Wayfair: A Step Towards the Destination, But Sales Tax Competition Remains

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ABSTRACT: The U.S. Supreme Court decision in the landmark 2018 *Wayfair* case greatly improved state governments' ability to enforce collection of sales taxes on a destination basis. This has reduced state tax competition with an essentially untaxed internet, but has brought traditional cross-border shopping, which is often subject to origin taxation, back to prominence among policy makers and researchers. We provide a detailed discussion of state and local sales tax features and the extent to which they have fostered sales tax competition in recent decades. We then explore the extent to which greater destination taxation has influenced the location of (a) consumer purchases and (b) business locations using two different empirical approaches. First, we analyze county-level data for Tennessee and select surrounding states to provide suggestive evidence that sales tax collections have grown more in rural Tennessee counties and less in Tennessee border counties since Wayfair. Additionally, we show that collections have grown more since Wayfair in North Carolina counties along the Tennessee border, where the tax rate differential is on the order of three percentage points. Second, we examine state-level data to show that business applications have grown at much faster rates after Wayfair in states with the highest sales tax rates. We attribute this to the removal of the significant disincentive to establish sales tax nexus that dominated the pre-Wayfair environment.

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Introduction

Sales taxes remain the second largest contributor to state tax revenues and are viewed as an important way to link an individual's tax burden to their ability to pay for public services. Sales tax structures have changed dramatically in the U.S. during the past four decades. Perhaps the strongest motivation for the evolving sales tax landscape has been the erosion of the sales tax base, which has fallen from 51.0 percent of personal income in 1979 to 31.4 percent in 2020. Two factors in this gradual erosion have been explicit policy decisions to exempt items from the taxable base and a lack of policy decisions to include untaxed items. For example, most states have exempted food for consumption at home, with only six retaining it fully in the base and five providing preferred rates. Also, many states have failed to expand their sales taxes to evolving consumption, such as digitized transactions and two-sided platforms (see Agrawal and Fox, 2021).

Another cause of base erosion involves the shift in consumption patterns away from generally taxable goods towards generally untaxed services. The rapid growth in services such as health care and education, which are generally not sales-taxable, has eroded the base relative to total income or consumption.[2] Finally, and most importantly for our purposes in this paper, sales tax base erosion has stemmed from greater tax competition from untaxed jurisdictions and remote sales. Rapidly expanding remote sales often led tax compliance to move from sellers in store fronts to buyers purchasing from out-of-state firms.

Perhaps in response to the shrinking base, states have raised their rates consistently over this window, with the median rate rising from 3.0 percent in 1970 to 6.25 percent today, though the pace of increases appears to have slowed recently. The narrowing sales tax base and higher sales tax rates have likely increased behavioral responses to the tax on the part of buyers and competitive measures from state and local governments to preserve or enhance their sales tax bases and revenues.

While the statutory incidence of sales taxes typically falls on the vendor (which can be origin taxation, depending on the sourcing rules), the ideal economic incidence would be on the buyer who is the primary beneficiary of those public services (destination taxation). Origin-based sales taxes foster tax competition as shoppers move around (or shop online) to reduce their tax burden and vendors move around to avoid having to collect and remit sales taxes. States have undertaken significant efforts to better enforce destination taxation of remote sales to reduce harmful, unfair, and revenue-reducing tax competition. The most prominent mechanism for this has been more extensive definitions of nexus for sales tax purposes, beginning with more expansive physical presence concepts and then economic nexus as a result of recent court cases.

[2] Merriman and Skidmore (2000) find that failure to sales tax services is one explanation for why services consumption has risen more rapidly than goods.

Are states seeking to maintain revenues or are they seeking to protect domestic firms from untaxed out-of-state remote competition? Do the specific policy choices result from the fact that it is easier politically to enhance compliance rather than to broaden the base? Parsing out the causal determinants of the policy changes is beyond the scope of this paper. Instead, we focus on how the structural changes have impacted intrastate and interstate tax competition and how buyers have responded to the sales tax transitions.

The institutional details of the sales tax are integral to how behavior is affected, so we first provide a detailed discussion of state and local sales tax features and the extent to which they have fostered sales tax competition in recent decades. We then explore the extent to which greater destination taxation has influenced the location of (a) consumer purchases and (b) business locations using two different empirical approaches. First, we analyze county-level data for Tennessee and select surrounding states to provide suggestive evidence that sales tax collections have grown more in rural Tennessee counties and less in Tennessee border counties since Wayfair legislation was adopted in the state. Additionally, we show that collections have grown more since Wayfair in North Carolina counties along the Tennessee border, where the tax rate differential is on the order of 2.85 percentage points lower. Second, we examine state-level data to show that business applications have grown at much faster rates after Wayfair in states with the highest sales tax rates. We attribute this to the removal of the significant disincentive to establish sales tax nexus that dominated the pre-Wayfair environment. We conclude with a discussion of options for future policy and research surrounding sales tax competition.

Sales Taxes in the U.S.

Sales taxes are imposed by 45 states and thousands of local governments in 36 states.[3] State governments raised $340.6 billion and local governments generated $102.9 billion in 2020 sales tax revenues.[4] Three broad policy decisions determine characteristics and economic effects of sales taxes: where sales are sourced for tax purposes, the tax rate, and which sales are included in the base.[5] As will be seen in this brief summary of these institutions, states differ widely in many elements of their sales tax, so generalities do not necessarily fit each state.

State general tax rates range from 7.25 percent in California and 7.0 percent in Indiana, Mississippi, Rhode Island, and Tennessee to 0 percent in five non-sales taxing states: Alaska

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[3] Afonso (2019) reports that 40 states allow local governments to have a local sales tax, but only 36 states, including the District of Columbia, report local sales tax revenues in the 2020 Census State and Local Government Finance database. Also, Indiana, Maine, and Oregon report less than $300,000 each in local sales tax revenue. https://www.census.gov/data/datasets/2018/econ/local/public-use-datasets.html

[4] See https://www.census.gov/data/datasets/2020/econ/local/public-use-datasets.html.

[5] Sales taxes can be differentiated using other criteria as well, such as the required mechanism to change the rate or other policy options. See Afonso (2019) and Agrawal (2014).

(which has local sales taxes), Delaware, Montana, New Hampshire and Oregon.[6] States also impose differential tax rates on certain transactions, such as the six states that tax food for consumption at home at a preferential rate. State rates rose relatively rapidly for decades, with the median rate rising from 3 percent in 1970 to 5 percent in 1990 and 6.25 percent today. Rate hikes were particularly prevalent in the years around the 1980s and 1990s recessions. Increases have been less common since the Great Recession and no state sales tax rate has been increased since 2019.

Local tax rates often vary widely within and across states. The revenue may be available for spending at the city, county or district level, with states also differing as to whether the rate is levied at the state or local level and in the mechanism for setting the rate.[7] These differences may have important implications for tax competition. Local rates in some states are low and add little to the combined state and local tax rate but are higher than state rates in other states. Agrawal (2014) observes that local tax rates are higher and more dispersed in states with low state tax rates than in states with high state tax rates. Eleven states, including Idaho, Minnesota, Pennsylvania, and Wisconsin, have local rates that average less than 1 percent.[8] Colorado, which has the lowest state sales tax rate among states with the tax (2.9 percent), has the highest maximum local rate (8.3 percent). Alabama, Colorado, Louisiana, and New York have higher average local rates than the state rate. Except for two areas with higher rates, Virginia state government sets a flat local rate for all local governments. California sets the local rate as well. Tennessee and Louisiana have the highest combined average state and local sales tax rate at 9.55 percent.

