The Economic Impact Potential of Retail Trade in Story County, Iowa

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Overview

Community development officials, highly mindful of the composition of their local economies, work hard to attract new investment in their communities. Many dedicate significant resources to help revitalize or expand their economies. While they often target their efforts toward manufacturing and service industries to expand local employment, communities are also very interested in maintaining their retail trade sectors.

In recent years, a number of large-scale retail developments have been added to Iowa communities. Outlet malls in non-metropolitan areas are one example. There are two notable instances of these developments in Story City and in Williamsburg. The Coral Ridge mall in Coralville, a suburb of Iowa City, and the newly constructed Jordan Creek mall in West Des Moines are examples of very large additions to retail capacity in a region. If these outlet centers and new malls actually boost net regional sales, they do in fact create a positive localized economic impact for those communities hosting the development. If their effect is to draw sales from the immediately surrounding region, their overall economic impact to the region might be less than originally supposed. A new mall has been proposed for the Ames area, and there are questions about the potential economic impact of new trade capacity in the area. To figure out the economic development potential of a new mall, it is important to understand how economic impacts accumulate to a community.

There is a hierarchy of jobs that economic developers seek for their communities. The most desirable new jobs, regardless of the industry providing them, are usually those clearly producing for export. Export producing jobs create goods or services that are sold primarily to non-residents; hence, they attract money from outside of the region. Traditional export producing jobs include manufacturing, warehousing, company headquarters, tourism, and the siting of state or federal facilities like universities, prisons, or military bases.

Another desirable area of potential growth to a regional economy involves producing goods or services locally that are otherwise imported. We call this import substitution. These firms produce goods or services that must be imported or which local residents tend to purchase outside of the region. An easy example is electrical power. As most electricity production in the U.S. is external to communities or counties, nearly all of the money paid for electricity accumulates to non-local workers, investors, and suppliers of fuels that create electricity. In communities
producing their own electricity, local spending for locally-produced electricity supports local jobs in the utility industry as well as industries supplying goods and services to it.

A third area of potential growth is analogous to the second, but more directly related to consumer behavior and shopper preferences. It involves the promotion of higher levels of household consumption locally – a buy-locally orientation. Here, economic developers along with local retailers and other service providers work to capture as many sales as possible locally in light of all sales opportunities in the surrounding region. If, over a period of time, a region suffers significant sales leakages, that means it is generating fewer sales than would be expected given the area’s income and population base. If sales continue to erode (or leak), the number of firms in an area will decline, as will the demand for labor. When that happens, the retail and service components of a local economy will wane.

If a region has suffered significant leakages, economic development activity that re-captures those lost sales will have a beneficial economic impact on the local economy. If a region continues to capture sales to the extent that it begins producing a discernible surplus of sales in excess of what local demand requires, then the region moves into the first category above where it has become a net exporter of goods and services.

Most major trade areas in Iowa, Story County and the city of Ames among them, are net exporters of retail goods. In other words, localized retail trade activity serves a territory that is larger than the county (or the city) proper. Shoppers are attracted to Ames from surrounding communities. Because retail is making sales in excess of local demand, this increment to output creates an economic impact regionally in that it helps to stimulate and support additional jobs and spending in the region that would not have otherwise occurred.

We define firms or industries producing goods and services for export as basic industries. Industries that exist to support the basic industries by providing them services or inputs (like transportation) or that exist to take care of normal household services and goods demands in a region are called non-basic industries. For example, if a company produces rocking chairs, it’s usually a pretty good bet that its primary market is external to the local economy. If a store sells ice cream cones, it is a pretty good bet that nearly all of the desserts will be consumed by local residents. The former is a stereotypical basic firm and the latter a stereotypical non-basic firm. However, to the extent that traditionally non-basic sectors serve external markets, the portion of their production that is in excess of local demand can be considered basic economic activity.

