

The Economic and Fiscal Impacts of the Distilling Industry in Kentucky



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The Economic and Fiscal Impacts of the Distilling Industry in Kentucky

Kentucky is known internationally for its bourbon whiskey. The state produces and ages perhaps 95 percent of all the bourbon in the world. Nearly all of the products are shipped to customers outside of Kentucky, meaning the dollars generated from sales are ‘new’ to Kentucky. The dollars support the wages, salaries and benefits of workers in the state’s distilling industry, as well as those employed by suppliers. The dollars circulate further, as employees and owners spend their income in the regional economy, generating jobs and income in grocery stores, car dealers, banks, restaurants, doctors’ offices, and the like. In this study, we provide a comprehensive statement of the size and economic importance of the distilling industry in Kentucky. We also provide estimates of the state and local government tax revenues associated with the industry, a look at Kentucky’s tax treatment of the industry compared to other states, and an estimate of the economic potential of the emerging bourbon-tourism component.

Among the most important and interesting findings are:

- There are 19 distilling establishments in Kentucky, and these are owned by 10 corporations. The establishments are in 9 locations and 8 counties.
- Kentucky stands out nationally in bourbon production, accounting for as much as 95 percent of the US total. This is an industry that could feasibly be located in another state, and one in which Kentucky has managed to dominate. Moreover, the industry is very stable during economic downturns, helping to diversify the economic base in the state. But with new micro-bourbon distilleries now opening around the country, there is fresh competition among locations for the industry.
- Kentucky distilling companies ship over \$1.5 billion in products annually, and account for around 26 percent of the value of all distilled spirits produced in the United States. Kentucky bourbon is exported to 126 countries, with 25 million proof-gallons shipped in 2008. It is by far the largest export category among all US spirits.
- Because of its large scale and its corporate headquarters operations, Kentucky hosts about 43 percent of all distilling jobs and payrolls in the United States. Distilling companies in Kentucky employ around 3,200 people, with an annual payroll of about \$244 million, excluding fringe benefits.
- The bourbon production, as well as the management and marketing of bourbon brands, is linked to many other Kentucky industries. This includes obvious support industries like wooden barrels and pallets, plastic bottles, trucking, and electricity. Hundreds of other less obvious industries are impacted directly or indirectly, and these account for the relatively high employment and payroll multipliers for distilling. We estimate that the Kentucky distilling industry is responsible for a total of 9,848 jobs in the state, with a total annual payroll of \$442 million.

- Among the 244 detailed manufacturing industries in Kentucky, only three have *both* more jobs and a higher employment multiplier than distilling: light truck and utility vehicles, automobiles, and meatpacking. Moreover, several nonmanufacturing industries that receive considerable public attention have much lower employment multipliers, including tobacco farming, coal mining, and horse farms.
- Kentucky state and local governments directly tax both the production and consumption of distilled spirits, the property owned by the companies, the wages earned by employees, and corporate net income. We estimate that the state and local governments receive about \$125 million annually from spirits production and consumption. Consumption taxes of some sort would be paid whether the industry produced bourbon in Kentucky or not. However, we estimate that the production component accounts for \$61 million of the annual total.
- Kentucky appears to tax alcohol higher than any other open market state except Alaska.
- We estimate that in 2008 distillers paid about \$9 million in inventory property taxes and \$2 million in property taxes on their buildings, land, equipment, and inventory. These property taxes go to schools, city governments, county governments, other local districts, and state government. Public schools receive about one-half of the tax revenues.
- The distilling industry in Kentucky is also responsible for many other taxes to state and local governments. The largest recipient is Kentucky state government, with total distillery-related wages and salaries generating \$38.1 million in individual income and sales tax receipts annually. We estimate that distillery-related occupational tax revenues to local governments are around \$4.5 million annually.
- Overall, annual state and local government tax receipts related to spirits production amount to over \$19,000 per distilling industry employee.

The rest of the report is organized as follows. First, we provide and discuss estimates of the size of the industry in Kentucky, in terms of production, jobs, and payroll. Second, we investigate the linkages between distilling and other businesses in Kentucky. This analysis provides a basis of an economic impact statement, including multiplier effects. Third, we provide estimates of tax payments to state and local governments. Finally, we examine the tourism potential of the Kentucky Bourbon Trail.



The Size of the Distilling Industry in Kentucky

We first examine the economic size of the distilling industry in Kentucky, focusing only on the actual distilling sites and companies in the state. There are several ways to measure the size of the industry, including number of establishments, company revenues, shipments, employees, and payrolls. Moreover, there are several data sources each for many of these measures; and, because of reporting and classification characteristics, the numbers do not line up exactly. We have attempted to organize everything publicly available in this section, and we discuss the various estimates below.

Industry definition, classifications

We treat the industry here as the collection of firms that earn revenues primarily from distilling and selling liquor. These firms may engage in other revenue-generating activities, such as making wooden barrels, biotechnology research, managing and marketing other product lines (including wines and non-liquor products), and selling merchandise in their gift shops. Nevertheless, we presume the companies would not be located in Kentucky were it not for their distilling operations, and hence for purposes of this study attempt to count all their activity as part of the industry.

Various Industry Classifications for Activity by Kentucky Distillers		
<i>North American Industrial Classification System (NAICS)</i>		
Code	Title	Description: This industry comprises establishments primarily engaged in...
312130	Wineries	one or more of the following: (1) growing grapes and manufacturing wines and brandies; (2) manufacturing wines and brandies from grapes and other fruits grown elsewhere; and (3) blending wines and brandies.
312140	Distilleries	one or more of the following: (1) distilling potable liquors (except brandies); (2) distilling and blending liquors; and (3) blending and mixing liquors and other ingredients.
321920	Wood Container and Pallet Manufacturing	manufacturing wood pallets, wood box shoo, wood boxes, other wood containers, and wood parts for pallets and containers.
493110	General Warehousing and Storage	operating merchandise warehousing and storage facilities. These establishments generally handle goods in containers, such as boxes, barrels, and/or drums, using equipment, such as forklifts, pallets, and racks. They are not specialized in handling bulk products of any particular type, size, or quantity of goods or products.
493190	Other Warehousing and Storage	operating warehousing and storage facilities (except general merchandise, refrigerated, and farm product warehousing and storage).
541711	Research and Development in Biotechnology	conducting biotechnology research and experimental development. Biotechnology research and experimental development involves the study of the use of microorganisms and cellular and biomolecular processes to develop or alter living or non-living materials. This research and development in biotechnology may result in development of new biotechnology processes or in prototypes of new or genetically-altered products that may be reproduced, utilized, or implemented by various industries.
551114	Corporate, Subsidiary, and Regional Managing Offices	administering, overseeing, and managing other establishments of the company or enterprise. These establishments normally undertake the strategic or organizational planning and decisionmaking role of the company or enterprise. Establishments in this industry may hold the securities of the company or enterprise.

Source: US Census Bureau, North American Industrial Classification System, 2007, www.census.gov/cgi-bin/sssd/naics/naicsrch

The codes shown are those listed in entries for distilling companies in the 2009 Kentucky Directory of Manufacturers, www.thinkkentucky.com

Generally speaking, economic statisticians attempt to classify by business establishment, or location. If a distilling company makes barrels in one location, makes bourbon in another location, ages it at another location, and has corporate offices at yet another location, then the

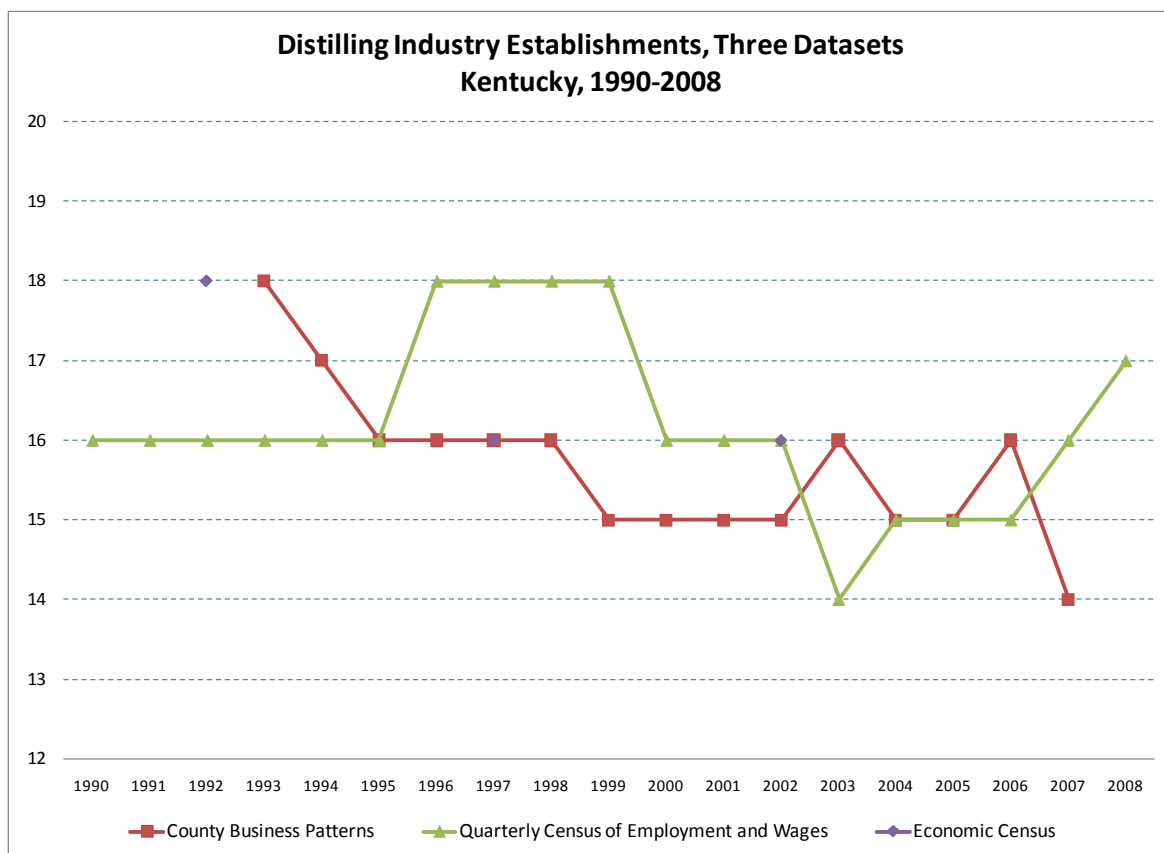
company might have activity listed under four different industrial classifications. According to the 2009 Kentucky Directory of Manufacturers, the distilling companies in Kentucky have activities that span at least seven industrial classifications. These industries are shown in the table above, with their official descriptions.

Number of companies, facilities

At the time of this study, the Kentucky Distillers Association had seven distilling companies represented:

Beam Global
Brown-Forman
Diageo North America
Four Roses
Heaven Hill
Sazerac-Buffalo Trace
Wild Turkey

Some of these companies operate in multiple locations around Kentucky. Since publicly available economic data are compiled on an ‘establishment’ basis, as opposed to corporate ownership basis, we find that there are more establishments than companies. The chart below summarizes data from three sources over the past nineteen years. County Business Patterns (CBP) data (in red) show fourteen distilling establishments in Kentucky in 2007, with a fairly constant count over the previous decade. CBP is produced by the US Census Bureau and is based primarily on company filings of payroll taxes, including Social Security. The Quarterly Census of Employment and Wages (QCEW) data (in green) is compiled by the US Bureau of Labor Statistics, and is based on company payments of unemployment insurance taxes. Note that the



QCEW establishment count tracks the CBP count very closely since 2000, with both data sources documenting 14 to 17 distilling establishments in Kentucky. The other data source, the Economic Census, is also produced by the US Census Bureau, but is only available every five years (years ending in the numbers 2 and 7). The 1997 and 2002 points are shown in purple in the chart, and align with the other data (2007 data for Kentucky will not be available for several months).

The latest listing in the Kentucky Directory of Manufacturers provides a good snapshot of current Kentucky operations. See table below. We have enhanced it somewhat to reflect subsequent ownership changes and more recent data on employment. There are nineteen establishments, owned by ten companies, with facilities in nine locations and eight counties. The combined employment is 3,053, led by Brown-Forman, Jim Beam, Sazerac-Buffalo Trace, and Heaven Hill.

The ownership changes since the Directory was published include Maker's Mark, which was acquired by Beam Brands; Sazerac acquired Constellation Brands, including its facilities in Bardstown and in Owensboro, which it plans to expand; and Gruppo Campari purchased the Wild Turkey brand and its Lawrenceburg distillery from Pernod Ricard.

