

EMBARGOED UNTIL 1 P.M. EST, FEBRUARY 6, 2024

The Economic and Fiscal Impacts of the Distilling Industry in Kentucky

Prepared for the
Kentucky Distillers' Association



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December 31, 2023

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Executive Summary

Kentuckians have been making whiskey for over two centuries, from the days of farm stills to 19th century industrialization, through economic downturns and Prohibition, up to the current renaissance of Bourbon. Over the last two decades, every important economic measure of the distilling industry has risen to unprecedented levels – facilities, production volume, inventory, employment, payroll, investment, visitation and taxes generated. And the popularity of Bourbon has spawned distilling operations to all regions of the state, in contrast to the geographic centralization of the 20th century which concentrated in the area between Louisville, Bardstown and Lexington and coined the “Amber Triangle.” This century also brought the emergence of “Urban Bourbon,” with distilleries and tasting rooms in downtowns, as well as Bourbon-themed hotels, B&Bs, Air B&Bs and short-term housing rentals.

It is estimated that Kentucky produces and ages 95 percent of the Bourbon sold in the world. Kentucky companies are also involved in distilling, bottling, packaging and shipping many different kinds of distilled spirits, sometimes distilled elsewhere and brought to Kentucky facilities for final processing. Nearly all large distillers market their products outside of Kentucky and the United States, making distilled spirits a major export industry for the Commonwealth. We estimate that only four percent of Kentucky spirits produced are purchased by Kentucky customers¹. Most recently, whiskey exports have rebounded after the retaliatory E.U. tariffs were suspended two years ago. And, the Covid-related downturn in Bourbon tourism in 2020 was followed by strong growth in distillery visits and gift shop sales.

The sales of distilled spirits support the wages, salaries and benefits of workers in the state’s distilling industry, as well as those employed by suppliers to the industry. The dollars circulate further as employees spend their income in the regional economy, generating jobs and income in retail and service industries. We estimate that the total annual economic impact of the distilling industry is 23,100 jobs, with annual wages and salaries of \$1.63 billion, producing \$9 billion of economic output. These are reasonable estimates of what would happen in the state in the event the distilling industry disappeared from Kentucky.

This is the seventh statewide economic study of the distilling industry that we have conducted for the Kentucky Distillers’ Association (KDA) since 2009². Our first report identified 19 distilling establishments in eight counties, directly supporting about 3,000 jobs. There are now 100 distilling establishments in 42 counties. Kentucky distillers employed approximately 7,000 people

¹ Our 2022 IMPLAN model of Kentucky shows \$5,981.4 million in production of the commodity “Distilled liquors, except Brandy”. It predicts that the “Local Use of Local Supply” is only \$234.8 million.


² This study, finalized at the end of 2023, primarily refers to economic and fiscal activity in 2022. The first study, released in and titled ‘2009’, primarily refers to activity in 2008. Some of the data used are on a calendar year basis, and other data are on a July to June fiscal year basis. In all cases, we report the latest data available.

in 2022. The current study updates our six previous studies, offering an examination of distilling industry growth, impact on other industries in Kentucky, and contribution to state and local government tax revenues. Among the most important and interesting findings are:

Size

-  The state database on licensed distillers reveals 100 distilling locations operated by around 84 companies in Kentucky as of 2023, with several more license applications in the pipeline. This is five times the number of distilleries documented in our original 2009 study, with most of the growth due to the emergence of small ‘Craft’ distilleries. There are distilleries now in 42 counties, more than a third of the state’s 120 counties. While Craft distilleries are distributed throughout the state, large ‘Heritage’ distilleries remain concentrated in the ‘amber triangle’ region of Central Kentucky between Lexington, Bardstown and Louisville, but also as far away as Owensboro and Northern Kentucky.
-  Kentucky distillers produced 2.7 million barrels of Bourbon in 2022, and now have a record 12.6 million Bourbon barrels stored in warehouses. Counting other spirits such as Brandy, there are 13.3 million barrels of spirits aging in Kentucky.
-  In 2022 there were approximately 7,000 people working directly in Kentucky’s distilled spirits industry with annual labor income of \$847 million (wages, salaries, benefits, proprietors’ income). Federal economic statistics indicate that over the last two decades, the number of distilling establishments in Kentucky has increased five-fold, with employment more than doubling. Average annual pay per wage and salary job was \$94,000, up from \$54,000 in 2002.
-  KDA members reported capital spending of \$1.9 billion over the last five years, almost equally split between construction and other items, such as machinery, equipment and furnishings. Moreover, they plan to spend \$3.5 billion over the next five years for a total of \$5.4 billion in capital investment over the 10-year period. Every KDA member, whether a large Heritage producer or a small Craft distiller, reported significant investments. This reflects a steady continuation of billions in investment spending we have documented over our previous studies.

Economic Impact

-  The full economic impact of the distilling industry includes the linked activity of suppliers and new household spending. In our original study, focused on 2008 activity, we estimated the total economic impact in Kentucky to be 9,848 jobs and \$442 million

in payroll. For 2022, we estimate that the total economic impact has grown to 23,100 jobs and wages and salaries of \$1.63 billion – more than double that of 14 years prior.



The distilling industry in Kentucky has been steadily adding jobs over the past two decades, while on net, the remainder of the state’s manufacturing industry has shed about 20 percent of its employees.



Due to the rapid rise in Craft distilleries in all 50 states, Kentucky’s share of the national industry has been slipping. Kentucky’s share of distilling establishments fell from 24 to 6 percent over the 2001-2022 period, while its share of employment fell from 43 to 27 percent. Kentucky’s share of distilling payroll fell from 40 to 37 percent of the U.S. total. Kentucky’s higher share of payroll is due largely to the presence of high-paying professional jobs at headquarters here. In 2022, the average pay per job in Kentucky distilling was \$94,000, compared to the national average of \$69,000. So, while the industry has grown in terms of geographic locations around the U.S., Kentucky remains the largest player in terms of overall production, employment and payroll.



Kentucky distillers shipped over \$508 million of spirits products abroad in 2022, with whiskey accounting for 80 percent of the total and Bourbon the main component. Whiskey exports have recovered from the tariff-induced decline in 2020 that reduced Kentucky exports by \$170 million. Other products exported by Kentucky distillers include Brandy, liqueurs, cordials, vodka, rum and gin.



Distilling continues to have a very high job multiplier across 322 manufacturing industries with activity in Kentucky. Only one industry has both more jobs and a higher employment multiplier than distilling - light truck and utility vehicle manufacturing.



We estimate that the economic impact of the planned \$3.5 billion investment spread evenly over five years, or \$700 million per year, would be associated with a total of 5,600 new jobs each year and \$346 million in labor income.



We estimate that Kentucky distillers purchased about 28.3 million bushels of corn and around 13.2 million bushels of other grains such as wheat and rye. Of that, we estimate that Kentucky distillers purchased 19 million bushels of corn and 2.6 million bushels of other grains from Kentucky farmers. This represents about 9 percent of the state’s output of corn in 2022. Corn production grew faster in core distilling counties the past two decades than it did statewide. This correlated growth was especially apparent in Nelson, Shelby, Washington, Mercer and Marion counties – where large, heritage distillers are located. Nelson County is, of course, home to many heritage

distilleries. Marion County is home to Maker’s Mark distillery, and has seen a tripling of corn production over the past 20 years.

Taxes



We estimate that the production of distilled spirits is responsible directly or indirectly for about \$226.8 million in state and local tax payments in Kentucky annually. The total includes local and state property taxes, local occupational taxes and Kentucky state individual income and sales taxes. Another \$130.7 million in taxes are generated from the consumption of distilled spirits in the state for a total of \$357.5 million in tax revenue annually, up from \$286 million in our last study. State government accounts for 82 percent of the total tax revenues, with 18 percent going to local government entities.



Kentucky remains the only jurisdiction in the world that levies a property tax over the years that spirits age, largely because other states and countries view aging as a part of the production process. For 2023, the Kentucky Department of Revenue estimates local and state governments will collect \$50.2 million in taxes on barrels (or barrel-equivalents) aging in inventory, and that inventory is assessed for state tax purposes at a record \$6.7 billion – up from \$1.5 billion in 2013. The 2023 General Assembly enacted a slow phase-out of the barrel tax, but it will generate significant tax revenues for the next two decades. Another \$13.4 million in property taxes were paid last year on distillers’ real estate and equipment.



Kentucky distillers, vintners and brewers paid more than \$1.9 billion in federal excise tax on alcoholic beverage production in 2022. Distilling dominates alcoholic beverage production in Kentucky, which has only a small wine and beer production sector. Kentucky accounted for 24 percent of all alcohol excise tax paid nationally, by far the largest share by any state.



Our IMPLAN model shows the distilling industry stands out from others in terms of the unusually high tax burden, with taxes accounting for 17 cents per dollar of output. Only three other industries generate a higher tax share – wholesale petroleum, amusement parks and arcades, and tobacco manufacturing – and all are much smaller than distilling in terms of Kentucky employment and payroll. Therefore, distilling is taxed higher than any other large manufacturer in Kentucky. The wine industry is taxed at 2.2 cents per dollar of output; breweries are taxed at 6.0 cents per dollar output. For most manufacturing sectors, the portion of each dollar of output that goes to taxes is less than a penny.



Only two 'market states' levy higher total taxes on spirits than Kentucky – Alaska and Washington. Kentucky's wholesale tax is almost twice that of Tennessee, the second biggest producer of American whiskey. Given Kentucky's prominence in Bourbon production, there is a stark contrast with the tax treatment in states that are prominent in wine and beer production. For example, California and New York are the largest wine producing states, and their wholesale taxes are among the four lowest states. Similarly, Missouri, Wisconsin and Colorado have among the five lowest wholesale taxes on beer, and these states are the largest beer producers.

The Size of the Distilling Industry in Kentucky

We treat the distilling industry here as the collection of firms that earn revenues primarily from distilling and selling spirits. These firms may engage in other revenue-generating activities, such as wooden barrels, tourism, research, managing and marketing other product lines (including wines and non-spirits products), and selling merchandise in their gift shops.

Economic statisticians attempt to classify industrial activity by business establishment, or location, based on their largest source of revenue. If a distilling company makes barrels in one location, distills Bourbon in another location, ages it in warehouses at another location, and has corporate offices at yet another location, then the company might have activity counted in federal economic data under four different industrial classifications.

The detailed industrial classification codes relevant to Kentucky's distilling industry are provided in Appendix A. We presume the companies would not be located in Kentucky were it not for their distilling operations, and hence for purposes of this study we attempt to count all of their activity as part of the industry.

Distilleries by location

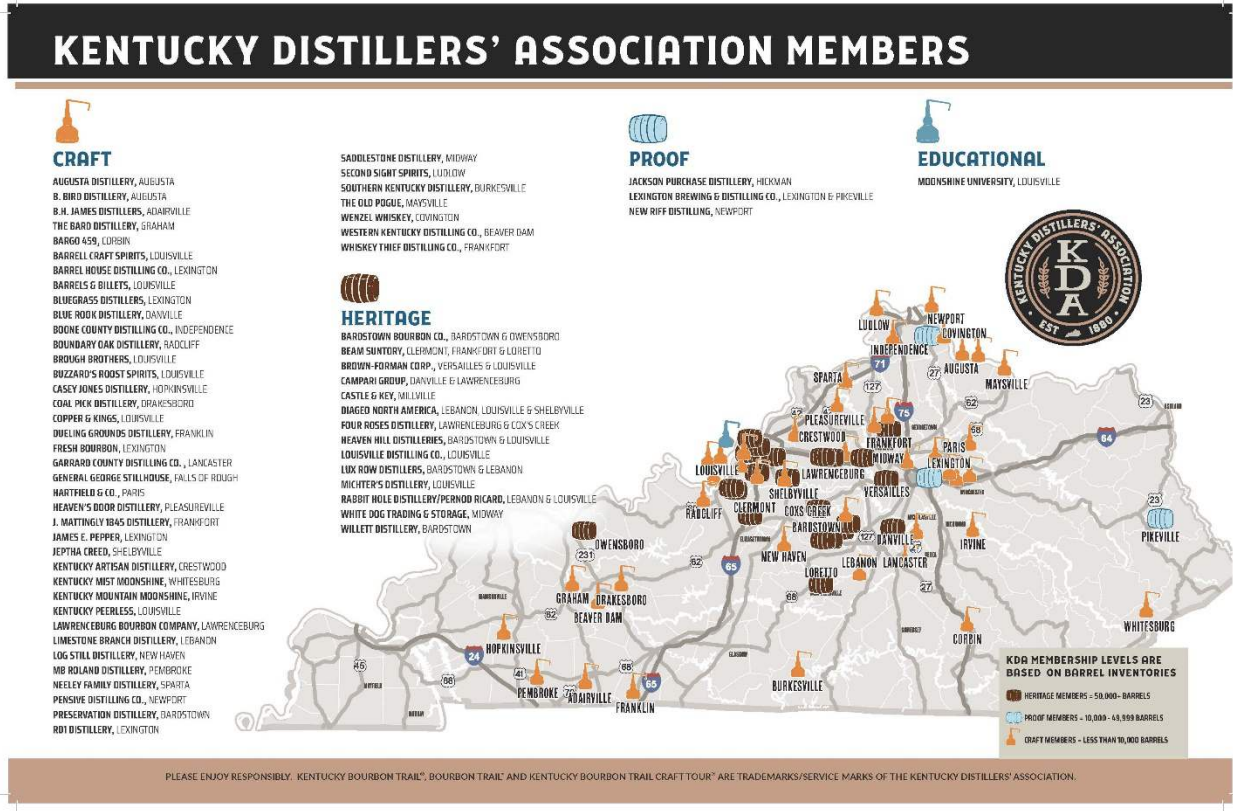
A comprehensive list of the current licensed distilling operations in Kentucky is provided in Appendix B. The operations may include only distilling or the whole range of distilling, bottling and office functions. The license database indicates there are distilleries in 100 distinct locations in 52 cities and 42 counties. About 84 separate companies own these distilling operations. Looking back at our previous studies, we see the number of distillery locations grew from 19 in 2008, to 31 in 2012, to 68 in 2017, 95 in 2021 and 100 in 2023. Four of the net new additions to the list since 2021 are large distilleries licensed to produce more than 50,000 gallons annually.

