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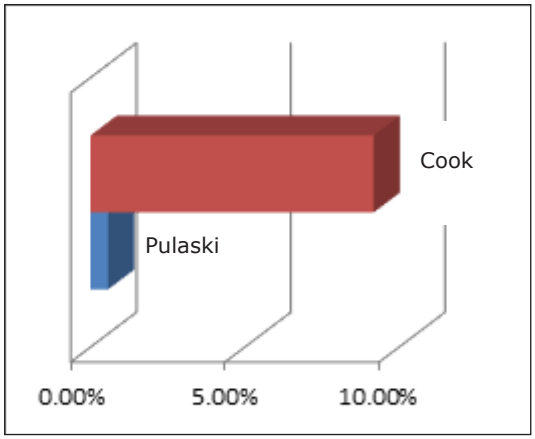
MARKET FOR WINE IN ILLINOIS: A COUNTY-WISE ANALYSIS

This paper explores the feasibility of producing, and selling wine on the Internet in the state of Illinois. A key input for business planning is quantitative estimates of demand by product category, territory, and type of customer. In the following pages we construct an index of buying power (demand) for alcoholic beverages and utilize it to deduce marketing strategy for wine.

1.0 INDEX OF BUYING POWER FOR ALCOHOLIC BEVERAGES[1]

Figure 1 summarizes the buying power for alcoholic beverages in Illinois counties during 2014, it ranges from a low 0.57% for Pulaski County to a high 9.2% for the Cook County. In other words, 9.2% of total alcoholic beverage sales in the state of Illinois (around $764 million in 2014) took place in the Cook County. Slightly more than 21% of the buying power lies in the Chicago-Naperville-Joliet metro division. Appendix 1 presents county-wise details of buying power for the years 2014 and 2016.

Figure 1: Buying Power for Alcoholic Beverages, Counties with Low and High Buying Power



[1] Computational details are provided in the side bar.

The buying-power index

In line with Sales and Marketing Management (https://salesandmarketing.com), we define buying power index as a weighted linear combination of three variables: income, retail expenditure, and population. Specifically,

$$B_i = 0.5y_i + 0.3r_i + 0.2p_i$$

Where, B_i = percentage of the state's buying power for alcoholic beverages found in county i;
y_i = percentage of state disposable income originating in county i;
ri = percentage of state's retail expenditure on alcoholic beverages in county i, and
p_i = percentage of state population located in county i.

This equation was calibrated for 2014 and 2016 time periods using demographic information sourced from the geographic-intelligence software, DemographicsNow (see www.DemographicsNow.com). The index has been shown to be a valid measure of market demand for consumer goods by Lilien and Kotler (1983) and Lilien and Rangaswamy (2002).

Demand Analysis

Volume data for the product categories were obtained from Datamonitor, and Adams Wine Handbook. The product category definitions are:

- Table wine: An unfortified wine containing not more than 14% of alocohol by volume and usually suitable for serving with food.
- Wine coolers: A carbonated beverage which contains wine and fruit juice.
- Sparkling wine: An effervescent table wine.
- Dessert wine: usually sweet wine served with dessert or afterward.
- Vermouth: a fortified wine, flavored with aromatic herbs and spices such as cardamom, cinnamon, marjoram and chamomile.