Distilling Companies in Kentucky, March 2009				
Company/Facility Name	Owner	Address	County	Employment
Tom Moore	Sazerac-Buffalo Trace	Bardstown, KY 40004	Nelson	175
Brown-Forman Corp	Brown-Forman Corp	Louisville, KY 40210-1091	Jefferson	837
Buffalo Trace	Sazerac-Buffalo Trace	Frankfort, KY 40601-2033	Franklin	287
Charles Medley Distillers Kentucky	Angostura Limited	Owensboro, KY 42303	Daviess	2
Sazerac North America	Sazerac-Buffalo Trace	Owensboro, KY 42303	Daviess	180
Diageo North America, Inc	Diageo North America, Inc	Louisville, KY	Jefferson	12
Early Times Distillers Co	Brown-Forman Corp	Louisville, KY 40216-5245	Jefferson	30
FB3 Development LLC	FB3 Development LLC	Louisville, KY 40202	Jefferson	12
Four Roses Distillery LLC*	Kirin Holding Co	Lawrenceburg, KY 40342	Anderson	80
Heaven Hill Distilleries Inc	Heaven Hill Distilleries Inc	Bardstown, KY 40004-2229	Nelson	443
Heaven Hill Distilleries Inc	Heaven Hill Distilleries Inc	Louisville, KY 40210-1210	Jefferson	42
Jim Beam Brands Co	Beam Global Spirits & Wine/Fortune Brands	Boston, KY 40107-8550	Nelson	70
Jim Beam Brands Co	Beam Global Spirits & Wine/Fortune Brands	Frankfort, KY 40601	Franklin	256
Jim Beam Brands Co	Beam Global Spirits & Wine/Fortune Brands	Clermont, KY 40110	Bullitt	374
Kentucky Bourbon Distillers	Kentucky Bourbon Distillers	Bardstown, KY 40004-2200	Nelson	20
Maker's Mark Distillery Inc	Beam Global Spirits & Wine/Fortune Brands	Loretto, KY 40037-8027	Marion	94
Sazerac-Buffalo Trace	Sazerac-Buffalo Trace	Louisville, KY	Jefferson	25
Wild Turkey Distillery	Gruppo Campari	Lawrenceburg, KY 40342-9619	Anderson	94
Woodford Reserve Distillery**	Brown-Forman Corp	Versailles, KY 40383-9781	Woodford	20
total, 19 establishments	10 owners	9 locations	8 counties	3,053

Source: Kentucky Cabinet for Economic Development, www.thinkkentucky.com, with adjustments to reflect subsequent ownership changes and more recent data.

* The job count for Four Roses includes warehousing employees in Bullitt County.

** Labrot & Graham Proprietors

This public data reveals the distribution of establishments by county in Kentucky, and align well with internal information provided by the companies. Clearly, the distilling operations are clustered in a loop stretching from Louisville to Frankfort and Versailles. Owensboro also has an operating distillery, and efforts are underway to bring another on line soon.

Using national and state QCEW statistics, we see that Kentucky has hosted between 18 and 30 percent of all distilling establishments in the United States over the past nineteen years. Kentucky dominates the bourbon distilling industry, with other types of whiskeys produced in Tennessee and other states. See www.whiskyportal.com/region_overview.asp . Other distilling operations in the US produce vodka, rum, tequila, gin, scotch, etc. However, the operations outside of Kentucky and Tennessee are generally small. As we will see, Kentucky has about 43 percent of all distilling jobs and payrolls in the United States.

Production and sales

There is no public information on annual production volume or sales by Kentucky distillers. We can use national data to make a rough estimate. It appears Kentucky distillers sold between \$1.5 and \$2.0 billion in bourbon and other products in 2008. Kentucky bourbon accounts for a large share of all US distilled liquor consumption, and as much as three-fourths of the value of exports outside the US. Clearly, Kentucky is the largest producer of distilled spirits of any US state.

The best publicly available data on revenues and other detailed economic variables by industry at the regional level is from the Economic Census, performed every five years. Data from the 2007 census were just released for the US, but will not be available for Kentucky for several months. One can see in the accompanying table that the industry nationally had strong growth between 2002 and 2007, with shipments, jobs, and payrolls all posting growth well above fifty percent. The Census Bureau estimates that Kentucky distillers shipped over \$1 billion in products in 2002, accounting for 26.4 percent of the national total (see tenth row of table). Kentucky has an even higher share of payrolls and non-production workers, reflecting Kentucky's concentration of professional people in corporate headquarters and management functions.

Distillery Industry (NAICS 312140)

Economic Census

	2007	2002		
	United States	United States	Kentucky	Kentucky Share
Number of establishments	96	82	16	19.5%
Establishments w/ 20+ employees	42	42	14	33.3%
Number of employees	8,857	5,603	2,061	36.8%
Annual payroll (\$1,000)	\$431,657	\$253,415	\$88,915	35.1%
Production workers avg per year	5,013	3,716	1,416	38.1%
Production workers hours (1,000)	10,158	7,566	2,885	38.1%
Production workers wages (\$1,000)	\$199,756	\$136,308	\$51,595	37.9%
Value added (\$1,000)	\$4,667,328	\$2,534,013	\$579,681	22.9%
Total cost of materials (\$1,000)	\$2,586,137	\$1,572,597	\$479,871	30.5%
Total value of shipments (\$1,000)	\$7,077,894	\$4,057,467	\$1,070,722	26.4%
Total capital expenditures (\$1,000)	\$155,934	\$106,653	\$30,864	28.9%
non-production workers	3,844	1,887	645	34.2%
non-production workers, wages and salaries	231,901	117,107	37,320	31.9%

Source: US Census Bureau, www.census.gov/econ/census02/ and www.census.gov/econ/census07/

The above data reflect all economic activity of firms classified as distillers, including spirits production but also anything else the firms produce. The Census Bureau also provides estimates on a product basis rather than an industry basis, i.e., measuring sales of distilled spirits only, regardless of the primary industrial classification of the firms. These are shown in the next table, and are the most direct public measure we have of the economic value of distilled spirits sold. Note that unbottled whiskey shipments in 2007 were about \$1.5 billion, and bottled whiskey shipments were about \$2.0 billion. Combined, then, whiskey accounts for almost half the value of all distilled products in the US.

US Shipments, by Detailed Distilled Products, 2007

Product codes	Meaning of product code	Product shipments, value (\$1,000)
312140	Distilleries	\$7,703,820
3121402	Distilled liquor, excluding brandy	\$2,700,196
31214022	Distilled whiskey, all other distilled liquor, excluding brandy	\$1,451,656
3121402211	Distilled whiskey, raw (bourban, rye, etc.)	\$1,387,069
3121402212	Distilled grain neutral spirits, vodka	D
3121402213	Other distilled liquors excl applejack	D
31214023	Distillers' dried grains (dark and light) and dried solubles	\$950,824
3121402351	Distillers' dried grains (dark and light) and dried solubles	\$950,824
3121402Y	Distilled liquor, excluding brandy, nsk	\$297,716
3121402YWV	Distilled liquor, excluding brandy, nsk	\$297,716
3121404	Bottled liquor, excluding brandy	\$4,837,337
3121404A	Bottled liquor, all other types, excl brandy	\$4,339,801
3121404A11	Bottled whiskey, unprocessed, blends, with(out) neutral spirits	\$449,053
3121404A12	Bottled whiskey, other types	\$1,566,098
3121404A13	Bottled gin, cordials, cocktails and similar compounds	\$494,979
3121404A14	Bottled gin, vodka, rum	\$848,993
3121404A15	Bottled liquor, all other types, excluding bottled in bond	D
3121404A16	Bottled liquor, bottled in bond	D

Source: US Census Bureau, 2007 Economic Census.

D: not disclosed due to federal privacy laws; nsk: 'not specified by kind'

Domestic sales. The Distilled Spirits Council of the United States (DISCUS) tracks sales in the US, and reports there were 15.1 million cases (9-liter) of bourbon and Tennessee whiskey sold in 2008. Tennessee whiskey shipments for US consumption account for about one-third of that total, and thus Kentucky shipped close to 10 million cases of bourbon to US consumers. The national average revenue, including the federal excise tax of \$13.50 per proof gallon, was \$121 per case according to DISCUS figures. That implies that gross revenues to Kentucky distillers from US sales were around \$1.2 billion in 2008.

According to DISCUS, case sales in the US of bourbon and Tennessee whiskey have grown by 12 percent over the past five years, and gross revenues from those sales have grown by 38 percent. This reflects the recent shift towards more high end products, as the average revenue per case rose from \$98 to \$121 between 2003 and 2008.

Exports. DISCUS reports that bourbon accounts for \$752 million of the total of \$1.1 billion in distilled spirits exports in 2008. By volume, Kentucky bourbon is by far the biggest export among US distilled spirits, accounting for 25 of the 54 million proof gallons shipped for all spirits categories in 2008¹. The biggest importers of bourbon are Australia, Germany, United Kingdom, Japan, France, and New Zealand, which combined account for 71 percent of the total US exports of bourbon. Interestingly, about 44 percent of bourbon exports are in bulk, rather than bottled. Indeed, bulk shipments dominate exports to far away Australia and New Zealand - where presumably it is more cost effective to bottle the product close to consumers than to pay the freight on the bottles shipped around the world.

¹ For a detailed listing of bourbon shipments to each of 126 countries, see the DISCUS web site and their annual report: www.discus.org/pdf/Distilled_Spirits_Exports_Volume_December2008.pdf.

Employment and payrolls

The 2002 Economic Census, discussed above, provides a detailed snapshot of employment and payroll for distilling establishments in Kentucky. However, there are more current and high frequency measures for employment and wages at the state level, and we examine that history in this section. We have compiled data from many sources, including the Kentucky Directory of Manufacturers, County Business Patterns (CBP), and the Quarterly Census of Employment and Wages (QCEW), as well as internal data provided by the companies.

The most comprehensive and consistent data sets are those from CBP and QCEW, and those estimates are shown in the accompanying tables. Note that the number of distilling establishments is almost the same from the two sources, but the employment counts and payroll estimates are quite different. We believe the difference is due to the treatment of some corporate office activity, with the QCEW program including it and CBP excluding it. The large difference in payrolls is consistent with this explanation, since corporate office employees typically have advanced educational credentials and skills, and thus earn much higher incomes than production workers.

The Kentucky Directory of Manufacturers reports 19 establishments with a total of 3,053 jobs. This is closer to the QCEW estimate. The differences may be due to the fact that some cooperage (wooden barrel making) operations are located in a different location than the distilling operations, and thus get counted under a wood products industrial classification even though the workers are employees of a distillery company.

We take the QCEW estimates as the most comprehensive, and use it in our impact analysis later in the report. The industry thus supports 3,168 employees with an annual payroll of \$244 million. However, the total includes both manufacturing operations and some separate headquarters operations. These two activities have very different linkages with the rest of the economy. We created a split into two industries for analytical purposes. We estimate that the distilling (manufacturing) industry (NAICS 31214) employs 2,283 persons with payroll of \$113 million; and that the management of companies industry (NAICS 551114) employs 885 persons with payroll of \$131 million.

Kentucky Totals, Distilling Industry (NAICS 31214)			
Year	Employees	Establishments	Total Wages (\$1000)
1990	3,151	16	\$109,381
1991	3,210	16	\$119,196
1992	3,296	16	\$125,065
1993	3,263	16	\$111,177
1994	3,068	16	\$126,399
1995	3,005	16	\$129,645
1996	2,987	18	\$140,245
1997	2,978	18	\$147,118
1998	2,971	18	\$146,494
1999	2,992	18	\$145,717
2000	2,974	16	\$156,149
2001	2,945	16	\$156,644
2002	2,896	16	\$156,832
2003	2,907	14	\$168,222
2004	2,949	15	\$179,753
2005	3,005	15	\$203,317
2006	3,062	15	\$225,437
2007	3,167	16	\$236,527
2008	3,168	17	\$243,959

Source: US Bureau of Labor Statistics, Quarterly Census of Employment and Wages program.

