

A Longitudinal Analysis of Retail Trade Flows in Western Kentucky

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Consumer spending accounts for as much as two-thirds of the nation's economy and is a major factor in determining its economic health. Therefore, where dollars are earned and where they are spent becomes an important factor in determining the economic health of a particular region or community within the region.

This article is the third in a series, beginning in 1988, that examines retail trade flows in nine western counties in the Commonwealth of Kentucky (Mangold and Brockway, 1988; Mangold and Brockway, 1997). These previous articles, along with similar analyses of other market areas, generated a considerable amount of interest among and favorable comments from business leaders. At one time, we were even contacted by analysts at Wal-Mart's Arkansas headquarters who were interested in using our research methodology in their own retail analyses. The analysis presented here is prompted by the interest generated by our two previous studies, the benefit business leaders have apparently derived from their use, and requests for follow-up analyses.

The first article utilized 1986 data and appeared in a 1988 issue of this journal. It provided the baseline for a 1997 article (which utilized 1995 data) as well as this one. In the 1988 article, McCracken, Calloway, and Fulton counties were clearly attracting more retail trade than they were losing to other counties. Ballard, Graves, Marshall, Carlisle, Hickman, and Livingston counties, on the other hand, were experiencing outshopping or the loss of retail dollars to competing trade areas.

The 1997 article provided an update on the economic health of the nine

counties and examined changes that occurred in shopping patterns over the previous ten-year period. The study indicated McCracken County had benefited from a substantial inflow of retail trade, thereby, strengthening its dominance as a retail trade center in the region. Graves, Marshall, and Hickman counties all experienced small gains in their ability to attract retail dollars while the remaining counties experienced decreases in their ability to convert income to retail sales. The article provided rationale for the changes that occurred and suggested strategies for stemming the outflow of retail trade from their respective areas.

This article utilizes data for the year 2000 to provide an update of the nine-county area and to assess changes that have occurred since the two previous studies. Each county will be addressed in terms of its ability to convert income to retail sales, and the extent to which it experiences net inflows or net outflows of retail trade.

Methodology

The data used in our study were taken from *Sales and Marketing Management* magazine's annual "Survey of Buying Power" for the years 1986, 1995, and 2001 (1987 Survey of Buying Power; 1995 Survey of Buying Power; 2001 Survey of Buying Power and Media Markets). This survey is a widely used source of marketing information that is discussed in most marketing textbooks in which marketing research, sales forecasting, or market analysis is addressed. Data drawn from the survey pertained to the size of the population in each of Kentucky's nine most western counties, the effective buying income in

each county (effective buying income is a term used by *Sales and Marketing Management* and is equivalent to disposable income), and retail sales for each county.

Retail sales and effective buying income figures for the year 2000 are presented in actual dollars. The percentage change from 1986 to 1995 and from 1995 to 2000 are calculated after adjustments for inflation have been made to arrive at data that is more meaningful to the user. That is, 1986 and 1995 dollars were converted to base year 2000 dollars based on the Consumer Price Index. Percentage change calculations were then based on the adjusted price levels (see Tables 2 and 3).

The extent to which a trade area's income is converted into retail sales is one indicator of a sector's economic prosperity. Thus, as in our previous analyses, we calculated the ratio of income to retail sales for each trade area. The term conversion factor has been coined by the authors to describe these ratios because they indicate the extent to which a trade area's income is converted into retail sales (Brockway and Mangold, 1988). Thus, the conversion factors shown in Table 4 reflect the ratio of retail sales to income for each trade area and were calculated according to the following formula:

$$CF = \frac{RS}{EBI} \times 100$$

Where:

CF = conversion factor

RS = retail sales for each trade area

EBI = effective buying income

Conversion factors that are higher than average normally indicate a retail trade area is benefiting from "net inshopping" or a net inflow of retail trade from other areas. Low conversion factors may indicate a trade area is suffering from "net outshopping" or the net loss of retail sales to other trade areas as its population goes to other counties to shop (Anderson and Kaminsky, 1985; Laforge, Reese, and Stanton, 1984). Table 4 shows the conversion factors for the year of our initial study (1986), the year of our follow-up study (1995), and the year of our current study (2000). It also shows the change in the conversion

factors that occurred between 1986 and 1995 and between 1995 and 2000.

Additional insight into the level of net inshopping or net outshopping occurring in a retail trade area can be gained by comparing the trade area's conversion factors to a relevant norm or benchmark. An appropriate benchmark area should be one that is similar to the subject area in terms of income and such non-retail expenditures as taxes, housing costs, utilities, and insurance. The non-metropolitan areas in the state of Kentucky meet these criteria reasonably well and were chosen as the benchmark for all three studies. We then calculated a sales conversion index for each trade area according to the following formula:

$$SCI = \frac{SCI_{TA}}{SCI_{BA}} \times 100$$

Where:

SCI = sales conversion index

SCI_{TA} = sales conversion index for the trade area

SCI_{BA} = sales conversion index for the benchmark area

Note: The sales conversion index and associated methodology were pioneered by the authors and originally published in the April 1988 issue of the *Journal of Small Business Management*.

Given this formula, a trade area with a sales conversion index of 100 would be

converting exactly the same percentage of income into retail sales as the benchmark area. A sales conversion index substantially exceeding 100 would indicate the subject area's retail sector is healthy relative to the benchmark and is probably experiencing net inshopping. Conversely, a sales conversion index that is substantially below 100 would indicate the area's retail sector is unhealthy compared to the benchmark and is probably experiencing net outshopping.

