Impact of Retail Taxes on the Illinois-Indiana Border

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This paper presented today to the Federal Reserve Bank of Chicago focuses on the impact of retail taxes on job creation and household wealth along the Illinois-Indiana border. The paper is a refinement and expansion of a much larger study looking at how tax-driven price differentials in cross-border access areas triggered shifts in consumer purchasing from one area to another, in subsequent job creation from one area to another, and in household income from one area to another. The study measured these tax-driven phenomena along all the borders in five states in the central Midwest—Illinois, Indiana, Ohio, Michigan, and Kentucky. The authors have done similar studies, sweeping analytically:

- the borders of the New England states (including the provinces of Ontario and Quebec in Canada);
- the borders of New Jersey;
- the borders of New York City; and
- the borders of Oregon.

The studies show where sharp differences in retail taxes, both general sales taxes and various excise taxes, have created steep cliffs where the prices of standardized goods are much higher on the high-tax side of the border.

This paper presented to the Federal Reserve Bank of Chicago focuses solely on the impact of retail taxes on the Illinois-Indiana border. The paper reaches five conclusions.

**Price Matters:** The first conclusion is that large tax-driven price differentials matter in job creation in cross-border situations, especially in excise-tax-sensitive retail businesses. These businesses sell frequently purchased standardized goods that are essentially no different from one state to another or one substate area to another. Hence these goods are very price sensitive to the consumer. The retail businesses are disproportionately job sensitive because they are businesses in which greater sales volume translates directly into more jobs—more so than in other types of retail outlets.

**Magnet Power:** Our second conclusion deals with the magnet power phenomenon. This is the tendency of excise-tax-sensitive retail businesses to cluster in tight geographical spaces because they pass customers back and forth to each other (grocery stores, supermarkets, restaurants, bars, gas stations, liquor stores, convenience stores, etc.). Hence, these businesses have greater sales volume when they cluster. Also, these are businesses characterized by the ability to relocate relatively easily compared to other businesses. Excise-tax-sensitive retail businesses do not have complicated site requirements and do not need to lease large amounts of land. In addition, these businesses have relatively noncomplex inventories that they have to manage.

**Momentum Power:** Our third conclusion deals with the momentum power phenomenon. We have found that job disparities grow over time as cross-border price advantages become more widely known and as new retail outlets relocate into the existing tax-advantaged cluster. We have found that excise-tax-sensitive retail businesses are what we call "point men" in that they "point" the way for other retail businesses that sell nondurable goods like clothing and durable goods like home furnishings. These retail businesses need bigger sites with more complicated leases, and they manage
larger and more complex inventories. Thus, they relocate more cautiously and will move to an already formed cluster of excise-tax-sensitive retail businesses to take advantage of the already in-place customer pool.

**Cliff Effect Inverse:** Our fourth conclusion is that in this Illinois-Indiana cross-border area—and other areas that we have studied—the power of the cliff effect is inverse spatially insofar as tax-driven price differentials matter. First, for areas benefited, we have found that the benefited area extends 2 to 3 miles. This is because customers can satisfy their purchasing needs for relatively undifferentiated products within a relatively short distance. On the other hand, we have found that the area disadvantaged, as in this case of Illinois, is much larger than 2 to 3 miles; it is at least 10 to 12 miles. We have found in our study of the Massachusetts-New Hampshire border that the disadvantaged Massachusetts area also is 10 to 12 miles.

**Household Income Shifts:** Our fifth conclusion is that retail tax differentials, which have a difference on prices, and then on consumption, and then on jobs, appear to have substantial impacts on cross-border household incomes.

This paper looks at the Illinois-Indiana border where there are substantial tax disparities in retail taxes at the specific geographic point where the combined Chicago, Cook County, and Illinois tax jurisdictions abut the much lower retail taxes of northwest Indiana—now called the Hammond area.

In looking at table 1 below, it is important to recognize that the major drivers of price differentials are the retail taxes for general sales, cigarettes, and gas. The general sales tax is computed on top of the excise taxes. In our sweep of all the borders of Illinois, Indiana, Michigan, Ohio, and Kentucky, this Illinois-Indiana area had by far the greatest job disparities, and we attribute those job disparities to the tax-driven price differentials in widely consumed goods.