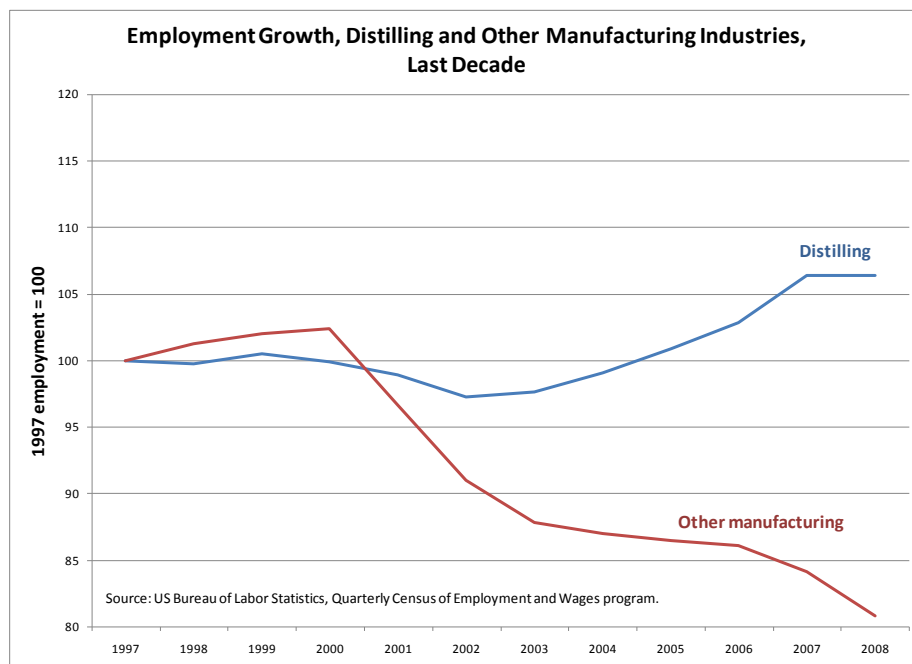
Kentucky Total, Distilling Industry (NAICS 31214)			
	Employment	Establishments	Annual Payroll (000)
1993	2,488	18	\$86,176
1994	2,232	17	\$73,415
1995	2,198	16	\$72,932
1996	2,109	16	\$74,456
1997	2,140	16	\$75,439
1998	2,092	16	\$76,375
1999	2,077	15	\$77,176
2000	1,977	15	\$81,121
2001	1,927	15	\$79,331
2002	2,075	15	\$87,833
2003	2,042	16	\$87,975
2004	2,144	15	\$103,086
2005	2,047	15	\$99,498
2006	2,207	16	\$103,967
2007	1,681	14	81,081

Source: US Census Bureau, County Business Patterns program.

Office jobs. The most visible aspects of the industry in Kentucky are the distilling operations and the large warehouses used for aging bourbon in barrels. The production side of the business accounts for around two-thirds of the jobs in Kentucky. However, as suggested above, there are hundreds of office jobs in the state as well. These include many highly paid executives, professionals and managers. One of Kentucky's nine *Fortune 1000* corporate headquarters is Brown-Forman Corporation, based in Louisville². The company has over \$2.3 billion in revenues, and the corporate headquarters manages worldwide production, distribution, and marketing for the company and its many brands. The headquarters attracts many talented and highly educated workers to Louisville. And the corporate and family foundations associated with the company are ostensibly the largest donors to arts and cultural organizations in Kentucky. Other companies with a significant office presence, as indicated by a corporate headquarters operation in the Kentucky Directory of Manufacturers, include Beam Brands and Heaven Hill.

Cyclical stability

The distilling industry in Kentucky is much more stable in terms of employment than the manufacturing industry as a whole. This is especially clear over the current decade and recession. Distilling industry employment is up 6 percent this decade while other manufacturing industry employment is down 19 percent. The chart illustrates this, setting 1997 employment levels as the base. Kentucky manufacturing overall has shed 65,000 net jobs since its peak in 2000, falling from 310,000 to 245,000, while the distilling sub-industry has grown slightly in terms of employment. Distilling's share of all manufacturing jobs in the state has risen to about 1.3 percent, while its share of all wages and salaries among Kentucky manufacturing has risen to about 2.1 percent. Alcoholic beverages are known to be fairly recession-proof. Kentucky bourbon sales have held up well during the latest downturn, and this has helped mitigate the economic and fiscal impact of the global recession on Kentucky.



² The others are Humana, Yum Brands, Ashland, Omnicare, General Cable, Lexmark International, Kindred Healthcare and Pharmerica. See *Fortune* Magazine, May 4, 2009.

Economic Impacts

We characterized Kentucky's distilling industry in the first section of this report, with estimates of production, sales, jobs and payrolls. In the parlance of economic impact studies, these are called the direct impacts. Of course, the impacts do not end there. Because the product is purchased primarily by consumers outside the state, the industry brings in new dollars to Kentucky, dollars that recirculate among vendors, employees and households. We turn to these spinoff impacts in this section, and aggregate all components to a total economic impact.

Linkages to other sectors

We use a custom input-output model of Kentucky to investigate the linkages between the distilling industry and other industries in the state. Input-output models are the standard method for measuring sales among industries. Our IMPLAN model of Kentucky has details on 450 industries, and can predict how much each industry buys from every other industry in the state, as well as how much must be imported from outside the state to support a given level of production³. These industrial linkages are the basis for economic multipliers, as output in one industry lifts output in supporting industries, which in turn raises output in industries that support them. Generally speaking, the more an industry purchases in the state the larger the spinoff impacts of that industry's activity. The more it imports its raw materials and services, the smaller the spinoffs in the state.

Kentucky Vendors (support industries for distilleries)	Purchases per \$1 million of Distillery Output
Wholesale trade businesses	\$73,769
Distilleries	\$37,774
Wood container and pallet manufacturing	\$17,595
Management of companies and enterprises	\$14,899
Plastics bottle manufacturing	\$12,530
Transport by truck	\$10,671
Transport by rail	\$4,480
Grain farming	\$3,595
Transport by water	\$1,850
Electric power generation- transmission- and	\$1,768
Machine shops	\$1,055
Material handling equipment manufacturing	\$970
Maint & repair construct of nonresident struc	\$948
Natural gas distribution	\$756
Real estate establishments	\$742
All other chemical product and preparation ma	\$672
Motor vehicle parts manufacturing	\$639
Petroleum refineries	\$521
Warehousing and storage	\$488
Other basic organic chemical manufacturing	\$487
Scientific research and development services	\$425
Automotive repair and maintenance- except car	\$413
Services to buildings and dwellings	\$401
Petroleum lubricating oil and grease manufact	\$399
Other state and local government enterprises	\$356
Advertising and related services	\$335
Employment services	\$317
Scenic and sightseeing transportation and sup	\$308
Telecommunications	\$269
Radio and television broadcasting	\$263
Commercial and industrial machinery and equip	\$254
Nondepository credit intermediation and relat	\$242
* Not unique commod (fed govt electricit)	\$222
Sawmills and wood preservation	\$218
Automotive equipment rental and leasing	\$216
Newspaper publishers	\$212
Other plastics product manufacturing	\$208
Mining coal	\$204
Other industries not shown	\$3,361
Total	\$194,835

³ For documentation, see www.implan.com.

It is insightful to think of an input-output table as a set of production recipes, with each industry column showing how much must be purchased from each row industry to produce its annual output. For example, the distilling industry nationally is a large purchaser of glass containers, grain, wood containers and pallets, plastic bottles, truck transportation, and cardboard. These are identified from national industry surveys, with the latest detailed tables available on the website of the US Bureau of Economic Analysis (www.bea.gov/industry/index.htm#benchmark_io). These national tables are ‘regionalized’ by IMPLAN using economic data on the presence and size of industries at the state, MSA, or county level as needed. The resulting regional models and industry multipliers take account of the ability of the regional economy to supply inputs to each industry. In the case of distilling, for example, IMPLAN predicts that most of the plastic bottles needed by the industry can be supplied by Kentucky firms, but that none of the glass bottles can be supplied in-state. The glass bottles must be imported, with the result that those purchasing dollars leak out to other states (and countries).

The largest in-state purchases are shown in the accompanying table, calculated in terms of purchases to support \$1 million in distillery output. Among the physical inputs required to produce bourbon, one can see that the largest components supplied by Kentucky companies are wood containers and pallets (\$17,595), plastic bottles (\$12,530), and grain (\$3,595). One can also see important linkages to transportation firms, including truck, rail, and water.

Distillers purchase intermediate goods and services, hire workers, make payments for real estate and capital, and pay governments a large amount of taxes. IMPLAN includes the value of fringe benefits (employee provided social security and medicare taxes, unemployment insurance and workers’ compensation premiums, health insurance, pension contributions, etc) in its compensation estimate, estimating that fringes add about 57 percent to direct wages and salaries.

The distilling industry’s purchases of intermediate goods and services in Kentucky, as well as its payments to workers and owners in the state, cause rounds of re-spending across other industries. The interindustry impacts are often referred to as ‘indirect’ effects, since changes in activity at distillers will quickly cause changes in activity at suppliers. The household spending impacts are often referred to as ‘induced’ effects, since changes in industrial production ultimately also hit the regional economy through employees’ wages and the associated spending on goods and services. At each round of re-spending, a portion of the dollars leak out due to saving, purchases of imported goods, and tax payments, so that the re-spending ultimately goes to zero. The cumulative impact of the re-spending is measured in economic multipliers, which are the ratio of total economic activity to activity in the distilling industry.

Economic multipliers

The next table provides a summary of important economic multipliers for the distilling industry in Kentucky, with separate calculations for the production side and the corporate headquarters side. The first entry is the job multiplier for distilling, 3.29. This means that if the distilling industry adds an employee, there will be another 2.29 jobs supported elsewhere in Kentucky. About seventy percent of the spinoff impact is due to additional employees among industries that supply distillers, and the rest is due to new employees in retail and other industries that sell to households. This is a large multiplier compared to most other Kentucky industries. Given that (a)

almost all distillery products are purchased by out-of-state residents and (b) the distilling firms could be located in other states, it is valid to apply this multiplier to entire industry employment base. In other words, it is valid to say that the 2,283 employees primarily involved in production at Kentucky distilling companies support a total of 7,511 jobs statewide.

Economic Multipliers, Distilling Companies in Kentucky

	Distilling	Corporate Headquarters
Change in total jobs in Kentucky per job in industry	3.290	2.642
Change in total employee compensation in Kentucky per employee compensation in industry	2.185	1.491
Change in value of output among all Kentucky firms per change in output in industry	1.337	1.517

Source: IMPLAN Professional model of Kentucky, version 2.0.1025, MIG, Inc.
with adjustments made to align regional inputs to recent payroll data.

A similar interpretation can be given to the employee compensation multiplier. The distilling industry's payroll of \$113 million supports total statewide employee compensation of \$246 million. This represents the wages and salaries, exclusive of fringe benefits, in Kentucky that would disappear if the distilling industry relocated to another state. The reader may be wondering why the output multiplier is much lower than the job and compensation multipliers. The primary reason is that a very large part of the value of distilling output goes to taxes. Thus, if distilling output were to rise by, say, \$10 million, nearly half of that amount is captured in taxes, leaving the remainder to circulate in the private economy where it can generate sales for supplying industries.

Total economic impact of distillery company operations

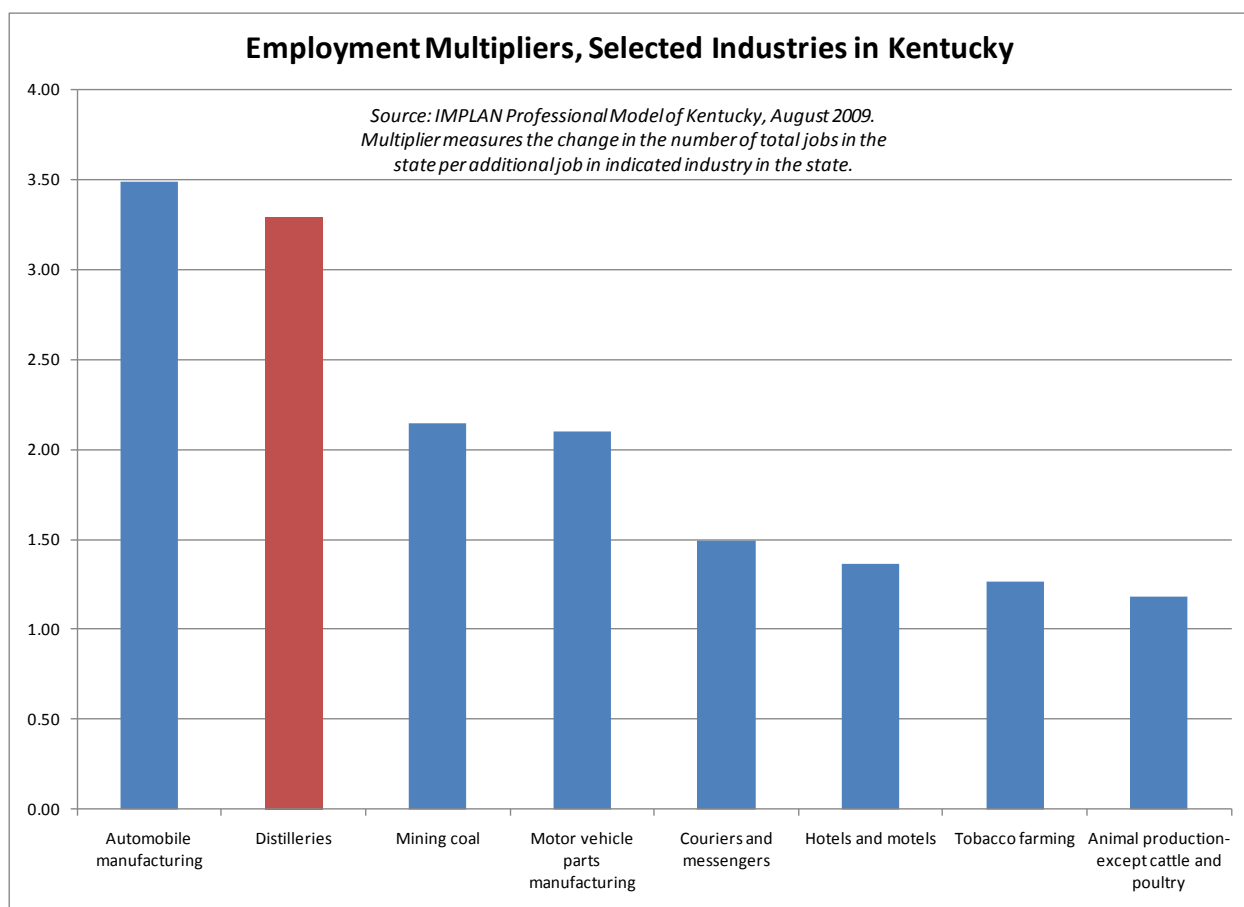
In summary, the direct jobs and payroll of distillers and their corporate office activity leads to a total of over 9,800 jobs, with annual payroll of \$442 million. This is an estimate of what would happen in the state in the unlikely event that the distilling industry completely disappeared. Since input-output models are by design linear and symmetric, one can use the economic multipliers (in the more likely case) to estimate the total impact of growth or decline in distilling activity.