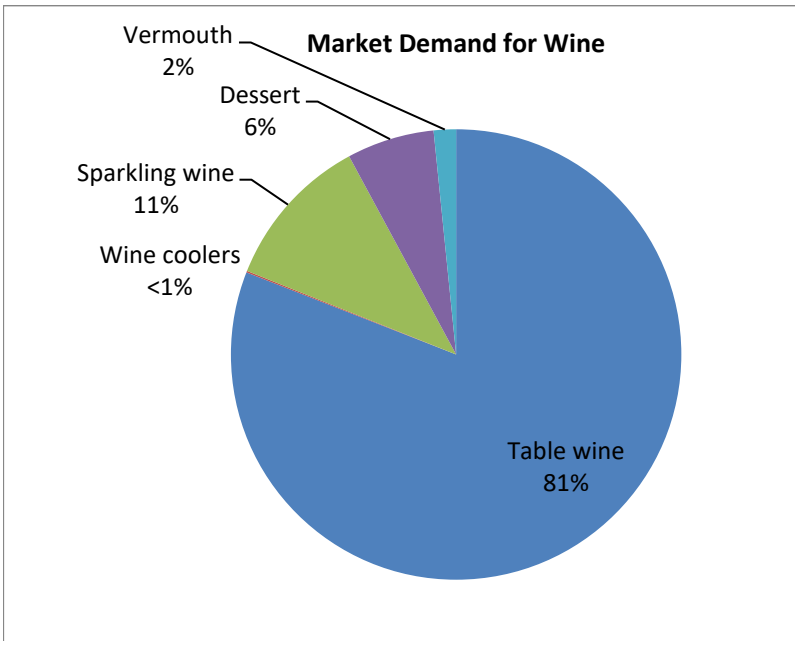
Growth Rate Computations

Annual compound growth rate (ACGR) was computed using a system of simultaneous equations, $V = Pe^{rt}$, where V = Total demand for wine at time t; P = total demand at a previous time period x; t = time which ranges from t to x, and r = growth rate.

2.0 MARKET OPPORTUNITIES

The wine sector is made up of five different products: table wine, wine coolers, sparkling wine, dessert wine, and vermouth (see sidebar for definitions). Figure 2 shows the market demand for these products.

Figure 2: Demand for Wine Products in Illinois, 2014



Note: Total demand = 35.23 million gallons.

Of the five product categories consumption is expected to grow only in the table wine and sparkling wine categories (Table 1). Since market growth is essential for business success, we focus on these two product categories and explore marketing opportunities.

Table 1: Projections of Wine Consumption by Category, Illinois: 2014-2016 (Million Gallons)

Category	2014	2016	ACGR (see side bar)
Table wine	25.85	26.53	0.026073
Wine coolers	0.027	0.023	-0.19327
Sparkling wine	3.48	3.58	0.010991
Dessert wine	1.93	1.92	-0.00999
Vermouth	0.49	0.48	-0.01852

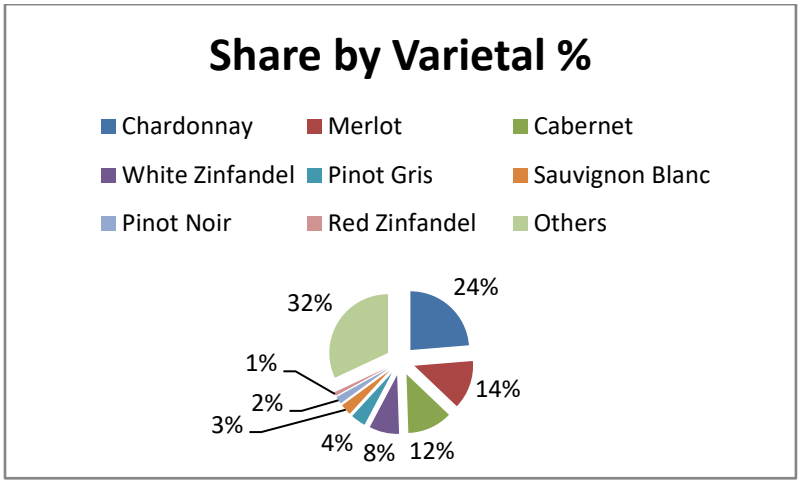
2.1 TABLE WINE

2.1.1 Market Structure

Figure 3 partitions the table wine market based on grape varieties that account for the majority of the table wine supply: Chardonnay, Merlot, and Cabernet.

In Illinois, the climatic conditions favor either the French hybrids such as Chambourcin, Seyval Blanc, Concord, Marechal Foch and Vignoles (Ravat 51), or the native variety Norton (Cynthiana) (see https://illinoiswine.com/discover/grape-varieties/l).

Figure 3: Table Wine Share by Varietal



Note: Total demand = 25.85 mil gallons in 2014.

Market Structure Analysis

National data are used to calibrate models and to glean insights into market behavior. We employ a de-compositional procedure (non-metric multidimensional scaling or MDS) to understand brand preferences in the marketplace. The idea is to find a configuration of points (the brands) in a space of lowest dimensionality. To achieve this, MDS algorithms minimize a quantity called stress:

$$\text{Stress} = \sqrt{\frac{\sum_{i<j}(\hat{d}_{ij} - d_{ij})^2}{\sum_{i<j} d^2_{ij}}}$$

Where, $\hat{d}$ is the estimated distance between the i^{th} and the j^{th} brands. The inputs to the model were derived from market share data. For example, Sutter Home, the brand owned by the Trinchero Family, had a 3.9% market share during (2010) and a 4.01% share the next year (see Table below). These market shares were used in the MDS analysis to produce preference maps.