The major producers in the distilling industry in Kentucky are the Bardstown Bourbon Company, Beam Suntory, Brown-Forman, Campari, Castle & Key, Diageo, Four Roses, Heaven Hill, Bacardi, MGP, Michter's, Pernod Ricard, Sazerac and Willett. All of these except Sazerac are KDA members.

With the exception of BBC's Green River Distilling Co. in Owensboro, the larger distilleries are located near Interstates 64, I-65 or the Bluegrass Parkway. Smaller Craft distilleries have opened across the state. The map shows locations of KDA members throughout the state by level of membership. As of December 2023, there are now 64 member distilleries, up from only seven in our original 2009 study.

KDA has four levels of distilling membership: Heritage, Proof, Craft and Educational. Heritage members have an inventory of over 50,000 barrels. Proof members have an inventory of between

10,000 and 49,999 barrels. Craft members have fewer than 10,000 barrels. The KDA also now offers “Industry” level memberships to companies and organizations that have a direct link or affiliation with the Bourbon industry in Kentucky.

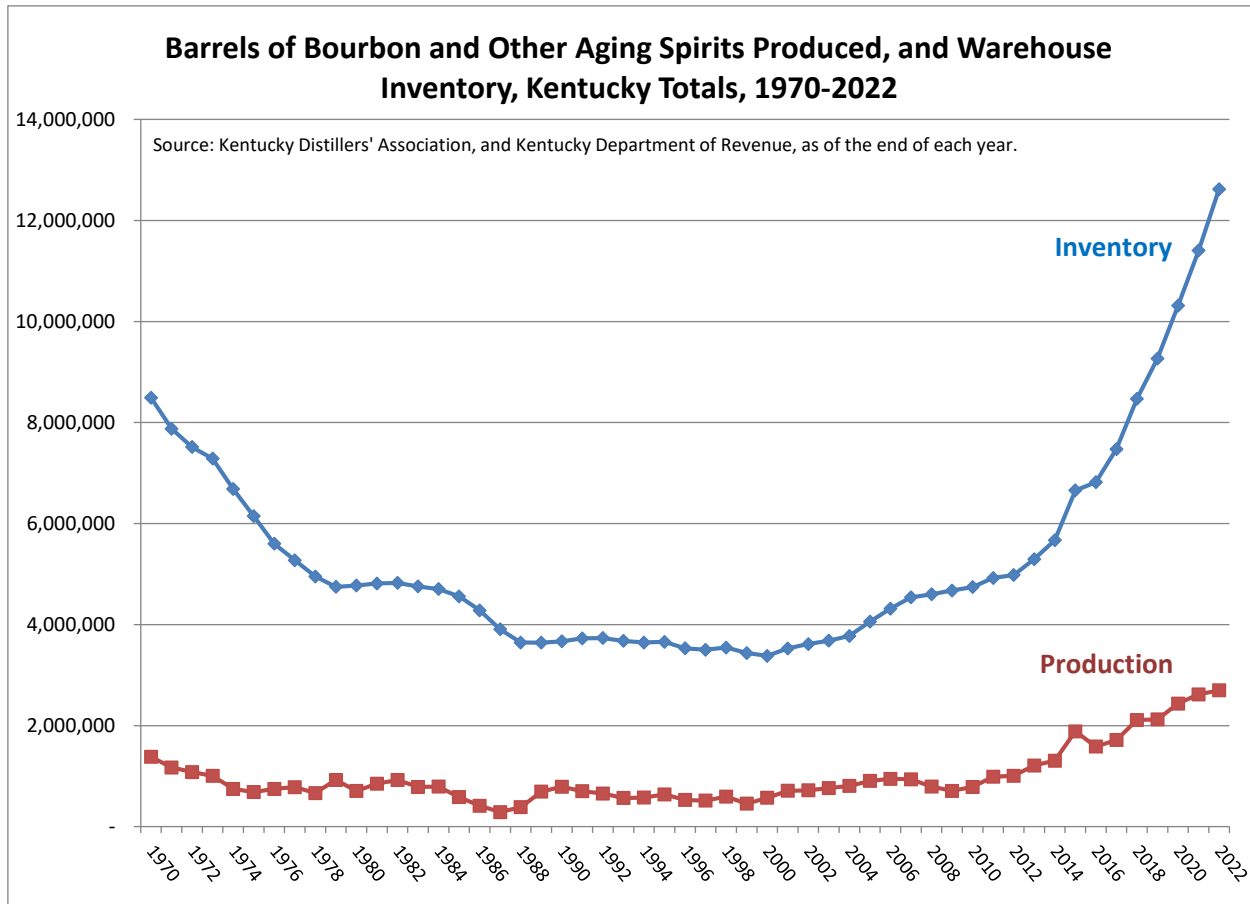


Bourbon production and inventory

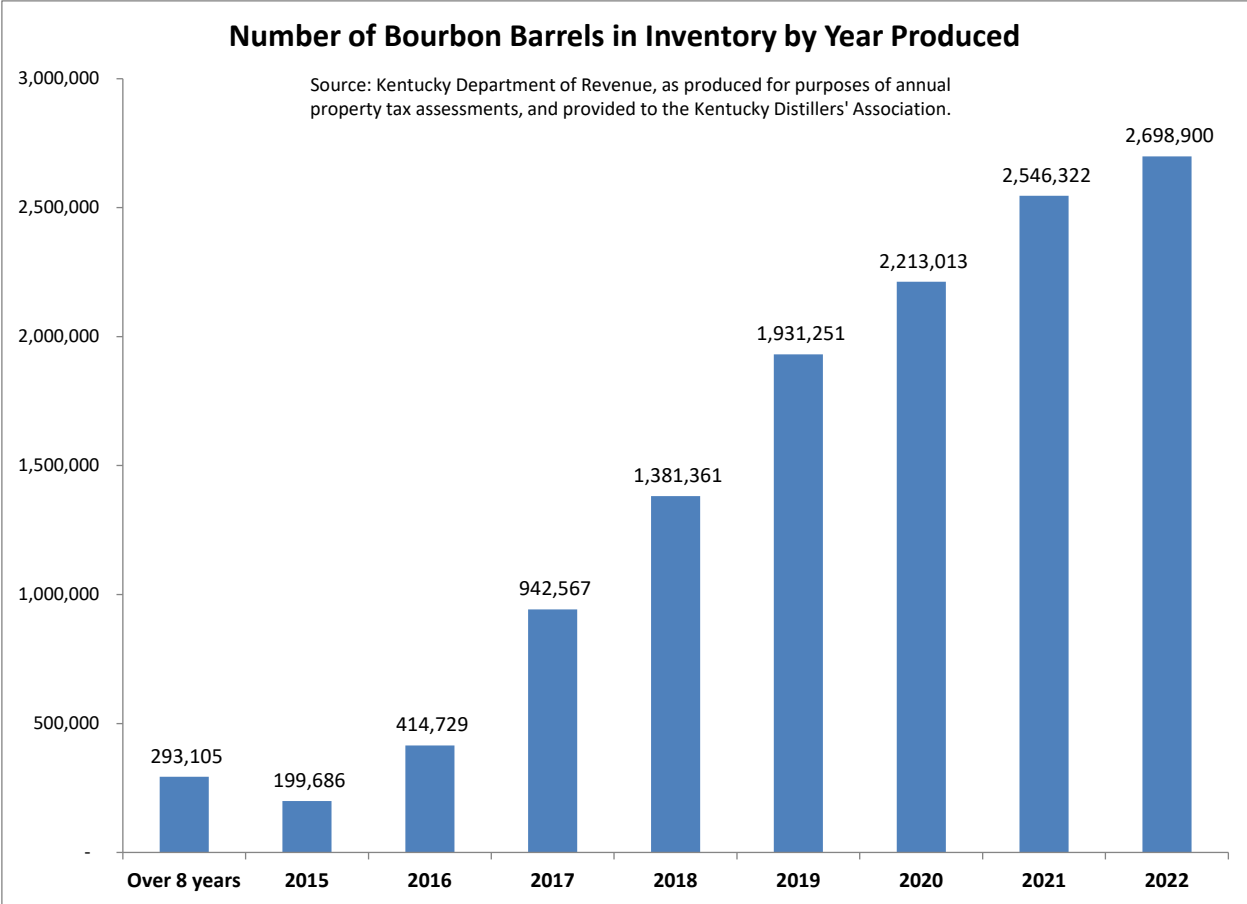
Unlike most other distilled spirits, Kentucky Bourbon is aged in new charred oak barrels and stored in warehouses for years before being bottled and shipped to customers. State and local governments tax this property while it ages, and therefore we have public data available on the amount placed into barrels annually, as well as the inventory of barrels by age. Data goes back decades, and we show the recent history in the charts below, all in terms of 53-gallon containers. One can see the drawdown in barrel inventory through about the year 2000, and then the effects of the increase in supply over the past two decades, with major investments in production facilities, new warehouses and barrel inventory. Indeed, annual production last year was almost four times what it was 20 years ago.

About 2.7 million barrels of new Bourbon were produced and added to warehouse inventory in 2022, the most recent year available. There were 13.3 million barrels of spirits aging in Kentucky warehouses as of December 31, 2022, of which 12.6 million were Bourbon. Bourbon dominates

the aging spirits category, which also includes about 100,000 barrels of light whiskey and single malt whiskey. The value of all inventory in bonded warehouses (which includes bulk inventory and cases being held for shipment as well as distilled spirits in barrels) was assessed for state tax purposes at a record \$6.7 billion for the 2023 tax year – based on end of 2022 number of barrels, and the increased valuation per barrel. Inventory subject to county-level property taxes (mostly in barrels) was assessed at \$2.9 billion for tax year 2023. See the fiscal impact section for a discussion of the differences between state and local tax bases.



Property tax records also reveal the age distribution of Bourbon barrels (and other aging spirits) in Kentucky warehouses. One can see in the chart below how inventories begin to be drawn down, particularly after four years of aging. However, there remains over 293,000 barrels that have been stored in warehouses for more than eight years. There is no minimum age statement for Bourbon, although it must be aged at least two years to be labeled “straight” Bourbon whiskey. If it is aged fewer than four years, the age must be included on the bottle label. The rise of premium Bourbon has led to increased “dumping” and bottling between the ages of four and 10 years.



There is no published official data on the annual value of production, or sales, by distillers of spirits in Kentucky. Annual production volume is obviously different than sales volume for most Kentucky spirits due to the need to age Bourbon for several years. And the value of products bottled or otherwise sold varies continually with changing market prices around the world. Our IMPLAN input-output model of Kentucky, which we use below to estimate economic impacts, predicts Kentucky distillers directly produced \$6.07 billion of direct distilling output in 2022. This is 26 percent of the \$23.31 billion IMPLAN predicts for the U.S. distilling industry as a whole, and is approximately the same than Kentucky’s share of national distilling employment (27 percent).

Employment and payrolls

In 2022 there were approximately 7,000 people working directly in Kentucky’s distilled spirits industry, with annual labor income of \$847 million. Labor income is made up of \$677 million in wages and salaries, \$153 million in fringe benefits, and \$17 million in proprietors’ income. Over the last two decades, the number of distilling establishments grew nearly six-fold in Kentucky. Distilling employment grew by 134 percent and wages and salaries grew by 305 percent since 2002. And, average annual pay per job was \$94,000 in 2022, compared to \$54,000 in 2002. There

are actually several different sources of employment and payroll data, and we discuss these at some length in Appendix C. The primary estimates of jobs and payroll we use for our modeling of economic impacts are derived from required employer filings for state unemployment insurance premiums, which we consider to be the most comprehensive and accurate of available estimates. IMPLAN employment estimates begin with the U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW) data and use other government datasets to estimate values that are either not publicly disclosed or not part of the QCEW data collection process. Over the last several years IMPLAN wage and salary employment estimates for the distilling industry have been very close to the QCEW figures and have tracked year-to-year changes very closely. Supplementary information obtained from a recent survey of KDA members, and from the Kentucky Directory of Manufacturers, also support the QCEW and IMPLAN employment estimates as the best snapshots of the entire distilling industry in Kentucky.