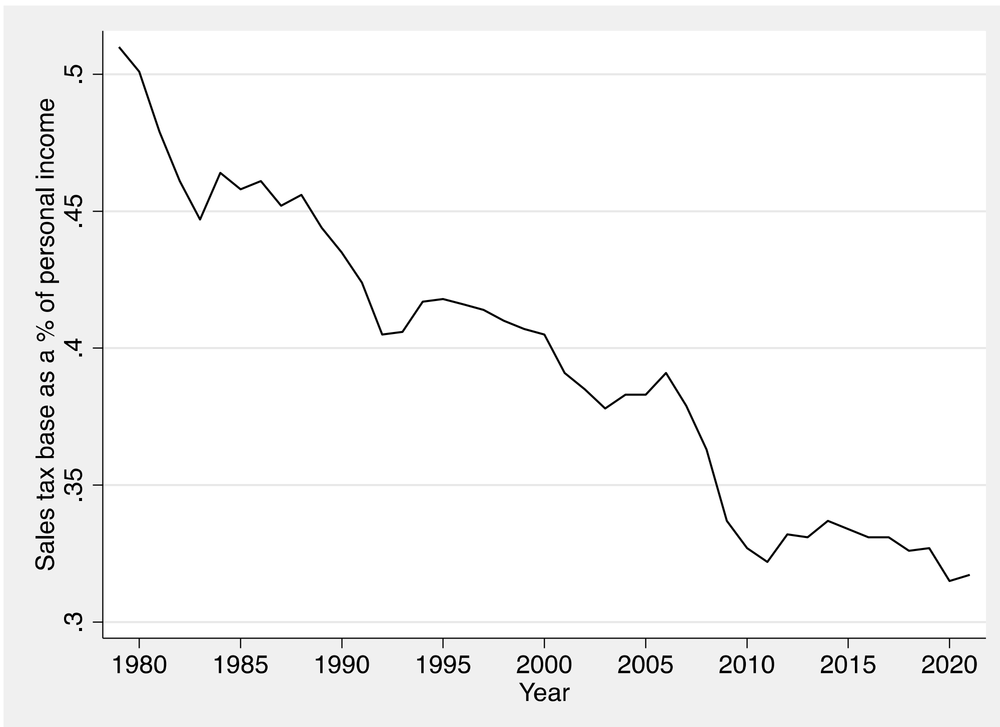
Sales tax bases differ widely across states but are generally much narrower than consumption with limited imposition on services (health care, education, many digital transactions, and so forth are generally untaxed) by many states and specific exemptions for certain goods (food, prescription drugs, and so forth). Hawaii, with a base that exceeds 100 percent of personal income, is an exception. New Mexico, South Dakota, Wyoming, and Washington are the only other states where the base is at least 50 percent of personal income. The average state sales tax base is less than one-third of personal income and, as noted above, has fallen dramatically as a share of personal income since 1979 (see Figure 1). Further, sales taxes are frequently levied on intermediate transactions, which raises the possibility of tax pyramiding. Base differences mean that consumption decisions are frequently influenced by differential taxation across jurisdictions and between taxable and non-taxable items, which incentivizes both government tax structure decisions and buyers' consumption decisions.

Local tax bases may differ from their respective state bases. For example, parishes have some independence in setting tax bases in Louisiana, six states tax food at the local but not state level, and Tennessee has modest definitional differences between state and local taxation of utilities. Many states limit local government tax structures to lessen competition. Some states

[6] See https://taxadmin.org/wp-content/uploads/resources/tax_rates/sales.pdf.
[7] Agrawal (2014) illustrates the level of government in each state which levies sales tax rates.
[8] See https://thestc.com/strates.stm.

set the rate for local government (Virginia). Others place an upper limit on the local rate (Tennessee) or limit the total local tax per item (Tennessee). As noted, a number of states allow remote vendors to collect an average local tax rate for the state rather than use the destination tax rate (Alabama and Texas). States can also limit tax competition through other policies, such as reducing the size of government (Proposition 13 legislation in California and TABOR in Colorado).

Figure 1: Sales Tax Base as a Share of Personal Income, 1979-2021



Sales tax sourcing refers to whether transactions are taxed at the origin or the destination of where the sale takes place. Sourcing rules are often in the background or implicit when tax competition or effects of taxes are analyzed, but the role that tax rates and base definitions play in decisions often depends on the sourcing. Several papers have examined theoretical outcomes of destination versus origin taxes. For example, Lockwood (1993) concludes that (1) the tax equilibrium is generally not invariant to origin versus destination taxation and (2) we cannot a priori know how tax rates and tax revenue will be affected by changes in origin versus destination taxation. Keen and Lahiri (1998) argue that the presumed superiority of the destination principle may be incorrect in certain circumstances with imperfect competition. They conclude that "optimal taxation in the presence of imperfect competition may well include both origin and destination elements." Below we note that the sales tax has both origin and destination components, but there is no reason to presume that these have developed in an optimal configuration.

The decision of whether to source the sales tax where the vendor is located (origin) or where the item will be enjoyed (destination) is key to much of the economic effects of the sales tax. The choice affects the economic incentives that influence consumer decisions about where and how to purchase goods and services and what to buy. In many cases, origin and destination occur in the same jurisdiction, such as when a purchase is made in a store by a resident of the jurisdiction who takes possession of the item immediately. In these cases, the distinction is unimportant. Origin and destination are separable for many remote sales, however, such as numerous digital transactions and much e-commerce, but also for cross-border purchases. Consumers often purposefully make decisions to separate origin and destination to limit tax liabilities or enforcement.

States generally levy sales taxes on a destination basis, but as described below, they often fail to enforce them effectively, which creates significant influences on behavior and provides the variation studied in much of the empirical research. State legislation following the landmark *Wayfair* ruling focuses on enhancing enforcement of destination taxation by altering the remittance rules, but has also changed some aspects of sourcing, particularly for local governments.[9] Either origin or destination at the local level can exist regardless of whether the state or the local government administers the tax, levies the rate, or uses the revenue. Both before and after Wayfair, local governments differ across states as to where transactions are sourced, though as a rule the sourcing decisions are the same for all local governments within each state. Sales are frequently sourced to the origin local government if the buyer is in-state (Tennessee and Texas are examples). Sales into the state from out-of-state are often sourced to the destination, such as in Tennessee, even though they are sourced at origin for in-state transactions. Conversely, out-of-state sales into Alabama are simply sourced to the state at a fixed 8.0 percent state and local rate, with the local component shared by formula. Texas allows the seller to decide whether to use a fixed rate for local taxes or collect and source at the destination rate. In-state sales in these three states, on the other hand, are generally subject to the origin local tax rate (particularly for cross-border shopping) and revenues are retained at origin, but sales delivered from a marketplace warehouse (even if instate) would be taxed at destination. Implications of these differences for competition are discussed further below.

Similar issues arise for taxation of cross-jurisdictional activity with other tax instruments. As one example, states have been transitioning the corporate income tax from origin to destination for many years (Fox and Yang, 2016, Suarez Serrato and Zidar, 2018). The traditional three-factor formula includes payroll, property, and sales, with the first two sitused at origin of production and the latter sourced at destination for goods. Most states have significantly increased their weight on the destination factor, with 32 using 100 percent sales apportionment.[10] Also, states traditionally sitused goods at destination and services at source, though many states recently

[9] *South Dakota v. Wayfair, Inc.*, No. 17-494. 585 U.S. ___ (2018).

[10] See https://taxadmin.org/wp-content/uploads/resources/tax_rates/apport.pdf.

transitioned services to destination as well (Fox and Yang, 2016).[11] The explicit or implicit justification for moving to destination sourcing has been competitive forces to reduce tax on production in states (Edmiston, 2002).

These changes have moved the corporate income tax towards a destination sales tax, though there are significant differences. Many years ago, McLure (1980)[12] observed that the formula for the single sales factor corporate tax can be written as $t_i(I_j/S_j)S_{ij}$ where t_i is state i's CIT rate, I_j/S_j is firm j's national margin on sales, and S_{ij} is firm j's sales in state i. This evidences that firm j's tax payment in state i depends on the state tax rate and the firm's national margin, with the sales in the state being the only state specific element for firm j. Thus, the corporate tax can be thought of as a sales tax at a rate that varies across firms based on each firm's national sales margin. States differ regarding the rules that determine which sales are sitused to the state (S_{ij}) and how profits (I_j) are defined. For example, some states impose combined reporting, some use water's edge rules, and so forth in determining I_j. Sourcing sales at origin versus destination requires similar decisions to those with the sales tax. The Supreme Court made clear prior to Wayfair that physical presence rules applicable for the general sales tax did not apply to the corporate tax. So, corporate taxes were often collected based on economic presence prior to Wayfair, though Congress preempted some economic presence through PL 86-272.[13]

Three key differences between the single sales factor corporate tax and the sales tax distinguish how they work and will likely create very different incentives and incidence. First, the corporate tax is closer to a gross receipts tax since the sales factor includes essentially all sales for taxable firms with no deductions for intermediate transactions. The sales tax allows significant tax on intermediate sales, but there are also important deductions, such as sales for resale and exemption for inputs that become component parts of manufactured goods. These deductions for some intermediate transactions move the sales tax towards a consumption tax. Second, the taxes have different treatment for business structures and different exemptions and exclusions. The corporate tax applies only to sales by *profitable corporations*, but not pass-through entities (in many states), not-for-profit firms, and non-profitable firms. The sales tax applies to all businesses regardless of business structure that sell sales taxable goods and services, including pass through firms and in many cases not-for-profit firms. The sales tax also has wide exemptions for certain types of goods and buyers and has not been expanded to many services. Third, as a rule, whether the tax is remitted by the buyer or seller, which is a key element of the sales tax, is seldom an issue for corporate taxes. It is possible to imagine remittance of the corporate tax by the company or the shareholder, though normally shareholders do not have the information necessary to file the tax, but not by the consumer.