Analysis and Results

The level of retail sales in a given trade area is influenced heavily by the number of people living in the area and the income those people generate. The population, effective buying income, and retail sales of the nine most western counties in Kentucky are addressed next.

Population, Effective Buying Income, and Retail Sales

This study focuses on the eight counties of the Jackson Purchase region in western Kentucky plus the contiguous county of Livingston to the northeast (Exhibit 1). As indicated in Table 1, these nine counties had a population of 204,200 in the year 2000. That represents a 3.4 percent increase over 1995 and an increase of 14,300 or 7.5 percent since the first article in this series was

EXHIBIT 1
West Kentucky Counties

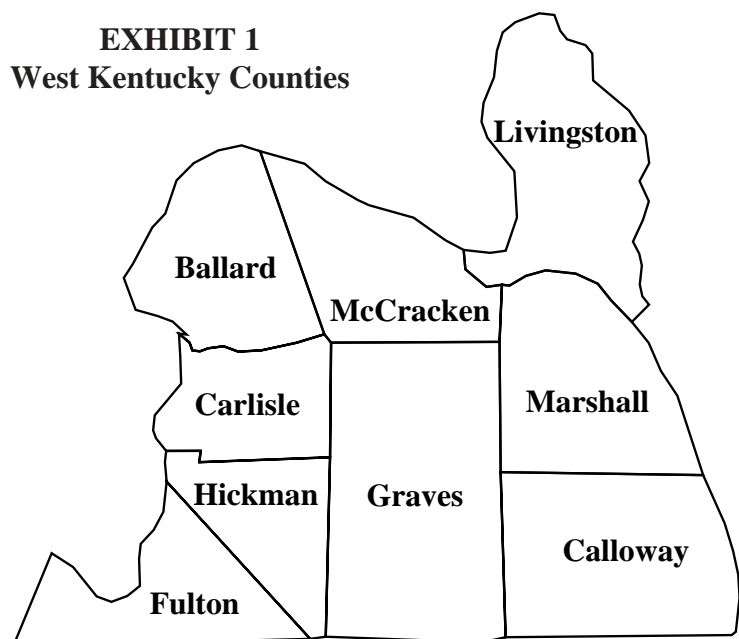


TABLE 1
Population by County

County	1986	1995	2000	1986-95 % change	1995-2000 % change
Ballard	8,300	8,200	8,300	-1.2%	1.2%
Calloway	32,100	32,800	34,400	2.2%	4.9%
Carlisle	5,300	5,300	5,400	0.0%	1.9%
Fulton	8,100	6,800	7,700	-16.0%	13.2%
Graves	33,600	35,400	37,300	5.4%	5.4%
Hickman	5,500	5,200	5,200	-5.5%	0.0%
Livingston	9,300	9,400	9,900	1.1%	5.3%
Marshall	26,900	29,200	30,300	8.6%	3.8%
McCracken	60,800	65,100	65,700	7.1%	0.9%
Total 9-County Population	189,900	197,400	204,200	3.9%	3.4%

Data source: "2001 Survey of Buying Power and Media Markets," *Sales and Marketing Management*, September 2001, pp. 91-93.

TABLE 2
Effective Buying Income (EBI)

County	2000 Total EBI \$(000)	% change 1986-1995 (Adj. for inflation; base year = 2000)	% change 1995-2000 (Adj. for inflation; base year = 2000)
Ballard	117,061	-17.1%	6.8%
Calloway	496,674	-2.5%	10.2%
Carlisle	80,660	-8.4%	11.5%
Fulton	127,994	-5.7%	26.1%
Graves	544,927	-6.9%	12.1%
Hickman	79,056	-1.2%	7.5%
Livingston	163,914	-4.5%	20.6%
Marshall	459,128	-7.5%	11.7%
McCracken	1,132,464	-1.7%	7.2%
Total EBI	3,201,878	-4.7%	10.5%

Data source: "2001 Survey of Buying Power and Media Markets," *Sales and Marketing Management*, September 2001, pp. 91-93.

published using 1986 figures. Total effective buying income (EBI) for the region in 2000 was \$3.2 billion (Table 2). During the five-year period from 1995 to 2000, effective buying income (EBI) after adjustments for inflation rose by 10.5 percent after showing a decline the previous ten years from 1986 through 1995. Retail sales for the nine-county area were \$2.6 billion in 2000, posting a gain of 14.3 percent (adjusted for

inflation) from 1995 to 2000, after having shown an increase of 35.5 percent for the period of 1986 to 1995 (Table 3).

Most of the population, income, and retail sales in the region are concentrated in four of the nine counties. These four contiguous counties are McCracken, Marshall, Graves, and Calloway. Together, in the year 2000, they accounted for 82 percent of the population,

82 percent of the effective buying income, and 92 percent of the region's retail sales. These four counties clearly dominate retail activity in West Kentucky with McCracken County alone accounting for nearly 52 percent of retail sales for the entire region. A county-by-county analysis of population, income, and retail sales trends is presented next.

Population by County

As indicated in Table 1, Marshall County experienced the greatest percentage increase in population over the time period examined. Its population increased by 8.6 percent from 1986 to 1995 and by 3.8 percent from 1995 to 2000 to arrive at its current level of 30,300. McCracken County, the largest county in the area with a population of 65,700, experienced a 7.1 percent increase in population between 1986 and 1995 and a 0.9 percent increase between 1995 and 2000.

