

CAN CHARGING SALES TAXES ON INTERNET SALES SAVE BRICK-AND-MORTAR STORES?

William G. Jens, Jr.
McNeese State University

Jeanne-Claire Patin
McNeese State University

Lonnie Turpin, Jr.
McNeese State University

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Abstract

In October of 2018, Sears, a U.S. retail giant, filed for bankruptcy. Walmart, the largest U.S. retail operation, recently introduced a new business model whereby on-line orders can be picked up or even delivered. Both events can be seen as part of a major shift away from the traditional brick-and-mortar operations toward on-line retail sales and the big elephant in the room, Amazon. Twenty years ago, the Internet Tax Freedom Act was passed, halting direct taxation on internet sales. At the time, it was seen as a protection of a relatively fledgling industry. Recently, the Supreme Court ruled that states may charge sales taxes on internet sales. This study will look at relative growth rates of retail sales v. internet sales and draw some conclusions on the ability of brick-and-mortar stores to compete against internet sales operations going forward and

the possible impact of charging sales taxes on all internet sales.

INTRODUCTION

Since inception, internet sales have grown at an exponential rate. Starting in 1998, the majority of these sales were protected from sales taxation by a variety of Federal laws. The growth of e-commerce sales may have, in part, come at the expense of traditional “brick-and-mortar” stores which are required (in most cases) to collect sales taxes on its sales. While states acknowledged that they were losing sales tax revenues, it was difficult for them to quantify the impact. The Federal moratorium ended in 2014, but states were slow to act since, like all taxation, collection is a function of enforcement and this can be difficult when internet sales frequently are not constrained by state borders.

The lifting of the sales tax moratorium adds an interesting twist to what would appear to already be a very distinct cost differentiation between the two business models. In addition to collecting sales taxes on all sales, business models for brick-and-mortar stores include costs of the physical facility, storing and handling of significant inventories, insurance and maintenance costs on the properties, and substantially higher employee costs, just to name a few. By comparison, on-line retail operations incur few if any of the costs associated with property ownership. Storage and handling costs for on-line retailers are substantially below those experienced by brick-and-mortar rivals, largely because they do not have to stock shelves with multiple items and because of just-in-time ordering capabilities. Relative employee costs for on-line retailers are also considerably lower as they do not have to employ sales clerks and stocking/loading employees.

The areas in which brick-and-mortar operations enjoy cost advantages over their on-line competitors appear to be few. The most obvious cost advantage would seem to be delivery costs; however, as brick-and-mortar stores look to cash in on the convenience aspect of consumer demand (on-line ordering and

delivery), this advantage may be shrinking. Additionally, the requirements to have a significant on-line presence adds an initial cost differentiation, but again, this may be disappearing. In a competitive market, price advantages usually guarantee ultimate dominance. This study will seek to evaluate if growth trends between the two operations support the conclusion of a long-term competitive advantage.

HISTORY

From its inception until the late 1990s, the Internet was free of regulation by the U.S. government at all levels including tax levies, duties, imposts, and license fees. By 1996, several U.S. states and municipalities began to see Internet services as a potential source of tax revenue. The 1998 Internet Tax Freedom Act halted the expansion of direct taxation on Internet sales. It was extended several times and remained in force until the end of 2014. The enactment of this legislation coincided with the beginning of a period of remarkable Internet growth. Proponents argued that the benefits of knowledge, trade, and communications provided by the Internet potentially outweighed the tax revenue losses of e-commerce, if any. Additionally, the economic and productivity growth attributable to the Internet may have contributed more revenues to various governments than would otherwise have been received. Opponents, on the other hand, argued that the Internet would continue to prosper even if taxed and that the current federal ban on Internet-specific levies denied governments at all levels a much-needed source of revenue.

THE LEGAL ENVIRONMENT

The ability of states to require remote sellers to collect and remit use tax on merchandise sold to a state's residents have been restricted since 1967 by two key U.S. Supreme Court decisions. In 1967, the Court ruled in *National Bella Hess Inc. v Department of Revenue Ill.* that an Illinois statute requiring an out-of-state mail-order business to collect and pay use tax on goods purchased for use in Illinois violated the Due Process Clause of the U.S.