Digital Services Taxes (DST) that were levied by a number of countries are also frequently destination based. Hines (2023) summarizes 21 countries that have adopted some form of DST

[11] Until recently, states generally sourced services where the greater cost of performance took place but many have moved to destination sourcing of services as well during the past 15 years.
[12] Also, see Gordon and Wilson (1986).
[13] PL 86-272 precludes states from taxing firms whose only connection with a state is that the firm solicited in the state for the sale of tangible personal property.

since 2016 and observes that VAT registration and remittance was the first step. More recently, DSTs are destination based gross receipts taxes (the most common approach), withholding taxes on payments to foreign digital providers, or imposition of the corporate income tax based on the argument that the foreign digital firms have physical presence in the country. Though generally revenue-based rather than profits-based, DSTs are intended to alter the sourcing of tax revenues on international transactions, moving away from traditional corporate income tax physical presence concepts of permanent establishments.

Value Added Taxes are imposed on a destination basis, though tax was not levied on imports into the EU with a value under 22 euros until July 1, 2021, when this exemption was removed. Elimination of the exemption potentially has effects much like the Wayfair decision by erasing the zero-tax option (though in this case it only existed for low priced transactions) and altering the relative price of cross-border transactions, though small remote vendors (as opposed to low priced items) are not required to collect and remit in the US.

On a similar note, sourcing has also been integral to discussion of personal income taxation of commuters (Agrawal and Stark, 2022). States have traditionally taxed the income either at origin of where the work occurs (non-reciprocity states) or at residence (reciprocity states) of the workers. While some states have entered into reciprocity agreements to ensure that income is only taxed in one state, growing remote work is causing reconsideration of the best approach.

Limitations on Enforcing Destination Taxation Prior to Wayfair

Better enforcement of destination taxation has been the main competitive response by states over the past several decades, with the likely goals of greater control over the tax rate and expanded revenues. Specifically, states have sought to change the remittance rules from compliance by buyers, who have been subject to often uncollected use tax, to remittance by vendors. Other policy changes have focused on broadening the base to services and digitized content (to a limited extent), narrowing taxation of selected goods, and some rate increases.

The US Supreme Court ruled in the Wayfair case that states could require remote firms that meet minimum activity thresholds to collect and remit their sales tax even if the firms do not have physical presence, effectively creating an economic presence nexus standard.[14] Two earlier Supreme Court decisions had determined states could only require firms with physical presence to collect their sales tax, which allowed ample opportunity for many remote firms to compete around taxes.[15] The physical presence constraint on remittance rules became much more apparent and impactful as remote sales grew rapidly, though remote sales grew rapidly in

[14] *South Dakota v. Wayfair, Inc.*, No. 17-494. 585 U.S. ___ (2018).

[15] *National Bellas Hess v. Department of Revenue*, 386 U.S. 753 (1967) and *Quill Corp. v. North Dakota*, 504 U.S. 298 (1992).

part because the physical presence standard enabled many buyers to act as if they had a zero-tax option. While states responded by broadening their definitions of physical presence to several things such as whether firms were listed in telephone books, whether buyers clicked through from in-state sites to out-of-state vendors and many other modest measures of physical presence to enhance enforcement of destination tax, the inability to collect destination tax remained apparent (Bruce, Fox, and Luna, 2009).

Several states, including Colorado and Oklahoma, enacted legislation requiring remote vendors to provide information on sales into the state in cases where the firm could not be required to collect sales tax. This third-party information was intended to enhance enforcement of destination taxation. The Direct Marketing Association sued to prevent enforcement of the Colorado legislation, but the US Supreme Court sided with Colorado in a decision that preceded Wayfair.[16] Perhaps most importantly, this decision included a statement by Justice Anthony Kennedy that the Court should reconsider the Quill case, which prompted many states to develop legislation that appeared in violation of the Quill decision. A number of states including Alabama and Tennessee were sued, but the South Dakota suit was decided quickly at the state level and taken up by the US Supreme Court.

Ultimately, the Supreme Court in Wayfair v. South Dakota (2018) overturned the earlier precedents and allowed states to require larger remote vendors to collect and remit the tax if they have a sufficient economic nexus in the state. All sales-taxing states responded to the Wayfair decision by passing two forms of legislation. The first imposed economic nexus on large vendors selling into the state, and the second required marketplace facilitators to collect their tax. The legislation is new, and many issues remain, such as what constitutes a marketplace.[17] The legislation permits states to levy destination taxes more successfully, since vendor compliance is much more effective than buyer compliance (use tax).

Fox, Hargaden, and Luna (2022) demonstrate that greater vendor remittance of destination taxes increased tax receipts, particularly from higher income consumers, which suggests that the tax became less regressive as enforcement improved. Further, collections are higher in states that require more vendors to comply – those states with a lower sales threshold above which firms are required to collect and remit the tax. Agrawal and Fox (2021) and Agrawal and Shybalkina (2022) provide evidence that growing remote sales during the COVID window (which reduced cross-border origin taxes in larger retail centers) and better enforcement of tax at destination shifted revenues from larger to smaller jurisdictions.

Agrawal (2021) argues that increased online sales in a jurisdiction put downward pressure on state and local tax rates unless online firms collect the sales tax. Using pre-Wayfair data, he finds lower sales tax rates in most municipalities as online sales rise, but higher rates in places

[16] Brohl, 575 U.S. 1 (2015).

[17] For example, last month the Texas Comptroller of Public Accounts provided a response to frequently asked questions about what constitutes a remote seller and a marketplace for Texas sales tax purposes. See https://comptroller.texas.gov/taxes/sales/remote-sellers-marketplace-faq.php. See Ferrante and George (2023) for discussion of some issues surrounding marketplace facilitator laws.

where online firms are more likely to collect the tax (i.e., jurisdictions where destination taxation is better enforced).

Tax Competition

Tax structure decisions and effects of taxes on consumption choices presumably are endogenously determined, though broad structural decisions on sourcing and tax bases are infrequent (detailed base decisions are more commonly made). Tax rate decisions, particularly at the local level, are made much more regularly as reported by Baker *et al.* (2021), who show that rates were changed 3,000 times between 2004 and 2014. Buyers choose what and where to buy along a number of margins that are affected by tax rate, tax base and sourcing decisions. Baker *et al.* (2021) found that consumers make short run and long run decisions, with purchasing affected much more in the short run than in the long run because of stocking up in anticipation of rate changes (particularly for durable goods). Interestingly, Baker *et al.* (2021) found that buyers often behaved similarly for taxable and tax-exempt purchases, suggesting that the purchasing decisions were more nuanced than simple responses to prices or tax-inclusive prices. They link the behavior to high fixed costs of shopping and not to lack of salient tax bases. Still, it seems possible that buyers often act with generalized knowledge of what is taxable.[18] The cross-jurisdiction differentials and structural changes offer identification strategies for studying many aspects of tax policy and competition.

State and local governments compete around sales tax structures as they set tax rates, tax bases, and sourcing rules, though what they are maximizing may not be articulated and ranges from wellbeing to tax revenue to productive activity within their borders. Both Mintz and Tulkens (1986) and Kanbur and Keen (1993) recognize that totally enforced destination taxation of all consumption in a setting where neither residents nor businesses can move allows states to tax away all consumer surplus for marginal consumers and precludes the need to compete to maximize tax revenues. With this recognition, both papers focus on tax rate competition with origin taxes and consumers residing differing distances from the border. Consumer surplus may be taxed away for some consumers, but not for inframarginal consumers (those closer to the border) or those farther from the border Who will shop entirely at home). In their model, competition with origin taxation results in the government setting tax rates that are much lower than what a Leviathan government would set under destination taxation.