The four counties bordering the Mississippi River maintained a relatively stable population base between 1986 and 2000. The population of Ballard and Carlisle Counties in 2000 was 8,300 and 5,400, respectively. Both experienced only minor fluctuations in the fourteen-year time period. Fulton County's population of 7,700 in the year 2000 decreased by 16 percent between 1986 and 1995 and, then, gained 13.2 percent between 1995 and 2000. Hickman County lost 5.5 percent of its population between 1984 and 1995 but maintained a stable population base of 5,200 from 1995 to 2000.

Calloway County experienced moderate, but steady, growth in population for the fourteen-year period examined. Its population increased 2.2 percent from 1986 to 1995 and 4.9 percent from 1995 to 2000 to reach 34,400 in the year 2000. Graves County, with a population of 37,300 in 2000, grew more rapidly than Calloway County with a 5.4 percent increase in population between 1986 and 1995 and another 5.4 percent increase between 1995 and 2000. Livingston County, with a population of 9,900 in 2000, experienced a modest increase in population of 1.1 percent between 1986 and 1995 and a larger increase of 5.3 percent between 1995 and 2000.

Income by County

Table 2 shows the effective buying income for each of the nine Western Kentucky counties. Effective buying income (EBI) is a term used by *Sales and Marketing Management*, the source of our data, to refer to personal income after taxes and non-tax payments. The more commonly used term for effective buying income is disposable income. Table 2 also shows the percentage change in effective buying income for the 1986 to 1995 and 1995 to 2000 time periods. It is important to note the percentage change calculations were based on price-level adjusted dollars with the 1986 and 1995 figures adjusted to base-year 2000 dollars.

McCracken County's effective buying income of \$1,132,464,000 is by far the largest in the nine-county area. It experienced an inflation-adjusted decrease in income of 1.7 percent between 1986 and 1995. This decrease was offset by an inflation-adjusted increase of 7.2 percent between 1995 and 2000. Graves County had the second highest level of effective buying income in the nine-county area in 2000 (EBI = \$544,927,000). After adjustments for inflation, Graves County's effective buying income decreased by 6.9 percent from 1986 to 1995 and, then, increased by 12.1 percent from 1995 to 2000.

Calloway County's 2000 effective buying income was \$496,674,000. Between 1986 and 1995, Calloway County experienced a 2.5 percent decrease in effective buying income after adjustments for inflation. This decrease was offset by a 10.2 percent increase between 1995 and 2000. Marshall County's effective buying income, currently at \$459,128,000, decreased by 7.5 percent for the 1986 to 1995 period. It then increased by 11.7 percent from 1995 to 2000.

The level of effective buying income in the remaining counties (Livingston, Fulton, Ballard, Carlisle, and Hickman) was generally low, ranging from \$79,056,000 in Hickman County to \$163,914,000 in Livingston County. Hickman County's inflation-adjusted income decreased by 1.2 percent from 1986 to 1995 and, then, increased by 7.5 percent between 1995 and 2000. Livingston County's income

TABLE 3
Retail Sales

County	2000 Retail Sales \$(000)	% change 1986-1995 (Adj. for inflation; base year = 2000)	% change 1995-2000 (Adj. for inflation; base year = 2000)
Ballard	45,479	14.4%	-13.1%
Calloway	427,248	3.0%	-0.4%
Carlisle	26,512	-17.4%	38.6%
Fulton	83,378	16.6%	2.1%
Graves	376,738	46.8%	13.5%
Hickman	15,879	65.7%	-21.0%
Livingston	40,329	34.4%	-0.4%
Marshall	253,137	45.5%	4.8%
McCracken	1,352,364	53.3%	25.6%
Total Retail Sales For 9-County Area	2,621,064	35.5%	14.3%

Data source: "2001 Survey of Buying Power and Media Markets," *Sales and Marketing Management*, September 2001, pp. 91-93.

decreased by 4.5 percent from 1986 to 1995. This decrease was then offset by an impressive 20.6 percent increase between 1995 and 2000.

Ballard County's 2000 income was \$117,061,000. This income level reflected a staggering loss of 17.1 percent between 1986 and 1995. Ballard County's financial picture improved somewhat with a 6.8 percent increase between 1995 and 2000. Carlisle County's effective buying income of \$80,660,000 was the second lowest in the nine-county area in the year 2000. This figure reflects an inflation-adjusted decrease of 8.4 percent between 1986 and 1995 and an 11.5 percent inflation-adjusted increase between 1995 and 2000.

Fulton County's effective buying income for 2000 was \$127,994,000. After adjustments for inflation, its income decreased by 5.7 percent from 1986 to 1995. However, Fulton County enjoyed a 26.1 percent increase in effective buying income during the 1995 to 2000 time period. This was the largest percentage increase observed in the nine-county area.

Retail Sales by County

Table 3 shows total retail sales for each county and the percentage change for the 1986 to 1995 and 1995 to 2000

time periods. The percentage change calculations were based on inflation-adjusted dollars with the 1986 and 1995 figures adjusted to year 2000 dollars. Total retail sales for the nine-county area for the year 2000 was \$2,621,064,000. After adjustments for inflation, retail sales increased by 35.5 percent between 1986 and 1995 and by 14.3 percent between 1995 and 2000. McCracken County was the greatest beneficiary of this favorable trend line. Total retail sales for the year 2000 in McCracken County were \$1,352,364, reflecting an inflation-adjusted increase of 53.3 percent for the 1986 to 1995 time period and a 25.6 percent increase for the 1995 to 2000 period.