Next look at the four maps on the following two pages and note the economic logic of their sequencing.

The first map (figure 1) at the top of page 3 shows population density for the immediate areas in the NE Illinois - NW Indiana border area.

### Table 1
Indiana vs. Illinois
General Sales Taxes and Special Excise Taxes

<table>
<thead>
<tr>
<th>State</th>
<th>General Sales Tax</th>
<th>Cigarettes per Pack</th>
<th>Gas per Gallon</th>
<th>Alcohol per Gallon</th>
<th>Beer per Gallon</th>
<th>Wine per Gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiana</td>
<td>5%</td>
<td>15.5¢</td>
<td>15¢</td>
<td>$2.68</td>
<td>11.5¢</td>
<td>47¢</td>
</tr>
<tr>
<td>Illinois State</td>
<td>6.75%</td>
<td>4¢</td>
<td>19¢</td>
<td>$2.50</td>
<td>7¢</td>
<td>23¢</td>
</tr>
<tr>
<td>Cook/Chicago</td>
<td>2.5%</td>
<td>26¢</td>
<td>20.5¢</td>
<td></td>
<td>6¢</td>
<td></td>
</tr>
<tr>
<td><strong>Illinois (NE Border)</strong></td>
<td><strong>9.25%</strong></td>
<td><strong>70¢</strong></td>
<td><strong>39.5¢</strong></td>
<td><strong>$2.50</strong></td>
<td><strong>13¢</strong></td>
<td><strong>23¢</strong></td>
</tr>
</tbody>
</table>

Highest tax rate in bold
Lowest tax rate in italics
The second map (figure 2) shows the findings of our computer sweep of retail businesses throughout Cook County in Illinois and the three counties moving east from the Indiana border—Lake, Porter, and La Porte counties. These three Indiana counties are equal in size to Cook County. The map shows what would be the expected distribution of excise-tax-sensitive jobs in this area based on population density and the number of excise-tax-sensitive jobs in the four counties.
The map shows, not surprisingly, that the more developed economy and more affluent population of Cook County sustains an appreciably higher per capita average of excise-tax-sensitive jobs than the cross-border Indiana area—30 jobs/1,000 vs. 24 jobs/1,000, or 25% greater in Cook County.

The third map (figure 3) is a picture of what actually has happened in the real-world distribution of excise-tax-sensitive jobs. In studying the spatial configuration of excise-tax-sensitive retail businesses and their jobs, all things being equal the businesses
typically configure so as to take advantage of proximity to population density. There is nothing particularly special about these businesses. All things being equal, they would be configured uniformly across population densities. Map 3 shows what actually is happening at the border crossing between Illinois and Indiana. The map shows that jobs and businesses have been literally sucked out of South Chicago and into Hammond. It shows job densities more than three miles on each side of the border. Our larger

![Figure 3: Actual Excise-Tax-Sensitive Jobs per Capita Illinois/Indiana Zip Codes](image-url)
study shows that the “sucking out” on the Chicago side goes west for about 10 to 12 miles. These jobs and their businesses have been sucked into the immediate Lake Michigan-Hammond area and to the south of that Hammond area.

In looking at map 3 on the preceding page (figure 3), the color coding tells the economic story. The immediate cross-border area in Indiana along Lake Michigan is extraordinarily job-rich for excise-tax-sensitive retail jobs—195 jobs per 1,000 popula-
tion. Those jobs have been created at the expense of the Chicago area west of the border where the different zip codes show low job ranges per 1,000 population of 10, 11, 14, and 15. If map 3 is juxtaposed with map 2, these Chicago zip code areas should have two to three times more jobs than they do.

The fourth map (figure 4) counts the actual numerical differences between what we found and what would have been expected—all things being equal.

