinery itself . . .” (Boyle 60).

Between the World Wars, tax administration at the state and federal level grew significantly as demands for public services grew. Writing in 1941, Carlson described the growth of sales and use taxes as a response to this demand for services. He described the concern about interstate tax rate differentials and how states dealt with differing state sales tax rates. His analysis on the magnitude of this matter is stunningly modern: “[j]ust how extensive the alleged loss in sales tax revenues may be is difficult if not impossible to ascertain.” and “[e]ven if attention be focused upon those purchases made out of state for the primary purpose of avoiding sales tax, it is virtually impossible to ascertain their volume” (Carlson 223-224).

More recent studies have extended this work to include the ever expanding sales tax levels and evolving case law (Hellerstein 1986). However, it is likely that the postwar expansion of retail goods consumption and the growth of both the sales tax base and total collections diverted attention away from lost sales tax revenues from mail order and cross border sales.

The economic debate over interstate sales tax issues again became important as the Internet Age introduced a new competitive class of firms into retail trade: ecommerce firms. In 1997, Fox and Murray described the issue, arguing for destination-based tax collections for retail sales (which, they note, requires federal action). Mikesell (2000) argued against harmonization of sales tax rates (an issue raised by Boyle in 1915, which had long been settled against the notion of harmonization). However, Mikesell argued at the time that a form of federal registration for vendors would substantially mitigate the lost revenue for most states.

From their first study in 1997 to work pending formal publication, the most extensive analysis of the ecommerce question has emerged from researchers at the University of Tennessee’s Center for Business and Economic Research. These studies clarified emerging issues of the effect of ecommerce on sales tax bases, the importance of pursuing tax policies that were neutral with respect to the type of business engaging in commerce, how taxes affected electronic commerce at the state level, and several studies of the effects of internet sales on state sales tax collections. This research provides an important framework for the entire issue. However, the element most germane to our study is the estimate of state sales tax losses due to the growth of ecommerce. Because we shall describe their methodology as a part of our overall empirical analysis, we will defer the discussion to later. We next turn our attention to the economic effects of ecommerce sales tax issues with a focus on Indiana.

Understanding the Economic Effects of the Ecommerce Sales Tax Issue

In the following sections we provide two separate analyses of the ecommerce issue. First, we provide a review of estimates of the lost sales tax attributable to ecommerce in Indiana, along with new analysis designed to bridge the methodological gaps between existing estimates. This should provide a reconciliation of total sales tax losses in Indiana attributable to ecommerce. Second, we estimate the effect of changes to sales and use tax legislation in states which have implemented or debated an Amazon Tax designed to expand the rules of nexus. We begin with sales tax losses due to ecommerce in Indiana.

Estimating lost sales and use taxes due to ecommerce in Indiana

As Carlson noted in his 1941 study, estimating uncollected taxes due to consumer or business behavior presents several challenges. However, two methods have emerged to better understand the magnitude and changes to tax losses due to ecommerce. As with any such estimate, both approaches have some limitations, which are acknowledged by the authors. These studies offer differing estimates of sales tax losses for which some effort at reconciliation is warranted. So, a unique contribution of this study is the reporting of a supplementary estimation technique that helps reconcile the estimates from the aforementioned studies. We begin with the University of Tennessee studies.

For more than a decade, a research team at the University of Tennessee has provided yearly estimates and forecasts of lost sales tax revenue due to ecommerce. They have employed two similar approaches to estimate these losses. The early method involved using data on online sales from Forrester Research, Inc., a private marketing
firm. The more recent method involves using Census data on national ecommerce as the basis for a forecast. From this forecast they applied state laws on those sectors which are taxable in each state, and then excluded estimates of non-taxable business-to-business sales. The study team also estimated the level of compliance with out-of-state sales and use taxes. These compliance estimates of ecommerce-related annual sales tax losses in Indiana from 2010 through 2012 were $170.1 million, $194.1 million and $216.9 million respectively.

A frequently cited figure of $398 million in lost sales tax collections in Indiana includes sales tax losses from traditional mail order and telephonic orders, as well as ecommerce-related losses.4 Taxation of mail order and telephone sales is a related issue because federal legislation would likely affect all types of nexus taxing issues, not merely ecommerce. We confine our estimates to ecommerce losses.

Indiana’s Office of Management and Budget (OMB) performed a study to estimate sales tax payments by firms engaged in ecommerce. This analysis included several efforts. The first of these was to measure compliance from administrative data. These included sales taxes reported through the Streamlined Sales Tax project (SST), estimates of out-of-state sales tax payments made directly by retailers (not participating in the SST) and use-tax collections provided by Hoosiers on their annual income tax forms. A fourth approach estimates the share of ecommerce-related sales taxes paid by firms with a nexus in Indiana (e.g. Wal-Mart, Sears, etc.). Together, OMB estimates that Indiana collects $186 million in ecommerce-related sales taxes. Though OMB does not provide a comprehensive estimate of uncollected taxes, the office reports that the share of Indiana sales taxes not collected from Amazon.com is in the $25 million range. However, if we apply the compliance estimate reported by the University of Tennessee studies to the very careful analysis of collected sales tax on ecommerce by OMB, it suggests that roughly $91 million from Amazon and other ecommerce-related retailers were uncollected in 2010.