It is very understandable, then, that economic developers and community leaders have a high preference for stimulating jobs in basic industries. Historically, for most communities, economic developers do not dedicate significant resources into promoting retail trade growth. There are several reasons. For one, retail trade patterns are well-established, exhibiting over time a spatial equilibrium indicative of the distribution of jobs and incomes in a region. Stated differently, regional retail trade is already highly competitive and, in and of itself, retail does not drive an
economy, it reflects it. Stated even more directly, over the short run local economies are relatively fixed. Retail trade accruing to a new firm in a community will likely, at least in the short term, be at the expense of all other retailers in an area.

Secondly, retail activity is a highly sterile type of local economic activity. Most of the inputs into sales are derived from outside of the region – nearly none of the goods sold are produced locally – the retailer simply conveys goods which were produced elsewhere to the local consumer. There is, compared to most basic industries, not a lot of local economic activity linked to retail trade. Last, the average retail job usually pays substantially below the regional average for all nonfarm jobs. The average amount of total labor income per job in Story County in 2001, for example, was $29,100; among retail jobs it was $17,650 – 60 percent of the average.

Additionally, developers in trade centers are often careful about promoting one type of retail configuration over another for fear of damaging existing firms, encouraging sprawl, or further exacerbating decline in traditional trade areas. A notable exception to that cautious tendency occurred recently in the Jordan Creek Mall development in West Des Moines and in Dallas County. While that mall intends to cash in on the implied cachet of being a destination shopping area, the majority of sales to that mall will come directly at the expense of existing area retailers. There is no reliable estimate of just how much net new sales this configuration can be expected to draw nor on the likely pecuniary effects the mall will have on the remainder of the Polk County and Dallas County regional economies. Consequently, conclusions about the new mall’s regional economic impact are speculative, at best.

**Economic Effects of Retail**

**Local and Export Sales**
The local economy demands a variety of retail goods and services. Given the size of Story County, the characteristics of its economy, and the characteristics of its population, the vast majority of area household goods and services will be provided locally. Story also has significant trade competition with its neighbors. The Des Moines – West Des Moines area is a major regional shopping, recreation, and entertainment draw, and the Ankeny area, just 20 miles to the south, has increased its retail trade activity markedly over the past five years or so. Still, notwithstanding this powerful regional competition, regarding traditional retail trade activity, the Story County economy is still a net exporter of retail goods.

We can estimate the extent to which productivity in an economic sector is in excess of local demand by using a statistic called the location quotient. A location quotient is the ratio of the percent of employment in an industry locally to the national average. If an area’s percentage of jobs in an industry is higher than the national average, yielding a location quotient greater than 1.0, we assume that it is using more labor than the national average and, therefore, must be producing, at least in part, to satisfy external demand.*

* There are several types of location quotients that can be calculated: the aforementioned jobs basis, a basis that looks at the distribution of jobs to the area population, and another that looks
Given those assumptions, a table of estimated retail trade and employment in the Story County area for 2001 was compiled, the most recent year for which we have an industrial accounting at this writing. Table 1 indicates that retail sales margins were $242.68 million and that those sales supported 5,895 total jobs in the county.

Table 1. Story County Retail Trade, 2001

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Sales (in Millions)</th>
<th>Jobs</th>
<th>Location Quotient</th>
<th>Export Sales (in Millions)</th>
<th>Export-Producing Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicle and parts dealers</td>
<td>45.64</td>
<td>681</td>
<td>1.11</td>
<td>4.33</td>
<td>65</td>
</tr>
<tr>
<td>Furniture and home furnishings stores</td>
<td>3.21</td>
<td>62</td>
<td>0.34</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Electronics and appliance stores</td>
<td>5.16</td>
<td>119</td>
<td>0.65</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Building material and garden supply stores</td>
<td>25.64</td>
<td>471</td>
<td>1.28</td>
<td>5.51</td>
<td>101</td>
</tr>
<tr>
<td>Food and beverage stores</td>
<td>49.08</td>
<td>1,207</td>
<td>1.29</td>
<td>10.68</td>
<td>263</td>
</tr>
<tr>
<td>Health and personal care stores</td>
<td>13.33</td>
<td>379</td>
<td>1.15</td>
<td>1.70</td>
<td>48</td>
</tr>
<tr>
<td>Gasoline stations</td>
<td>17.70</td>
<td>412</td>
<td>1.41</td>
<td>5.07</td>
<td>118</td>
</tr>
<tr>
<td>Clothing and clothing accessories stores</td>
<td>16.11</td>
<td>494</td>
<td>1.12</td>
<td>1.71</td>
<td>52</td>
</tr>
<tr>
<td>Sporting goods, hobby, book and music stores</td>
<td>10.35</td>
<td>302</td>
<td>1.15</td>
<td>1.27</td>
<td>37</td>
</tr>
<tr>
<td>General merchandise stores</td>
<td>34.00</td>
<td>1,078</td>
<td>1.24</td>
<td>6.42</td>
<td>204</td>
</tr>
<tr>
<td>Miscellaneous store retailers</td>
<td>15.27</td>
<td>396</td>
<td>0.85</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nonstore retailers</td>
<td>7.22</td>
<td>294</td>
<td>0.55</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total All Retail</td>
<td>$ 242.68</td>
<td>5,895</td>
<td>$ 36.70</td>
<td>888</td>
<td></td>
</tr>
</tbody>
</table>