Annual Economic Impact of Distilling Companies in Kentucky			
	Distilling	Headquarters	Total
Direct			
Jobs	2,283	885	3,168
Payroll	\$112,508,973	\$131,450,027	\$243,959,000
Total: Direct plus Indirect plus Induced			
Jobs	7,511	2,337	9,848
Payroll	\$245,832,106	\$196,018,280	\$441,850,386

Importance of distilling compared to other industries in Kentucky

Our IMPLAN model of Kentucky contains detailed estimates of output, employment, payroll, and value added for nearly 450 detailed industries in the state. We can use those estimates to make some observations about the relative importance of the distilling industries. First, consider manufacturing. IMPLAN provides estimates for 244 detailed manufacturing industries in Kentucky. Distilling ranks 20th highest in terms of jobs and 46th highest in terms of employment multipliers. However, most of the industries with very high multipliers have few employees and hence are not that significant. If we look only at industries with more than 500 employees distilling clearly stands out.

The only manufacturing industries with *both* more jobs and a higher employment multiplier are light truck and utility vehicles, automobiles, and meatpacking. A few smaller industries have higher estimated multipliers, for example petroleum refining and organic chemicals. Motor vehicle parts production has by far the most employees, but its multiplier is only 2.10, compared to distilling's multiplier of 3.29.



Most of the other detailed industries outside of manufacturing are in retail trade, personal services, health care, education, and other enterprises that primarily serve the local market – and hence are not typically considered as economic development targets. However, there are several non-manufacturing industries that receive considerable public attention and it is interesting to compare their impacts to that of distilling. Our IMPLAN model estimates that tobacco farming

directly supports 9,200 jobs, but has an employment multiplier of only 1.267. Animal production, except cattle and poultry – an industry that includes pig and hog operations, horse farms, and other animal categories – employees 45,400, but has an employment multiplier of only 1.181. And coal mining employs 16,100, but has an employment multiplier of but 2.142. The courier and messenger industry, which includes UPS, Kentucky’s largest private employer, has direct employment of 25,400, but its employment multiplier is only 1.493.

Impact of construction activity

Distillery companies have invested billions of dollars in their facilities and equipment over the decades. This is evident from the large property tax payments they make to government jurisdictions each year, a topic we examine in the next section. Here we analyze the one-time economic impacts of a hypothetical \$10 million distillery construction project. Our estimates can be scaled up or down according to the size of the investment under consideration.

We use our IMPLAN model of Kentucky to perform the analysis. The model has a sector, number 35, entitled “Construction, new nonresidential manufacturing” that fits this question. We simulated a \$10 million increase in demand for that sector, and the model predicted the impacts on business output, jobs, and payrolls. The results are shown in the table below. The first column indicates that the investment is associated with 99 direct construction jobs, with employee compensation of \$2.8 million. The indirect impacts refer to interindustry linkages, wherein the construction project requires purchases from other companies in Kentucky. The induced impacts refer to the cumulative rounds of household spending caused by the increased income flowing to employees. The last column summarizes the total impacts. The \$10 million project leads to an increase in sales of about \$15 million for all Kentucky firms, and increase in jobs of 141, and an increase in employee compensation statewide of \$4.1 million.

We can make an estimate of the amount of additional tax revenues that would be generated, using some of the results developed later in this study. Construction supplies and materials are potentially subject to Kentucky’s 6% sales tax, and could amount to as much as \$432,000 in tax revenues for the project.

Estimated Impact in Kentucky of \$10 million Investment by Distilling Company				
	Direct	Indirect	Induced	Total
Output	\$10,000,000	\$2,317,957	\$2,663,328	\$14,981,286
Jobs	99.1	16.6	25.3	141.0
Employee compensation	\$2,794,771	\$634,523	\$718,286	\$4,147,580
Source: IMPLAN Professional model of Kentucky, version 2.0.1025, MIG, Inc.; results shown generated from a \$10 million increase in demand for sector 35, "Construction, new nonresidential manufacturing".				

However, when job growth is involved, companies qualify for an exemption to the sales tax⁴. Assuming that 80 percent of total employee compensation is in the form of taxable wages and salaries, Kentucky state government would receive a one-time increase in individual income and sales tax receipts of \$286,000, and local governments would receive an additional \$44,000 in occupational taxes. Thus, excluding any possible sales tax payments on construction materials and machinery, governments in Kentucky would receive a total one-time increase of \$330,000.

It is impossible to precisely predict the long-term fiscal impacts of such an investment without specifying where the investment occurs in the state. Property tax rates vary widely among jurisdictions. A rule of thumb is that real estate is subject to property taxation at the rate of one percent, though the rate can be much higher in very urbanized places with intensive public services (schools, fire, police, libraries, streets, garbage pickup, EMS). Assuming that the property was valued at construction cost, this implies that the direct investment leads to annual property tax revenues to local and state governments of \$100,000 per year.

⁴ See KRS 139.170, KRS 139.480(8), and Regulation KAR 30:120.

Taxation and Fiscal Impacts of the Industry

In this section, we investigate and document the large amounts of tax revenues paid directly and indirectly by the industry to state and local governments in Kentucky. There are many types of taxes that distillers and liquor consumers pay, and the taxes go to many different jurisdictions in Kentucky. Indeed, this is the most complicated part of our analysis. We have collected data and made estimates for the most important tax items, including local and state property taxes, state alcohol production and consumption taxes, local occupational taxes, and Kentucky state individual income and sales taxes. We also provide some information on how Kentucky compares to other states in its tax treatment of distilled spirits.

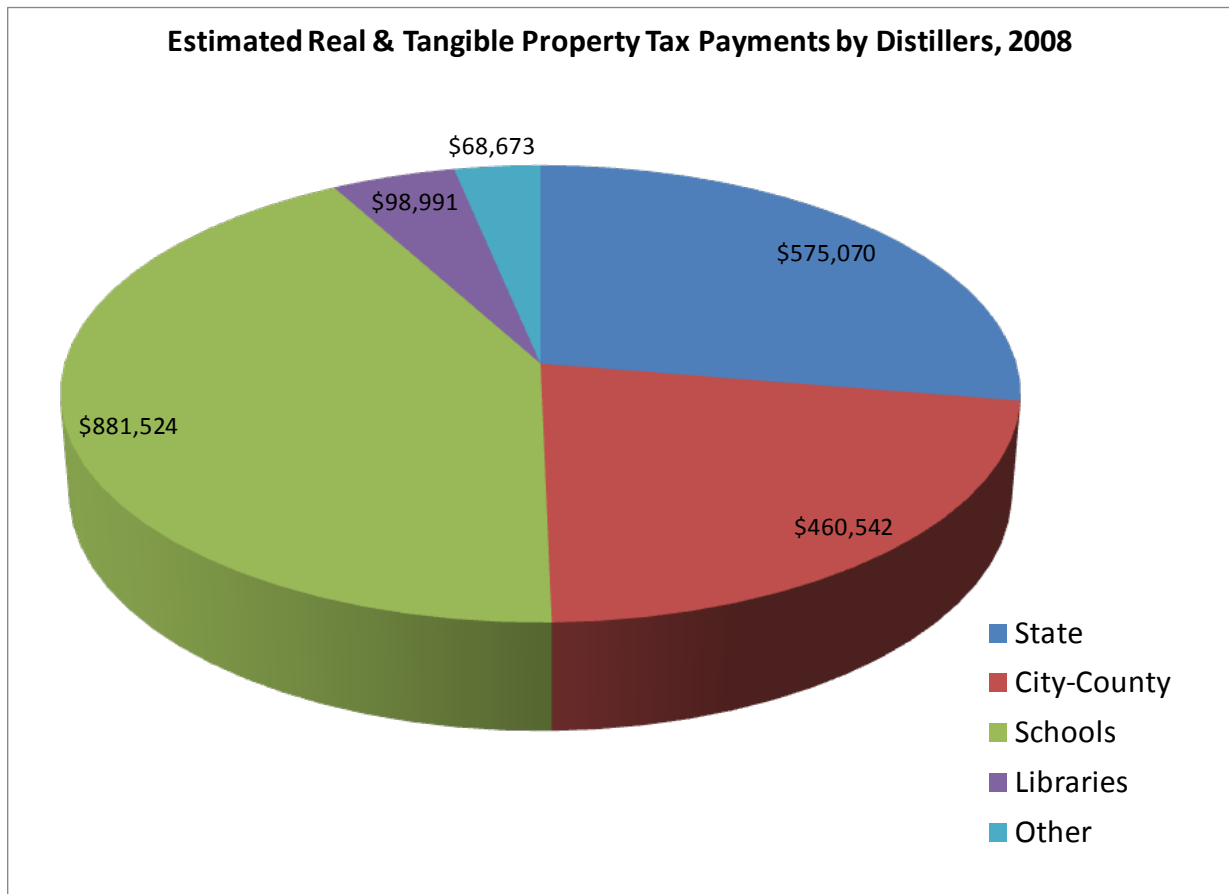
A summary of our estimates is provided in the table below. All entries refer to the latest year available for data, primarily calendar of fiscal year 2008. Production-related taxes account for \$61 million of the \$125 million total. Some of the entries are based on courthouse records and official government tallies, some on company-provided reports, while other entries are estimates based on historical ratios or national industry figures. Clearly, Kentucky state government is the biggest tax recipient, accounting for 86 percent of the total over all levels of government. Local governments and school districts are the biggest recipients of property taxes paid by the industry.

The entries are probably the most important taxes on distilled spirits, but there are many other taxes paid that are harder to quantify. For example, we do not know the amount of insurance premiums, gasoline, and utility taxes paid to state and local governments. So, \$125 million should be considered a lower bound on the true unknown amount of taxes paid.

Estimated Annual Kentucky Taxes on the Production and Consumption of Distilled Spirits				
	Local Public Schools	City, County, Other Local Governments	Kentucky State Government	Total
Production-related				
Property taxes - real estate and tangible property	\$881,524	\$628,206	\$575,070	\$2,084,801
Property taxes - spirits aging in barrels	\$4,990,619	\$4,040,406	\$513,549	\$9,544,573
Individual income taxes from distillery-related payrolls			\$20,408,938	\$20,408,938
General sales taxes from distillery-related payrolls			\$17,676,694	\$17,676,694
Occupational taxes from distillery-related payrolls	\$519,278	\$3,936,269		\$4,455,547
Corporate income taxes paid (partial)*		\$32,348	\$7,156,652	\$7,189,000
Subtotal	\$6,391,421	\$8,637,228	\$46,330,902	\$61,359,552
Consumption-related				
Case sales tax			\$102,279	\$102,279
Excise tax per gallon			\$10,077,051	\$10,077,051
Wholesale tax			\$26,282,234	\$26,282,234
General retail sales tax, restaurants and bars			\$18,944,426	\$18,944,426
Package retail sales tax			\$5,448,223	\$5,448,223
Liquor license fees		\$2,900,000		\$2,900,000
Subtotal		\$2,900,000	\$60,751,933	\$63,754,213
Grand Total	\$6,391,421	\$11,537,228	\$107,082,835	\$125,113,764
* This represents a five year average of Kentucky corporate income tax payments and local net profits tax payments, but data were not available for all companies.				