The University of Tennessee and Indiana OMB studies provide estimates of lost sales tax revenue that range from a high of roughly $216 million to a low of just over $25 million. To this widespread range we offer yet another method of estimating taxes.

In order to estimate uncollected sales taxes attributable to ecommerce, we develop a method that accounts for this missing tax revenue directly from observed sales tax data in the state. To do this, we construct a statistical (econometric) model. This model then estimates the share of Indiana personal income paid in sales taxes as a function of the sales tax rate, personal income, a trend variable and a statistical measure of the persistence of sales tax share of income that aids in the accounting for such things as broad changes in consumption patterns or recessions.5

This model explained much of the variation in sales tax collections, and was broadly consistent with economic theory and historic sales tax collections in the U.S. However, this model specification does not answer a question about ecommerce sales tax losses. To do so we include two variables that represent the advent and growth of broadband access in Indiana. The first of these is simply a variable that recognizes 1996 as the first year of broadband deployment in the U.S. (the date at which the Federal Communications Commission began collecting data). The second variable is the logarithm of the number of broadband subscribers in Indiana, which approximates a vote of growth of broadband usage. In adding these variables to our model and re-estimating the relationship, we find that both the presence and the growth of broadband subscribers reduced the sales tax share of personal income in Indiana. The relationship was statistically strong, and permitted us to then calculate the total lost taxes as a consequence of the presence of broadband. These estimates range from $33 million to $77 million in the most recent years available.

Before providing a comparison of estimates, two issues must be acknowledged. First, all these studies have ranges of estimates that are plausible. The differences between study findings could result from statistical error inherent in forecasting or surveying, different patterns of ecommerce use by Indiana consumers (as compared to the national sample) or statistical error inherent in our new study. These sorts of differences necessarily exist among studies that seek to estimate, in different ways, the same question. The application of what, in common vernacular, is known as ‘margin of error’ to these provides a range of estimates for which each is subject to error of plus or minus tens of millions of dollars. In other words, given the methodological issues of estimating the lost sales taxes, differences are inevitable. However, the different estimates among these studies are, when compared to the overall sales tax receipts of more than $6 billion, remarkably small.

Second, we do not know how much sales tax collections have been influenced by existing sales order purchases not involving ecommerce. Hence, we do not know the change in mail order purchases caused by the advent of ecommerce. These factors combine to make the total lost sales tax from ecommerce an elusive figure, but one that can be known if federal legislation required payment of sales and use outside the current nexus requirements. A comparison of these estimates appears in Table 1.

All three of these methods offer credible tools for estimating ecommerce sales tax losses. The actual value cannot be known yet, but as a representational figure, we offer a range from $39.6 million to $114.3 million (which is $77 million, plus or minus $37 million) this fiscal year in lost ecommerce-related sales taxes alone. The University of Tennessee studies also estimated another $181 million in lost sales

5. \( \frac{(Sales\ Tax)}{(Personal\ Income)} = c + \beta_1 \log{(Personal\ Income)} + \beta_2 \ (Sales\ Tax\ Rate) + T_1 + \delta \theta_{t-1} + \varepsilon_t \)
Table 1: Estimates of Lost Sales Tax Due to Ecommerce

<table>
<thead>
<tr>
<th>Study</th>
<th>2012 Estimate</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td>The University of Tennessee</td>
<td>$219.6 million</td>
<td>Potential high estimate of base, low compliance estimate</td>
</tr>
<tr>
<td>Hybrid Estimate</td>
<td>$99.1 million</td>
<td>Inferred from UT compliance estimates, and Indiana Office of Management and Budget collections data</td>
</tr>
<tr>
<td>Indiana Fiscal Policy Institute &amp; Ball State University (this study)</td>
<td>$77 million</td>
<td>Statistical estimate with a range of +/- $37 million</td>
</tr>
</tbody>
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Table 2: Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>Employment in NAICS 4541</th>
<th>Establishments in NAICS 4541</th>
<th>Broadband Subscription</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>5,625.1</td>
<td>292.1</td>
<td>776.4</td>
</tr>
<tr>
<td>Median</td>
<td>3,637</td>
<td>189</td>
<td>260,310</td>
</tr>
<tr>
<td>Maximum</td>
<td>32,971</td>
<td>2,493</td>
<td>17,159,597</td>
</tr>
<tr>
<td>Minimum</td>
<td>140</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Observations</td>
<td>459</td>
<td>459</td>
<td>459</td>
</tr>
<tr>
<td>Cross sections</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
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Taxes due to traditional mail order services in Indiana for the same time period. Given our estimates of ecommerce sales tax losses, this number would appear high, but this interpretation is nothing more than a guess by researchers familiar with state taxes. Indeed, this figure suggests that each Hoosier household consumes roughly $991 per year in traditional mail order goods. Even with a large share of these comprising business-to-business transactions this value appears larger than our experience would suggest.