Exports of Bourbon and other distilled products

Kentucky distillers shipped over \$508 million of spirits products abroad in 2022, with whiskey (mostly Bourbon) accounting for 80 percent of the total. Other products exported by Kentucky distillers include grape Brandy, liqueurs, cordials, vodka, rum and gin. High retaliatory tariffs by the E.U. and China on U.S. whiskey, in response to U.S. tariffs on their steel and aluminum, caused Kentucky whiskey exports to fall from its historical peak of \$488.6 million in 2019 to \$319 million in 2020 – a drop of about \$170 million. Kentucky whiskey exports rebounded in 2021 and especially in 2022 after the E.U. tariffs were temporarily suspended, and last year amounted to \$508 million. The value of Kentucky whiskey exports is now triple what it was in 2000, reflecting growth in both volume and price. The leading importers of Kentucky spirits last year (by value) were Canada, Australia, Japan, Spain, United Kingdom and Germany. The Distilled Spirits Council of the United States (DISCUS) digs deeper into federal export data and breaks out Bourbon from the spirits category. The group shows \$375 million in Bourbon exports in 2022 on 21.2 million proof gallons of volume. Note, 73 percent of Bourbon is exported in bulk rather than bottled form. See Appendix E for more detail on exports.

Distilling's share of Kentucky and national economic activity

It is well known that we are amid a national boom in small, local distilling operations, similar to the craft beer movement in the previous decade. These are sometimes called Craft distillers or micro-distillers. We examine the growth of distillery establishments nationally in some detail in Appendix D and reveal the recent wide geographic spread. Nationally, distillers employing fewer than 10 people grew from 34 to 821 establishments between 2006 and 2021. Small distillers were in 58 U.S. counties in 2006, but by 2021 they were in 800 counties across the country.

However, there has been little change in the location of large distilling operations. Among the large employers, most are in Kentucky or adjacent states. Several Kentucky counties have distillery operations employing more than 400 people – Bullitt, Franklin, Jefferson and Nelson.

As we document in Appendix C, Kentucky’s share of distilling establishments fell from 24 to six percent over the 2001-2022 period, while its share of employment fell from 43 to 27 percent. Kentucky’s share of distilling payroll fell from 40 to 37 percent of the U.S. total. Kentucky’s higher share of payroll is due largely to the presence of high paying professional jobs at headquarters here. Interestingly, Kentucky’s share of national wages and salaries peaked in 2014 at 51 percent. The growth in payrolls since has been largely in production-related jobs as capacity expanded, not the headquarters. Nevertheless, in 2022 the average pay in Kentucky distilling was \$94,000, compared to the national distilling average of \$69,000. So, while the industry has grown in terms of geographic locations around the U.S., Kentucky remains the largest player in terms of overall production, employment and payroll.

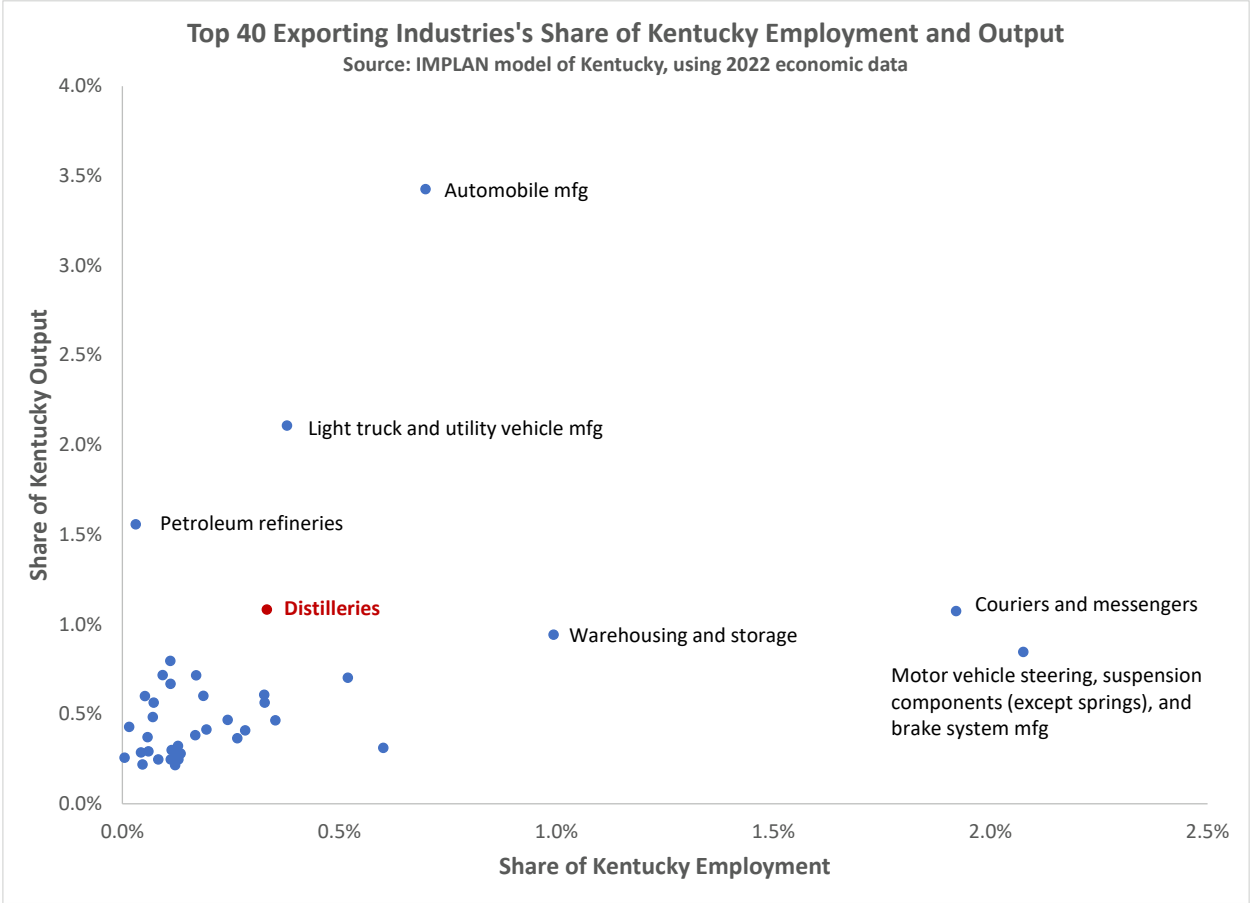
Distilling directly supports around 7,000 employees and proprietors, which is a small fraction (0.3 percent) of all employment in Kentucky. However, this is a narrow way to view the industry’s economic importance for several reasons. First, one needs to distinguish between employment that is based on making things we sell to other states and the rest of world, and employment that is based on producing things sold mainly to Kentucky households.

The export-based employment brings new dollars into the region and makes the economy larger, while the population-based employment essentially absorbs dollars already in the region. Distilling products are primarily exported out-of-state and the industry is an economic engine for Kentucky. Industries like grocery stores, most retail, health care, education and personal services exist to serve regional populations and hence expand only in response to growth in the population and income, which in turn is determined primarily by growth in Kentucky’s exporting industries³.

Second, employment is only one important indicator of an industry’s relative importance. Other economic variables include the value of output, regional value added, employee compensation and tax revenues generated. In all of these dimensions, distilling has a greater economic contribution than a simple employment count would suggest.

³ Complicating this is the fact that nearly all industries sell their output to a mixture of in-state and out-of-state customers. Even a barber shop will occasionally cut the hair of a visitor to the state, though 99 percent of its sales are to residents. On the other end of the scale, Ford sells some of its Louisville-built heavy-duty pickup trucks to Kentucky residents, though that represents a very small percentage of its total sales. The question is one of degree.

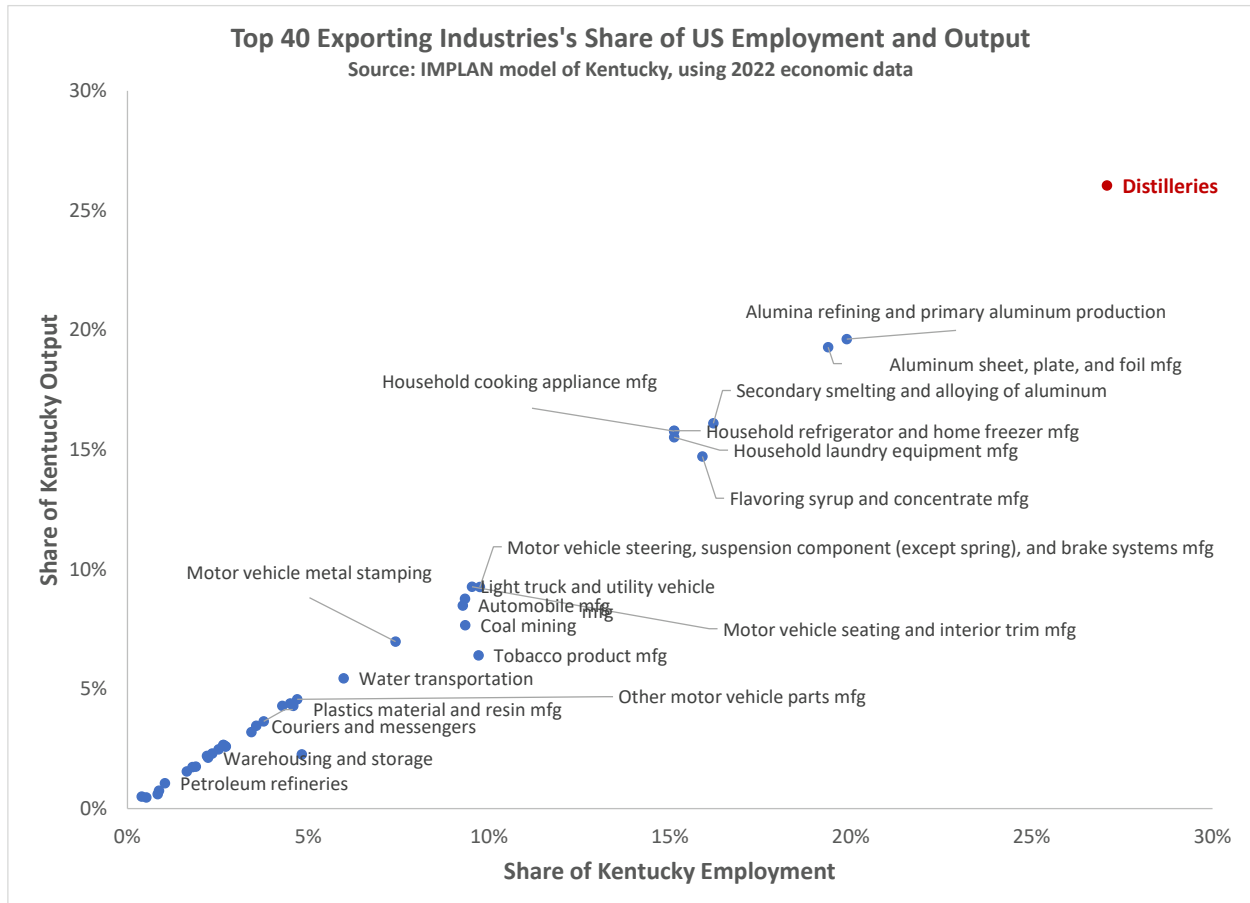
In the next chart, we highlight the 40 export-based industries in Kentucky that rank highest in employment as a share of the state total, using estimates from our IMPLAN model⁴. We also show their relative contributions to total state output. One can see distilling ranks fourth highest in terms of output contribution, reflecting the high value of the distilling product, as well as the high employee pay, dividend payments and exceptionally high taxes paid. In terms of contribution to state output, the auto manufacturing and light truck industries lead the way, followed by petroleum refining, then distilling. Not shown are the rankings in terms of employee compensation, where distilling ranks sixth among these major exporting industries.



Another way to look at the economic importance of industries in Kentucky is to examine what their share is of the national counterpart industries. This is summarized in the next chart. For 534 detailed industrial sectors, we divided Kentucky’s employment and output by the national totals for each industry. Clearly, distilling stands out by this measure, with 27 percent of national

⁴ We determined the list of major exporters by examining IMPLAN’s estimates of the value of domestic (to other states) and foreign exports for each industry, and eliminating those where Kentucky’s household demand was higher than the export value. For example, “Limited service restaurants’ had exports of \$2.2 billion, but Kentucky household demand was \$6.2 billion.

distilling employment, 26 percent of national output, and (not shown) 36 percent of national employee compensation. For comparison, Kentucky accounts for 1.4 percent of the U.S. population. No other major Kentucky exporting industry has higher shares of national employment, labor compensation and output than distilling. There is an empirical basis for calling distilling a signature industry in Kentucky⁵.