Brand	Supplier	Base MS	MS 1 Year Later
Franzia Winetaps	The Wine Group	12.66 %	11.90%
Carlo Rossi	E & J Gallo	6.68%	6.66%
Twin Valley	E & J Gallo	5.06%	4.63%
Beringer	Foster's	4.35%	4.34%
Almaden	Constellation	4.63%	4.28%
Sutter Home	Trinchero F	3.90%	4.01%
Livingston Cellars	E & J Gallo	3.72%	3.61%
Woodbridge	Constellation	3.51%	3.52%
Peter Vella	E & J Gallo	2.80%	2.85%
Charles Shaw	Bronco Wine	2.69%	2.62%

Extant research on MDS suggests that when conceptualized as revealed preferences, market share metrics could be used to understand the basis for varying preferences in the market place (see for example, Green and Rao 1972).

Brand-Preference Mapping

1. The distances between brands on the map indicate their perceived similarities. Brands that are close together are perceived as similar whereas those that are far apart are perceived as different.

2. The axes of the map are the aggregate dimensions along which customers tend to discriminate offerings. Generally, experts are asked to label the dimensions although in this application the authors used a content analysis of wine-review blogs to label the axes (see for example, www.cellartracker.com)

Seven manufacturers dominate table wine supplies (Table 2). Collectively they occupy more than 80% of the market share for domestic table wine.

Table 2: Market Share of Table Wine by Supplier

Supplier	**Mkt. Share %**
E&J Gallo Winery	26.4
Constellation	21.3
Wine Group	16.9
Foster's Americas	6.0
Bronco Wine Co	4.7
Trinchero Family	4.7
Kendall-Jackson	2.8
Others	17.2
Total	100% (25.85 mil. gallons in 2014)

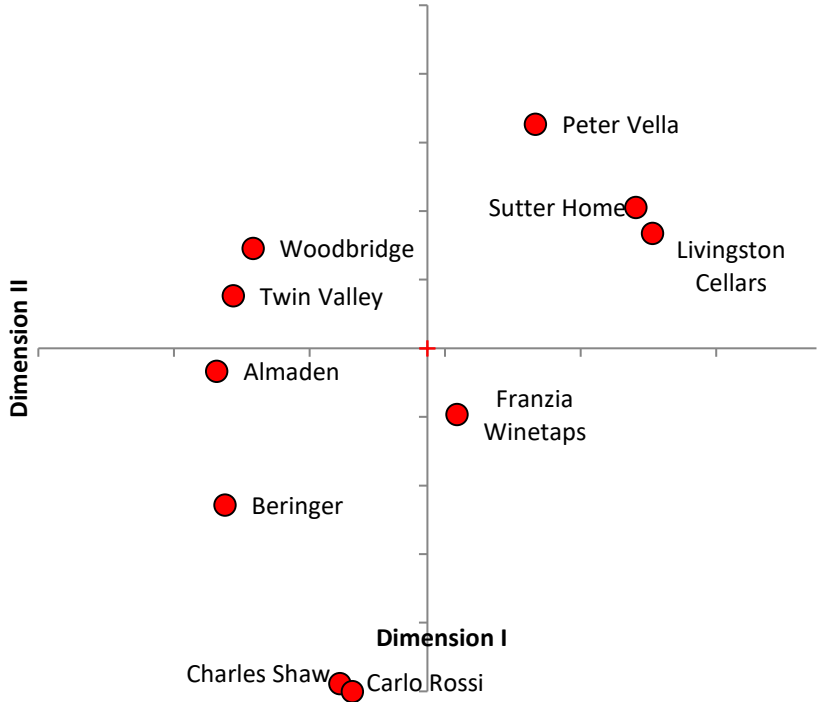
2.1.2 Basis of Preference

Figure 4 highlights plausible reasons behind variability in preferences. Dimension 1 differentiates wines based on price. Peter Vella which retails for approximately $12 has the highest score on the dimension. The opposite is true for Carlo Rossi, it retails for approximately $5 and has the lowest dimensional score.

Content analysis of the website www.cellartracker.com suggests that dimension 2 in Figure 4 measures the sweetness of wines. The extremely positioned brands, Almaden and Livingston, validate this inference. Almaden is viewed as a black-olive tasting wine whereas Livingston Cellars Cabernet Sauvignon is perceived as a cherry-sweet wine.