Source: Input-output tables, Story County economy, ISU

Note: The retail trade data in this report align with the retail classifications contained in the North American Industrial Classification System (NAICS). Data about retail and other trade in Iowa that are reported by the Iowa Department of Revenue and Finance include utility sales, service sales, dining and drinking establishments, and wholesale transactions – a much more expansive definition of trade than this analysis portrays.

Eight of the twelve categories of retail trade had estimated location quotients greater than 1.0. The category of gasoline stations was highest at 1.41. The reason for this at the distribution of jobs in light of total personal income in a region. For this analysis, I took the average of these three approaches to determine an estimate of net retail export sales and the jobs associated with them.

We could also assume that labor is less productive in an area, meaning that, for some reason, retail trade in Story County was less efficient than the national average. There is, however, every reason to reject that supposition given the average education level of the community and the historically high productivity of Iowa workers.

* The modeling system estimates sales margins instead of total sales. Sales margins are the amounts that retailers must add to the basic cost of goods sold. It includes money spent locally, like overhead, labor, etc. Total sales in the area are, roughly, just under 4 times the values listed as margined sales. Margined values are used in the modeling system to prevent double-counting between manufacturer, wholesaler, and retailer. The basic value of a commodity that is sold is allocated as far up the production chain as possible. Wholesalers and retailers are allowed to add value to a product only in so far as it assumes their unique margins. The data displayed in Tables 1 through 3 are all margined sales data, not gross sales.
robust quotient is that Ames receives a high number of in-commuters and Story County as a whole has a high number of out-commuters, primarily to the Des Moines metropolitan area. This high regional workforce mobility requires high amounts of fuel. The Ames community also attracts a significant number of visitors in association with University-related activities, many of whom drive significant distances.

In addition to fuel sales Story County posted strong location quotients for food and beverage stores, building material and garden supply stores, and general merchandise stores. Low location quotients are reported for furniture and home furnishing stores, other non-store retailers, and for electronics and appliance stores.

Location quotients greater than 1.0 indicate production self-sufficiency. In those instances we use a simple formula to estimate the fraction of sales that are destined for export outside of Story County. We also estimate the job equivalents required to produce those sales. Accordingly, Story County – Ames, as a regional trade center, exports $36.7 million in sales to non-Story County residents. Those export sales values required 888 jobs. We can call those jobs and those sales a net economic impact to the economic region (as defined solely and arbitrarily by the county political boundary – a non-economic frontier) as they are sales in excess of local demand. Stated differently, in Story County currently, 15.1 percent of retail activity is based on export sales, the remaining 84.9 percent accrues to existing residents.

Inter-industrial linkages
When an area’s economy is studied, we are also interested in how different industries interact with others. If an industry is able to purchase necessary inputs from the local economy, we say that firm has a “linkage” with local suppliers. The more of a firm’s production that depends on local suppliers, the greater the linkages.