State sales taxes lie between the extremes of origin and destination taxation, because of administrative inability to enforce destination taxation and legal tax structures having both origin and destination characteristics. Further, as noted above the structures may not be salient to buyers, which can also change how buyers respond. This section identifies specific reasons why and how state and local taxes differ from purely origin or destination based and how these

[18] Tax base discussions and knowledge are likely generalized for most people, but legislative and administrative distinctions are very precise and can be difficult for taxpayers to know without considerable time investment. For example, Iowa's Department of Revenue (Rule 701-26.24(422)) recently issued guidance that taxable recreational services include physical fitness activities, cooking and music classes, hunting and fishing ranges, and cycling classes, based on the definition of recreation. On the other hand, music and art classes taught at elementary or secondary schools are exempt.

differences can alter behavioral responses compared with theoretical constructs. First, unlike Kanbur and Keen (1993), governments may not be maximizing tax revenues but instead optimizing over a range of political and economic factors that influence the size of government, choice of tax rates, selection of the base and choices between tax instruments including personal income taxes, corporate taxes, and property taxes (see Hettich and Winer, 1988). As a result, tax structures may differ from the revenue maximizing levels. But, even in these more general settings, it is likely that tax rates will be lower under origin-based than under destination-based taxation because the tax base is more mobile under the former.

Second, even though most components of state sales taxes have historically been levied on a destination basis, practical limitations on enforcement of destination mean the tax has many characteristics of an origin tax. Several examples of how destination taxation is not enforced are provided here. States require collection and remittance by sellers with taxable nexus in the state, which prior to Wayfair meant some version of physical presence. After Wayfair it means economic presence, though small remote sellers remain exempt in every state. In addition, buyers are required to remit the "use tax" in cases where tax is not collected by the seller.[19] Use taxes are defined very similarly to the sales tax, so the state liability is normally the same, but use tax compliance is broadly thought to be very weak, as evidenced by the Fox, Hargaden and Luna result. People generally do not understand or are unaware of the tax and there was seldom any third-party information to enhance enforcement (Manzi, 2015) so the overall tax compliance fell well short of enforcement on destination.[20]

Further, even with 100 percent compliance with the rules, the structure is unable fully to enforce destination taxation. As practically implemented, but different from what economists would view as ideal, destination is presumed to occur where possession of goods is taken, but this is not destination for many cross-border sales. Taxes along state or local borders often operate more like they are origin sourced since buyers in high tax jurisdictions can cross into low tax jurisdictions, purchase items, take possession, and pay taxes at the lower rate. States can expand destination taxation by requiring out of state vendors near the border who meet the sales tax thresholds included in post-Wayfair legislation to collect tax on cross-border shipments, but buyers can limit these efforts by taking possession of the goods where purchased or by having goods separately shipped. Identification of buyers' addresses by vendors would be necessary to collect at destination or state use taxes[21] would impossibly need to be enforced.[22] This information is not required by any state, and it seems unlikely that states would impose this burden.

[19] Agrawal (2014) observes that use taxes are not always in place for local governments.
[20] The Washington State Department of Revenue (2018) finds that use tax compliance is the weakest of any state tax, though it has been improving in recent years. Bruce, Fox, and Luna (2009) estimate significant revenue shortfalls from e-commerce alone that arise because of inability to enforce destination taxation.
[21] The use tax is due in an amount equal to the tax differential if the home state rate is higher, but as previously noted, the tax is seldom remitted.
[22] Vendors have buyers' addresses in cases where they ship items to the buyers.

Vendors are not required to collect either selling state or delivery state tax on items shipped out of state by common carrier (unless the vendor has nexus in the recipient state), causing reliance on the use tax. Use of the sellers' trucks for delivery would likely create nexus in the delivery state but nexus is not triggered if common carriers are used. The selling state often requires some information on where goods are delivered as evidence that tax is not due in the selling state, and in some cases these data have been shared by the selling state tax authorities with the delivery state authorities. Use tax has been assessed in some of these cases based on the third-party information.

Base and sourcing differences across states open opportunities to avoid tax. Buying in states that exclude specific purchases from their base offers an extreme example of cross-border shopping with a zero-tax option for the buyer. Better-enforced destination taxes on remote transactions may make these differences more salient in the future and increase the buyers' cross-border responsiveness. Also, residents of origin taxing states may benefit from buying in a state that taxes at destination since no tax may be due in either state. While this is not the general case in any state it arises for certain services, such as repairs. Behavioral responses could alter where these services are produced as well as where they are purchased since vendors have the incentive to locate in a low tax rate destination state.

Origin sourcing still exists for local jurisdictions in many states regardless of whether items are shipped (see Tennessee and Texas, for example). In some cases, Texas local governments have agreements with large vendors to reduce the tax rates and collect at origin. Tennessee limits the possibility for competition by placing a maximum $44 local tax per transaction. These provisions have no implications for state tax liabilities.

Third, sales taxes are levied on many intermediate purchases, both because of the administrative challenge of identifying when an intermediate sale is occurring (the key advantage of value added taxes is businesses are defined) and the political goal of keeping tax rates low. Taxes on intermediate purchases can pyramid and create differential effective tax rates across goods and services for both in-state and out-of-state purchases, creating a series of competitive opportunities. Better enforcement of destination taxes may increase taxes on intermediate purchases and raise production costs in the destination state. Of course, pyramiding makes effective tax rates and tax burdens less salient to voters.[23] Tax on intermediate transactions may not be inefficient in cases where the final product goes untaxed, as can often occur with health care, for example.

Considerable quantitative research has been conducted on consumer responses to sales tax differentials. Mikesell (1970) and Fox (1986) found substantial responsiveness of sales tax differentials along state borders. Fox, Luna and Schaur (2014) found that goods shipments were much larger across long distances when states imposed higher tax rates, consistent with efforts to evade destination taxation. Further, they found that state revenue department membership

[23] States generally exempt purchases for resale and of inputs used directly in the manufacturing process. States have a range of other exempt intermediate transactions as well.

in multistate associations appeared to expand the ability to enforce destination taxation and reduce the propensity to ship goods further to evade taxes. E-commerce research (Ellison and Ellison (2009), Einav, et al (2014), Baugh, et al. (2021)) found purchases were also highly responsive to tax differentials. E-commerce should be more responsive to tax differentials than the cross-border research since (a) the cross-border analyses examined responses to tax differentials (home state versus neighbor state) from driving across state borders and (b) the e-commerce research generally considers the home tax rate versus the zero-rate option, meaning a larger tax differential often existed. The cost of ordering items may also be significantly reduced by purchasing online rather than crossing the border to shop.

Limited research exists on competitive effects on state tax structures, though more has been undertaken on local tax structures. For example, Agrawal (2016) studied sales tax rate policy and determined that buyers behave as though they are considering county and city taxes as a package. The governments respond by considering the other level of government and neighboring tax rates in their tax policy decisions. City tax rates are lower in counties with higher county tax rates and vice versa. Further, cities closer to the county border are more likely to reduce their tax rates when home county tax rates are high than are cities in the interior of counties. Bruce, Luna, and Hawkins (2007) examine how imposition of state maximum rates impacts local tax policy.

Investigating Responses to Enhanced Destination Taxation

The above discussion motivates myriad empirical explorations, most of which will require more time to pass and more data to be accumulated. For example, will the Agrawal (2021) result hold as every jurisdiction enforces destination taxes better on remote sales, but with the many other limitations on destination-based consumption taxation discussed above? This section takes first steps to quantitatively measure the extent to which sales tax competition is still occurring even after states have adopted many policies to expand destination taxation. We are able to pursue two interesting topics: one addresses demand-side responses and the other addresses supply-side responses to the shift towards greater destination taxation.

Destination Taxation and the Location of Taxable Sales: Empirical Evidence

Many who purchased taxable goods from online vendors prior to the Wayfair decision and subsequent state legislation paid zero tax on the remote transactions and now face destination enforcement. Better enforcement of destination taxes raises the effective tax rate for taxable transactions relative to exempt transactions and can reduce or eliminate zero-tax options. Still, buyers either pay no tax (e.g., by buying online or cross-border shopping with delivery from vendors that do not remit the tax), or they pay the state and local tax on one side or the other of the border.[24]

Importantly for our purposes, diminished opportunities to avoid taxes through online purchases may increase the propensity to cross-border shop (either across state boundaries or within state across local boundaries) for those seeking lower tax/after tax price options. We now consider the extent to which reduction in zero-rate options for e-commerce transactions has affected the propensity to cross-border shop. Wayfair may have partially returned local governments to pre-internet tax competition between jurisdictions, but likely with the greater salience to tax differences that was developed in the years before the Wayfair decision. At the same time, expanding online shopping could reduce cross-border shopping. Thus, the remaining extent of sales tax competition is an empirical question. Consumer responses to changed enforcement of destination taxation, if observed in the data, will inform future policy responses to restore lost bases or gain new bases.