The brand that is closest to the origin of the axes, Franzia Winetaps, has the largest market share; it is moderately priced at $9 retail and exhibits mild sweetness (described as plum-fruit sweetness in www.cellartracker.com). Thus, the origin of the preference map is the "ideal" position for a new brand of table wine.

Figure 4: Bases of Preference: Table Wine



2.2 SPARKLING WINE

2.2.1 Market Structure

Sparkling wine consumption correlates with festivities and celebrations, one-third of total consumption in 2014 (around 3.5 million gallons) occurred during the November-December festive season.

Table 3 shows that three domestic suppliers: E&J Gallo, Constellation, and Brown-Forman Beverages, control 75% of the market.

Table 3: Market Share by Supplier

Supplier	Market Share %
E&J Gallo	34.7
Constellation	25.3
Brown-Forman	14.9
Moet Hennessy	4
Ste. Michelle	3.3
Weibel	2.9
Others	14.9

Brand-Preference Mapping for Sparkling Wines

The table below details the top eight brands used in the construction of the preference map.

Brand	Supplier	Market Share%	
		Base MS	MS a Year Later
Andre	E&J Gallo	26.06	25.77
Cook's	Constellation	16.7	15.89
Korbel	Brown-Forman	14.11	14.61
J.Roget	Constellation	7.08	6.90
Ballatore	E&J Gallo	6.06	6.09
Domaine Chandor	Moet Hennessy	3.85	4.01
Domaine Ste. Michelle	Ste. Michelle	3.09	3.31
Gloria Ferrer	Friexenet	1.82	1.89

Demographics of Internet Users

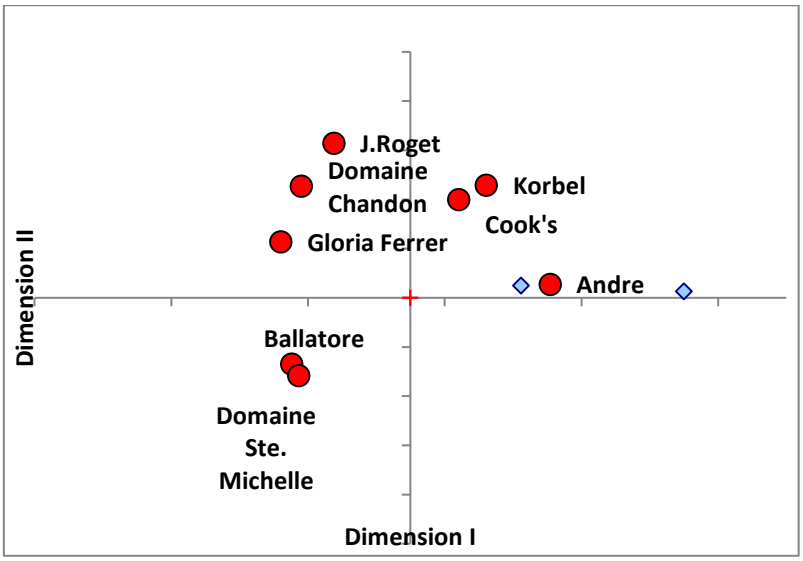
Demographic	%
Total adults	74
• Women	74
• Men	74
Age	
• 18-29	93
• 30-49	81
• 50-64	70
• 65 and Older	38
Race/Ethnicity	
• White	76
• Black	70
• Hispanic	64
•	
Geography	
• Urban	74
• Suburban	77
• Rural	70
HH Income	
• < $30, 000	60
• $30, 000 to $49, 999	76
• $50, 000 to $74, 999	83
• >$75, 000	94
Educational Attainment	
Less than high school	39
High school	63
Some college	87
College +	94

Source: Pew Internet & American Life Project; n = 2258 adults, 18 and older.

2.2.2 Basis of Preference

Figure 5 is a graphical representation of consumer preferences for sparkling wine.