Constitution and created an unconstitutional burden on interstate commerce.

The question of nexus for sales and use tax collection responsibilities was addressed again in 1992 in *Quill v. North Dakota*. The Court held that the Commerce Clause requires a physical presence in the state before a state can require an out-of-state seller to collect sales and use taxes. However, *Quill* did not specifically state that the physical-presence nexus requirement also applied to other types of taxes, such as income and franchise taxes. This lack of clarity has generated uncertainty for taxpayers because states are split on the question of whether an out-of-state taxpayer that does not have a physical presence in a state can be compelled to file income or franchise tax returns in that state.

On June 21st, 2018, the U.S. Supreme Court altered the rules for the collection of sales tax revenues from internet-based retailers. In its decision *South Dakota v. Wayfair Inc.*, the Court concluded that individual states can require online sellers to collect sales taxes on their sales. This decision was a reversal of that which it made in 1992's *Quill Corporation v. North Dakota*, which prohibited states from requiring businesses to collect sales taxes unless those businesses had a physical presence in the state (referred to as Nexus). As of 2020, over forty states have enacted new tax laws related to taxing internet sales. The presumption would be that this will provide a boon to brick-and-mortar stores' sales and state tax revenues, but there is not universal agreement on this point.

Writing for the majority in a 5-to-4 ruling, Justice Anthony Kennedy stated that the *Quill* decision caused states to lose annual tax revenues of upwards of \$33 billion (Liptak, Casselman, & Cresswell 2018). In contrast, Verenda Smith, Deputy Director of the Federation of Tax Administrators, stated that "many people will never even notice the difference" (Hutheesing 2018). His rationale encompasses several issues. First, the Court's decision offers no specifics on enforcement and feels that enactment of state laws could take years. Second, many large e-commerce operations such as Amazon and eBay have been charging sales taxes for years

as they have a physical presence in most states. Other smaller e-commerce companies have also been collecting sales taxes to avoid having to provide state governments with their customer data so that the state could charge the customer directly under varying use tax laws. Overall, expectations with regard to the change in law are divergent.

ARE TAXES BEING LOST?

The fact that state sales tax revenues relative to e-commerce transactions are being lost is generally accepted, but estimates of the extent vary. One early study called “The Sky is Not Falling: Why State and Local Revenues Were Not Significantly Impacted by the Internet in 1998” (Cline & Neubig 1999) claimed that only one-tenth of one percent of total state and local government sales and use tax collections totaling less than \$170 million could have been gleaned from internet-based sales. Their conclusions were based upon several key issues and findings as follows:

- Most services and intangible products are not subject to sales and use taxes.
- Many tangible goods (e.g. groceries, apparel, prescription drugs) are also exempt from sales and use taxes in many states.
- An estimated 80% of current commerce is business-to-business sales that are either not subject to sales and use taxes or are effectively subject to use tax payments by in-state business purchasers.

Additionally, they state that the erosion of sales and use taxes is not a negation of tax liability. Although out-of-state sellers without physical nexus have no legal obligation to collect sales and use taxes from in-state consumers, the in-state consumers still have a use tax liability. Thus, the potential erosion of tax collections is due to lack of effective enforcement of existing laws through lack of both resources and information.

The most cited study is by Bruce, Fox and Luna of the University of Tennessee (Bruce, Fox, & Luna 2009). They made

national estimates using actual data and detailed forecasts of e-commerce transactions from 2003 to 2008. They applied professional judgment concerning the taxability of each type of transaction and about the degree of voluntary use tax compliance, deriving weighted average sales tax rates per state. Their forecasts were for both business-to-consumer (B2C) and business-to-business (B2B) e-commerce. They computed a high and low forecast for each period studied. Their low-growth forecast assumed that aggregate B2B sales rise at the same rate as the Congressional Budget Office (CBO) forecasts for nominal GDP. The high-growth forecast used the same starting point, but this forecast assumes that B2B sales represent the same percentage of total e-commerce transactions in each year as in the Forrester Research, Inc. forecast that was used in an earlier study. Estimates of B2C transactions are the same in both forecasts.