**Methodology:** We would like to say a word now about our methodology, because it is important both statistically and geopolitically. This study relied on the Dun & Bradstreet On-Line Business Database. Using that database, our computer software “swept” all of Cook County in Illinois and all of Lake, Porter, and La Porte Counties in Indiana for all their retail business outlets. The database sweep provided a complete inventory of all retail businesses—their names, addresses, type of retail business (which was disaggregated down to an eight-digit SIC code level), and the number of jobs per unit. The authors then separated excise-tax-sensitive retail outlets from all retail outlets; excise-tax-sensitive retail outlets are those selling gasoline, tobacco, alcohol, beer, and wine. These units were separated out of all retail units. The authors counted as excise-tax-sensitive only those units with total sales of excise-tax-sensitive products exceeding 7.5% of total sales. This threshold excluded as excise-tax-sensitive such retail mass marketers as Kmart and Wal-Mart, but it included supermarkets as excise-tax-sensitive. The authors then geocoded all the retail units to their proper latitudinal-longitudinal points and prepared three sets of economic-activity maps: one by zip codes, one according to state house legislative districts, and one according to state senate legislative districts. The authors then totaled the number of excise-tax-sensitive retail jobs and all retail jobs per 1,000 population for the relevant zip codes in the area, state house districts in the area, and state senate districts in the area.

This analysis was designed to be real world, not theoretical. The audiences for this analysis are state officials, state-level policymakers, the local media, and the owners and managers of retail businesses in the area. Hence, this study avoids any kind of complicated economic theory or sets of economic assumptions such as multiplier effects or other kinds of abstract theoretical formulations. Instead, this analysis relies heavily on multicolor maps that calibrate intensely local economic behavior. This kind of study is designed to be congenial to state politicians and the media.

**The Hammond Area:** The particular Hammond cross-border area turned out to be one where certain critical economic and cultural characteristics were present that enabled tax-driven price differentials to play out to their fullest impact on businesses, jobs, consumers, and household wealth.

We found that to be so for the following four reasons:
• There is ready accessibility of this part of northwest Indiana to Chicago.
• There is a long-standing tradition of Chicagoans going across the border to purchase retail goods. As late as the end of the century, Hammond was officially known as “State Line,” indicating to some degree that its economic and geographic raison d’être was that it was immediately across the state line from Illinois.
• There is publicity on Chicago TV and radio stations about Chicagoans buying gasoline, cigarettes, and other retail items immediately across the lower-price border.
• Hammond businesses advertise in the Chicago media market the availability of cheaper goods in their outlets.

To give you an example of how tax-driven price differentials plus accessibility and tradition have affected market conditions, compare gasoline consumption statistics in Chicago with the Hammond area in the following:
• Since 1986, retail gasoline stations in the entire Chicago market area have increased gasoline sales by 12%. In the gas stations in the area marked on the second map along the border inside Indiana, gasoline sales for the same period have increased by 433%.
• In the entire Chicago market area, the gasoline volume per outlet is 104,449 gallons per month. In the gas stations in the area demarcated across the border from Illinois in Indiana, the average is 592,600 gallons per month.
• In five gas stations along the strip that is marked on the map, two of the five outlets pump more gas than any other outlet in the entire national franchise. One is a Shell outlet. The other is a Union 76 outlet.

We have found this kind of spatial alteration of consumer behavior and its consequent effects on job creation occurring in other parts of the United States. The most pronounced is along New Hampshire's southern border where it abuts the northern border of Massachusetts. We have found it also in Oregon at major cross-border access points along the southern Washington border and in Texas along the Arkansas border as well as in parts of New Jersey and in the New York City metropolitan area.

But, in our current study, in this one geographically tight area for a particular cross-border junction, the job disparities appear to be the greatest that we have seen so far in the United States.

Excise-Tax-Sensitive Sales Volume and Jobs: This part of the paper analyzes the role of excise-tax-sensitive retail businesses and job creation. For retail outlets carrying excise-tax-sensitive goods, increases or decreases in sales volume translate directly into increases or decreases in jobs. Therefore, we have found that excise-tax-sensitive retail businesses are disproportionately labor intensive compared to all other retail businesses. In the survey we did along all the borders of the five central midwestern states of Illinois, Indiana, Michigan, Ohio, and Kentucky, we found that excise-tax-sensitive retail outlets averaged 48% more employees than all other retail outlets. The difference was 13.2 employees per excise-tax-sensitive retail outlets versus 8.89 for all other retail outlets.