Impact of Covid-19

The Covid-19 pandemic publicly hit the U.S. in February 2020, and by March there were widespread business closures due to state government orders or private decisions to protect employees and customers. As was well-documented, many distilleries shifted production from spirits to hand sanitizer to aid the national effort to slow the spread of the virus. Bourbon-based

⁵ IMPLAN does not break out economic activity in the equine industry, another Kentucky activity often branded as 'signature'. Equine is embedded in Sector 14 "Animal production, except cattle and poultry and eggs". This sector is in fact dominated by hogs and pigs. In any case, Kentucky only accounts for 5.5% of U.S. employment and 2.6% of U.S. output in this sector. Coal mining is also a significant exporting industry, but Kentucky now accounts for less than 10 percent of national economic activity.

tourism certainly suffered in Kentucky as visitor centers closed and people stopped traveling except for essential needs.

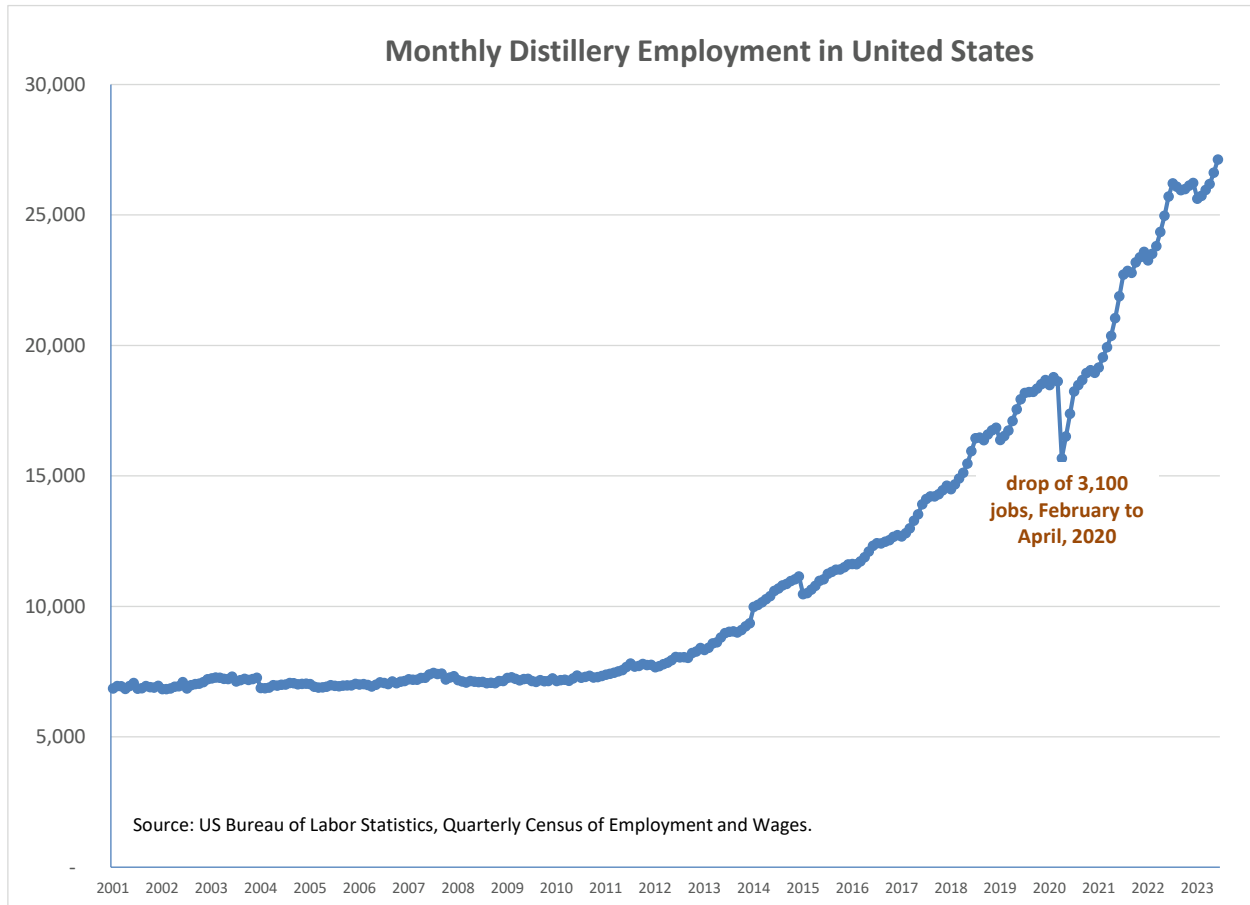
However, U.S. sales of domestic whiskey continued to grow in 2020, 2021 and 2022, as consumers shifted more toward home consumption and purchased more premium brands. National data from the Distilled Spirits Council of the United States (DISCUS) shows these trends over the past two decades⁶. The shift to more expensive brands, as well as the strong growth in cases sold, is evident in the chart. Suppliers had revenues of \$5.1 billion in 2022, inclusive of federal excise taxes paid. They sold 31.2 million cases of domestic whiskey last year in the U.S. Super-premium whiskeys accounted for only 2.4 percent of volume sold in 2002, but by 2022 its share had grown to 17.4 percent.



Monthly data on distillery employment is available nationally but not at the state level. However, as Kentucky accounts for almost a third of the industry employment, we can reasonably use the national data to discern the degree of retrenchment regionally. As one can see, monthly distilling

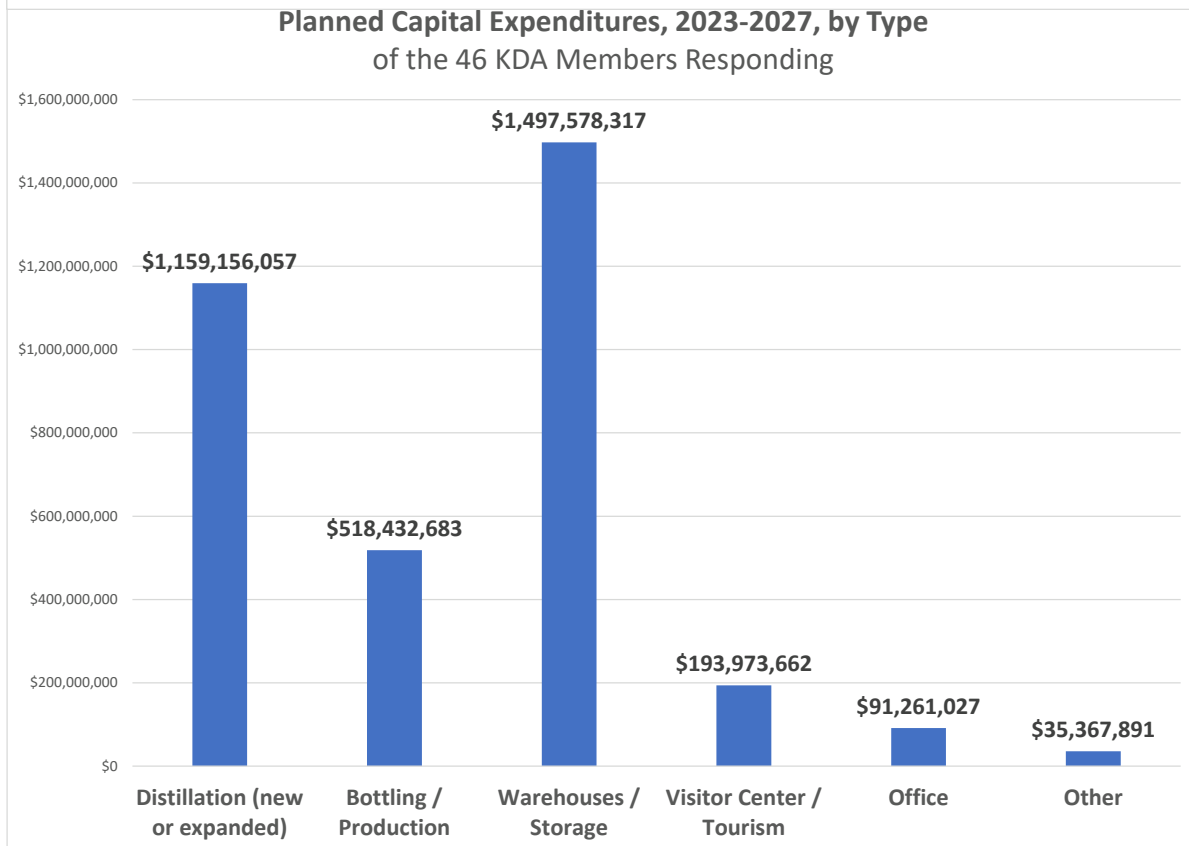
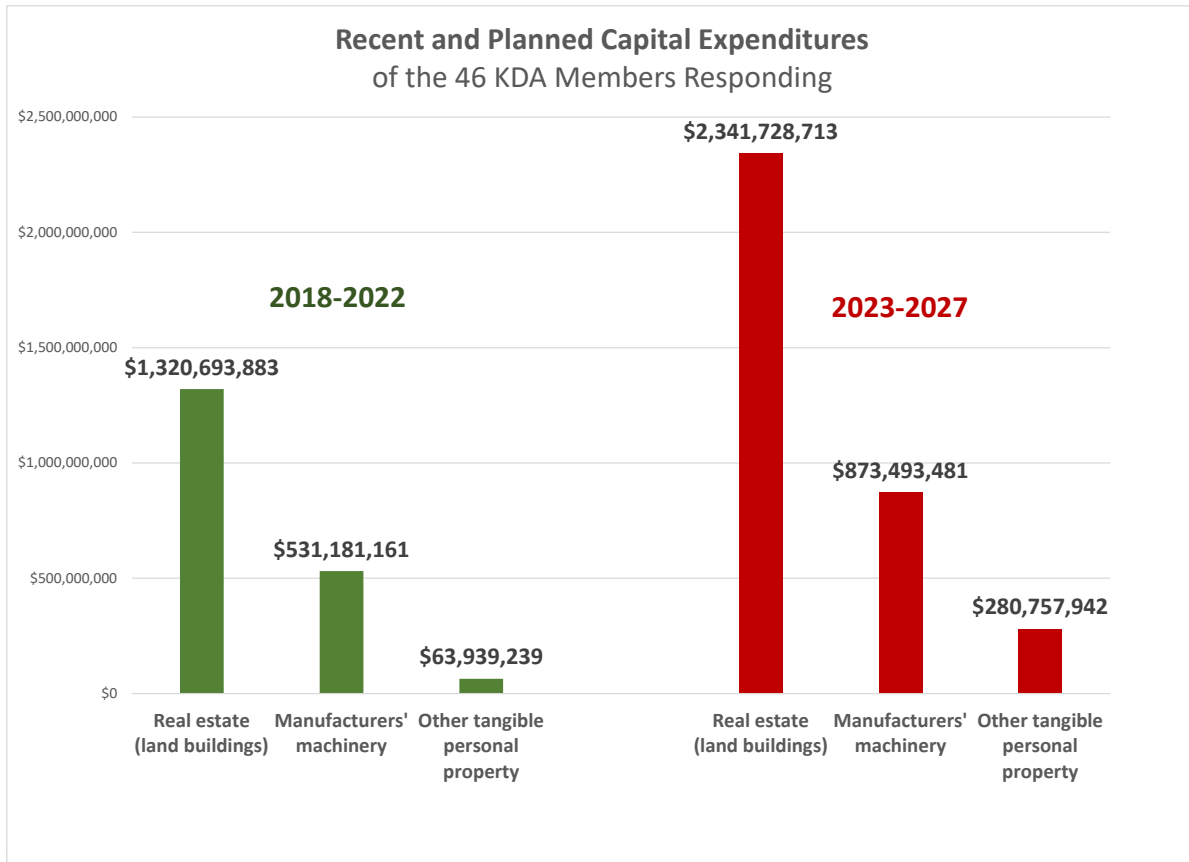
⁶ See www.distilledspirits.org/wp-content/uploads/2023/06/DS-Infographic-AmericanWhiskey-2023.pdf

employment in the U.S. declined by 3,100 jobs between February and April of 2020, but then began to grow again and surpassed its previous peak by October of that year. Wages and salaries also declined in the second quarter of 2020, by \$10.8 million compared to the same quarter in 2019, or 3.6 percent. Payrolls returned to robust growth in the third quarter of 2020.