We use a simple model to illustrate how Wayfair changed relative prices for consumers. The lowest of three prices[25] determines where consumers in state H buy: cost of purchasing at home, cost of travelling across the border to shop and cost of buying online. We focus on taxes and transactions costs by assuming that identical products are available in each market, the net of tax price for goods is 1 in all places, and no transactions costs exist for purchasing at home.[26] Consider then three categories of sales: (1) local sales where origin tax equals destination tax; (2) cross-border sales where origin differs from destination, the origin tax rate is lower than the destination rate (since consumers would not cross-border shop unless the rate is lower), and the buyer can pay the origin rate when cross-border shopping; and (3) internet sales where origin differs from destination and the origin tax rate was zero before Wayfair. The price of purchasing at home is then the domestic tax rate (t_H). The price of purchasing across the border is $T(d)+t_A$, where $T(d)$ is travel costs that are directly related to distance in state H to the border and proportional to the price of goods and t_A is tax in the neighboring state. The price of purchasing online is $I+t_H$, where I is the transactions costs for online purchases. The home state (destination) tax is included in the online purchase now but t_H was not collected on online sales prior to Wayfair, so the transactions cost was the only price. Before Wayfair, purchases were made online when I was less than both T_H and $T(d)+t_A$. Wayfair did not change the price (tax) of purchasing in either state so it did not alter prior decisions to buy in the home or cross-border state, but it could change decisions to purchase online where the price is now $I+t_H$. Online shopping would no longer occur in this model if $I>0$ since t_H is imposed on both home and online shopping. Previous online purchases are replaced with shopping at home if $t_H < t_A+T(d)$ and with cross-border shopping if $T(d)+t_A<t_H$. In both cases the change comes at the expense of online shopping, so the tax choice reverts to border tax competition as in Kanbur and Keen (1993) and consumers appropriately near the border will cross-border shop if $t_H>t_A$.

[24] Evasion could occur by the selling vendor understating the value of a transaction or the buyer understating the value for use tax purposes, both of which would lower the effective tax rate.
[25] We thank David Agrawal and Alan Auerbach for motivating this framework.
[26] This is equivalent to interpreting the transactions costs of cross-border and internet shopping as relative to the minimal costs of shopping locally.

By focusing on taxes, the model fails to account for online sales after Wayfair. The model could be adapted to include this, but as structured it highlights the key issue from our perspective: the rate of tax. Outside the simple conceptual model, cross-border shopping or online shopping can occur under other conditions, several of which include additional roles for tax rates in influencing behavior. For example, consumers would cross-border shop if goods can be shipped home without paying t_A in the bordering state (as discussed above) and $T(d)<t_H$ so cross-border shopping will take place if the home tax exceeds travel costs without considering the neighbor's tax rate. People could shop online or cross-border shop for goods that are not available at home. Online shopping could also occur if the net of tax price is lower for online shopping, if the transactions' cost is lower online than at home, or if the purchase is made from an online vendor that does not collect the home state sales tax (either through tax evasion or because the vendor is too small to trigger taxable presence).

We look for early post-Wayfair evidence of shifting consumer patterns by examining county-level monthly sales tax collections in Tennessee and selected bordering states. While our focus on Tennessee is driven by the availability of useful data, the state's relatively constant tax rates, due in part to many counties setting the maximum allowed local rate, and tax base definitions allow us to isolate consumer behavioral responses to better enforcement of destination taxation through changes in the remittance rules and changes in the extent of origin (or non-) taxation as cross-border taxes are affected. Figure 2 shows the monthly year-over-year growth in combined state and local sales tax collections in Tennessee for 2017 through 2022. Economic nexus and marketplace facilitator legislation was adopted in 2019 and 2020, respectively, and both contributed to the recent growth in collections, which remained positive in 2020 despite the COVID-19 pandemic. The revenue impact of these two pieces of legislation is clear in Figure 2, which includes vertical bars for the first effective months of economic nexus legislation (November 2019) and marketplace facilitator legislation (November 2020). Total sales tax growth fell significantly in early 2020 as a result of the pandemic but quickly rebounded thanks in large part to the effects of these two pieces of legislation. The severe spike in 2021 evidences effects of the sharp temporary decrease in 2020.

Additional impacts of the economic nexus and marketplace facilitator legislation in Tennessee can be found in Figure 3, which plots average annual state and local sales tax collections growth for urban and rural counties separately. For the purposes of our analysis, urban counties (and their largest cities) include Shelby (Memphis), Davidson (Nashville), Hamilton (Chattanooga), and Knox (Knoxville). Despite similar growth paths before 2020, sales tax collections in rural counties grew while those in the four urban counties fell in 2020, perhaps because of the emergence of greater destination taxation coincident with the pandemic and more online shopping. The pattern in Figure 3 is the net result of better enforcement of destination taxes on online sales (which should benefit all counties) and the reduction in cross-border sales (and the origin tax on these sales) as these consumers buy more online where the revenues accrue to their home (destination) counties.

Figure 2: Monthly Year-over-Year Growth in State and Local Sales Tax Collections in Tennessee, 2017-2022

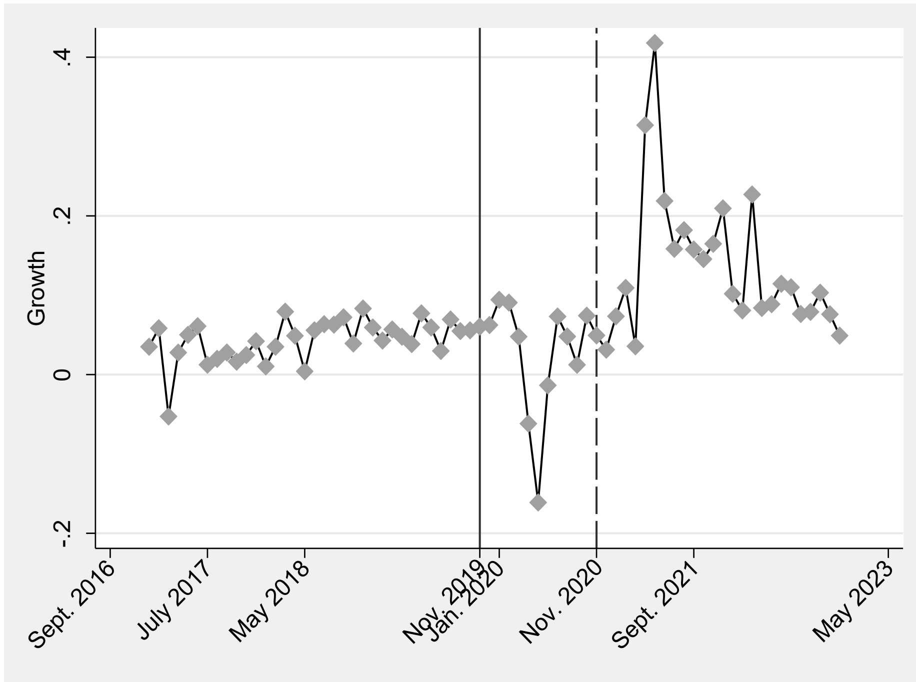
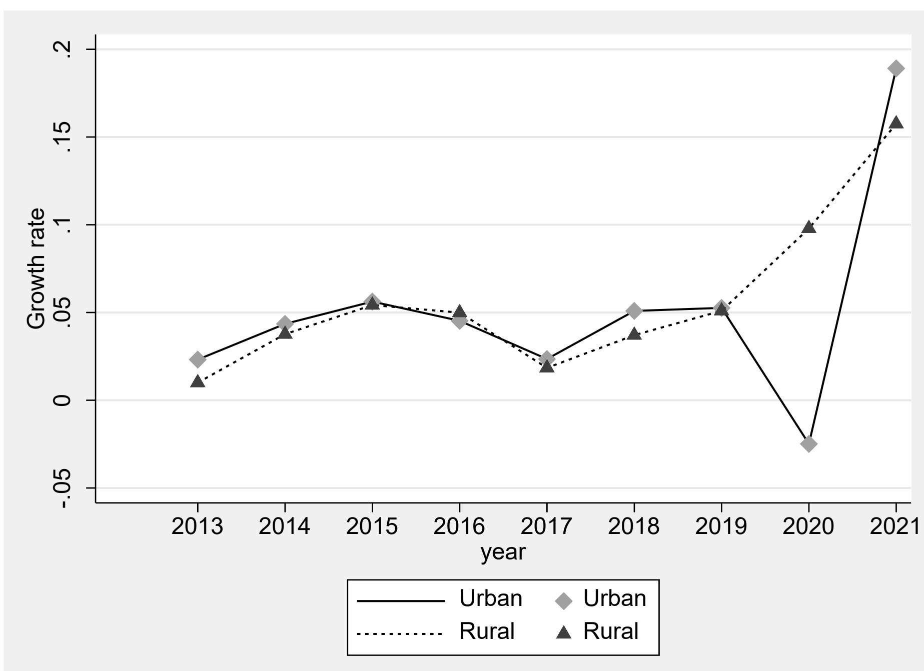


Figure 3: Year-over-Year State and Local Sales Tax Growth for Urban versus Rural Tennessee Counties, 2013-2021



To get a more granular look at the impact of economic nexus legislation on sales tax collections growth, we estimate a series of linear regressions in Table 1. The dependent variable is the year-over-year monthly growth rate of total state and local sales tax collections in a county. Key independent variables include an indicator for the enactment of economic nexus legislation (econ_nexus), an indicator for urban counties (urban), the total state and local sales tax rate in the county (rate), an indicator for counties situated along the state border (border) and various fixed effects.