Graves and Marshall Counties also enjoyed a substantial increase in retail sales for the time period examined. Graves County, with total 2000 retail sales of \$376,738,000, experienced a 46.8 percent inflation-adjusted increase for the 1986 to 1995 time period and a 13.5 percent increase for the 1995 to 2000 period. Marshall County's retail sales for the year 2000 totaled \$253,137,000. This figure reflected an inflation-adjusted increase of 45.5 percent for 1986 to 1995 and a 4.8 percent increase for 1995 to 2000. Calloway County's total retail sales of \$427,248,000 were the second largest for

the nine-county area. After adjustments for inflation, however, Calloway County's sales increased only 3.0 percent for the 1986 to 1995 time period and decreased by 0.4 percent for the 1995 to 2000 period.

Fulton County, with total retail sales of \$83,378,000, enjoyed increases of 16.6 percent between 1986 and 1995 and 2.1 percent between 1995 and 2000. Ballard County's retail sales totaled \$45,479,000 for the year 2000. This amount reflected a 14.4 percent increase from 1986 to 1995 and a 13.1 percent decrease for the 1995 to 2000 time period. Livingston County's retail sales totaled \$40,329,000 for the year 2000,

reflecting a 34.4 percent increase for 1986 to 1995 and a 0.4 percent decrease for 1995 to 2000. Carlisle County, with 2000 retail sales totaling \$26,512,000, experienced a 17.4 percent decrease between 1986 and 1995. However, this decline was reversed with a 38.6 percent increase for the 1995 to 2000 time period. Hickman County's retail sales for the year 2000 were \$15,879,000 — the lowest for the nine-county area. This figure reflects a 65.7 percent increase in inflation-adjusted retail sales for the 1986 to 1995 time period and a 21.0 percent decrease for the 1995 to 2000 period.

Retail Trade Flows

The nine-county region has shown a steady gain in its ability to convert income to retail sales, increasing the conversion factor from 55.7 in 1986 to 81.9 in 2000 (Table 4). However, the benchmark consisting of non-metropolitan areas in Kentucky has been gaining in its ability to convert income to retail sales at a slightly faster rate than the nine-county region, particularly in the 1995 to 2000 period. This trend has led to a slight decline in the Sales Conversion Index (SCI) for the nine-county area, from 118 in 1986 to 111 in 2000 (Table 5).

The conversion factors and sales conversion indexes for each county included in our analysis are discussed in the addendum to this article along with the extent to which net inshopping or net outshopping appears to be occurring. Possible reasons for the net effect of these net inflows and outflows of retail trade are also hypothesized.

Findings and Conclusions

McCracken County is clearly the dominant retail trade area in the nine-county area on which our analysis focused. It dominates the other trade areas in terms of population, income, and retail sales. McCracken County also benefits from a substantial inflow of retail trade from other areas, both inside and outside the nine-county area of our analysis; and the data indicates this inflow of retail trade is improving over time.

Calloway County is the only other trade area in the nine counties with a sales conversion index that exceeds 100. This suggests a substantial amount of inshopping is occurring in Calloway County, but the data indicates the amount of inshopping may be diminishing over time. Observation of Calloway County's retail sector, however, indicates its retail sector is flourishing as more and more businesses locate in Calloway County to take advantage of its inflow of people and money.

Graves County's retail sector also appears healthy. It has experienced growth in population and inflation-adjusted retail sales over the period of our analysis as well as an increase in inflation-adjusted effective buying

TABLE 4
Conversion Factors (CF)

County	1986 CF	1995 CF	2000 CF	1986-95 change	1995-2000 change
Ballard	34.6	47.7	38.9	13.1	-8.8
Calloway	90.2	95.2	86.0	5.0	-9.2
Carlisle	29.3	26.4	32.9	-2.9	6.5
Fulton	65.1	80.5	65.1	15.4	-15.4
Graves	43.3	68.3	69.1	25.0	0.8
Hickman	16.3	27.3	20.1	11.0	-7.2
Livingston	21.2	29.8	24.6	8.6	-5.2
Marshall	37.4	58.8	55.1	21.4	-3.7
McCracken	65.4	102.0	119.4	36.6	17.4
9-County Area	55.7	79.2	81.9	23.5	2.7
Benchmark (non-metropolitan areas in Kentucky)	47.3	68.2	73.8	20.9	5.6

TABLE 5
Sales Conversion Indexes (SCI)

County	1986 CF	1995 CF	2000 CF	1986-95 change	1995-2000 change
Ballard	73	70	53	-3	-17
Calloway	191	140	117	-51	-23
Carlisle	62	39	45	-23	6
Fulton	138	118	88	-20	-30
Graves	92	100	94	8	-6
Hickman	34	40	27	6	-13
Livingston	45	44	33	-1	-11
Marshall	79	86	75	7	-11
McCracken	138	150	162	12	12
9-County Area	118	116	111	-2	-5

income since 1995. The inflow and outflow of retail trade in Graves County appears to be reasonably balanced with only a modest net loss of trade to other areas. Observation of Graves County's retail sector indicates a considerable amount of building has occurred on the south side of Mayfield. This retail growth may be helping to keep money in Graves County as well as attract retail trade from Calloway and Marshall Counties and other trade areas.