We can conclude from these estimates that lost sales tax collections due to ecommerce are small enough relative to our state budget that they cannot represent a funding panacea for Indiana. However, they are certainly large enough to warrant significant policy attention as well as raising concerns about tax equity, base and neutrality.

**How would a state Amazon Tax change the state’s economy?**

A second question of interest in this debate is how state-level tax policy changes designed to broaden the definition of nexus influence the location decision of mail order and ecommerce firms. Commonly referred to as Amazon Taxes, this legislation would require firms that engage affiliates to perform key product process and distribution efforts to collect sales taxes on products sold to consumers within that state.

To construct an estimate of the impact of Amazon Taxes on firm location decision we gather data from the Census County Business Patterns on firms that are listed as Electronic Shopping and Mail Order Houses under the North American Industrial Classification System (4541). We construct dummy variables for states that have introduced some form of broader nexus legislation. This is a very new phenomenon, with only nine states having adopted any such legislation, and more than half of those in the most recent year of data available. We also collect the number of broadband subscriptions in each state. Summary statistics are reported in Table 2.

We then constructed an econometric model that estimated measures of the size of mail order/ecommerce activities as either total employment or total establishments in a state. Our initial goal was to test differential firm sizes and scale the size of activities to match population in each state. Our goal was to craft a very detailed description of the effect of these taxes on firms in each state from 1997 through the most recent available data.

The model accounted for the Amazon Tax, number of broadband subscribers, recessions, trend effects, variables that measure persistence across time, and variables that account for aspects of each state which are unchanged over the observed period.\(^6\)

We computed a number of relationships, including growth rates of firms, levels, population-adjusted levels and alternative depictions of broadband penetration. In none of these tests did the Amazon Tax affect employment in these sectors in any state. We also included a variable that measured the timing of the ‘debate’ over the Amazon Tax. We reasoned that it was possible that firms would relocate prior to the imposition of a tax, simply because it seemed likely to pass. In one such model we found evidence of fewer mail order establishments as a consequence of a debate on an Amazon Tax. However, this variable did not affect employment, and given that it occurred in only one of several statistical estimates, it cannot be viewed as reliably different than a ‘no effect finding’.\(^7\)

We also subjected our model to a battery of statistical tests, and overall the model performed well in predicting the location and size of a mail order or ecommerce industry within a state. Notably absent in these results was a strong connection between an Amazon Tax and the size of that industry in a state. Our efforts to estimate the relationship between Amazon Tax and mail order/ecommerce firm location decisions point to a conclusion that at the current time, there is no relationship.

**Summary and Conclusions**

Concerns over the appropriate considerations for collection of sales taxes on mail-order houses and ecommerce have a long history. The

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\(^6\) \( Y_{i,t} = \beta_0 + \beta_1 \text{Amazon Tax}_{i,t} + \beta_2 \text{Broadband Subscribers}_i + \beta_3 \text{Recession}_t + \delta \theta_{i,t} + \epsilon_{i,t} \)

where \( Y \) is one of several variables measuring the size of the mail order/ecommerce industry in state \( i \), and year \( t \).
recent growth in ecommerce and the receding sales tax base in most states points to an expanding public policy concern. Any resulting change to public policy will affect the level of equity and neutrality of our tax system. To address these concerns we have provided two new empirical estimates directly bearing on the problem in Indiana. First, we attempt to reconcile the many estimates of lost sales tax collections due to ecommerce in the state. Second, we estimate the impact of state-level measures to extend nexus rules on ecommerce firms.

Beginning with the latter, our estimates suggest there is no connection between the Amazon Tax and firm location decisions. While the Amazon Tax is a newer tax, and so the effects have not yet had an opportunity to mature, there is nothing in our analysis to suggest it will result in fewer or more ecommerce firms locating in a state.

Our analysis of lost sales taxes focus on reconciling and understanding the many estimates of the tax. Credible studies point to the range of impacts from $33 million to $216 million per year in ecommerce sales alone. At least one estimate concludes that traditional mail order sales may lead to another $181 million in lost tax collections in the state; though, as we noted, our professional judgment leads us to doubt the size of this estimate.

We believe that the actual lost sales taxes figure most likely to lie in the $40 million to $114 million range for ecommerce, with a similar or lower amount lost due to traditional mail-order sales. Placed in context to the overall state budget, this is a small share of collections. However, under even the smallest estimates provided here, it is clear that a strong public policy dimension to the issue exists. The current system lacks equity and neutrality, treating very similar retailers differently, and potentially altering the behavior of consumers and businesses with respect to fundamental decisions on consumption and production.

References


Bruce, Donald, Fox, William F., and Luna, LeAnne (2009) “State and Local Government Sales Tax Revenue Losses from Electronic Commerce” State Tax Notes 52(7): 537-558