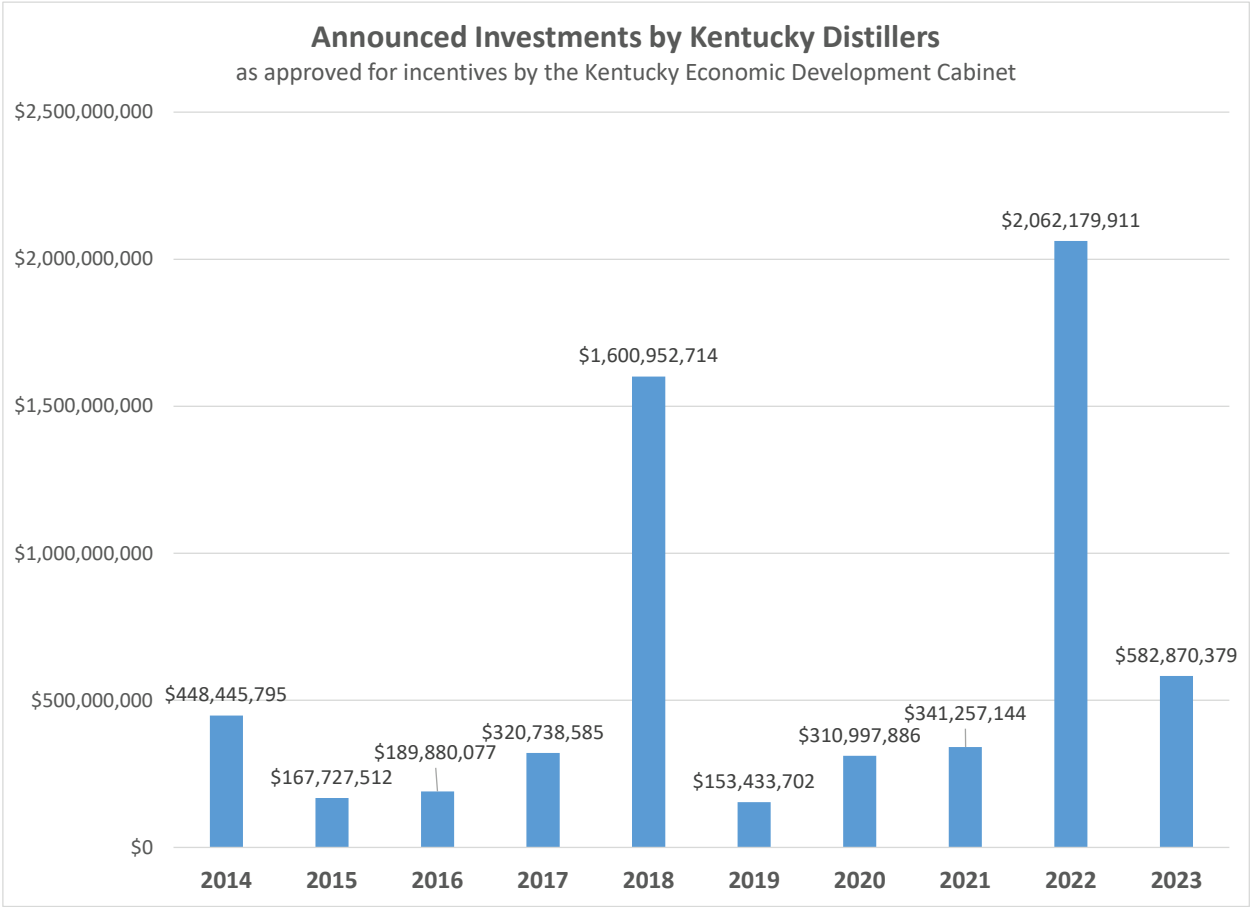


Recent and planned investments by Kentucky distillers

We surveyed all the KDA members during the Summer 2023, asking them to disclose their spending over the last five years on construction and other capital investments. We also asked their investment plans for the next five years. Clearly, the industry remains in major growth mode, with heavy spending on stills, warehouses, bottling facilities and visitor centers. Members reported capital spending of \$1.916 billion over the last five years, with two-thirds on buildings and land. Moreover, they plan to spend \$3.496 billion over the next five years. One can see in the chart below that most of the planned investment is towards direct production – distillation, bottling, warehouses. About \$194 million is planned for visitor centers, almost double the amount in our last study. Every responding KDA member, whether a large Heritage producer or a small Craft producer, reported significant investments. The Heritage producers, however, accounted for 88 percent of total investments, recent or planned.



A related measure of investment is available from the Kentucky Cabinet for Economic Development. The agency tracks publicly announced projects and records the planned investment and the projected number of new direct jobs. There were 178 distillery projects announced between 2014 and 2023, totaling \$6.2 billion in value and associated with 2,700 jobs. We have organized the data by year, as shown in the accompanying chart. Most of the investment was listed solely as production activity – distilling, bottling, warehousing. The remainder reported a mixture of investments, usually to include production, visitor centers, and offices. Seventeen projects mentioned a visitor center and 12 projects mentioned a headquarters investment. Keep in mind that projects approved for incentives, and announced by the Cabinet, do not always materialize. The distilleries only receive the incentives to the extent they generate the jobs.



Barrel production

Bourbon requires several years of storage in new charred oak barrels. Because of the concentration of Bourbon distilleries in Kentucky, as well as the state’s large endowment of oak forests, there are many cooperages and related operations here. A recent query of the database maintained by the Kentucky Cabinet for Economic Development revealed 11 barrel producing

The Distilling Industry of Kentucky, 12-31-23

operations with total employment of about 1,300⁷. We see operations in eight counties, with two each in Jefferson and Marion counties.

Kentucky Barrel Production Facilities, September 2023			
Company	City	County	Employment
Kentucky Cooperage (ISC)	Lebanon	Marion	460
Brown-Forman Cooperage	Louisville	Jefferson	186
East Bernstadt Cooperage	East Bernstadt	Laurel	190
Independent Stave Company (ISC)	Morehead	Rowan	130
Benton Wood Products	Benton	Marshall	91
Robinson Stave	East Bernstadt	Laurel	73
Zak Ltd	Hodgenville	LaRue	50
Canton Wood Products	Lebanon	Marion	37
Speyside Cooperage KY	Shepherdsville	Bullitt	27
SS Stave Co	White Plains	Hopkins	28
Kentucky Bourbon Barrel (ISC)	Louisville	Jefferson	13
Total			1,285
Source: Kentucky Economic Development Cabinet, Wood Container and Pallet Manufacturing, NAICS 321920 with product description mentioning staves or barrels, September 2023.			
ISC stands for Independent Stave Company.			

Grain purchases

The primary ingredient in Bourbon and other spirits is grain – corn, wheat, rye and barley. There is a relatively fixed ratio of grain required to produce, say, a barrel of Bourbon. Hence, we know from production records and our 2023 survey of KDA members that Kentucky distillers purchased about 28.3 million bushels of corn and around 13.2 million bushels of other grains such as wheat and rye. Survey respondents reported that 70 percent of corn used was purchased from Kentucky farms, up from 40 percent in our first grain survey in 2014. Only 19 percent of other grains used came from Kentucky. Applying these survey results to total industry production, we estimate that Kentucky distillers purchased 19 million bushels of corn, and 2.6 million bushels of other grains, from Kentucky farmers. USDA estimates that Kentucky farmers produced about 210.6 million

⁷ There is at least one other cooperage in Kentucky, not listed in the Directory: Kelvin Cooperage in Louisville. See <https://kelvincooperage.com/>

bushels of corn for grain in 2022. This implies that Kentucky distillers purchased about nine percent of the state's output. See Appendix G for more detail.

Other physical inputs

The linkages between distilling, workforce, cooperages, grain production and warehouses are evident from a distillery tour. What are the other important ingredients in the final product? A partial list includes copper stills, glass bottles, labels and caps. Industry veterans tell us most of these other ingredients are produced outside the state. Our IMPLAN model (see Appendix F for details), predicts a similar pattern of purchasing. The model predicts, for example, about 65 percent of needed wood containers and pallets are purchased from Kentucky suppliers, 80 percent of utilities, 89 percent of repair and maintenance services and 85 percent of transportation services. By contrast, just four percent of all needed glass containers and just 13 percent of plastic bottles are sourced in the state.

Economic Impact of the Distilling Industry in Kentucky

In this section, we analyze how production, jobs and payroll in the distilling industry ripple throughout Kentucky, creating even more economic activity. We use a custom input-output model of the state to represent the linkages between distilling and hundreds of other industries, as well as households, and then to predict the total economic impacts.

Employment, output, labor income

The next table provides our estimates of the distilling industry’s total economic contribution to the Kentucky economy in terms of employment, output, value added and labor income. It also presents the impacts by the type of effect. The direct effect is the economic activity of the core distilling industry. The indirect effect measures the inter-industry, or supply chain, linkages. And the induced effect measures the household impacts linked to the new personal income generated. The direct employment and income of distillers leads to a total of around 23,100 jobs with annual salaries and wages of \$1.63 billion, with full labor income including fringe benefits and proprietors’ income of \$2.16 billion, producing \$9 billion of economic output. This is an estimate of what would happen in the state if the distilling industry completely disappeared or became severely restrained by outside issues that made it impossible or impractical to operate.

Annual Economic Impact of the Distilling Industry in Kentucky				
Impact Type	Employment	Output	Value Added	Labor Income
Direct Effect	6,987	\$5,990,238,602	\$2,816,400,231	\$839,680,477
Indirect Effect	10,408	2,173,835,352	1,022,099,444	911,242,263
Induced Effect	5,738	833,420,224	493,260,511	406,397,062
Total Effect	23,133	\$8,997,494,178	\$4,331,760,185	\$2,157,319,802

Source: Modified IMPLAN model of Kentucky, using 2022 economic data.

Our economic impact analysis is based on approximately 7,000 distilling industry jobs across the state, including wage and salary jobs plus proprietors⁸. Our IMPLAN models have been customized to reflect the particular structure of the industry in Kentucky and all the functions of

⁸ The direct effect in the production section of the table is 6,987 rather than IMPLAN’s total of 7,066 because the activities of the distilling industry have an effect on itself, essentially spin-off into its own industrial sector. This is the case for any industry, and we do not want to double count this own-industry spin-off in an analysis of the contribution of an existing industry. IMPLAN suggests we back those effects out of the direct effect when simulating an entire industry. The remaining 79 jobs are portions of the indirect and induced effects in the table, so all industry employment (and output, income, etc.) is represented.

the production process, from distilling to barreling to bottling, shipping and marketing. Appendix F provides a more detailed explanation of the industrial linkages in the model.

Industries Most Affected by the Distilling Industry

Industry Sector	Employment	Labor Income
Wood container and pallet manufacturing	1,229	\$115,944,531
Truck transportation	828	\$81,161,098
Wholesale - Other nondurable goods merchant wholesalers	769	\$80,315,578
Employment services	667	\$39,681,949
Other real estate	645	\$25,695,707
Full-service restaurants	522	\$20,955,565
Hospitals	469	\$57,596,793
Grain farming	461	\$19,039,202
Limited-service restaurants	452	\$15,726,188
Management of companies and enterprises	342	\$52,826,095
Wholesale - Machinery, equipment, and supplies	306	\$36,684,134

Source: Customized IMPLAN model of Kentucky, using 2022 economic data.

Note: Labor income includes employee compensation and proprietors income.

Aside from the distilleries, the industries most affected by distilling in Kentucky are wood container and pallet manufacturing, truck transportation, wholesale trade, employment services, real estate, restaurants and bars and grain farming. According to the Kentucky Cabinet for Economic Development, there are at least 1,300 employees working in cooperages, stave manufacturing plants and used barrel refurbishers (all in the wood container manufacturing industry) throughout the Commonwealth, mostly in the eastern and south-central counties. All are operating at capacity.

Real estate, restaurants and hospitals are sectors that link to distilling primarily through household spending channels. For example, we estimate if Kentucky's distilling industry did not exist, there would be about 458 fewer jobs in full-service restaurants in the state. Hospitals, because they are huge employers and nearly everyone will need their services at some point, also are linked to activity in all other industries. As the distilleries and their suppliers expand, more employees and households are covered by commercial insurance, and thus generate revenues, jobs and payroll for hospitals.

Impact of capital expenditures

Distilling companies have invested billions of dollars into their facilities and equipment in the past two 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. Capital investments impact the economy through different channels than ongoing operations.

We already noted Kentucky distillers invested roughly \$1.9 billion in improvement projects since 2018. In addition, the distillers are planning another \$3.5 billion in projects over the next five years, with distillers expanding capacity, erecting new warehouses for barrel aging and putting more focus on the visitor experience, particularly among the KDA’s Kentucky Bourbon Trail® and Kentucky Bourbon Trail Craft Tour® distilleries. Here we estimate the potential annual impacts over the next five years from the planned investment.

We use our IMPLAN model of Kentucky to perform the analysis. The model has a sector entitled “Construction of new manufacturing structures” that fits this question, and has other tools to analyze expenditures on equipment. We simulated the impact of the planned \$3.5 billion investment spread evenly over five years, or \$700 million per year. One can see in the summary table below that the investments would be associated with a total of 5,600 new jobs each year and \$346 million in labor income, plus approximately \$37 million in additional property, sales and occupational taxes.

Estimate of Average Annual Impact of Kentucky Distilling Industry's \$3.5 Billion Investment Plans Over the Next Five Years				
Employment	Output	Labor Income	Property Taxes	Income, Sales, Occupational Taxes
5,638	\$913,560,007	\$345,684,985	\$6,991,960	\$29,696,779

Source: IMPLAN model of Kentucky, using 2019 and 2022 economic data.

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 1%, though the rate can be much higher in very urbanized places with intensive public services (schools, fire, police, libraries, streets, garbage pickup, EMS). Equipment is subject to tangible property tax rates, although items designated as ‘manufacturing machinery’ is exempt from local property taxes. Moreover, the taxable value of equipment depreciates over time, while real estate may appreciate. Assuming that all the property was valued at cost, using the overall tax rate of 1% implies that the direct investment leads to annual property tax revenues to local and state governments of \$7 million per year.