Earlier in the paper we discussed magnet power and momentum power. This study tests where increased cross-border consumption of excise-tax-sensitive retail goods and the concomitant job creation surge would lead to other general retail outlets.
locating in the same area in order to take advantage of consumers coming primarily for gasoline and cigarettes. We have found in this tight geographic area, and in other areas in the nation, that retail outlets for nondurable and durable goods—ranging from Polo clothing outlets to Home Depot-type outlets—wait for the easier-to-relocate, excise-tax-sensitive businesses to pioneer in forming a cluster, thereby setting up a magnet for consumers. Then those outlets locate within or around that existing “pioneer” cluster.

The map on the next page (figure 5) shows actual retail jobs per capita for the same area for which we measured excise-tax-sensitive retail businesses and jobs. You can see that the cross-border job disparities are even greater when all retail outlets are included. There are 202 jobs per 1,000 population selling all retail goods in the immediate cross-border area of Hammond and 58 retail jobs per 1,000 population further east of the immediate cross-border areas and deeper into Indiana. Conversely, the cross-border zip code areas in Illinois to the west have only 23, 24, 29 and 32 retail jobs per 1,000 population.

**Jobs Coded by State Legislative Districts:** In our discussion of methodology, we said that this work is designed to be useful to government officials and the media. Hence, all the businesses and jobs are geocoded according to state legislative districts. The purpose of this analysis and the others we have done in other areas is to show that political actions on taxes have effects on jobs.

The tax advantages for the political district that is immediately across the border in Indiana create a power surge or spike in jobs that falls off sharply in the easterly adjacent Indiana political district not abutting the Illinois border and hence not having an immediate cross-border tax advantage. Put differently, the non-cross-border Indiana districts are not “taking” jobs that otherwise, all things being equal, would be in Illinois.

The maps showing state house and state senate districts (figures 6 and 7) calculate excise-tax-sensitive retail jobs per 1,000 population within each political district near the border. The maps are deliberately color coded so that state officials, state politicians, and local reporters can see quickly the very substantial job disparities between the Illinois legislative districts and the Indiana ones. For example, Indiana house Districts 1 and 11 have, respectively, 47 and 44 excise-tax-sensitive retail jobs per 1,000 population; Illinois house district counterparts—25, 31, 32, 29, and 79—have, respectively, 13, 16, 13, 14, and 15 excise-tax-sensitive retail jobs per 1,000 population.

This pictorial or mapping methodology visually linking government policies—the setting of retail tax levels—to numbers of jobs in specific legislative districts captures the attention of politicians and reporters.

We have testified before numerous state legislative panels on proposed adjustments to a state’s retail tax levels. We typically appear as part of an “expert” panel or individually within a procession of “expert” witnesses. We have found on each occasion that the legislators on the dais first concentrate on our maps and then pass them to their hastily summoned aides, who then contact us for further copies and information about our
methodology. What we found, in short, is that these jobs-by-district maps represent for the elected official a political photograph of the local vote calculus, which the politician is forever calibrating in his or her head.

Thus the maps have real-world value to the politician. This value is enhanced because the methodology—while technologically complex and sophisticated—is really simple and straightforward: it merely counts jobs and assigns them to a geopolitical
envelope. Also, the maps are nonargumentative; they show just local economic facts, nothing more.

Table 2 shown on page 14—entitled “Job Disparities by State Political District—summarizes and refines the preceding political district maps. This table shows in the first tier the job disparities for retail outlets selling excise-tax-sensitive products (particularly gasoline and cigarettes), and it calculates the job disparities for senate and house districts. The percentage disparities are hugely in favor of Indiana—213% more for the
senate districts and 180% more for the house districts. The second tier adds all other retail outlets to the mix. The job disparities remain overwhelmingly in favor of the Indiana districts.

**Retail Taxes, Retail Jobs, and Household Wealth:** As we said initially, we have tried to measure what impact these retail taxes had not just on jobs but on household income levels. We were able to do this because in an earlier work—Almanac of State
Legislatures—we digitized all the boundaries of the nation’s 6,743 legislative districts and assigned to each district critical socioeconomic characteristics based on census data. One key characteristic was household income that we “built up” from census block level to legislative-district level.

The table on the following page shows that there are major differences, measurable in a number of ways, between the legislative districts that abut the two sides of the Illinois-Indiana border. Income levels of the Indiana border districts are higher than those of the Illinois border area and higher than the Indiana districts farther away from the border. It is extremely important to see that the income differences are quite appreciable in favor of Indiana’s border districts and that the Illinois border district’s income levels are appreciably below the Illinois average. This supports our thesis that not just businesses and jobs, but also wealth, are being sucked out of the Illinois border area into the lower-tax Indiana border area.