Marshall County, like Graves County, has experienced growth in population and inflation-adjusted retail sales over the period of our study and an increase in inflation-adjusted effective buying income since 1995. It benefits from both an inflow and outflow of retail trade with its proximity to the recreational areas along Kentucky Lake contributing to the inflow of retail dollars. Overall, however, the net effect of the inshopping and outshopping behavior occurring in Marshall County appears to be a net outflow of retail trade.

Our analysis does not indicate which markets benefit from the outflow of Marshall County dollars. However, observation of the surrounding trade areas and the county's traffic patterns suggest Marshall County may be losing trade to McCracken County as people travel the Jackson Purchase Parkway and Interstate 24 to shop in the area's largest retail trade center. It also seems reasonable to believe Calloway County may be a beneficiary of some of Marshall County's retail trade as people travel there to take advantage of its expanding retail facilities as well as various events and activities associated with Murray State University.

The retail sectors of the four river counties (Ballard, Carlisle, Hickman, and Fulton) are somewhat economically challenged. In general, they suffer from relatively small population bases and modest levels of retail sales. Ballard, Carlisle, and Hickman Counties also appear to suffer from significant losses of retail trade to other trade areas. In our 1986 and 1995 analyses, Fulton County appeared to benefit from a net inflow of retail trade. However, its sales conversion index and conversion factors for 2000 indicate its net inflow of retail trade may have now shifted to a net

outflow. It seems likely that Fulton County still benefits significantly from an inflow of retail trade from Tennessee as retail businesses remain located on the Kentucky side of the state line to take advantage of Kentucky's laws (lower sales taxes, lower taxes on tobacco products, the availability of lottery tickets, and the availability of wine and distilled spirits).

Livingston County also appears to be losing substantial amounts of retail trade to other trade areas and the amount of this loss may be increasing. Its proximity to Interstate 24 and the Western Kentucky Parkway make it easy for Livingston Countians to travel to other trade areas to shop. These areas include McCracken County, the Hopkinsville, Kentucky-Clarksville, Tennessee metropolitan statistical area, and major trade areas such as Nashville, Evansville, Owensboro, and St. Louis.

Limitations

The data used in the study was drawn from *Sales and Marketing Management's* "Survey of Buying Power." Conversations with the magazine's editors indicate Claritas Corporation was the provider of the data used in the survey. (Claritas is one of the world's leading providers of market-related demographic and lifestyle data.) Conversations with Claritas' representatives indicate the Census of Retail Trade provides the base line data used in the survey. The Census of Retail Trade is conducted at five-year intervals, with the most recent census conducted in 1997. The data provided by the Bureau of the Census is then updated annually based on local input. This local input usually takes the form of sales tax receipts provided by either the state or county. In instances where sales tax receipts are not available, Claritas bases its adjustments on employment figures provided by the Bureau of Labor Statistics. Therefore, when using the data from the "Survey of Buying Power," one must consider some amount of error may exist in the methodology by which Claritas makes these adjustments or in the inputs provided by the local governmental agencies. Generally speaking, the further from the census year, the more data is subject to error.

A second limitation of the study centers on the methodology by which the Bureau of the Census collects retail trade data. Prior to the passage of the North American Free Trade Agreement (NAFTA), company data were classified based on the federal government's Standard Industrial Code (SIC) manual. After the passage of NAFTA, organizational data were categorized based on the North American Industrial Classification System (NAICS). Therefore, some discontinuity may exist based on the changes to the classification system. For example, an organization previously classified as a retailer may now be classified as a service provider. The third limitation of the study centers on the sales conversion indexes and conversion factors used in the study. These analytical tools provide an estimate of the net effect of the inshopping and outshopping behavior that is occurring in a retail trade area. Unfortunately, they do not disaggregate the trade flows into their individual components—inshopping and outshopping. The sales conversion indexes and conversion factors also do not indicate the sources of trade inflows and the areas to which trade outflows are lost (i.e., the directionality of the trade flows).

Our assessments of the directionality of the trade flows have been based on a number of subjective factors. These factors include the overall patterns of population, income, and retail sales in a trade area. The ability of the trade areas to convert income into retail sales as indicated by the conversion factors and the sales conversion indexes were also considered. Other factors taken into account included the trade areas' proximity to other trade areas, the highways and traffic conditions leading to and from the various trade areas, and the apparent growth or decline of the areas' retail sectors.

Addendum

This addendum contains a discussion of the conversion factors and sales conversion indexes for each county included in the analysis. The extent to which net inshopping or net outshopping appears to be occurring is also addressed. Possible reasons for the net

effect of these net inflows and outflows of retail trade are hypothesized.

McCracken County

Tables 4 and 5 suggest McCracken County is benefiting from a significant inflow of retail trade from other trade areas. In fact, the conversion factors in Table 4 indicate McCracken County's retail sales currently exceed its effective buying income. Its conversion factor in 2000 was 119.4, the highest of the nine counties by far. The continuing growth of McCracken County's retail sector is shown by the 36.6-point increase in its conversion factor between 1986 and 1995 and a 17.4-point increase between 1995 and 2000. As shown in Table 5, McCracken County's 2000 sales conversion index of 162 mirrors the economic health indicated by the conversion factor. McCracken County's sales conversion index increased from 138 in 1986 to 150 in 1995, a gain of 12 points. The 2000 sales conversion index of 162 reflects another 12-point gain between 1995 and 2000.