Property taxes

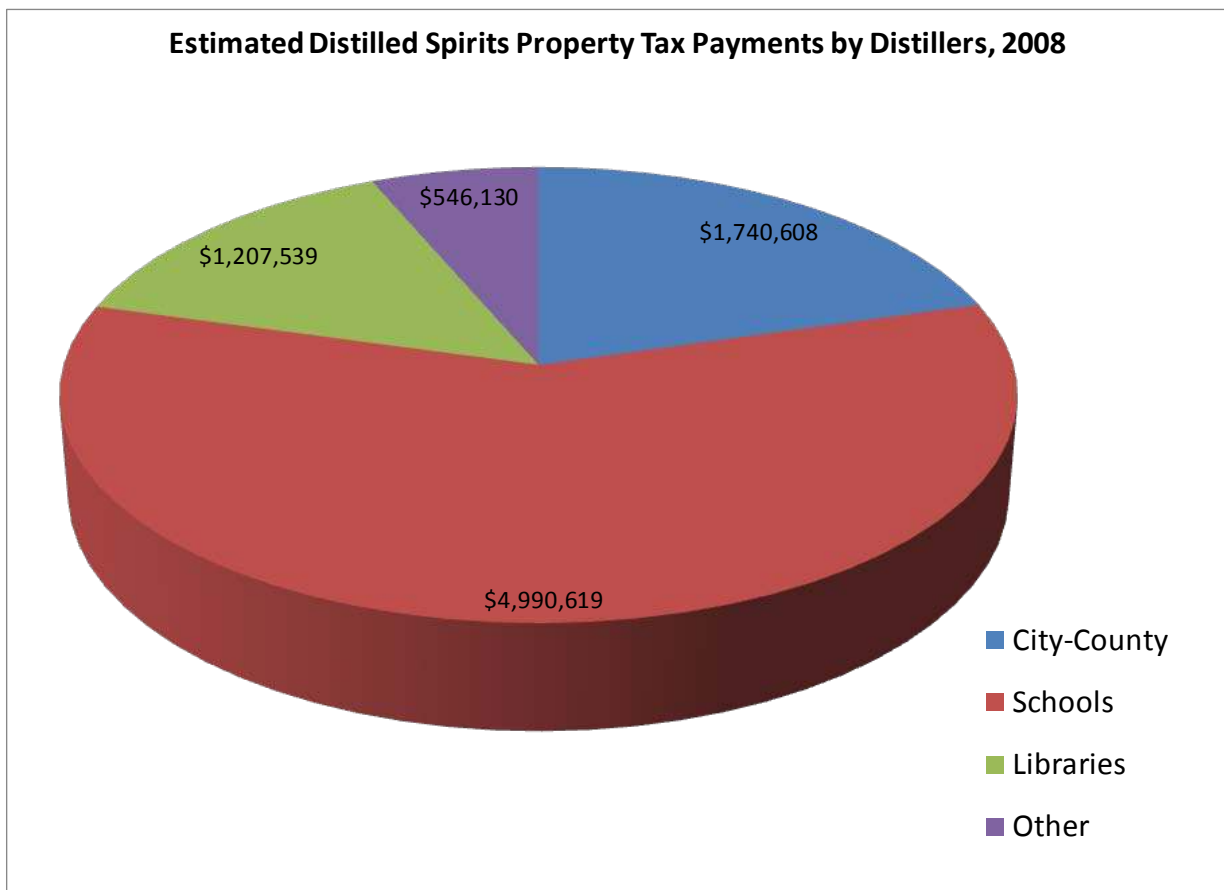
A distillery may pay property taxes on its land and buildings to the local school system, the county government, the city government, a fire district, a library, health or agricultural district, and the state of Kentucky. They also pay tangible property taxes to those jurisdictions on the value of machinery, furniture, vehicles, and the distilled spirits in warehouses.



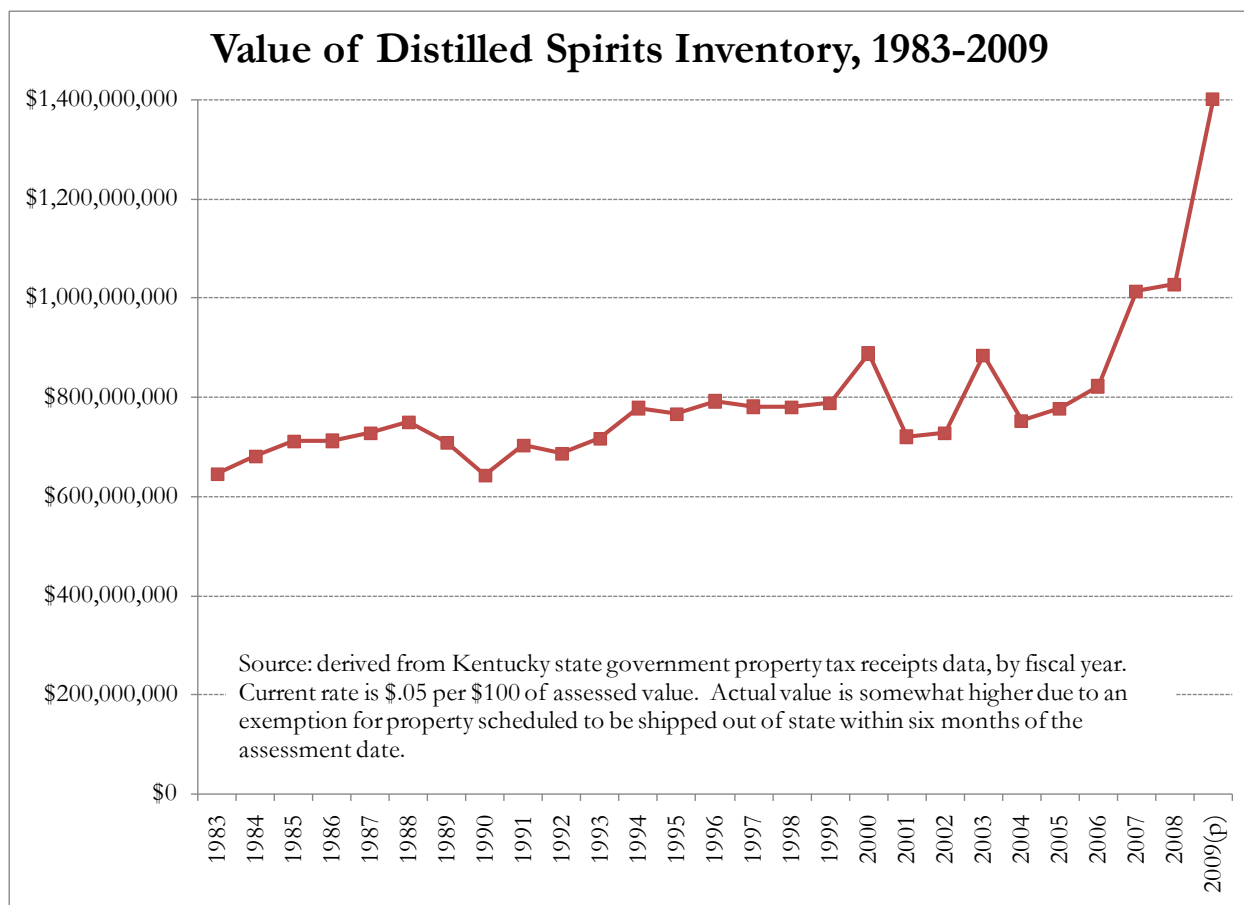
We have attempted to track down the various properties owned by the distillery companies, and to organize public information on their tax bills in 2008. We used a combination of web searches, courthouse visits and phone calls to collect data on assessments and taxes paid. We were able to identify a total of about \$2.1 million paid to local and state governments. The assessed value of land, buildings, equipment, and inventory (ready to sell) was \$378 million, of which \$139 million was real estate and \$240 million was tangible property. The pie chart shows the distribution of taxes paid by jurisdiction type. Public schools are the biggest recipient of property tax payments, with revenues of about \$880,000. Kentucky state government is next, with \$575,000, followed by city and county governments with nearly \$470,000. The 'Other' category includes property tax revenues received by local health departments, agricultural extension offices, soil conservation districts, fire districts, and an air board.

The distillery industry also pays property tax on all of their bourbon aging in barrels sitting in bonded warehouses. The tax payments are substantial, most of it going to local jurisdictions. The

industry paid roughly \$8.5 million in distilled spirits taxes to local governments in 2008. The next pie chart shows the distribution of these payments to city and county governments, public schools, libraries and other local government. Schools receive over half of these tax payments, with revenues of nearly \$5 million. City and county governments and library districts collected \$1.7 and \$1.2 million, respectively. Over a half million dollars went to various other government entities.



Distilleries separately pay tax on distilled spirits inventory to Kentucky state government, and we have compiled a history from the tax collections data reported by the Kentucky Department of Revenue. The state tax rate is \$0.05 per \$100 of valuation. In fiscal year 2009, the state received \$700,000 in receipts from this tax, implying an inventory value of over \$1.4 billion. Using historical data on General Fund receipts from this tax we can see the upward trend in inventory values over the past twenty-five years. See chart.

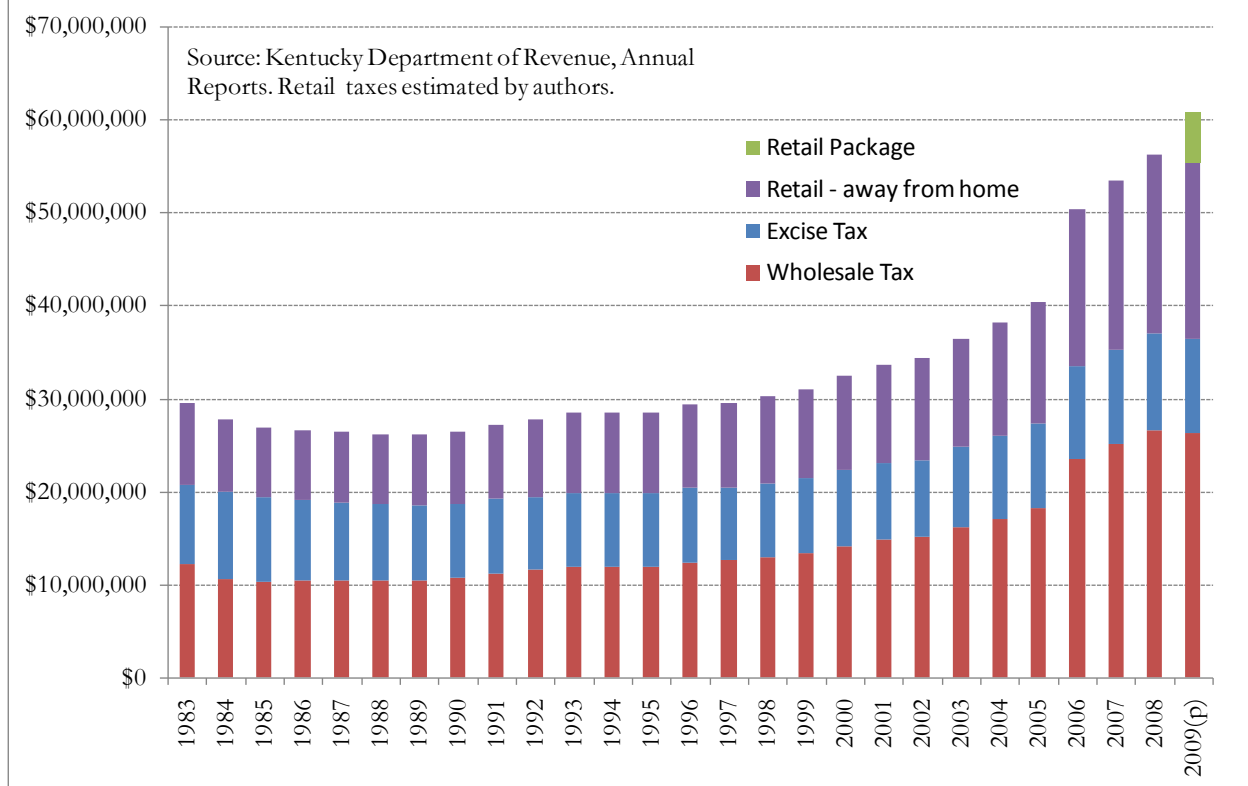


Alcohol consumption taxes

Kentucky state government levies a number of taxes on alcohol sales generally, and distilled spirits in particular. Kentucky taxes alcohol consumption away from home (restaurants, bars, hotels) at a 6 percent rate, and now (beginning April 2009) levies the same rate on package sales at liquor stores. Kentucky also taxes at the wholesale level, with an 11 percent sales tax collected on transactions from wholesalers to retailers, and an excise tax of \$1.92 per wine-gallon of spirits sold. There is also a 'case tax' of \$0.05 per case levied on wholesalers, though this brings in only around \$100,000 per year in revenues to state government.

See the accompanying chart for historical data on tax receipts, some from state government reports and some estimated. Clearly, this has been a growing source of revenue for Kentucky state government. The wholesale tax will bring in around \$27 million in revenue to the Kentucky state General Fund in 2009, based on the wholesale value of liquor of about \$250 million. The excise tax will bring in over \$10 million in revenue this year.