The cross-border “spike effect” for wealth creation follows the geopolitical configuration of the jobs-creation spike effect (i.e., the benefits fall almost entirely on the immediate cross-border political district). Accordingly, the Indiana state senate district (District 1), which is immediately cross-border from Illinois, has an average household income of $38,500, whereas the Indiana state senate district (District 2) abutting the eastern flank of District 1 has an average household income of $27,894.

In our study, we did not make an effort to link causally the cross-border retail job disparities with the creation of the appreciable differences in household wealth in the Indiana cross-border districts. But the study does show, at the very least, that the families living in areas where these disproportionately large number of jobs have been created have significantly higher household incomes than those in the surrounding areas.

The fact that there are cross-border income disparities is important because occasionally those in politics—and more often those in the media—have found it fashionable to disparage retail jobs, and excise-tax-sensitive retail jobs in particular, as economically and socially undesirable because they are low-pay and low-skill jobs compared to manufacturing jobs. But in this case, household income numbers show that the families living in these areas with dense clusters of excise-tax-sensitive retail jobs have higher household incomes than families in the areas where jobs are not clustered.

Finally, we would like to circle back to the thesis of this workshop at the Federal Reserve Bank of Chicago: how to design state-local fiscal policies for growth and development? This part of the program asks specifically: Do state policies matter? The answer to the specific question is yes, they do matter, and yes, state politicians think they do matter.

The area we have been studying—cross-border areas impacted by significant retail tax differentials—is a difficult conceptual one for elected state politicians. Because of who they are—elected politicians from state legislative districts—they think understandably that their job deals with their state alone, and not someone else’s state. When they think of retail taxes, they think about state revenue levels and smoothing the burden of those taxes across businesses and consumers in their state.
The huge job variances in excise-tax-related jobs parallel the huge excise tax disparity between the cross-border areas for tobacco and gasoline—the Illinois area tobacco tax is 70¢ per pack whereas the abutting Indiana area is 15.5¢ per pack, and the Illinois area gas tax is almost 40¢ per gallon whereas the abutting Indiana area gas tax is 15¢ per gallon. Also, the 9.25% Illinois area general sales tax is computed on top of the excise taxes.

Indiana state senate District 1 (Hammond-border area) has 213% more excise-tax-sensitive jobs per capita than Illinois state senate Districts 13, 16, and 15 (South Chicago-Calumet City area).

Indiana state house Districts 1, 11, and 15 (Hammond-border area) have 180% more excise-tax-sensitive jobs per capita than Illinois state house Districts 25, 31, 32, and 29 (Calumet City area).

Indiana state senate District 1 (Hammond-border area) has 165% more retail jobs per capita than Illinois state senate Districts 13, 16, and 15 (South Chicago-Calumet City area).

The huge job variances in general retail jobs parallel the huge overall tax disparity between the cross-border areas for tobacco (see above), gasoline (see above), and general sales tax—9.25% in the Illinois area and 5% in the Indiana area.

Indiana state senate District 1 (Hammond-border area) has 165% more retail jobs per capita than Illinois state senate Districts 13, 16, and 15 (South Chicago-Calumet City area).

Now state politicians are learning that states are competing for businesses and jobs—and doing it effectively—by advertising lower retail taxes. It is a version of the interstate competition for tax breaks and special subsidies to certain businesses with large and expensive manufacturing plants and work forces. Just as there is a bidding war to attract large manufacturing enterprises—and now large financial service enterprises—so there is now a bidding war to attract small and medium-sized retail enterprises. After all, there are a lot more of them—and a lot of jobs—connected to them. In response, there are now the early stages of an effort by politicians to stem the loss of retail businesses to adjacent states that have much more favorable retail tax regimes. These nascent efforts are crude and experimental but nevertheless represent serious cross-border tax stabilization efforts to mitigate the economic and political pain resulting from jobs and businesses being sucked from high-tax to low-tax border areas. These efforts are flourishing where—understandably—a relatively high-tax state borders a low-tax state.