Figure 5: Bases of Preference: Sparkling Wine

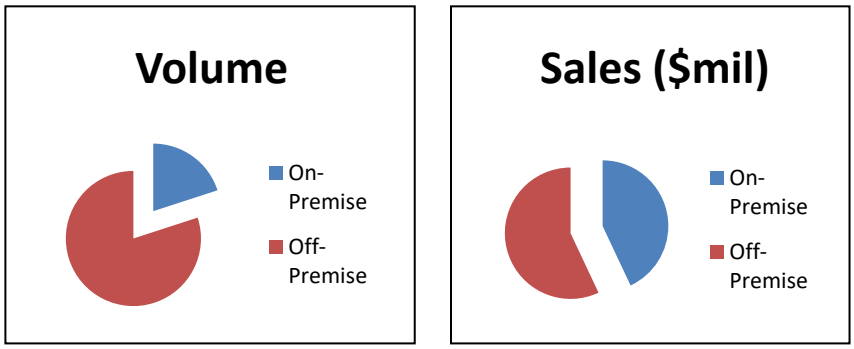


In Figure 5, dimension 1 relates to price and dimension 2 correlates with the smoothness of the wine (see for example, http://www.savoryreviews.com/2009/12/30/champagne-taste-test/ for evidence in this direction). The ideal position for a brand would be a smooth wine with no after-drink burning sensation and a retail price of around $5. Since Andre is closer to the ideal it leads the category with a 26% market share.

3.0 DISTRIBUTION

In Illinois, off-premise wine sales account for 80% of sales volume and 57% of revenues (Figure 6). An estimate from the US Census Berau's Annual Trade Survey suggests that online sales could be as high as 60% of the total sales volume.

Figure 6: Share of Volume and Sales ($mil), Illinois, 2014



Note: Volume: 13,087 (9-liter, 000 cases)
Total sales = $1297 mil

The US population is becoming more tech-saavy with at least 72% of American adults surfing the net on a regular basis. The demographics of Internet users highlight a positive association between Internet usage and socio-economic variables such as income (see the sidebar on page 6). Since the buying-power index is built on such indices we recommend that online sales of wine products be targeted at residents of counties that exhibit at least 1% buying power (approximately $1.3 million in wine sales). These would be the 20 counties listed on the sidebar.

4.0 MARKETING MIX RECOMMENDATIONS

Here are the generic recommendations for business wanting to engage in the wine industry:

i. Product: Focus on table wine and/or sparkling wine, they exhibit postitve market growth. The table wine should be moderately sweet, and the sparkling wine smooth with no burning aftertaste;

ii. Price: Should be around $9 retail for table wine and $5 for sparkling wine. Price is a salient variable that determines market share;

iii. Place: Online distribution of the product is recommended. Target the twenty counties listed on P.7, and

Counties to Target for Internet Sales

Rock Island
Woodford
Grundy
Champaign
Monroe
Tazewell
Boone
Peoria
Sangamon
McLean
St. Clair
Madison
Kendall
Winnebago
McHenry
Kane
Will
Lake
DuPage
Cook

iv. Promotion: The focus of marketing communications should be on brand management, create brand awareness and brand attitude using a mixture of new and traditional media.

5.0 BUSINESS-SPECIFIC, SCENARIO ANALYSIS

What would be the economic results of a new winery business in Ilinois? The economic impact of a winery is estimated to be around $1.17. In other words, every dollar invested in the winery will result in a total impact of $1.17 for the economy. We estimate the gross operating surplus of a winery to be around 4 cents per sales-dollar. The table, "Economic Impact" (see the sidebar) shows the direct-impact coefficients of the winery industry.

6.0 CONCLUSION

Is there a market for a new wine (product) in Illinois? The answer is a conditional "yes". The conditions for success in the marketplace include: (i) a moderately priced table wine or a sparkling wine product (ii) that is marketed in geographical areas which exhibit high buying power for alcoholic beverages (that is, around $13 million or more in wine sales). Twenty such geographical areas (counties) are listed on p. 7.

Economic Impact (including value-added components)

Industry	Coefficient
Agriculture	0.097135817
Finance	0.030240396
Manufacturing	0.341971022
Pro. Service	0.118304094
Transport	0.028285461
Utilities	0.011556515
Wholesale	0.096830359
Value Added	
Wages	0.131520267
Taxes	0.072739861
Gross operating surplus	0.04189873