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 several million dollars in tax revenues for the project. However, when job growth is involved, companies often qualify for an exemption to the sales tax. Kentucky state and local governments would receive a one-time increase in individual income, sales tax, and occupational tax receipts of about \$30 million, using historical effective tax rates on labor income.

Taxation and Fiscal Impacts of the Industry

There are many types of taxes that distillers and the consumers of spirits pay, and the taxes go to many different jurisdictions in Kentucky. Distilleries remain one of the highest taxed of the 534 Kentucky industrial sectors we analyzed using our IMPLAN model. According to the model, 17.4 percent of the value of distillery output goes to taxes – a rate exceeded by only three of the sectors: wholesale petroleum, amusement parks and arcades, and tobacco manufacturing – sectors with a much smaller economic footprint than distilling⁹. The effective tax rate on distilling is higher than that of breweries (6.0 percent) and wineries (2.2 percent). To reiterate, distilling is therefore taxed higher than all other large manufacturers in Kentucky.

We estimate that Kentucky distillers were responsible for about \$226.8 million in state and local tax revenues in 2022. This is more than triple the amount of \$61.4 million in our first study year of 2008. On the consumption side, we estimate that Kentucky spirits customers paid about \$130.7 million in taxes, primarily to state government. This is more than double the amount of \$63.8 million in study year 2008.

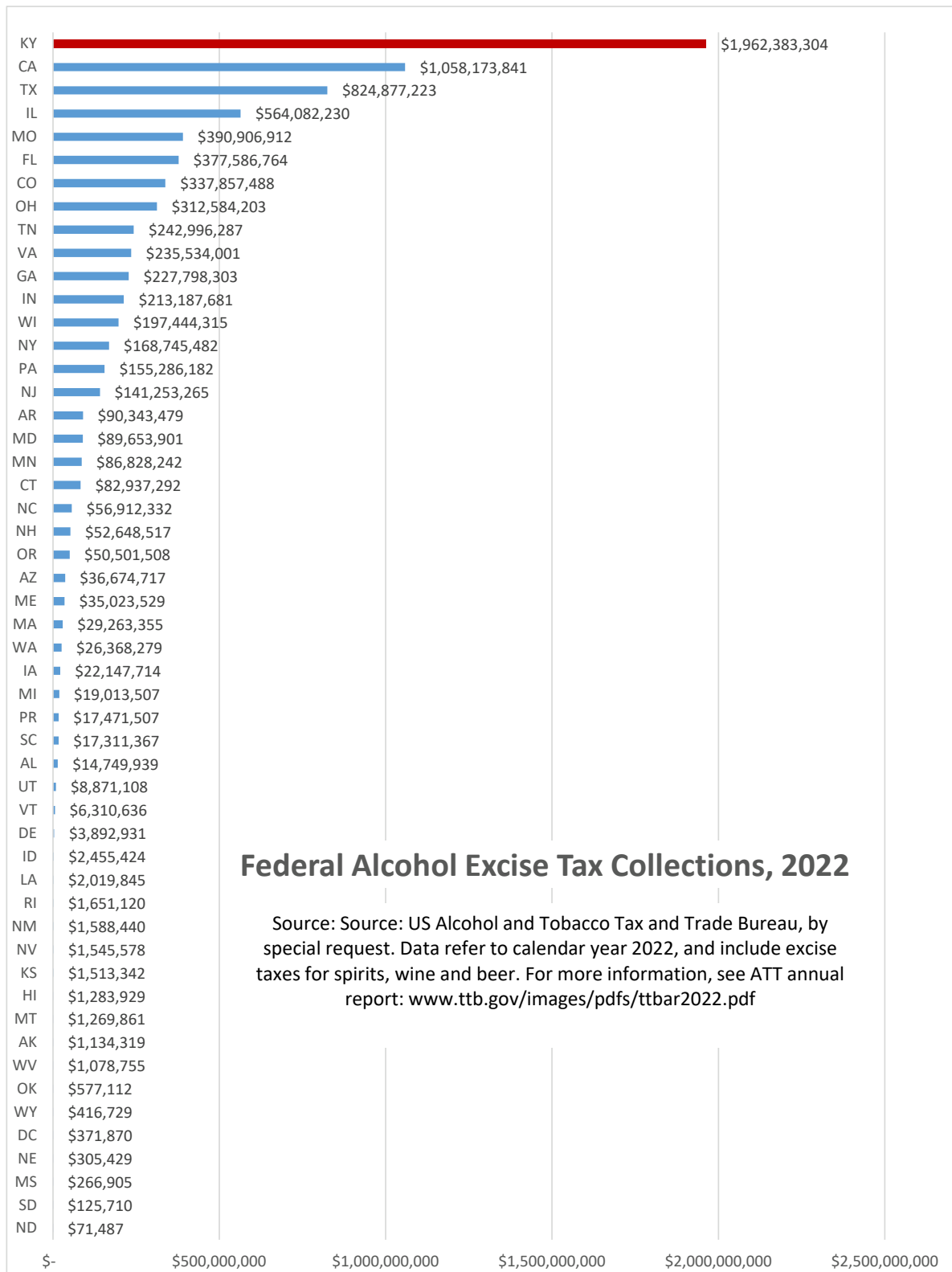
Economists have long noted that businesses do not ‘pay’ taxes, they only ‘collect’ taxes. Ultimately, people pay taxes. When a government levies a tax on a business, the business has three ways to find the money: raise prices, lower employee compensation or lower returns to owners of the business. In the case of alcoholic beverages, consumer demand is relatively inelastic with respect to price, so most of the tax gets passed along to consumers in the form of higher prices. Because nearly all Kentucky spirits are consumed by nonresident imbibers, this means that the revenues derived from Kentucky state and local taxes on the distilling industry are new dollars to the state. That is, these are tax revenues are used to provide public services to Kentuckians, but paid for primarily by non-Kentuckians.

Federal excise taxes

Before we look into the details of state and local taxation in Kentucky, it is worth noting how dominant the state is in terms of federal excise taxes on alcohol production. According to the U.S. Alcohol and Tobacco Tax and Trade Bureau, Kentucky is responsible for 24 percent of all federal alcohol excise tax collections, up two percentage points since 2020. See chart below. The collections shown cover not only spirits, but beer and wine. However, beer and wine production are small in Kentucky, and distilling clearly is the cause of Kentucky’s first-place rank. In 2022, Kentucky distillers remitted \$1.96 billion in excise taxes to the U.S. Treasury. The tax *rate* is \$13.50 per proof gallon of production. Thus, for example, one gallon of 100 proof Bourbon (50

⁹ The 17.4 percent effective tax rate for distilling in the Kentucky IMPLAN model is undoubtedly an underestimate. For 2022, IMPLAN shows \$1,057,896,362 in taxes on production, compared to distilling total output of \$6,071,727,687. As shown in the next section, the federal government collected over \$1.9 billion in excise taxes on alcoholic beverages in Kentucky, nearly all from spirits production.

percent alcohol) would generate \$13.50 in federal excise taxes paid by the distiller. For a standard 1.75 liter bottle of Bourbon, the federal tax would amount to \$6.24.



In the rest of this section, we look into many details of taxation of distilled spirits in Kentucky, not just of distilleries themselves, but through the distribution chain to wholesalers, retail package stores and restaurants and bars. Like most states, Kentucky has a three-tier system of regulation and taxation of alcohol products. Production is taxed at the distillery/bottling/storage sites. Wholesalers are required to remit separate taxes based on both volume and value in the process of supplying retail businesses. Then, restaurants, bars, package stores, groceries, pharmacies and other outlets collect a separate six percent state retail sales tax based on value.

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.

Estimated Annual Kentucky Taxes on the Production and Consumption of Distilled Spirits, 2022

	Local Public Schools	City, County, Other Local Governments	Kentucky State Government	Total
Production-related				
Property taxes - real estate and tangible property	\$6,982,198	\$3,106,341	\$3,307,716	\$13,396,256
Property taxes - spirits aging in barrels	\$20,846,573	\$9,187,059	\$2,384,002	\$32,417,634
Individual income taxes from distillery-related payrolls			\$80,585,017	\$80,585,017
General sales taxes from distillery-related payrolls			\$70,508,690	\$70,508,690
Occupational taxes from distillery-related payrolls	\$2,519,321	\$26,997,222		\$29,516,543
Distilled spirits license fees**		\$76,471	\$304,350	\$380,821
Subtotal	\$30,348,092	\$39,367,093	\$157,089,775	\$226,804,960
Consumption-related				
Wholesale case tax*			\$234,898	\$234,898
Wholesale excise tax on volume*			\$18,828,726	\$18,828,726
Wholesale tax on value*			\$73,923,974	\$73,923,974
Retail sales tax, restaurants, bars, other for on-premise consumption*			\$11,648,244	\$11,648,244
Retail sales tax, sales for off-premise consumption*			\$21,789,510	\$21,789,510
Distilled spirits license fees**		\$1,954,654	\$2,270,127	\$4,224,781
Subtotal		\$1,954,654	\$128,695,479	\$130,650,133
Grand Total	\$30,348,092	\$41,321,747	\$285,785,254	\$357,455,093

* Wholesale and retail taxes shown are for state fiscal year July 2022 to June 2023

** Production-related license fees are primarily for distillers and rectifiers licensees; consumption-related license fees are largely for retail and package drink licenses.

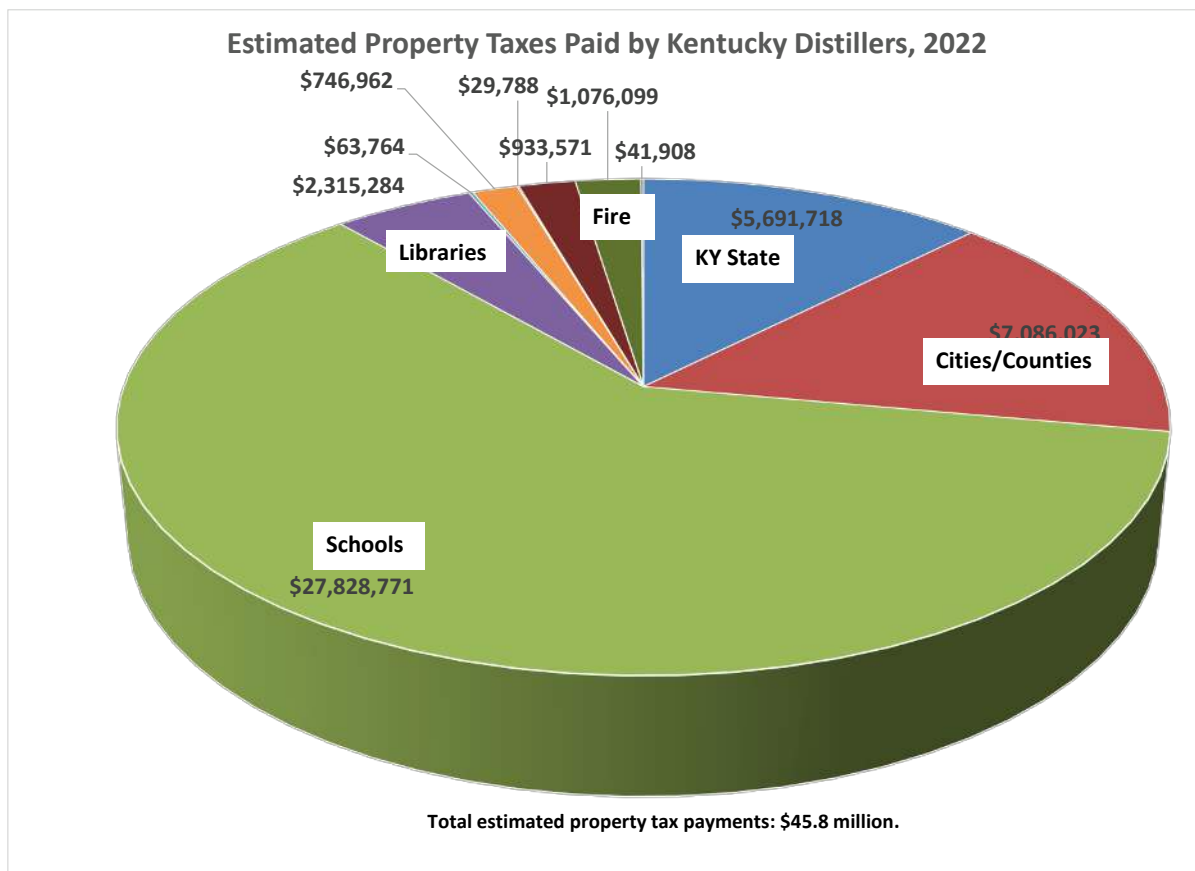
A summary of our estimates is provided in the table above. All entries refer to the latest year available for data, primarily calendar 2022 or FY 2022-23. Production-related taxes account for \$226.8 million of the \$357.5 million total. Some of the entries are based on sheriff department records and official government tallies, some on company provided reports, while other entries are estimates based on historical ratios. Clearly, Kentucky state government is the biggest tax recipient, accounting for 82 percent of the total over all levels of government. Local public school

districts are the biggest recipients of property taxes paid by the industry, accounting for 62 percent of the total.