Thus, for example, Vermont and Massachusetts are debating in their legislatures the creation of ten-mile-wide-border retail-tax offset zones along their borders with New Hampshire. Not surprisingly, each effort is being driven by coalitions of state legislators from within the ten-mile zone, for it is they who have the cross-border “problem.”

New Jersey—which has always had a problem where its state borders abut those of low-tax Delaware—in 1994 granted Salem County, New Jersey’s only county abutting
### Table 3: Jobs, Impact on Wealth of Political Districts in Cross-Border Areas with Tax Advantages and Tax Disadvantages

While it is impossible to assign precisely how much these retail jobs account for the household wealth of each district, nevertheless it is important to note the following:

- The cross-border Indiana state senate district (District 1) with the greater number per capita of affected retail jobs has a higher average household income ($38,500) than the cross-border Illinois state senate districts (Districts 13, 16, 15) with the fewer number per capita of retail jobs ($31,054).
- The cross-border Indiana state senate district (District 1) with the greater number per capita of affected retail jobs has a higher average household income ($38,500) than the Indiana state average ($34,847).
- The cross-border Illinois, state senate districts (Districts 13, 16, 15) with the fewer number per capita of affected retail jobs have a lower average household income ($31,054) than the Illinois state average ($40,841).
- The cross-border Indiana state house districts (Districts 1, 11, 15) with the greater number per capita of affected retail jobs have a higher average household income ($39,486) than the cross-border Illinois state house districts (Districts 25, 29, 31, 32) with the fewer number per capita of affected retail jobs ($31,308).
- The cross-border Indiana state house districts (Districts 1, 11, and 15) with the greater number per capita of affected retail jobs have a higher average household income ($39,486) than the Indiana state average ($34,847).
- The cross-border Illinois, state house districts (Districts 25, 31, 32, and 29) with the fewer number per capita of affected retail jobs have a lower average household income ($31,308) than the Illinois state average ($40,841).

The tax advantages for the political district that is immediately cross-border in Indiana create a power surge or spike in jobs and hence household income that falls off sharply in the easterly adjacent Indiana political district that does not abut the Illinois border and hence does not have an immediate cross-border tax advantage. Put differently, the non-cross-border Indiana districts are not “taking” jobs and wealth that otherwise, all things being equal, would be in Illinois.

- The Indiana state senate district that is immediately cross-border from Illinois (District 1) has an average household income of $38,500, whereas the Indiana state senate district abutting the eastern flank of that district (District 2) has an average household income of $27,894.
- The Indiana state house districts that are immediately cross-border from Illinois (Districts 1, 11, 15) have an average household income of $39,486, whereas the Indiana state house districts abutting the eastern flanks of those districts (Districts 2, 12) have an average household income of $34,007.

Delaware, the power to halve all retail taxes, thereby cutting the “tax-cliff” in half.

Arkansas has tried to deal with the economic pain felt in the only Arkansas city abutting low-tax Texas—Texarkana City in Miller County. Texarkana’s problem is compounded because the state border is literally the main street in downtown Texarkana. The immediate effect of the tax-driven cliff effect is both economically and visually pronounced. The town’s businesses are on the Texas side and the town’s parking lots on the Arkansas side. To deal with the tax cliff, the Arkansas legislature has granted a two-year, total border-tax offset to Miller County and thereby leveled the playing field.²

In conclusion, it is doubtful that any of these border-tax offset schemes will gain any political momentum or, if they do, have any real economic impact. On the former point, the votes for offsets simply are not there—after all, only the politicians for 10 to 12 miles are hurt—on the latter point, the low-tax state has the magnet power and the
momentum power, which we discussed earlier, already in place.

There is another problem with border-tax offset schemes that might be more insurmountable than the very serious political and economic ones cited above. The problem is psychological—namely, the psychology of businesspeople. They are known to be notoriously adverse to uncertainty, and border-tax offset schemes smack of uncertainty. For example, a primary factor motivating the Arkansas legislature in giving Miller County its trial total offset was the very real threat that the doctors in the Arkansas-based regional medical center were threatening to move the facility across the state line so that their related medical businesses would fall under the lighter Texas tax regime. The legislature granted the tax relief only after strenuous debate. But the doctors still voted to relocate the center. They said they could not rely on a trial becoming permanent.

Footnotes