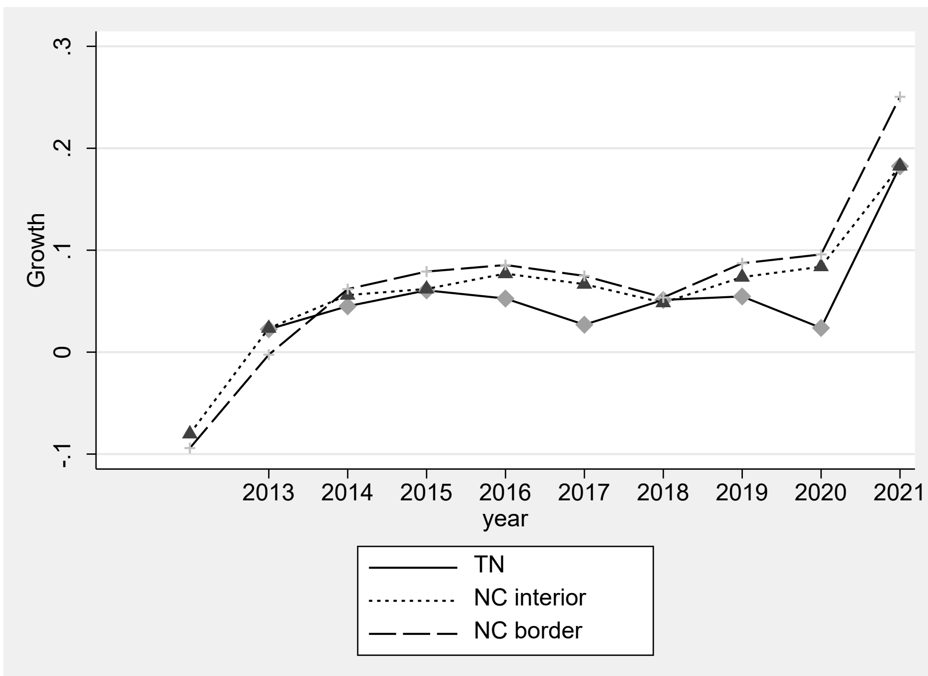
Columns (1) and (2) include these variables and are identical except that standard errors are clustered at the county level in Column (2). Columns (3) and (4) mirror the first two specifications but also include fixed effects for county and year (which results in the loss of the urban and border indicators in the results). Columns (5) through (8) mirror the first four specifications but also include an interaction between the economic nexus indicator and the urban indicator. Results are quite robust throughout the table, so we focus on our preferred specifications in Columns (6) and (8). The first common result is that economic nexus legislation appears to have had a positive impact on county-level sales tax collections regardless of our specification.[27] That said, the combined effect is much lower or even negative in urban counties, even after controlling for the sales tax rate (which has a positive effect) and border-county status (which has a negative effect). The negative border effect is consistent with lower growth on the higher tax rate Tennessee side of the border and the negative urban nexus variable is accounting for slower urban sales as the e-commerce/store front mix changed during the Covid window. Tennessee has higher tax rates than all eight states on the Tennessee border, with an average 3.03 percent state and local tax rate differential.[28] The difference is very small relative to states such as Arkansas and very large relative to states such as Kentucky and Virginia. The cross-state tax rate differences are often much greater than the cross-county border differences within Tennessee.

We also analyzed a sample truncated in February 2020 to see if the Table 1 results were driven by COVID, which could impact the data beginning March 2020.[29] The truncated sample shortened the post-Wayfair response time and eliminated the window that included marketplace facilitator legislation in Tennessee, which began in October 2020. The economic nexus and border variables remain highly significant, though the economic nexus coefficient fell approximately in half when the border variable was included in the equations (parallel to columns (1), (2), (5) and (6)). The lower economic nexus variable provides some evidence that the sharp rise in tax collections resulted from Covid-related behavior. On the other hand, the border variable rose slightly in size, consistent with significant increase in cross-border shopping after the Wayfair decision. The urban variables were statistically insignificant in the shorter window, suggesting that COVID drove much of the subsequent relative reduction in cross county sales into urban counties.

[27] To be sure, effects on total sales may be greater than on taxable sales as a result of complementary sales (see Baker, et al., 2021), but the elasticities need not be larger.
[28] Alabama data were unavailable for this calculation.
[29] These additional results are available from the authors upon request.

To get a better sense of the cross-border impact of Tennessee's economic legislation, Figure 4 compares annual growth in sales taxes for counties in Tennessee and North Carolina, a border with an average sales tax rate differential of about 2.85 percentage points.[30] North Carolina counties experienced faster growth than Tennessee counties after 2018, with border counties in North Carolina seeing faster growth than interior (non-border) counties in North Carolina.[31] The graph is consistent with better collection of tax on remote sales (likely in both North Carolina and Tennessee) and expanded sales on the low tax North Carolina side of the border, suggesting more direct competition between states for sales. Baker et al (2021) see intertemporal substitution as the short run response to rate changes, with more cross-border shopping a longer run reaction. So, effects could grow with time.

Figure 4: Growth in Sales Tax Collections for Tennessee and North Carolina, 2012-2021



The availability of monthly collections data at the county-level in North Carolina allows us to measure the impact of nexus legislation on cross-border shopping along the Tennessee border. North Carolina is of particular interest because the rate differential along the border is about average compared to the other seven states that border Tennessee. Compelling evidence of a

[30] Our decision to focus this part of our analysis on the Tennessee-North Carolina border is driven primarily by its relatively large tax rate differential and by the lack of useful county-level sales tax collections data for most other border states.

[31] Tennessee required large remote vendors to begin collecting sales tax in November 2019 and marketplaces in November 2020 and North Carolina required large remote vendors to begin collecting tax in November 2018 and marketplace facilitators in February 2020.

resurgence in cross-border shopping is found in the regression results in Table 2.[32] Focusing on our preferred specifications in Columns (3) and (4), we see a generally negative impact of economic nexus legislation in Tennessee on county-level sales tax growth in North Carolina counties, but that impact turns positive for North Carolina counties along the Tennessee border. The propensity of Tennessee buyers to cross the border and shop in North Carolina appears to grow as the zero-tax option is limited by Wayfair related legislation and tax-sensitive Tennessee shoppers buy more in North Carolina. We only investigate counties along the border without seeking to determine how much distance from the border affects buyers, but the cross-border shopping gradient could be relatively steep for many products.

Again, we re-estimated the equations with a sample truncated in February 2020.[33] All variables remained statistically significant and were quantitatively larger. The economic nexus-border interaction coefficient rose nearly 25 percent in magnitude, suggesting that cross-border shopping from Tennessee to North Carolina was enhanced by better enforcement by Tennessee of tax on Internet transactions.

[32] We do not find similar evidence for Arkansas and Virginia counties, and regression results for those states are available upon request. Unique events, such as the temporary closure of the main highway connecting Arkansas and Tennessee (I-40) surely affected these results.

[33] These additional results are available from the authors upon request.