Their data shows that, in 2003, sales taxes were due on \$752 billion of the \$1.28 trillion in internet sales that were estimated using the low-growth methodology. Tax was not collected on \$236.3 billion, resulting in an estimated \$15.5 billion total loss in state and local sales tax revenue given the current weighted average of 6.5% state and local sales tax rate. The loss is expected to reach \$21.5 billion by 2008 as states will be unable to collect sales tax on \$329.2 billion in taxable transactions. The high-growth methodology results in estimated total losses of \$16.1 billion in 2003 that rise to \$33.7 billion by 2008. They estimate the 2008 revenue loss for state and local governments to range between \$21.5 billion and \$33.7 billion. Thus, the 2008 losses represent between 3.9% and 6.1% of actual total 2003 state tax revenues.

They concluded that “revenue erosion continues to represent a significant loss to state and local government;” however, they also note that their e-commerce projections are down from an earlier study. They attribute this to the fact that more vendors have begun to collect sales and use taxes on their remote sales.

A review of studies on the subject to date makes it clear that quantifying the extent to which states are losing sales tax revenue is, at best, an exercise in extrapolation and conjecture. Since all state sales revenue results from self-reporting on the part of the individual entities collecting these monies, it is hardly surprising that internet sales functions, particularly the smaller ones, are loathe to report their revenue figures for fear of losing a significant competitive advantage over their brick-and-mortar competitors.

DATA

Data was collected using U.S. Census Bureau data from the first quarter of 2008 through the second quarter of 2018, for a sample size of $n=42$ periods. Retail e-commerce sales are estimated from the same sample used in the Monthly Retail Trade Survey (MRTS) to estimate U.S. retail sales. The MRTS sample is probability based and represents all employer firms engaged in retail activities as defined by the North American Industry Classification System (NAICS). The MRTS sample is updated on an ongoing basis to account for new retail employer businesses (including those selling via the Internet), business deaths, and other changes to the retail business universe. The U.S. Census Bureau conducts research to ensure that retail firms selected in the MRTS sample and engaged in e-commerce are representative of the total population of e-commerce retailers.

The survey noted that the dollar value and relative share of economic activity vary noticeably. While not separating data on B2B versus B2C e-commerce, a reasonable assumption is that manufacturing and merchant wholesale trade sales are all B2B (and non-taxable) while selected service and retail trade sales reflect B2C transactions. All relevant data is shown in Appendix 2.

ANALYSIS

We analyze the increases of each type (brick-and-mortar and e-commerce) over $n=41$ periods (the first is lost by derivation).

For each period i , define $T_i = 1$ if sales of type T increases, and zero otherwise. We will refer to each type as BM (for brick-and-mortar) and EC (for e-commerce), respectively. Accordingly, each will follow a Bernoulli distribution with parameter $\hat{p}^T = \widehat{Pr}(T = 1)$ in the form $T \sim \text{Bernoulli}(\hat{p}^T)$. The following three claims are introduced.

Claim 1. E-commerce increases more often than brick-and-mortar.

Claim 2. The two types of sales are not independent.

Claim 3. The rate of increase in e-commerce sales is greater than the rate of increase in brick-and-mortar sales.

To begin empirically testing the claims, the data reveals the following joint probability table

Table 1. Two-way Joint Probability Table

		BM		
		0	1	$\widehat{Pr}(EC)$
EC	0	$\widehat{Pr}(0,0) = 0.07$	$\widehat{Pr}(1,0) = 0.00$	$1 - \hat{p}^{EC} = 0.07$
	1	$\widehat{Pr}(0,1) = 0.22$	$\widehat{Pr}(1,1) = 0.71$	$\hat{p}^{EC} = 0.93$
$\widehat{Pr}(BM)$		$1 - \hat{p}^{BM} = 0.29$	$\hat{p}^{BM} = 0.71$	

The remaining summary statistics to test Claim 1 are given in the table below. The results show that there is a significant difference in means, validating Claim 1. Additional derivations (and generally known techniques) are presented in Appendix 1.