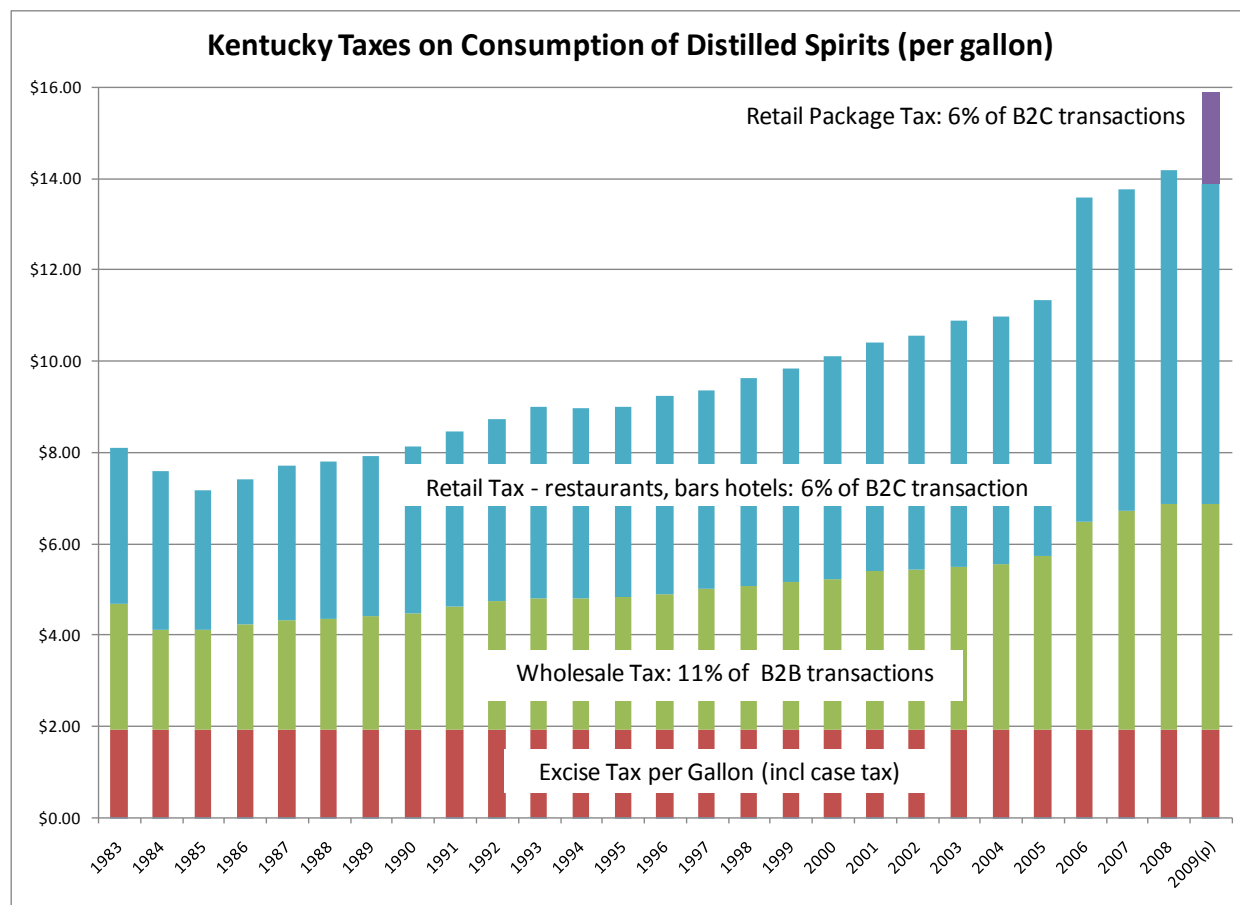
Kentucky State Tax Receipts on Consumption of Distilled Spirits, fiscal years 1983-2009



There are no published data on the amount of Kentucky sales taxes derived from selling distilled spirits at restaurants, bars, and hotels. However, we can make a good estimate using national data. According to the Census Bureau, sales of distilled spirits account for 1.5 percent of their hotel revenues and 4.1 percent of food and beverage establishments revenues. Applying these proportions to revenues of Kentucky restaurants, bars, and hotels, yields distilled liquor sales of \$182 million in 2002. We use historical growth in wholesale receipts to estimate retail sales away from home for other years, and multiply by six percent to estimate state tax revenues. There are no tax revenue data yet for the new 6% package retail tax, and we have made an estimate using retail sales data on liquor stores in Kentucky⁵. We estimate the retail tax will bring in around \$5.5 million revenues to state government in fiscal year 2010. The four consumption tax streams are shown in the accompanying chart, with Kentucky state tax revenues hitting \$60 million in 2009.

⁵ According to the 2002 Economic Census, 'Beer, wine and liquor stores' in Kentucky had \$392.6 million in retail sales. Based on national sales data, we believe that about 20 percent of package sales are for distilled liquor, 30 percent for wine, and 50 percent for beer. Using growth in overall distilled liquor sales since 2002, we estimate that there were \$91 million in package liquor store sales in Kentucky in 2009. A six percent tax rate therefore would generate \$5.5 million in state sales taxes. Our estimate is biased upwards to the extent that package stores sell other things besides alcoholic beverages (chips, soda, party supplies), but is biased downwards to the extent that distilled spirits are also sold in stores classified in other industries (drug stores).

It is not straightforward to aggregate these different tax rates, or do comparisons over time or with other states, because the tax *base* may vary by category of tax. Excise taxes are levied by volume (gallons, cases), while wholesale and retail sales taxes are levied by sale price. We have attempted to convert Kentucky's taxes on consumption of distilled spirits to a single basis to get insight into the total tax per unit, as well as the historic trends. For retail consumption, we assumed a fifty percent split between purchases at restaurants, bars and hotels versus package sales. Dividing sales tax receipts by gallons moving through the wholesale pipeline implies that the 6 percent retail tax in Kentucky amounts to tax of \$9 per gallon. The combined tax, wholesale and retail, on consumption is now about \$16 per gallon, double what it was in 1984.



The wholesale and retail taxes are important revenue streams to Kentucky state government. However, because they are based on household consumption, nearly all of these revenues would remain even if Kentucky's distilling industry were not here. Certainly, high taxes get reflected in higher prices of liquor in Kentucky, and consumers shift purchases to bordering states (and to other products) if their tax rates are lower. But this consumption substitution occurs independently of where the liquor production occurs.

Licenses and fees

Any business selling alcoholic beverages in Kentucky must pay annual license fees to local governments. This includes restaurants, caterers, hotels, bars, grocery stores, pharmacies, and

package stores. The fees vary by type of alcohol sold and by size of city. For example, a restaurant in Louisville offering liquor must pay the City-County government \$1,000 each year, compared to \$500 in Morehead. We do not know the total amount of fees paid annually to all the jurisdictions. Some alcohol sales are allowed in 66 counties, many of which have multiple cities of different sizes and liquor laws. Nevertheless, we can make a rough estimate from some published data. In Jefferson County, the Metro government handles all licensing throughout the county, and collects about \$2 million annually in license fees. The comparable number for the Lexington-Fayette Urban County Government is \$0.7 million. These two counties combined account for 23 percent of the state's population, but 30 percent of the retail sales by liquor stores, 37 percent of restaurant sales, and 46 percent of hotel sales. So, a reasonable estimate is that statewide alcohol license fees are about three times the collections in Jefferson and Fayette County, or \$8.1 million. Of course, not all of that can be attributed to distilled spirits. Using national ratios of retail sales of beer, wine, and spirits, we believe the spirits portion accounts for about 36 percent of alcohol sales. Thus, we estimate that distilled spirits accounts for \$2.9 million in license fees for local governments annually in Kentucky.

Tax revenues related to payroll of distilleries

We have considered the direct property taxes paid by distillers, the excise and sales taxes paid by consumers of distilled spirits, and the license fees paid by retailers. Next we turn to the income and sales tax paid by employees who owe their incomes to distillery operations in Kentucky. The most important categories are the Kentucky individual income tax, the Kentucky general sales tax, and the occupational taxes paid to local governments. In several counties, we suspect that the distillery's employees are the largest direct payer of occupational taxes among all places of employment.

Effective Tax Rates for Kentucky Income and Sales Taxes					
	Wages and salaries paid to workers in state	KY individual income tax		KY sales tax	
		tax receipts, FY	effective tax rate	tax receipts, FY	effective tax rate
2001	\$55,815,808,000	\$2,778,541,444	4.98%	\$2,248,471,100	4.03%
2002	\$57,005,796,000	\$2,702,510,022	4.74%	\$2,299,990,621	4.03%
2003	\$58,888,686,000	\$2,746,386,944	4.66%	\$2,364,182,478	4.01%
2004	\$61,850,210,000	\$2,796,331,049	4.52%	\$2,447,584,698	3.96%
2005	\$64,635,725,000	\$3,036,230,706	4.70%	\$2,594,966,373	4.01%
2006	\$67,890,447,000	\$2,918,610,982	4.30%	\$2,749,765,011	4.05%
2007	\$71,032,878,000	\$3,041,535,604	4.28%	\$2,817,652,253	3.97%
2008	\$73,024,870,000	\$3,483,137,317	4.77%	\$2,875,814,497	3.94%
average			4.62%		4.00%
Source: wages and salaries from US Bureau of Economic Analysis; tax receipts from Kentucky Department of Revenues <i>Annual Report 2007-08</i> .					

Kentucky income and sales tax receipts related to distillery payrolls can be estimated using effective tax rates⁶. Effective tax rates are calculated by dividing historical tax revenues by payrolls, as shown in the accompanying table. We use the average effective tax rates over the 2001-08 period. The effective income tax rate is 4.62% and the effective sales tax rate is 4.00%.

Multiplied times the total distillery-related payroll of \$442 million yields \$20.4 million in Kentucky individual income tax receipts and \$17.7 million in Kentucky sales tax receipts, for a total of \$38.1 million to state government annually. This represents an estimate of how much less in tax receipts Kentucky state government would receive from these two most important categories were the distillery industry to go to another state.

Next, we turn to occupational taxes received by local governments. We have identified eight local government jurisdictions that levy occupational taxes in locations containing Kentucky distilleries. There is apparently no occupational tax levied in Anderson County, and the Bullitt County distilleries are outside the city jurisdictions that levy an occupational tax. Most of these jurisdictions also levy a ‘net profits tax’ on companies, typically at the same rate as the tax on payrolls, but we do not have data on corporate profits subject to the tax.

Occupational Tax Rates in Jurisdictions Containing Kentucky Distilleries				
Distillery mailing addresses	County	City rate	County rate	School rate
Bardstown	Nelson	0.50%		
Boston	Nelson		0.50%	
Clermont	Bullitt			
Frankfort	Franklin	1.75%		
Lawrenceburg	Anderson			
Loretto	Marion		1.00%	
Louisville*	Jefferson		1.45%	0.60%
Owensboro	Daviess	1.33%		
Versailles	Woodford		1.50%	
Source: Kentucky Society of CPAs.				
* The County rate in Jefferson includes both the Metro Government rate of 1.25%, plus the 0.20% rate for Transit Authority of River City. The school rate applies only to workers who are residents of Jefferson County. The nominal rate is 0.75%; we have adjusted it down to 0.60% to reflect the historic percentage of payrolls of county workers who reside in Jefferson County.				

We have made estimates of the wages and salaries paid by each distillery, based on industry averages and some internal company data. We then applied the rates shown in the table to payrolls by jurisdiction. We estimate that the distillers and their employees *directly* paid \$3.2 million in occupational taxes to local governments in 2008. There is no feasible way to quantify

⁶ It is not valid to apply Kentucky’s top income tax rate of 6 percent to the wages and salaries of distillery-related workers, for several reasons. First, only household income above \$8,000 is taxed at the top rate. Second, employees and other income earners in their households may have other sources of taxable income beyond wages and salaries, including interest, dividend, and rental income, retirement income, farm income, business income, capital gains, etc. Also, households vary in the number of dependents they claim, as well as deductions claimed for mortgage interest payments, medical care, charitable donations, and the like. The effective tax rate method, shown here, is a standard way to estimate tax receipts to governments as a function of wages and salaries.

the amount of occupational taxes these (and other jurisdictions) receive from the spinoff impacts of distilling, that is, the taxes paid by employees of vendors and stores where employees spend their paychecks. Assuming that one-half of the spinoff payrolls from all distillery operations are also subject to these local occupational tax rates, we get a total of \$4.5 million in local occupational taxes statewide. The true number is probably higher, since nearly all jurisdictions with significant industrial and retail activity levy an occupational tax.

Taxation of distilled spirits in Kentucky compared to other states

It is difficult to compare taxation of distilled spirits among states, even when limiting the scope to consumption and ignoring the taxation of production. Many states levy excise taxes at the wholesale level, on a per gallon basis. Excise taxes are those levied on specific commodities, based on volume not as a percentage of sales value. Examples include gasoline per gallon, cigarettes per pack, and wine and beer (per gallon). Two states, Kentucky (11%) and South Dakota (2%), also levy a wholesale tax based on the value of the transaction between wholesalers and retailers. Eighteen states sell liquor through state-owned or price-regulated outlets: Alabama, Idaho, Iowa, Maine, Michigan, Mississippi, Montana, New Hampshire, North Carolina, Ohio, Oregon, Pennsylvania, Utah, Vermont, Virginia, Washington, West Virginia, Wyoming. These are often referred to as ‘control’ states as opposed to ‘open’ states⁷. These states effectively set retail prices by various mark-up formulas, with the purpose of enhancing state revenues and, in some cases, limiting access⁸. Additionally, most states levy a general retail sales tax that covers alcohol sales in restaurants, bars, hotels, and sometimes in package stores.