Table 1: Economic Nexus Legislation and County-Level Sales Tax Collections in Tennessee

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
econ_nexus	0.083***	0.083***	0.017**	0.016***	0.085***	0.085***	0.019***	0.019***
	(0.003)	(0.003)	(0.007)	(0.006)	(0.003)	(0.003)	(0.007)	(0.006)
urban	-0.007	-0.007*			0.005*	0.005		
	(0.004)	(0.003)			(0.003)	(0.007)		
econ_nexus × urban					-0.047**	-0.047**	-0.046***	-0.046***
					(0.019)	(0.017)	(0.011)	(0.017)
rate	-0.001	-0.001	0.034**	0.034*	-0.001	-0.001	0.032**	0.032*
	(0.003)	(0.005)	(0.014)	(0.018)	(0.003)	(0.005)	(0.014)	(0.018)
border	-0.006***	-0.006**			-0.006***	-0.006**		
	(0.002)	(0.003)			(0.002)	(0.003)		
Constant	0.041***	0.041***	-0.032	-0.032	0.040***	0.040***	-0.028	-0.028
	(0.008)	(0.012)	(0.035)	(0.044)	(0.008)	(0.012)	(0.035)	(0.046)
FE	No	No	County Year	County Year	No	No	County Year	County Year
Clustered	No	County	No	County	No	County	No	County
Observations	10,222	10,222	10,222	10,222	10,222	10,222	10,222	10,222
R-squared	0.1170	0.1170			0.1185	0.1185		
Within R-squared			0.0012	0.0012			0.0029	0.0029

Notes: Results in this table are from separate regressions. The dependent variable is the year-over-year growth rate in state and local sales tax collections at the county level. A total of 38 county-months of data are omitted due to missing data. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Economic Nexus Legislation in Tennessee and County-Level Sales Tax Collections in North Carolina

VARIABLES	(1)	(2)	(3)	(4)
econ_nexus	0.083***	0.083***	-0.027***	-0.027***
	(0.002)	(0.004)	(0.008)	(0.008)
border	-0.001	0.001		
	(0.004)	(0.005)		
econ_nexus × border	0.040***	0.040***	0.040***	0.040***
	(0.011)	(0.012)	(0.008)	(0.012)
rate	0.031***	0.031***	0.037***	0.037
	(0.006)	(0.009)	(0.010)	(0.023)
Constant	-0.170***	-0.170***	-0.186***	-0.186
	(0.039)	(0.063)	(0.065)	(0.155)
FE	No	No	County Year	County Year
Clustered	No	County	No	County
Observations	12,000	12,000	12,000	12,000
R-squared	0.0809	0.0809		
Within R-squared			0.0040	0.0040

Notes: Results presented in this table are from separate regressions. The dependent variable is the year-over-year growth in county-level collections. Robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Destination Taxation and the Location of Business Activity: Empirical Evidence

The re-emergence of cross-border shopping as the best means for tax avoidance might also affect business location decisions about where to produce or sell.[34] Both rate and base differences (e.g., in the tax treatment of food) can potentially impact business geographic choices. Business location/development is affected through three avenues. First, before Wayfair, vendors had a significant interest in avoiding the establishment of physical presence nexus (particularly in large or high sales tax rate states) so they would not be required to collect and remit sales taxes on sales into a state, and this disincentive is eliminated. Second, better enforcement of destination taxes on purchases of intermediate goods raises production costs in the taxing states. Ernst & Young (2022) estimates that the sales tax on business purchases is 20.4 percent of the total state and local business tax burden, which is much greater than the 11.7 percent of the burden that comes from corporate income taxes. This suggests that the dislocation effects could be larger than with corporate taxes. Third, incentives to locate on the low-tax side of borders can be altered by more cross-border shopping.

Wayfair unwound significant inequities in the sales tax landscape by sharply reducing the tax disadvantage faced by in-state retailers who had to collect and remit sales taxes in the face of essentially untaxed internet commerce. Beem and Bruce (2021) provide evidence that the steady erosion of state sales tax bases between 1979 and 2014 (resulting in part from growth in untaxed remote sales) resulted in fewer new firms and establishments and less employment. These findings from pre-Wayfair data suggest that Wayfair and related policy changes should have resulted in more new businesses (firms and/or establishments) and more employment. We should see faster growth in new firm formation in states that did more to restore lost sales tax bases, though effects on intermediate sales and cross-border shopping can offset this to some extent. Given that these policy responses have thus far been at the state level, it is appropriate to explore this possibility using state-level data over time.

The data shown in Figure 5 are compiled from the U.S. Bureau of the Census' Business Formation Statistics and show trends in the total number of business applications before and after 2018. The number of business applications has been steadily increasing since 2011 but has grown much more rapidly in the most recent data. From 2019 to 2021, the number of business applications in the U.S. increased by nearly two million.[35]

We further explore the influence of economic nexus legislation on business applications using a series of panel regressions in Table 3, which covers ten years of annual data for sales-taxing states. The dependent variable for these regressions is the state's year-over-year growth rate of business applications. Key independent variables include an indicator for the presence of economic nexus legislation (econ_nexus, which varies across states and time), the average

[34] Houde, Newberry, and Seim (2023) determine that Amazon experienced significant shipping cost savings and economies of scale as it expanded its distribution network and physical presence prior to the Wayfair decision.
[35] The annual data employed here preclude truncating the data because of Covid as was done in the sales tax analysis above.

combined state and local sales tax rate (rate), and a measure of sales tax base breadth (breadth, or the sales tax base as a percentage of personal income in the state). The various columns in Table 3 differ as above with the inclusion of clustered standard errors, state and year fixed effects, and an interaction between economic nexus and the sales tax rate.

We focus the discussion on our preferred results in Columns (7) and (8) of Table 3. We find that the effect of economic nexus on business applications depends on the sales tax rate, with economic nexus lowering the growth rates. Generally speaking, economic nexus reduced the growth rate of business applications most for states without a sales tax (about 10 percent) and became positive for states around the median combined state and local sales tax rate. States with higher than median tax rates experience faster growth in business applications, with the largest impacts in the states with the highest sales tax rates. A tax rate increase of one percentage point raises the total effect of economic nexus on business applications by 1.4 percentage points. The result is consistent with pre-Wayfair growth rates having been affected most by firms not choosing to locate establishments in high tax rate state, and this effect being reversed by economic nexus. As with the sales analysis in the previous section, firm locations are likely to be a longer run response with greater effects over time.

These results are consistent with the idea that business location decisions are heavily influenced by sales tax policies. Prior to economic nexus legislation, businesses had an incentive to locate in states with no sales tax because they were not required to collect sales taxes from consumers unless they had a physical presence in the state. Firms were also incentivized to locate warehouses and other facilities in low tax rate and low population states. After economic nexus standards were adopted by sales taxing states, firms no longer had a disproportionate incentive to locate in states without a sales tax and could locate freely based on other factors such as access to supply chains and consumer markets. Decomposing effects on firms into those arising because nexus becomes less of a concern, those from cross-border shopping, those from more effective tax on business inputs, and other factors offers very interesting potential for further research.