There are several possible reasons for the apparent economic health of McCracken County's retail sector. First, McCracken County is generally recognized as the regional trading center for western Kentucky and southern Illinois. It is the home to Kentucky Oaks Mall and its surrounding strip centers, restaurants, and hotels. A substantial portion of these retail establishments was built during the 1986-2000 time frame of our study.

Paducah, the major city in McCracken County, has also been very successful in developing its downtown area. Paducah's downtown is home to a number of restaurants and retail establishments. Customers are drawn to the area by live sidewalk entertainment that is offered during specified periods of the year. Paducah is also home to the Museum of the American Quilters Society and the National Quilt Show, both of which attract thousands of people to the area each year.

A riverboat casino is located across the Mississippi River from McCracken County in Metropolis, Illinois. This casino attracts thousands of visitors to the area each year, and the bridges and excellent highway transportation that

exist between Metropolis and McCracken County benefit McCracken's retail sector tremendously. In fact, several of McCracken County's hotels and restaurants were built after plans for the casino were announced.

Thus, McCracken County's high conversion factors and sales conversion indexes suggest it benefits from a substantial amount of net inshopping as people come into the trade area for shopping, entertainment, and recreation. It also seems reasonable to believe McCracken Countians may be shopping at home more, rather than outshopping in cities such as St. Louis and Nashville as well as smaller trade areas such as Calloway and Graves Counties.

Calloway County

Calloway County also appears to be benefiting from a significant amount of inshopping. Both its conversion factor and its sales conversion index was the second highest of the nine counties examined in 2000 (2000 conversion factor = 86; 2000 sales conversion index = 117). This inshopping is probably the result of several factors. First, Calloway County is the home of Murray State University. Several thousand students whose permanent homes are outside Calloway County temporarily live on or near the Murray State campus while attending college. The money they bring from other trade areas provides a stimulus to Calloway County's retail trade. A substantial number of retired people also live in Calloway County. Again, the county's retail trade benefits from the money these people spend locally after having earned it elsewhere in previous stages of their lives.

Calloway County also shares its southern border with the state of Tennessee and receives a substantial inflow of retail trade across that border. This occurs for several reasons. First, Kentucky's state sales tax is lower than Tennessee's sales tax on all categories of retail items. Kentucky does not assess a sales tax at all on most grocery and pharmaceutical items. This gives Calloway County a substantial competitive advantage over its southern neighbors in attracting retail trade and keeping Calloway County dollars in Calloway County. In addition, many people come

from Tennessee to Kentucky to buy lottery tickets (that are not currently available in Tennessee) and to take advantage of Kentucky's lower taxes on cigarettes and other tobacco products.

Calloway County's 1986 sales conversion index of 191 and conversion factor of 90.2 were by far the highest in the nine-county area. By 1995, however, Calloway County's conversion factor had increased by 5.0 points to 95.2 while its sales conversion index decreased by 51 points to 140. This phenomenon occurred because the benchmark area's conversion factor increased by 20.9 points over the 1986 to 1995 time period while Calloway County's conversion factor increased by only 5.0 points during the same time period. During the 1995 to 2000 period, Calloway County's conversion factor decreased from 95.2 to 86.0, a loss of 5 points. At the same time, the benchmark area's conversion factor increased by 5.6 points, from 68.2 to 73.8. The decrease in Calloway County's conversion factor combined with the increase in the benchmark area's conversion factor resulted in a 23-point decrease in its sales conversion index over the 1995 to 2000 time period. The fact that Calloway County's conversion factor has decreased since 1995 and has not increased as rapidly as the benchmark area's conversion factor since 1986 suggests Calloway County's large net inflow of trade may be tapering off.

The reasons for this tapering off are speculative. A close examination of Table 5 indicates McCracken County is the only trade area that has experienced increases in its sales conversion index for both the 1986 to 1995 and the 1995 to 2000 periods. This suggests McCracken County may be gaining retail trade that would have gone to Calloway and other western Kentucky counties in previous years. There are several possible reasons this may be happening. First, people who live in Calloway County may be engaging in more outshopping; that is, purchasing a larger portion of their goods in McCracken County as well as such larger trade areas as Nashville, Memphis, and St. Louis. It is also possible that Calloway County may be taking less retail trade from McCracken County. If

this is the case, one explanation may center on the fact Murray State University has offered more classes in McCracken County over the years, making it less necessary for McCracken Countians to travel to Calloway County for educational purposes. These classes are offered in-person, through interactive television, and over the internet.

The shopping behavior of people living in Graves and Marshall Counties may also be affecting Calloway County's inflow of retail trade. Because they live between Calloway and McCracken Counties, these people may be doing a greater portion of their shopping in McCracken County to take advantage of its expanded shopping opportunities. Finally, the prosperity of Graves and Marshall Counties' retail trade sectors may be having some impact on Calloway County's large net inflow of trade. Those trade areas are discussed next.

Graves and Marshall Counties

Graves County, with a 2000 conversion factor of 69.1, increased its conversion factor by 25.0 points from 1986 to 1995 and by 0.8 points from 1995 to 2000. Its sales conversion index increased by 8 points between 1986 and 1995 and decreased by 6 points between 1995 and 2000. This indicates Graves County's ratio of retail sales to income increased more rapidly than the benchmark in the 1986 to 1995 period and less rapidly than the benchmark in the 1995 to 2000 period.