These 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 taxes on insurance premiums, motor fuels and utilities paid to state and local governments. So, \$357.5 million should be considered a lower boundary on the true unknown amount of taxes paid. In the following sections we discuss each type of tax in the table individually and then compare our results with the previous report.

Property taxes

A distillery owner pays property taxes on the assessed value of its real estate (land and buildings), its equipment and its inventory of aging barrels. Taxing jurisdictions include Kentucky state government and a host of local authorities: local public school systems, county governments, city governments and fire, library, health, agricultural and air board districts. Each jurisdiction has different tax rates for real estate and tangible personal property. We estimate that distillers paid about \$45.8 million in property taxes in 2022, as summarized in the pie chart below (the unlabeled jurisdictions are the other taxing districts).



To make these estimates, we attempted to track down the various properties owned by the distillery companies and to organize public information on their tax bills in 2022. Many Kentucky counties now have their property tax bills and assessments available in online searchable databases, though with wide variation in the detail available. The research is complicated by several factors:

1. The sheer number of distillery operations in the state, now about 100, as compared to only a few in our 2008 study.
2. The many names listed as property owners for the same operation. A well-known distillery brand may be owned by a corporation with a very different name. The company may have dozens of real estate parcels, equipment at different locations and rickhouses in multiple locations. There is no master directory to refer to, and this is very labor-intensive work.
3. Most county sheriffs post the tax bills on real estate parcels, but not necessarily the tax bills for equipment and other tangible property. Moreover, there is no consistent display of property assessments along with tax bills.

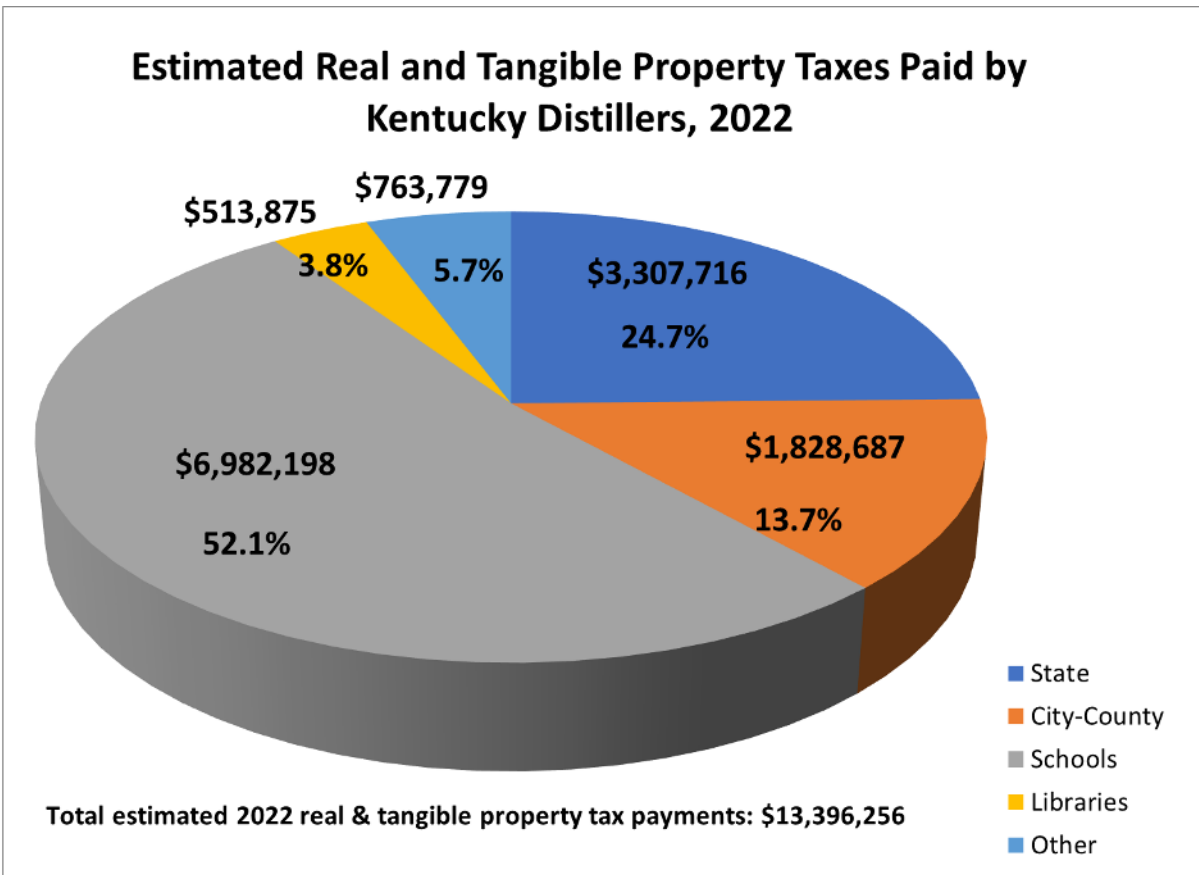
We dealt with these issues in a variety of ways. First, we searched the online databases using all of the names associated with each distillery (common name, corporate ownership, proprietors). Second, we searched the general term “distil” which helped find several warehouses in counties away from the prime distillery location. Second, we searched for specific addresses when we could not find matches via names. All of these searches were checked against our results from the previous study to make sure we at least located all of the facilities we had previously found. The previous data also helped identify search terms. We were able to successfully locate 86 of the 100 entities with a distillery license. All of the distillers which we could not find are new, small operators. It is likely most had no property to tax in 2022.

Tangible property tax bills are sometimes not entered into the local databases, but this varies year-to-year. In the past, we have seen such bills disappear one year and reappear the next. We used the data from our previous report to try to assure that our tangible bills were as complete as possible. This meant that when a bill we knew should exist was not in the local database for 2022, we checked the 2021 and 2023 bills. While tangible property tax bills can vary widely from year-to-year, we felt that filling in gaps with data from a year earlier or later was preferable to leaving the line blank, which would translate to no taxable value for 2022 when we knew that was not accurate. We used this method for about 10 percent of the tangible bills.

Over time, the trend at the local sheriffs’ offices has been to include less information in the online tax bills, increasingly via links to commercial websites. This means that the distribution of taxes paid among the jurisdictions (state, county, city, library, etc.) is often not on the bill. For real

property and the barrel inventory tax this is not a problem because a single assessed value is taxed at rates known to us from other sources. Sometimes the assessment itself is not part of the bill, but that is not a problem since we can calculate it using the total tax rate across all jurisdictions applied to the amount paid.

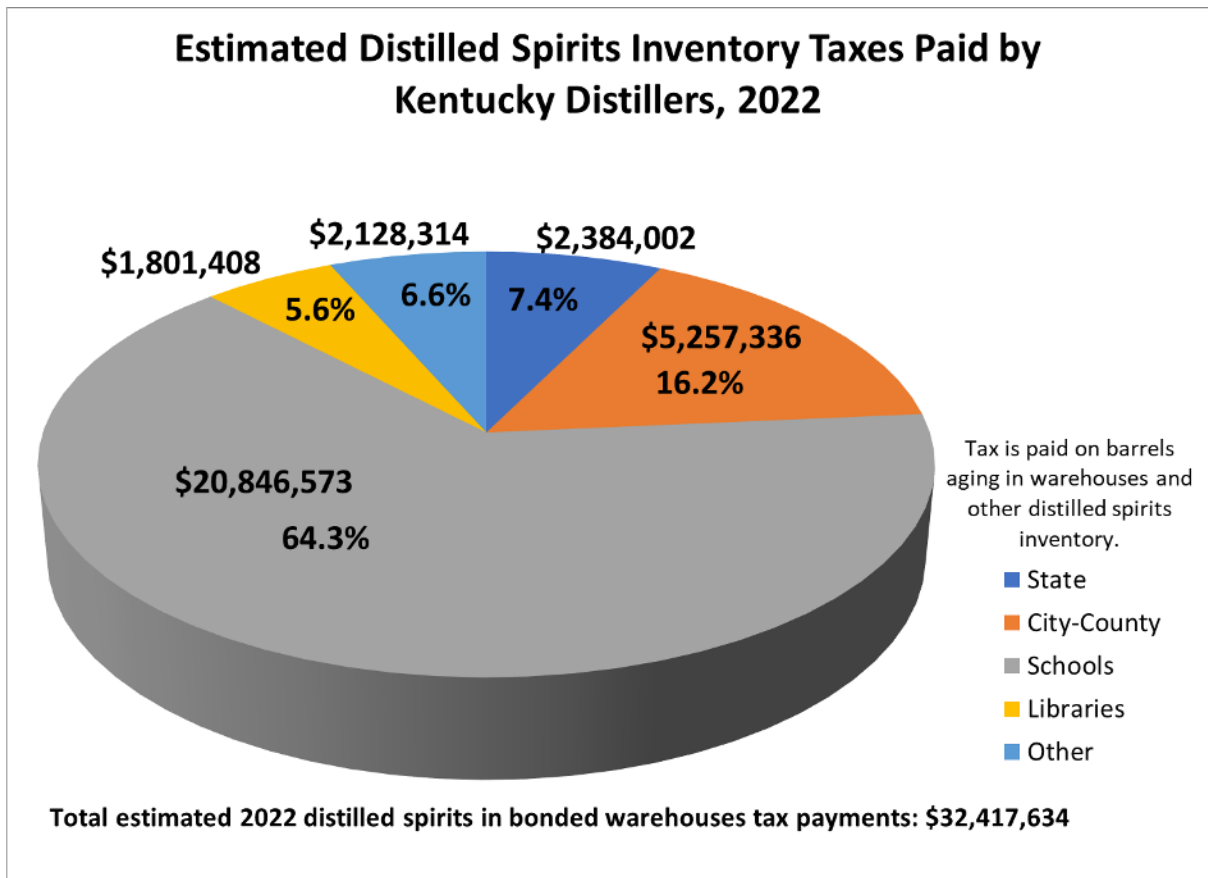
Tangible property taxes are different, however, and the missing data creates some hard problems. This is because there are six different classes of tangible property that appear on at least a few bills. Some of them are only taxed by the state, with no local tax due (manufacturer’s machinery), while others are fully taxed by the local jurisdictions. There are also three different state tax rates that apply to the six classes of property. From our previous studies we know that it is not unusual for a tangible bill of a distiller to change significantly from year-to-year in terms of the amounts assessed in the property classes and their relative amounts among each other. If the overall assessed tangible property value of a distiller is similar from one year to the next, but the distribution of that value among the property classes differs significantly, it can result in very different billed amounts.



There is no perfect solution for filling in the missing values. What we have done is use the information from 2022 tax bills that do have complete information and the data from previous studies for the distiller at issue. We divided the set of distillers for which we have full tangible tax information into two classes, large and small. We looked at the assessment value to tax due ratios

and the distributions of tax dollars among the jurisdictions for each distiller with each group. When assigning an assessment value to a distiller lacking information, we were conservative, choosing a ratio that was below the median for the group (large or small) and checking it against previous report data, if available, to make sure it was in line. We apportioned the taxes paid among the jurisdictions according to the average distribution of the group (large or small) and again checked this against previous data, if available, to make sure it was consistent.

We were able to identify a total of about \$13.4 million paid to local and state governments for real and tangible (excluding aging barrels) property tax. The assessed value of land, buildings, equipment and inventory (ready to sell) was \$2.26 billion, of which \$750.1 million was real estate and \$1.5125 billion was tangible property. The pie chart above shows the distribution of taxes paid by jurisdiction type. Public schools are the biggest recipient of property tax payments, with revenues of about \$6.98 million or 52.1 percent of the total. Kentucky state government is next, with \$3.3 million (24.7 percent), followed by city and county governments with \$1.8 million (13.7 percent). Local libraries received \$514,000 (3.8 percent). The 'Other' category includes property tax revenues received by local health departments, agricultural extension offices, soil conservation districts, fire districts, and an airport board. That total was just under \$764,000 (5.7 percent) in 2022.



The distilling industry also pays property taxes on the value of all Bourbon aging in barrels in bonded warehouses and other distilled spirits inventories. The tax payments are substantial, most of it going to local jurisdictions. We were able to identify roughly \$32.4 million in distilled spirits property taxes on aging barrels to state and local governments in 2022, an 18 percent increase over our study of three years ago. The next pie chart shows the distribution of these payments to the state, city and county governments, public schools, libraries and other local government in 2022. The state of Kentucky received \$2.38 million in distilled spirits inventory taxes in 2022, 7.4 percent of the total. Schools received over 64 percent of all these tax payments, with revenues of \$20.8 million. City and county governments and library districts collected \$5.3 million (16.2 percent) and \$1.8 million (5.6 percent), respectively. Just over \$2.1 million (6.6 percent) went to various other government entities.