Figure 5: Trends in Business Applications Before and After Wayfair

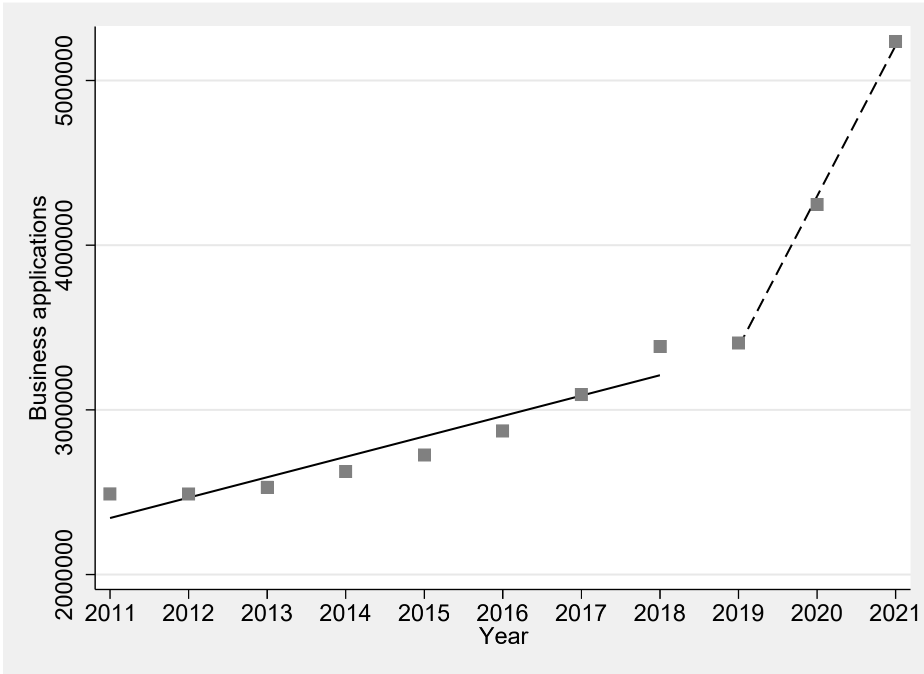


Table 3: Economic Nexus and Business Applications

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
econ_nexus	0.073***	0.073***	-0.008	-0.008	-0.012	0.005	-0.109***	-0.109**
	(0.011)	(0.008)	(0.015)	(0.020)	(0.062)	(0.040)	(0.038)	(0.042)
rate	0.003	0.003	-0.006	-0.006	-0.001	-0.001	-0.017	-0.017
	(0.003)	(0.003)	(0.011)	(0.018)	(0.003)	(0.003)	(0.012)	(0.019)
econ_nexus × rate					0.012	0.012**	0.014***	0.014***
					(0.008)	(0.005)	(0.005)	(0.005)
breadth	0.000	0.000	-0.001	-0.001	0.000	0.000	-0.002*	-0.002
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)
Constant	0.027	0.027	0.163*	0.163	0.058**	0.058**	0.250***	0.250*
	(0.028)	(0.023)	(0.090)	(0.135)	(0.024)	(0.023)	(0.094)	(0.144)
FE	No	No	State Year	State Year	No	No	State Year	State Year
Clustered	No	State	No	State	No	State	No	State
Observations	450	450	450	450	450	450	450	450
R-squared	0.1332	0.1332			0.1385	0.1385		
Within R-squared			0.0059	0.0059			0.0264	0.0264

Notes: Results presented in this table are from separate regressions. The dependent variable is the year-to-year growth in state-level business applications. Alaska, Delaware, New Hampshire, Montana, Oregon, and District of Columbia are omitted due to the absence of a state sales tax. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Discussion, Policy Options, and Areas for Future Research

The landmark 2018 Supreme Court ruling in the Wayfair case has certainly enhanced state governments' ability to enforce destination taxation. That said, significant barriers to full destination taxation remain, and those continue to present opportunities for harmful tax competition. For example, considerable variation exists in the economic nexus legislation across the states, especially when it comes to the various size thresholds above which a collection obligation can exist. Additional variation remains in both the extent to which origin and destination basis co-exist within states and state-level definitions of remote sellers and marketplaces. Wide cross-state differences also remain in the set of sales taxable transactions. Importantly, on the heels of this key sales tax enforcement victory, some states have increased their efforts to enhance enforcement of pre-existing destination-based taxes.

States can and will continue to compete for mobile economic activity and tax bases in a variety of ways, and indeed movement towards more cross-border shopping may narrow but intensify the competition. Nexus thresholds are unnecessarily arbitrary and complex, suggesting the need for a federal solution. Nonetheless, the existence of variable sales tax rates and base definitions will continue to encourage at least some degree of cross-border shopping, both in the physical sense and in the online sense since some remote vendors do not exceed the size-based nexus thresholds or some firms that lack visibility may seek to play the audit lottery by failing to collect tax even if it is due. The tradeoff between efforts to streamline or harmonize state and local sales tax systems and the benefits from competing for mobile activity are not likely to disappear soon. States may also enhance destination further by imposing compliance rules on cross-border neighbors that parallel those imposed on remote firms.

To be sure, it is not clear that simply limiting sales tax competition is necessarily socially optimal. Variation in taxation and expenditure policies across jurisdictions can create important efficiency gains from the appropriate sorting of individuals and businesses. And competitive forces can provide an important constraint against Leviathan-style maximization of the size of the public sector. Discussions about policy options to further reduce sales tax competition should go beyond rates, bases, and sourcing rules to include consideration of voting thresholds for policy changes, equalization grants or other mechanisms to offset competition, and a host of other limitations on the setting of rates or the uses of revenues.

Regardless of the evolving sales tax policy landscape, the ongoing economic and technological shifts create a wide range of significant research opportunities. It will be important for scholars to continue to explore how better-enforced destination taxes affect e-commerce sales, the extent of cross-border shopping, sales of taxable versus non-taxable items, residential locations, and business location and development. Effects of destination enforcement on state and local tax rates and bases also call for new analysis, but also how legal TELS affect state and local tax rates and bases in the changing environment.

The post-Wayfair legislation discussed above, which reduced buyers' ability to find zero tax options but potentially expands cross-border shopping alters incentives for governments to compete and could significantly change the behavioral elasticities found in earlier research. But the combination of differential imposition of the sales tax on consumer purchases, inability to fully enforce destination taxes, and taxes on intermediate purchases can still place downward pressure on tax rates as described by Agrawal (2021).

Consumers can still shop across borders and take possession in lower rate jurisdictions or purchase from smaller remote vendors or vendors that are failing to comply with tax collection requirements (since it is likely very difficult for states to determine which small vendors across the country meet their sales thresholds). Current incentives to cross-border shop are similar to those that existed prior to the rapid growth in e-commerce. Earlier analysis finds that destination sourcing allows rural areas to experience more rapid growth in sales tax revenue after Wayfair, but revenues may also grow faster on the low tax side of state or local borders, creating a second set of revenue adjustments.

Research that addresses similar topics to those conducted in the past but using post-Wayfair data allows the opportunity to determine the effects of better-enforced destination taxes on taxpayer responsiveness to tax differentials. For example, analysis could be conducted on how government tax structures are affected. Post-Wayfair data may find that effects of online sales on tax rates have diminished with better enforcement, but the relative effects of cross-border sales on tax rates have grown since the Wayfair legislation will affect enforcement of online sales more. Thus, Agrawal's (2021) findings about the extent to which e-commerce sales affect tax rate policy may be lessened and the role of cross-border sales increased (Agrawal, 2016). Distance to the border could become increasingly important to buyers looking to evade taxes, and also to state and local governments as they set tax policy. Rates could be higher as tax rates are less impacted by the zero-tax option from online sales and lower near the border because of cross-border shopping. Also, research on the responsiveness of local rates to competition in origin versus destination states and along state borders appears to offer good potential.

Research on how state limitations on local tax rate setting affects cross-border shopping elasticities and local tax rate policy also appears to be promising. Most if not all previous research ignores these constraints. Empirical analysis of which policies are most effective would improve precision of behavioral elasticities and expand our understanding of how competition affects policy decisions. Agrawal (2014) and Baker *et al.* (2021) demonstrated that local tax rate changes were frequent in the decade of data that each analyzed, evidencing that governments are willing to shift certain aspects of their tax structure.

The relative price effect for exempt versus taxable transactions could become larger for those previously avoiding the tax by purchasing online. Of course, no one pays the effective average tax rate (which has risen because of better enforcement) since they either pay no tax or the tax on one side of the border. Consumers will be more likely to pay at some tax rate after Wayfair, so, the measured elasticities for taxable versus exempt items and cross-jurisdiction tax elasticities will be larger, presumably for those for whom the tax is more salient. Research to identify characteristics of those for whom the tax is more salient (for example, younger or higher-income households) remains an interesting issue. The slow pace at which states broaden their bases as new goods and services develop also arises here. Many states have failed to expand their bases to digitized transactions and two-sided platforms, and failure to collect or impose tax on these items becomes more important when tax is fully enforced on substitutes and complements. Destination sourcing of these transactions is ever more challenging and raises both technical and measurement issues.

Incentives to avoid taxes by moving to jurisdictions with a tax/expenditure bundle more consistent with consumers' tastes can grow with better enforcement of destination taxes. Enhanced enforcement of destination taxes moves the sales tax closer to an income tax, though large exemptions from the tax and pyramiding distort this relationship. Still, it opens the opportunity for research on whether personal income or sales taxes have larger effects on mobility choices, one component of which is the differential salience of the two taxes. Martinez (2022) shows that local income taxes affect mobility across Swiss Cantons, but effects of sales taxes on mobility have been studied less. [36] Both sales and personal income taxes are dominated by the property tax at the local level but are the largest tax sources at the state level. These averages hide significant cross-state differences that could be exploited for analysis. Again, cross-border shopping provides an important limitation on destination taxation of sales, perhaps causing responsive residents to move closer to the border or to other jurisdictions.

To be sure, there is no shortage of interesting and important avenues for empirical research. The passage of time and availability of better and more recent data will enable a completely fresh look at some of the classic theoretical and empirical results from the sales tax competition literature.

[36] Fox, Herzog and Schlottmann (1989) provide an early look at how state and local taxes affect migration decisions.

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