We measure these linkages with an input-output model (I-O) of an area’s economy. An I-O model is a recent industrial accounting of what is produced in an economy (what is made) and what is locally supplied to producers (what is used in production). An I-O model of the Story County economy was constructed to determine the area’s inter-industrial linkages.

There are several kinds of economic information reported from I-O analysis, but this report focuses on three indicators of economic activity: (1) total industrial output (or sales); (2) labor incomes, which are the payments made to workers and normal returns to sole proprietors; and (3) jobs.

There are also three dimensions of the data that we isolate in our analysis. The first are the direct effects. These are measures of the actual economic activity of the industries that we are studying; in this instance it is retail. It describes that industry’s

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* These data pre-date the opening of a large, national-chain consumer electronics store in Ames.

** Where LQ = location quotient and i = the retail sector we are measuring: The export jobs for retail sector i = jobs_i (1-1/LQ). The export sales for retail sector i = sales_i(1-1/LQ).
industrial output (or sales), the number of jobs in that industry, and the amount of labor income that industry generated. The second dimension isolates the indirect effects. All industries require production inputs, such as utilities, transportation, accounting and legal services, banking and other financial services, etc. The indirect summaries measure the extent and effects of local input purchases by the study industry. Finally, we also estimate the induced effects of an industry. These effects accumulate to an economy when the workers in the direct industry (here it is retail) and in the indirect industries (those supplying goods and services to area retail) purchase household goods from the local economy. When we measure the overall effects an industry has in a region, it is appropriate to sum the direct, indirect, and induced values to measure the total effects of the industry.

Table 2 displays the findings of an I-O analysis of retail trade for Story County. The model identified $242.7 million in direct retail sales requiring 5,895 jobs and labor incomes to those workers of $104.1 million. The indirect sectors in Story County made an estimated $62.6 million in sales to the retail sectors in the county, which required 783 jobs that paid $23.34 million in labor income. Finally, when we convert the direct and indirect job incomes into household purchases in the county, an additional $58.2 million in sales are induced, which required 872 jobs that paid $18.823 million in labor incomes. In all, considering all linkages, the Story County retail sector is linked to $363.5 million in total sales, 7,550 jobs, and $146.2 million in labor incomes.

**Table 2. Economic Effects Summary for Retail Trade in Story County**

<table>
<thead>
<tr>
<th>Summary: Story County</th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Output</td>
<td>242,680,992</td>
<td>62,599,180</td>
<td>58,179,305</td>
<td>363,459,488</td>
</tr>
<tr>
<td>Labor Income</td>
<td>104,060,328</td>
<td>23,340,818</td>
<td>18,823,013</td>
<td>146,224,157</td>
</tr>
<tr>
<td>Jobs</td>
<td>5,895.0</td>
<td>782.6</td>
<td>872.2</td>
<td>7,549.9</td>
</tr>
</tbody>
</table>

The vast majority of these sales including all of their linkages are caused by existing residential demand for goods and services. That portion of retail trade does not produce an economic impact, per se; those are local sales that are required by the final demand for retail goods by Story County residents.

In Table 1, however, it was determined, using the location quotient analysis, that 15.1 percent of trade in Story County is exported to non-residents. Hence, a portion of retail trade can be considered a basic industry to the region. That amount, then, is the economic impact portion of the Story County retail trade, and those values are contained in Table 3.

**Table 3. Economic Impacts Summary for Story County Retail Trade Exports to Nonresidents**

<table>
<thead>
<tr>
<th>Summary</th>
<th>Direct</th>
<th>Indirect</th>
<th>Induced</th>
<th>Total</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Output</td>
<td>36,644,830</td>
<td>9,452,476</td>
<td>8,785,075</td>
<td>54,882,383</td>
<td>1.498</td>
</tr>
<tr>
<td>Labor Income</td>
<td>15,713,110</td>
<td>3,524,464</td>
<td>2,842,275</td>
<td>22,079,848</td>
<td>1.405</td>
</tr>
<tr>
<td>Jobs</td>
<td>890</td>
<td>118</td>
<td>132</td>
<td>1,140</td>
<td>1.281</td>
</tr>
</tbody>
</table>
Story County direct retail trade (margined) exports were $36.6 million and required 890 jobs that earned $15.7 million in labor incomes. Those sales indirectly demanded $9.45 million in locally supplied inputs that were produced by 118 jobs earning $3.52 million. When the direct and indirect sector workers spent their paychecks, they induced $8.8 million in local sales, requiring an additional 132 jobs earning $2.84 million. In all, the county’s export retail sales were responsible for $54.9 million in industrial output, $22.1 million in labor incomes, and 1,140 jobs once all inter-industrial transactions and household demands have been considered.