Appendix 1: Buying Power Index for Alcoholic Beverages

County	BPI 2014	BPI 2016
Pulaski, IL	0.57%	0.56%
Gallatin, IL	0.59%	0.59%
Alexander, IL	0.60%	0.60%
Hardin, IL	0.61%	0.61%
White, IL	0.65%	0.65%
Pope, IL	0.65%	0.65%
Saline, IL	0.66%	0.66%
Hamilton, IL	0.67%	0.66%
Wayne, IL	0.67%	0.66%
Jackson, IL	0.67%	0.67%
Clay, IL	0.67%	0.66%
Franklin, IL	0.67%	0.67%
Edwards, IL	0.68%	0.67%
Lawrence, IL	0.68%	0.67%
Massac, IL	0.68%	0.68%
Pike, IL	0.69%	0.68%
Greene, IL	0.69%	0.68%
Union, IL	0.69%	0.69%
Richland, IL	0.69%	0.69%
Fayette, IL	0.70%	0.69%
Calhoun, IL	0.71%	0.71%
Crawford, IL	0.72%	0.72%
Schuyler, IL	0.72%	0.72%
Brown, IL	0.72%	0.73%
Perry, IL	0.73%	0.72%
Wabash, IL	0.73%	0.72%
Johnson, IL	0.73%	0.73%
Cass, IL	0.73%	0.73%
McDonough, IL	0.74%	0.73%
Jasper, IL	0.74%	0.73%
Montgomery, IL	0.74%	0.73%
Stark, IL	0.74%	0.74%
Henderson, IL	0.75%	0.74%
Scott, IL	0.75%	0.74%
Cumberland, IL	0.75%	0.75%
Edgar, IL	0.75%	0.75%

Clark, IL	0.75%	0.75%
Mason, IL	0.76%	0.76%
Warren, IL	0.77%	0.77%
Fulton, IL	0.77%	0.76%
Hancock, IL	0.77%	0.77%
Jefferson, IL	0.77%	0.77%
Coles, IL	0.78%	0.77%
Carroll, IL	0.78%	0.78%
Shelby, IL	0.78%	0.78%
Marion, IL	0.78%	0.78%
Ford, IL	0.78%	0.78%
Williamson, IL	0.79%	0.79%
Bond, IL	0.80%	0.80%
Christian, IL	0.80%	0.80%
Randolph, IL	0.81%	0.81%
Vermilion, IL	0.81%	0.77%
Morgan, IL	0.81%	0.81%
Macoupin, IL	0.81%	0.81%
Knox, IL	0.82%	0.81%
Moultrie, IL	0.82%	0.82%
Iroquois, IL	0.82%	0.82%
Douglas, IL	0.82%	0.82%
Mercer, IL	0.83%	0.83%
Marshall, IL	0.83%	0.83%
Washington, IL	0.83%	0.83%
Logan, IL	0.83%	0.83%
Effingham, IL	0.84%	0.84%
Jo Daviess, IL	0.85%	0.86%
Bureau, IL	0.86%	0.85%
Adams, IL	0.87%	0.87%
Putnam, IL	0.87%	0.87%
Henry, IL	0.87%	0.87%
Lee, IL	0.87%	0.87%
Livingston, IL	0.87%	0.87%
Jersey, IL	0.88%	0.88%
Stephenson, IL	0.88%	0.88%
Whiteside, IL	0.90%	0.89%
Piatt, IL	0.91%	0.92%
Menard, IL	0.92%	0.92%

Clinton, IL	0.92%	0.93%
DeKalb, IL	0.94%	0.98%
Macon, IL	0.96%	0.96%
Ogle, IL	0.97%	0.97%
LaSalle, IL	0.98%	0.98%
De Witt, IL	0.98%	0.98%
Kankakee, IL	0.98%	0.96%
Rock Island, IL	1.01%	0.98%
Woodford, IL	1.04%	1.05%
Grundy, IL	1.05%	1.05%
Champaign, IL	1.08%	1.10%
Monroe, IL	1.08%	1.08%
Tazewell, IL	1.09%	1.10%
Boone, IL	1.09%	1.09%
Peoria, IL	1.11%	1.08%
Sangamon, IL	1.17%	1.16%
McLean, IL	1.21%	1.25%
St. Clair, IL	1.22%	1.25%
Madison, IL	1.28%	1.31%
Kendall, IL	1.31%	1.31%
Winnebago, IL	1.34%	1.38%
McHenry, IL	1.67%	1.69%
Kane, IL	1.92%	1.94%
Will, IL	2.21%	2.17%
Lake, IL	2.41%	2.50%
DuPage, IL	2.73%	2.90%
Cook, IL	9.18%	9.02%
Illinois	100.00%	100.00%

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