The Tax Foundation compiles a listing of state excise taxes each year. It collaborates with DISCUS to estimate excise taxes in states where liquor is only sold in state-owned or price-regulated stores. We have adjusted their estimates to include the wholesale tax, converting from a percentage to per gallon basis. The next table shows the rates for Kentucky and its bordering states (that are open), and a figure on the next page shows the rates for all states. Kentucky ranks highest among the open bordering states in the region, in terms of excise and wholesale taxes combined. Among all open states, Kentucky ranks second highest. This comparison does reflect differences in state taxation at the retail level, at restaurants and bars, or in package stores.

Excise and Wholesale Tax on Distilled Spirits, per gallon, Kentucky and Bordering States that are 'open'

Illinois	\$4.50
Indiana	\$2.68
Kentucky	\$6.87
Missouri	\$2.00
Tennessee	\$4.40

Source: Tax Foundation, www.taxfoundation.org, with estimate for Kentucky by authors.

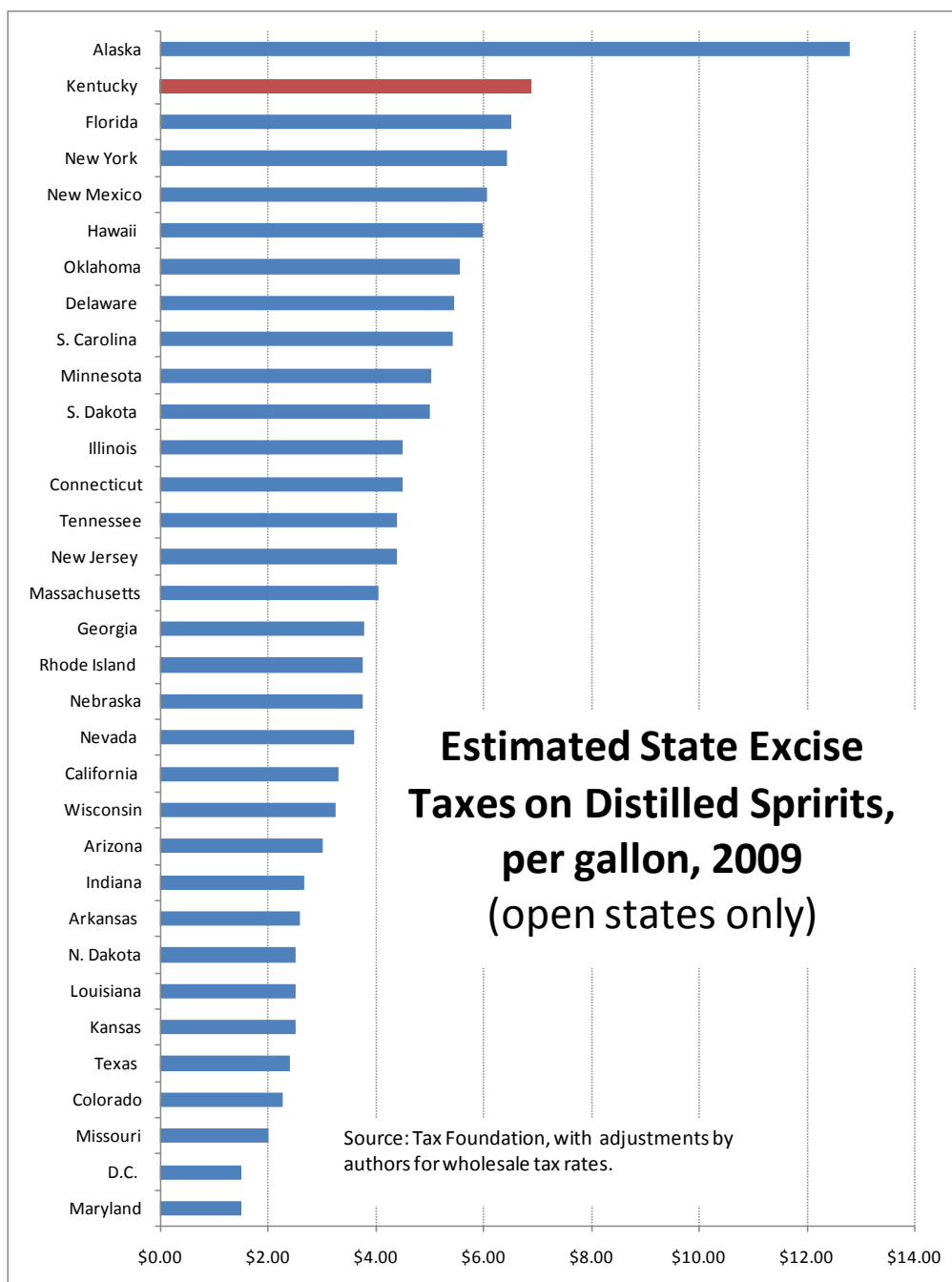
We know of one other study that compares Kentucky’s taxation of distilled spirits to that in bordering states⁹. The authors also examined taxation of beer and wine, and calculated *effective* tax rates for state and local governments. An effective tax rate is essentially the ratio of tax revenues to governments divided by total sales of the product. Their study included excise taxes, wholesale taxes, general sales taxes, and license fees for alcohol sales. They found that Kentucky had the fourth highest effective tax rate on distilled spirits among the eight states. However, the study was performed before Kentucky raised the wholesale tax rate from 9 to 11 percent, and

⁷ For a discussion, see http://en.wikipedia.org/wiki/Alcoholic_beverage_control_state. These states maintain a monopoly on wholesale prices, and in effect control retail prices.

⁸ In Ohio, for example, the state government is the sole purchaser of beverages with alcohol content above 21 percent. Private businesses contract with the state to retail the spirits products. The state controls the selection of spirits, as well as the prices charged to customers. It uses the pricing power to generate hundreds of millions in profit for the state treasury.

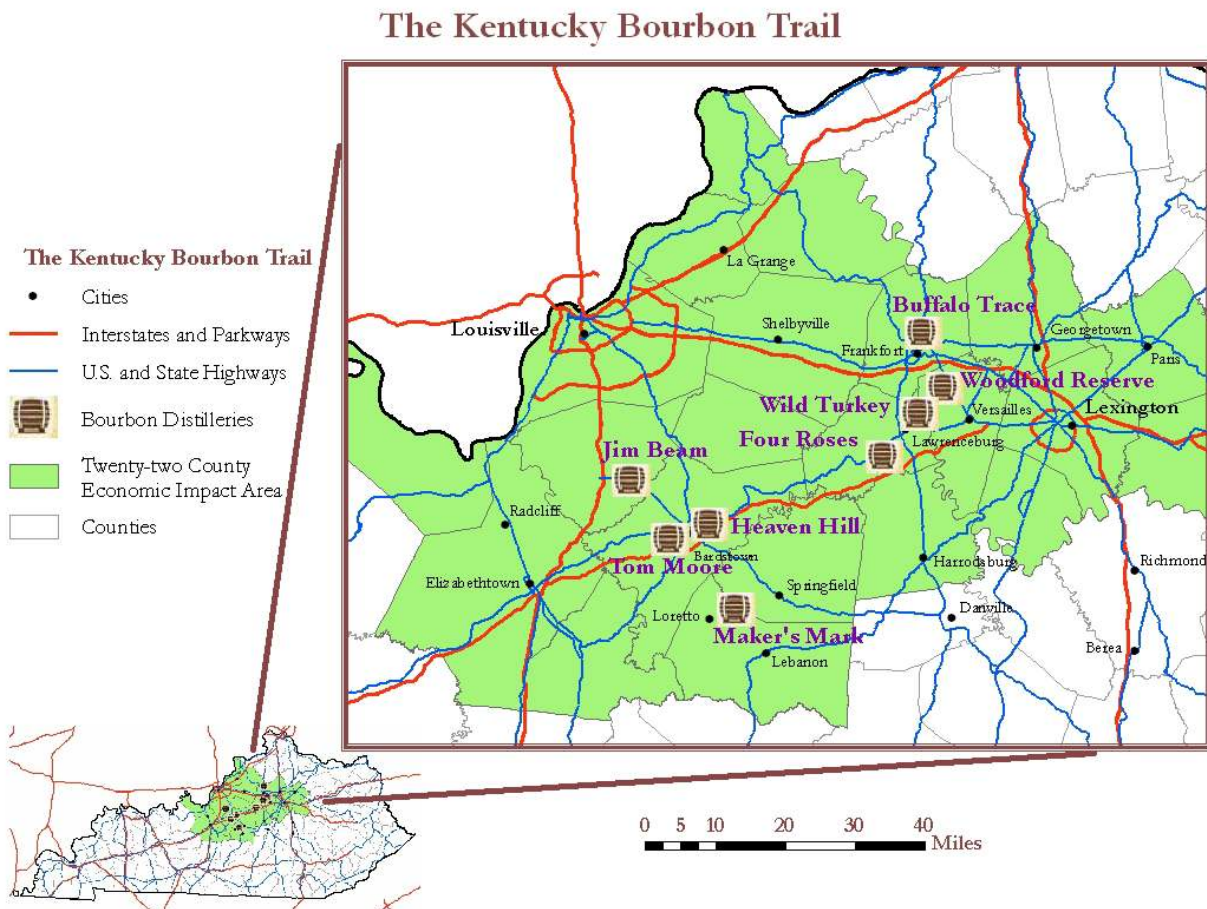
⁹ See “An Analysis of Taxes on Beer, Wine, and Spirits in Kentucky and Surrounding States”, by William H. Hoyt and Mark C. Berger, University of Kentucky, sponsored by The Kentucky Beer Wholesalers Association and the Wine and Spirits Wholesalers of Kentucky, March 28, 2002, 24 pages.

before Kentucky began applying the six percent sales tax to package sales. Tennessee ranks much higher in the UK study than in the Tax Foundation excise tax comparisons shown here because the UK study includes general sales taxes, including local sales taxes. Tennessee state government levies a 15 percent tax on liquor by the drink, plus a general sales tax rate of 7 percent, plus a local government sales tax which may be as high as 2.75 percent. Finally, the UK study included data on license fees levied on businesses that sell alcohol. These are fairly significant in Kentucky. For example, Jefferson County alone receives about \$2 million annually from these fees.



The Kentucky Bourbon Trail and its Tourism Potential

At the time of this study, the Kentucky Bourbon Trail referred to a string of eight distilleries in the Shepherdsville, Bardstown, Lawrenceburg, Versailles and Frankfort areas. The distilleries have venerable labels with worldwide brand recognition. Loyal, or simply curious, customers like to visit the places where the whiskey is made, to learn about the distilling process and people, and generally enjoy the pastoral settings. Like some wine regions of California and Europe, there is a potential to make the Trail a major tourism destination that can bring new dollars into the Kentucky communities and further enhance the spirits industry. Kentucky state government, local visitor and convention bureaus, and private businesses have been investing considerable time and dollars in establishing and marketing this tourism asset.