Table 2. Paired Sample *t*-test for *EC* and *BM*

	<i>EC</i>	<i>BM</i>
Mean	0.9268	0.7073
Variance	0.0695	0.2122
Observations	41	41
Pearson Correlation	0.4368	
Hypothesized Mean Difference	0	
df	40	
<i>t</i> -stat	3.3541	
<i>p</i> -value (one-tail)	0.0009	
<i>t</i> -critical (one-tail)	1.6839	
<i>p</i> -value (two-tail)	0.0018	
<i>t</i> -critical (two-tail)	2.0211	

To formally tackle Claim 2, consider Bayes' Rule:

$$\widehat{Pr}(BM|EC) = \frac{\widehat{Pr}(BM \cap EC)}{\widehat{Pr}(EC)}$$

with $\widehat{Pr}(BM|EC)$ representing the conditional distribution, and $\widehat{Pr}(BM \cap EC)$ and $\widehat{Pr}(EC)$ each representing the joint and marginal distributions discussed previously. By rearranging the terms, we can structure the above with respect to *BM* by solving for $\widehat{Pr}(EC|BM)$. Using the data from Table 1, we estimate

$$\widehat{Pr}(EC = 1|BM = 1) = \frac{\widehat{Pr}(EC = 1 \cap BM = 1)}{\widehat{Pr}(BM = 1)}$$

yielding the conditional $\widehat{Pr}(EC = 1|BM = 1) = 1.00$. We can now compare the marginal distribution $EC \sim \text{Bernoulli}(0.93)$ to the conditional distribution $(EC|BM = 1) \sim \text{Bernoulli}(1.00)$. Thus, the marginal distribution $\widehat{Pr}(EC)$ and the conditional distribution $\widehat{Pr}(EC|BM = 1)$ are not the same. Notice that conditional on BM being large, the probabilities get larger for EC when it is also large (confirming the aforementioned positive relationship). Since the distribution of EC depends on what we observe for BM , they are not independent, validating Claim 2.

For Claim 3, we define $X_{T,i}$ as the (actual) retail sales of type T in period i , and let $R_{T,i}$ be the rate of increase where

$$R_{T,i} = \frac{X_{T,i} - X_{T,i-1}}{X_{T,i-1}}$$

defined over periods $i = 2, 3, \dots, 42$, accordingly. The table below reveals a difference in means between the rate of increase in e-commerce sales and the rate of increase in brick-and-mortar sales, thereby validating Claim 3.

Table 3. Paired Sample t -test for R_{EC} and R_{BM}

	R_{EC}	R_{BM}
Mean	0.0332	0.0048
Variance	0.0005	0.0003
Observations	41	41
Pearson Correlation	0.8328	
Hypothesized Mean Difference	0	
df	40	
t -stat	15.2881	
p -value (one-tail)	1.3E-18	
t -critical (one-tail)	1.6839	
p -value (two-tail)	2.7E-18	
t -critical (two-tail)	2.0211	

CONCLUSION

The initial sales and sales tax data provide a basis to evaluate potential historic growth rates between brick-and-mortar and e-commerce retail sectors. The data also allows supposition on the possibility that large scale brick-and-mortar operations are losing ground due to uneven cost structures. Findings show that (i) e-commerce (EC) sales increase more often than brick-and-mortar (BM) sales [92.68% vs. 70.73%] and (ii) the rate of increase in EC sales is greater than the rate of increase in BM sales [3.32% vs. 0.48%]. In several years, future research should provide the basis for determining whether or not the ability of states to require e-commerce providers to charge sales taxes has had a significant impact on these trends.

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