Table 3 also lists a multiplier for each of the categories. A multiplier is simply the ratio of the total economic value to the direct value. It is a measure of how much total area economic activity is linked to the direct sector that we are studying. The industrial output multiplier of nearly 1.5 means that for every $1 in direct retail sales exports, an additional $.50 in industrial output is stimulated in the region. The labor income multiplier of 1.405 means that for every $1 in labor income paid in the retail sales export sectors, 40.5 cents in labor incomes are supported in the rest of the Story County economy. Finally the 1.28 jobs multiplier means that for every job in export retail sales, 28/100th of a job is supported in the rest of the regional economy.

For reasons briefly discussed earlier, these multipliers are much lower than typical export-producing or basic firms. Most basic jobs either have robust linkages with local suppliers or they pay at a level substantially higher than retail typically does. Consequently they either generate more indirect sales with their suppliers than most retail firms or they are capable of inducing greater amounts of household spending because their workers receive higher pay than retail jobs.

**Discussion and Interpretation**

What do all of these numbers mean? First, retail trade is an important component of the Story County regional economy. It accounts for 10.8 percent of the jobs in the county, second only to all government employment at 36.3 percent of jobs. In and of itself, 85 percent of the region’s retail trade is caused by local demand for retail goods. The remaining 15 percent are export sales.

There are several sources of visitors to the Story County economy. In the first instance, Ames as the major city serves as a regional employment center. According to 2000 Census statistics, nearly 19 percent (over 8,300 persons) of the workers in the county came from some other county, the vast majority of which came from adjacent areas: 3,077 in-commuted from Boone County, 1,875 from Polk County, 960 from Hamilton County, and 478 from Marshall County. These work-day visitors can be counted on to make regular purchases in the economy and account for a large portion of the gasoline station and the food and beverage store export sales.

In the second instance, Ames is a regional draw boasting a variety of retail, entertainment, and services strengths, ranging from a mall, to several large retail chains, to multiplex movie theaters, and high quality health care. Finally, Iowa State
University activities attract a very large number of professional visitors to the educational institution, visitors to the myriad ISU events, and visitors to students.

Expansion in net retail trade exports in Story County will be tempered by the following factors:

- 85 percent of total retail sales accumulate to existing resident households, and will, on net, not be affected other than having, perhaps, expanded choices.
- The in-commuting portion of export trade, as well, will not be affected measurably as the draw for in-commuting is primarily state government employment opportunities. Enhanced regional trade will have a negligible effect on that factor or their propensity to shop in Ames.
- The export sales component associated with ISU operations, events, activities, and students will also not be affected in any meaningful way by changes in the retail configuration in the community.

The remaining export sales from the county are attributed to Ames, primarily, serving as a regional shopping center. Expansion of that capacity theoretically presents a possibility for export sales growth over time. That growth potential has not been reliably estimated to date, so one is left with inferring that potential from regional population and income growth patterns. In perspective, given the high level of trade sector investment occurring throughout Polk County, it is not unreasonable to suppose at the outset that the net growth potential of Ames area retail is quite circumscribed.

There is, of course, an argument that enhanced retail trade locally will reduce trade imports — that it will help staunch trade leakages by Story County residents to, primarily, Polk County. There is no doubt that there are significant leakages into the Polk County economy. Given the fantastic scope of trade, service, and entertainment opportunities that exist in that area, not to mention recent investments in mall capacity, there is no current statistical evidence that increased or re-configured retail trade in the Story County area will substantially alter Story County consumer preferences as they pertain to the Des Moines metropolitan economy.
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