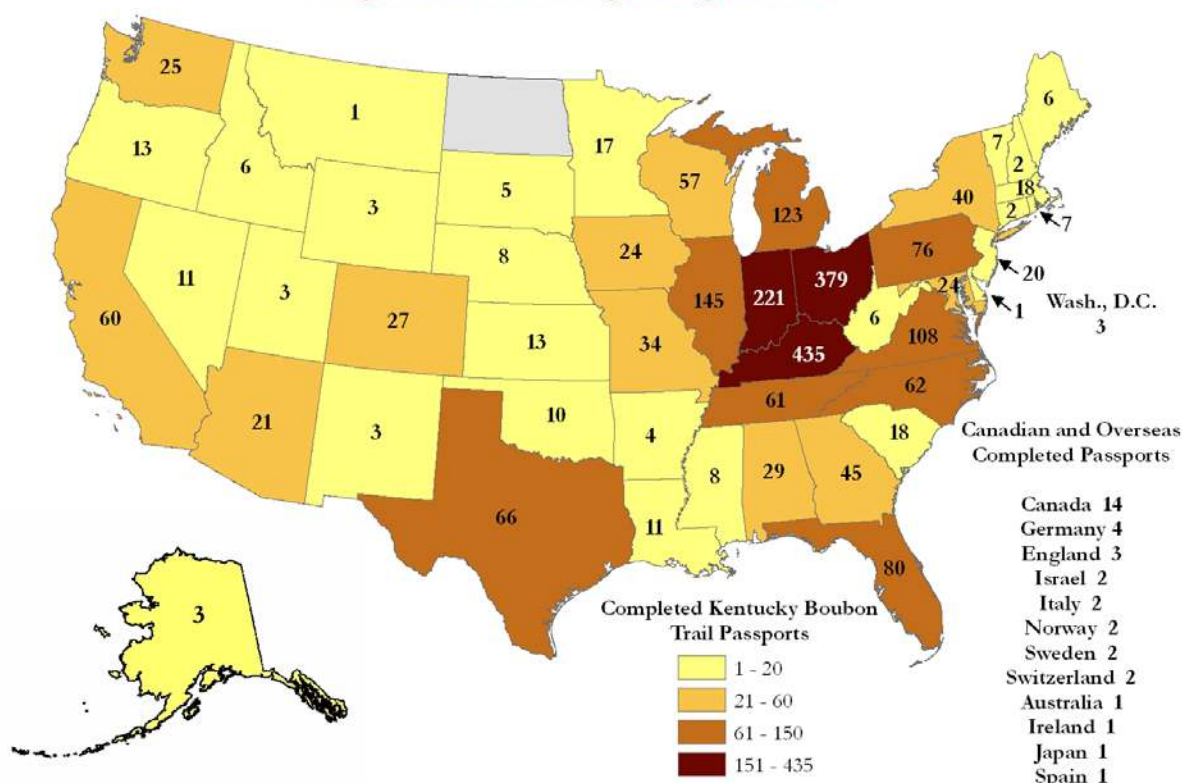


Sites, visitation data

In fact, there is evidence already of a tourism impact. The Kentucky Bourbon Trail has a program that recognizes people who visit all eight distilleries. Once a person has their 'passport' stamped at each site, they can mail it in to receive their free t-shirt. This program generates a database of people, along with their home addresses. Clearly, the Trail attracts nationwide patronage, as seen in the accompanying map. Of the nearly 2,400 passport holders who have completed the entire trail, only 435 live in Kentucky. Naturally, many passport holders are residents of nearby Indiana and Ohio. Other states with strong participation so far are Illinois, Michigan, Virginia, Florida,

Pennsylvania, Texas, North Carolina, Tennessee, and California. These people are clearly serious visitors, as it would take two days to visit and tour all eight distilleries. Some no doubt did spread their visits over multiple trips, say on their annual snowbird migration from Michigan to Florida and back. There does appear to be a north-south orientation to the states of residence, corresponding roughly to the I-75 and I-65 corridors. If true, this suggests a marketing target, and this is the logic behind the existing official signage along the north-south interstates. Over time, with good word of mouth and other advertising, regular interstate travelers may choose to stop for an overnight stay in Kentucky rather than Tennessee, Ohio, or Indiana. The potential economic impact of the enhanced tourism business is real.

**Location of Kentucky Bourbon Trail Passport Holders
Those Who Completed the Trail, Visiting All Eight Distilleries
August 2007 through August 2009**



We also took a recent snapshot of visitation, recording the license plate origin of vehicles in the visitor parking lots of the eight distilleries within two hours on Friday afternoon, May 29, 2009. We found a pattern similar to that from the passport program. Seventy of the 124 vehicles had Kentucky plates. We observed plates from 25 Kentucky counties, led by Jefferson, Fayette, and Franklin. We also observed plates from 16 states and Ontario. The states of origin, ranked by the plate count, were Ohio, Tennessee, Indiana, Illinois, Michigan, Louisiana, North Carolina, Texas, Florida, Georgia, New Jersey, Arizona, Maryland, Nebraska, Pennsylvania, and Virginia.

We do not know how many of the Kentucky plates were on rental cars. The high proportion of Jefferson County plates would be consistent with a story of at least a few visitors from California or Washington State who arrived by plane in Louisville and rented (or borrowed) a car for the

trip to a distillery. Also, we do not know how visitation on a Friday in late Spring compares to that of a major holiday weekend or the peak summer vacation season. Perhaps the truly long distance visitors account for a greater proportion during the peak times. Finally, while we did not observe any on our visit, there is clearly some group travel traffic to the distilleries. Some of the distilleries have special parking places for tour buses. And we know that some conventions held in Louisville offer day trips in buses to selected distilleries.

The distilleries already have gift shops and tours, and all the nearby communities have at least a limited hospitality industry linked to the tourists. Shops, restaurants, gasoline stations, motels and bed and breakfasts are the most impacted by visitor spending. Some rudimentary statistics on the number of visitors are available from the passport program and gift shop registries, but we have no solid data available on how far people have traveled, their primary and secondary reasons for the visit, how long they stay in the area, how many were in their party, and how much they spent on lodging, food, and travel. Without this kind of basic visitor profile data it is impossible to measure precisely the regional economic impact of the Trail. Nevertheless, some reasonable pro forma profiles can be constructed, based on other studies, and these can be used to quantify the potential economic importance under plausible assumptions. This is the approach we take here¹⁰.

Visitor profiles, impacts

The next table provides an array of possibilities, with hypothetical travelers varying by the purpose of their trip, length of stay, and expenditure profile. We have segmented visiting parties according to whether traveling the Kentucky Bourbon Trail is their primary purpose or not, whether they are staying overnight in area hotels or not, and whether they have well above average incomes or are just average travelers.

This results in eight possible types of parties, each with a different spending profile. We then assigned to each type of traveling party plausible estimates of their use of rentals cars and tour buses, the length of stay, and spending on lodging, meals, retail shopping, rental cars, and fuel. We also constructed a separate input-output model of the 22-county region that contains the Kentucky Bourbon Trail. The model represents the interindustry and household spending linkages within the region, and in particular reveals how hospitality-related spending impacts the



¹⁰ We had hoped to base Kentucky estimates on studies done in other states, particularly for wine regions like Napa Valley, California. However, unfortunately, after reviewing ten such studies we could not find any solid basis for making Kentucky estimates. The tourism component of the studies relied upon educated guesses and unsupported assumptions, as opposed to surveys of visitors or administrative records of businesses. Some are rife with double-counting of industrial impacts and invalid application of economic multipliers. Six of the studies –for California, Michigan, Napa County, North Carolina, Texas, and the US - were prepared by MKF Research, a consulting firm. Their studies attempted to estimate the impact of the entire grape and grape products industry, and while they provide some good supporting detail on the production side, offer no documentation on the tourism side. They report very large estimates of the tourism impact, but provide no concrete basis for the estimates. As best we could determine, no area – not even Napa, the biggest wine tourism region in the US – has made the effort to carefully track their visitors and their spending.

regional economy. We used the multipliers from the model to arrive at an estimated economic and fiscal impact on the region for each type of traveling party.

Consider the first column, where we analyze the potential economic impact of high income visitors who travel to the area for an extended stay, spending lavishly at hotels and restaurants. In this particular scenario, each such party spends about \$900 in the region that is directly related to the Kentucky Bourbon Trail. This spending leads to nearly \$1,400 in increased economic output in the region and about \$130 in various state and local government tax receipts. At the other end of the spending profile spectrum is a group of travelers of average income taking a day trip on the Kentucky Bourbon Trail as part of another trip to the area. Under our assumptions such a party would spend about \$80 in the region, leading to roughly \$140 in increased economic output in the region and \$14 in tax collections. The overall economic and fiscal impact of the Kentucky Bourbon Trail on the 22-county region depends upon the total number of visiting parties and their distribution among the eight market segments. Nevertheless, it is clear from the table that the potential impact of the Trail is considerable.

Of course, all of our assumptions in the table, though based on years of experience with these issues, are best guesses and actual spending by parties matching each segment may be quite different. Survey work could be done that would flesh out the spending patterns of parties in the different market segments and determine the distribution of visitors by market segment.

Potential economic impact of nonresident Bourbon Trail visitors								
	High Roller - primary purpose - overnight	High Roller - primary purpose - day trip	High Roller - secondary purpose - overnight	High Roller - secondary purpose - day trip	Average Traveler - primary purpose - overnight	Average Traveler - primary purpose - day trip	Average Traveler - secondary purpose - overnight	Average Traveler - secondary purpose - day trip
Residence, size of party, transportation mode								
number residing within 100 miles	0%	20%	0%	20%	10%	40%	0%	20%
number residing 100-200 miles away	10%	40%	20%	40%	30%	50%	30%	20%
number residing more than 200 miles away	90%	40%	80%	40%	60%	10%	70%	60%
number in party	2.5	3.0	2.5	3.0	2.5	3.0	2.5	3.0
Drive personal auto	40%	60%	40%	40%	60%	70%	60%	70%
Fly to region, rent car	50%	20%	50%	40%	10%	0%	10%	0%
Tour bus	10%	20%	10%	20%	30%	30%	30%	30%
Destination?								
Bourbon Trail sole reason for visit	100%	100%	0%	0%	100%	100%	0%	0%
Bourbon Trail a side trip around convention, family event, etc	0%	0%	100%	100%	0%	0%	100%	100%
Length of stay in region								
one day, no overnight	0%	100%	0%	100%	0%	100%	0%	100%
overnight, parts of two days	30%	0%	80%	0%	60%	0%	100%	0%
two overnights, two days plus	70%	0%	20%	0%	40%	0%	0%	0%
percent of overnight in hotel (rather than with friends)	100%	0%	100%	0%	100%	0%	100%	0%
Hospitality, visitor spending								
Lodging cost per night, assume one room per party	\$140	\$0	\$140	\$0	\$80	\$0	\$80	\$0
Restaurant spending per day per party	\$150	\$70	\$150	\$70	\$80	\$40	\$80	\$40
Retail shopping spending per day per party, including at distillery	\$100	\$70	\$100	\$70	\$50	\$30	\$50	\$30
Car rental cost per day, base rate	\$50	\$50	\$50	\$50	\$40	\$40	\$40	\$40
Fuel spending per day per party, including convenience purchases	\$13	\$13	\$13	\$13	\$10	\$10	\$10	\$10
Average 'new' dollars spent in Bourbon Trail region, per party all dollars spent & impacts assume visitors from outside 22 county region								
Lodging	\$238	\$0	\$168	\$0	\$112	\$0	\$80	\$0
Food and beverage	\$330	\$70	\$255	\$70	\$152	\$40	\$120	\$40
General merchandise	\$220	\$70	\$170	\$70	\$95	\$30	\$75	\$30
Car rental expense	\$68	\$10	\$55	\$20	\$10	\$0	\$8	\$0
Fuel, including convenience purchases	\$32	\$10	\$26	\$10	\$16	\$7	\$13	\$7
Economic multipliers, regional economy*								
Admission	1.315	1.315	1.315	1.315	1.315	1.315	1.315	1.315
Lodging	1.521	1.521	1.521	1.521	1.521	1.521	1.521	1.521
Food and beverage	1.565	1.565	1.565	1.565	1.565	1.565	1.565	1.565
General merchandise	1.513	1.513	1.513	1.513	1.513	1.513	1.513	1.513
Car rental expense	1.663	1.663	1.663	1.663	1.663	1.663	1.663	1.663
Fuel, including convenience purchases	1.426	1.426	1.426	1.426	1.426	1.426	1.426	1.426
Total economic impact on regional economy, per party								
Admission	\$25	\$30	\$16	\$20	\$25	\$30	\$16	\$20
Lodging	\$362	\$0	\$256	\$0	\$170	\$0	\$122	\$0
Food and beverage	\$516	\$110	\$399	\$110	\$238	\$63	\$188	\$63
General merchandise	\$333	\$106	\$257	\$106	\$144	\$45	\$113	\$45
Car rental expense	\$112	\$17	\$91	\$33	\$16	\$0	\$13	\$0
Fuel, including convenience purchases	\$45	\$15	\$37	\$15	\$23	\$10	\$19	\$10
Total increase in regional economic output, per party	\$1,393	\$277	\$1,057	\$283	\$616	\$147	\$472	\$137
Fiscal impacts, per party								
Local government lodging taxes	\$16	\$0	\$11	\$0	\$8	\$0	\$5	\$0
Local government occupational taxes	\$7	\$1	\$5	\$1	\$3	\$1	\$2	\$1
Local car rental taxes, fees	\$13	\$6	\$12	\$8	\$6	\$5	\$6	\$5
Kentucky state individual income taxes, induced by new payroll	\$17	\$3	\$13	\$3	\$7	\$2	\$6	\$2
Kentucky state sales taxes, including state lodging tax	\$55	\$9	\$42	\$10	\$24	\$4	\$18	\$4
Kentucky state sales taxes, induced by new payroll	\$17	\$3	\$13	\$3	\$7	\$2	\$6	\$2
Kentucky gasoline taxes	\$3	\$1	\$2	\$1	\$2	\$1	\$1	\$1
Total state and local tax revenues	\$128	\$24	\$98	\$26	\$57	\$14	\$45	\$14

* Multipliers derived from custom IMPLAN model, with region defined as 22 counties around and between Louisville, Elizabethtown, Bardstown, Frankfort, Versailles, Lexington.