Marshall County's total retail sales are substantially lower than Graves County's retail sales. However, its conversion factors and sales conversion indexes have displayed similar patterns of change. Marshall County had a 2000 conversion factor of 55.1 and a 1986 conversion factor of 37.4. Its conversion factor increased by 21.4 points from 1986 to 1995 and, then, decreased by 3.7 points from 1995 to 2000. Between 1986 and 1995, its sales conversion index increased by 7 points and, then, decreased by 11 points between 1995 and 2000. This means, like Graves County, Marshall County's ratio of retail sales to income increased more rapidly than the benchmark in the 1986 to 1995 period and less rapidly than the benchmark in the 1995 to 2000 period.

One possible explanation for the

patterns of change observed for Graves and Marshall Counties is they may have gained retail sales that would have gone to Calloway County in the past, either by stemming their residents' outshopping or increasing the inshopping from other areas. This appears to be likely for the 1986 to 1995 period, during which time Calloway County lost 51 points in its sales conversion index and gained only 5 points in its conversion factor. The 1995 to 2000 time period is subject to more speculation. However, it seems possible both Graves and Marshall Counties may have continued to gain retail sales that would have previously gone to Calloway County while, at the same time, losing sales to McCracken County's growing retail sector. Thus, the two trade areas may have simultaneously experienced gains in relation to Calloway County and losses in relation to McCracken County.

It should also be remembered a substantial number of retail customers travel between Graves and Marshall Counties. While it is difficult to speculate on the net effect of those inter-county trade flows with the limited information available, it is possible Graves County may have experienced a net gain in retail trade at Marshall County's expense. This seems likely when one considers the two counties share a long border and several retail stores have been built on the south side of Mayfield (the major city in Graves County) during our study's fourteen-year time span.

The River Counties

Ballard, Carlisle, Hickman, and Fulton Counties are often referred to as the "river counties" because they border the Mississippi River on the western edge of the nine-county area. As compared to the four larger counties (McCracken, Graves, Calloway, and Marshall), all four river counties have relatively small population bases, modest levels of retail sales, and appear to suffer from a loss of retail trade to other trade areas. Ballard, Carlisle, and Hickman Counties will be discussed together because of their geographic proximity and the apparent similarity of their retail trade flows. Fulton County will be discussed separately because its trade flows appear to be influenced by a set of factors that are somewhat unique.

Fulton County

Fulton County's retail trade flows appear to be much more positive than the trade flows of Ballard, Carlisle, and Hickman Counties. In fact, Fulton County's 1986 sales conversion index of 138 was second only to Calloway County's and tied with McCracken County for second place. At that time, its conversion factor of 65.1 was the third highest in the nine-county area and only slightly below McCracken County's conversion factor. By 1995, Fulton County's conversion factor increased by 15.4 points to 80.5 while its sales conversion index decreased by 51 points to 118. The simultaneous increase in the conversion factor and decrease in sales conversion index occurred because the benchmark area's conversion factor increased at a more rapid rate than Fulton County's conversion factor. Fulton County's 2000 sales conversion index reflected another 30-point decrease to 88 while its conversion factor decreased by 15.4 points, to the 1986 level of 65.1.

Thus, Fulton County's net inflow of retail trade appears to have tapered off over time but is still better than the other river counties. There are several reasons for the relative well being of Fulton County's retail sector. First, Fulton County is located in the southwest end of the state and shares its southern border with Obion County, Tennessee. Fulton, the largest city in Fulton County, is a twin city with South Fulton, Tennessee. Like Calloway County, therefore, Fulton County receives a substantial inflow of retail trade from Tennessee. This occurs because people travel across the state line to take advantage of Kentucky's lower overall sales tax rate and the absence of a sales tax on most grocery and pharmaceutical items. This tax structure gives Fulton a distinct competitive advantage over its twin city to the south. In fact, retail establishments tend to locate on the Kentucky side of the border to give their customers the benefit of Kentucky's lower sales taxes.

People also travel to Kentucky from Tennessee to buy lottery tickets, which are not available in Tennessee, and to take advantage of the lower taxes Kentucky levies on tobacco products. Fulton County's retail sector also

benefits from the fact it is a “wet” county surrounded by Kentucky counties that are totally “dry.” That is, Fulton County retailers sell beer, wine, and distilled spirits that cannot be sold in the Kentucky counties that surround them. Retailers in the surrounding Tennessee counties are allowed to sell beer, but not wine or distilled spirits. Therefore, it would appear Fulton County’s combination of lower sales taxes and lower taxes on tobacco products, combined with the availability of lottery tickets and a full range of alcoholic beverages brings a substantial inflow of retail trade into the county.

The possible reasons Fulton County’s substantial net inflow of retail trade may be tapering off are similar to the reasons Calloway County’s net inflow of trade may be tapering. As with Calloway County, these reasons are speculative and based on the data available in the tables. First, depending on the road chosen, Fulton County is about 35 miles from McCracken County while the city of Fulton (the largest city in Fulton County) is about 50 miles from Paducah (the largest city in McCracken County). Therefore, given McCracken County’s strong conversion factors and sales conversion indexes, it seems likely that Fulton County is losing retail trade to McCracken County as Fulton Counties engage in more outshopping behavior.

It also seems reasonable to believe some of Fulton County’s retail trade is lost to its Tennessee neighbors. Because much of Fulton County is within twenty minutes’ drive of Union City, Tennessee, it seems reasonable to believe many Fulton Countians travel to Union City to take advantage of the retail facilities found there. Fulton County is also within about a 1½ hour drive to Jackson, Tennessee, and a three hour drive to Memphis, Tennessee, both of which have highly developed retail facilities. Therefore, it also seems likely some of Fulton County’s retail trade is lost to these more distant Tennessee cities.

It is also possible Fulton County may be losing some of its inshopping to McCracken County as people from surrounding counties also choose to take advantage of the more developed retail, recreation, and entertainment facilities available in McCracken County. This

seems particularly likely for the residents of Graves, Hickman, and Carlisle Counties whose location makes a trip in either direction feasible. In fact, for many of these people, the road conditions from their residence to McCracken County may be more desirable than the road conditions from their residence to Fulton County. The relative prosperity of Graves County’s retail trade sector may also be having some impact on Fulton County’s net inflow of trade as people may be choosing to shop in Graves County rather than Fulton County. Finally, Fulton County’s retail sales, like Calloway County’s, may be affected by the aging of its population. As we discussed when we addressed Calloway County’s trade flows, people who are middle aged and older may be less likely to spend money on retail purchases and may be more likely to spend money on medical services and to put money into retirement savings.

Ballard, Carlisle, and Hickman Counties

Ballard, Carlisle, and Hickman Counties appear to be somewhat similar in terms of retail trade flows, geographic proximity to one another, population, effective buying income, and level of retail sales. Ballard County is the northernmost of the three counties. It appears to have a stable population base of about 8,300 people, having lost 1.2 percent of its population between 1985 and 1995 and, then, gained it back in the 1995 to 2000 time period. Ballard County’s 1986 sales conversion index was 73. By 1995, the sales conversion index had declined by 3 points to 70. During the same time period, Ballard County’s conversion factor increased from 34.6 to 47.7, a gain of 13.1 points. By 2000, Ballard County’s sales conversion index lost 17 points to 53 and its conversion factor decreased to 38.9, a loss of another 8.8 points. As discussed earlier, the simultaneous increase in a trade area’s conversion factor and decrease in sales conversion index occurs when the subject area’s conversion factor increases at a less rapid rate than the benchmark area’s conversion factor.

Similar patterns are seen with Carlisle and Hickman Counties. Carlisle County’s 1986 sales conversion index was 62, declining by 23 points to

39 by 1995. Its conversion factor decreased by 2.9 points during the same time period, from 29.3 to 26.4. By 2000, Carlisle County’s sales conversion index had gained 6 points to 45 and its conversion factor had increased by 6.5 points to 32.9. While the recent gain in Carlisle County’s sales conversion index and conversion factors are positive, the data indicates retail sales are still a relatively low percentage of income and a considerable amount of retail trade is probably being lost to other trade areas.

Hickman County’s 2000 sales conversion index and conversion factors were the lowest of the nine-county area. Its 1986 sales conversion index was 34, increasing to 40 in 1995, a gain of 6 points. During the same time period, its conversion factor increased by 11 points, from 16.3 to 27.3. However, in the 1995 to 2000 time period, Hickman County’s sales conversion index decreased by 13 points (from 40 to 27) and its conversion factor decreased by 7.2 points (from 27.3 to 20.1).

All three counties appear to be losing substantial amounts of retail trade to other trade areas. It would appear likely that a substantial portion of this trade is going to McCracken County with its highly developed retail sector. It also seems likely some amount of these counties’ retail trade is going to smaller trade areas such as Graves and Fulton Counties as well as to larger trade areas outside the state, such as Jackson and Memphis in Tennessee and St. Louis, Missouri.

Livingston County

Livingston County is located in the northeastern corner of the nine-county area included in our analysis. Like the river counties, it has a relatively small population base, a modest level of retail sales, and appears to suffer from a loss of retail trade to other trade areas. Livingston County’s sales conversion index was 45 in 1986, decreasing to 44 in 1995 and, then, to 33 in 2000. Its conversion factor increased from 21.2 in 1986 to 29.8 in 1995, a gain of 8.6 points. Then, it lost 5.2 points to arrive at its 2000 level of 24.6. Again, the simultaneous increase in a Livingston County’s conversion factor and decrease in its sales conversion index occurred because its conversion factor increased

at a less rapid rate than the benchmark area's conversion factor.

These figures suggest the rate at which Livingston County is losing retail trade to other trade areas may be increasing. The available data do not indicate which trade areas are benefiting from Livingston County's loss of retail trade. However, it is worth noting Livingston County has easy access to Interstate 24 and the Western Kentucky Parkway, making it very easy for Livingston Countians to shop in other trade areas. Its proximity to McCracken County suggests that many residents of Livingston County may be traveling to McCracken County on a regular basis. The Hopkinsville, Kentucky - Clarksville, Tennessee metropolitan statistical area, with its well-developed retailing facilities, is also within easy driving distance of Livingston County. Therefore, it seems likely this area is also benefiting from Livingston County's loss of retail trade. As with the other trade areas included in our analysis, some amount of retail trade is also

probably lost to the larger cities that are within a few hours drive time. These trade areas include Nashville, Tennessee; Evansville, Indiana; Owensboro, Kentucky; and St. Louis, Missouri.

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