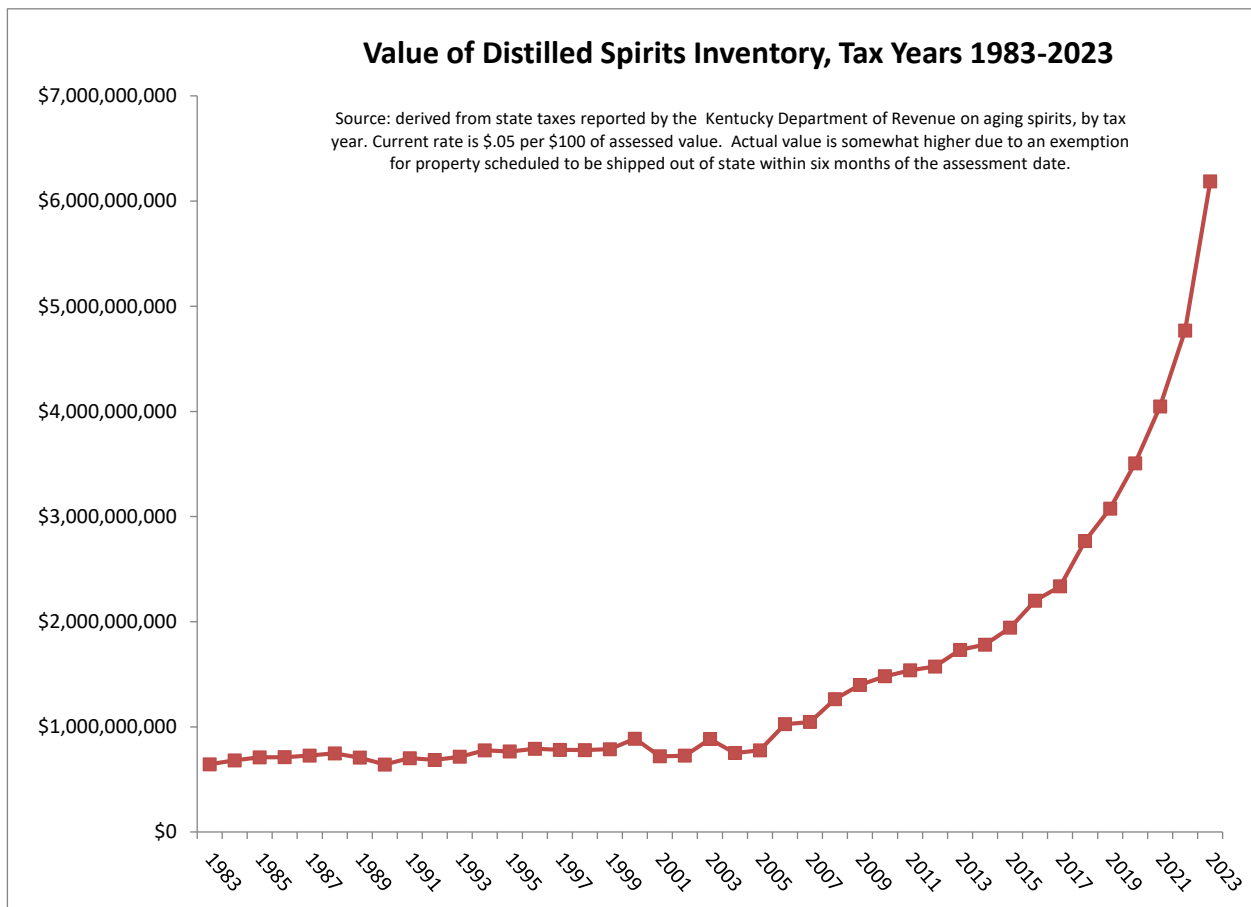
The Kentucky Department of Revenue (DOR) estimates of aging barrel property taxes are higher than what we could identify through local tax bills. DOR estimated the industry paid \$38.7 million in property taxes on aging barrels to state and local governments for tax year 2022¹⁰, three and one-half times that documented in our original 2009 study, and a 36 percent increase over our study of two years ago. Because of increased inventory and a spike in production costs, assessments went up 29 percent for tax year 2023, and DOR estimates total taxes are expected to top \$50 million again in 2024.

Official valuation of aging barrels. The Kentucky DOR is responsible for assessing the value of aging barrels each year. Each distiller must submit form 61A508, which details the number of original proof gallons (OPG) of each distilled spirit each year, along with their costs for grain, labor, overhead, barrels and other items per OPG. DOR uses that information, plus adjustments for leakage and storage costs, to revalue all barrels in inventory.

Since the state tangible property tax rate on distilled spirits inventory is a flat \$0.05 per \$100 of valuation, we can use historical data on General Fund receipts from this tax to see the upward trend in inventory values (subject to state property tax) over the past four decades, displayed in the chart below. The chart reflects payments through the 2023 tax year. The state tax collections imply an inventory value of \$6.2 billion as of the end of 2022 (property taxes for 2023 are based on barrel inventory and values at the end of 2022). The actual value is higher due to an exemption for property scheduled to be shipped out-of-state within six months of the assessment date. The total value certified by the Kentucky Department of Revenue for 2023 was \$6.7 billion.

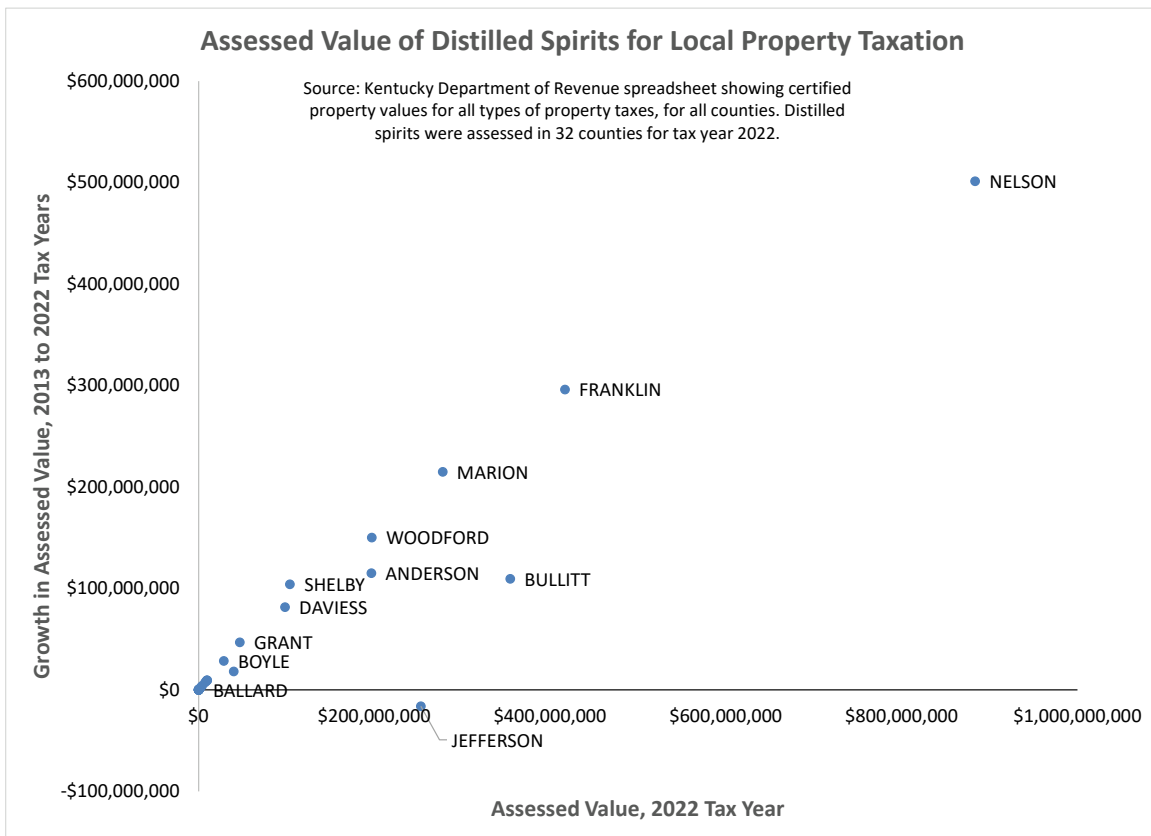
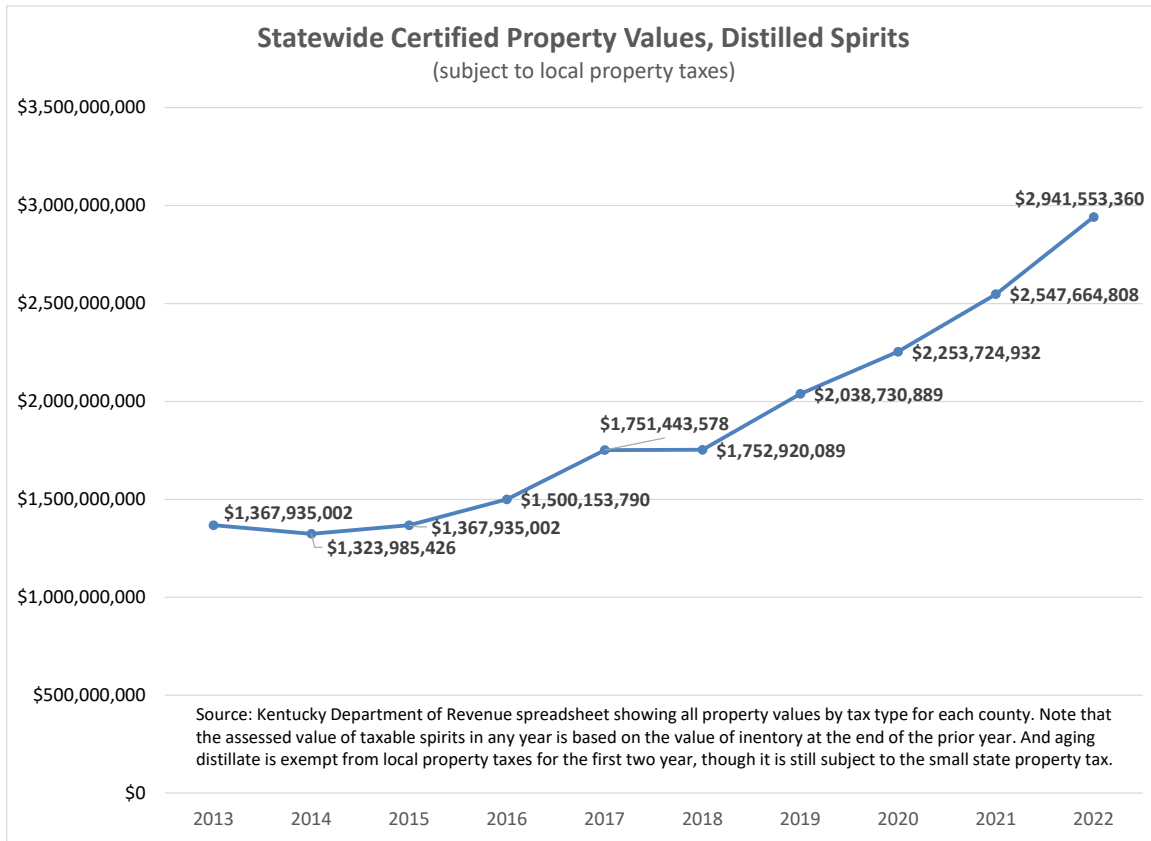
¹⁰ The difference may be due to the fact that aging barrels in warehouses financed by local Industrial Revenue Bonds are counted by DOR as taxed. Under an IRB the property is actually owned by the local jurisdiction and therefore not subject to property tax for the life of the IRB. Hence, those payments are not on local tax bills.

However, spirits aging during the first two years are exempt from local property taxes. More specifically, the distillate is exempt, but the barrels are not. This is due to a legal settlement several years ago in which the courts ruled that the whiskey was still in the process of being manufactured, since it cannot be labeled and sold as Kentucky straight whiskey until it is two years old¹¹. Hence, the assessed value of inventory for state taxing purposes is always substantially higher than the assessed value for local taxing purposes. For example, the state-level assessment for tax year 2023 was \$6.7 billion, but only \$2.9 billion at the local level. The non-resale value of the barrels is also exempt for two years, but the resale value of barrels is immediately subject to the tangible personal property tax rates.



DOR also releases data on the certified value of aging barrels for local property taxation, and it reveals some interesting patterns. One can see in the chart below that the tax base is substantially lower for local jurisdictions than statewide, though the historical trends are similar. The second chart reveals the primary locations of the barrels. Nelson County dominates, both in terms of the most recent inventory, but also the growth over the past decade. Other prominent locations are Franklin, Marion, Woodford, Anderson, Shelby and Daviess counties.

¹¹ Thanks to Tim Eifler of Stoll Keenon Ogden law firm for clarifying this. KRS 132.200(4) exempts goods in the course of manufacture from local property tax.



Most tax collections on these aging barrels occur in just 10 counties, with only Jefferson County having a population of more than 100,000 people, so the taxes collected at the local level have a big impact in those communities, an impact that has grown nearly threefold in the last dozen years. On the other hand, Kentucky is the only place in the world that levies an annual aging barrel ad valorem tax, and the state’s distillers have long argued that it puts them at a competitive disadvantage and could stunt the growth of Craft distillers here because Bourbon and other aged whiskeys are central to most of the fledgling businesses’ long-term plans. They must wait out the aging process before they can sell most of that product, yielding no revenues yet incurring ongoing tax payments and overhead. The 2023 General Assembly enacted a slow phase-out of the barrel tax, but it will still generate significant tax revenues for the next two decades.

Tax revenues related to payrolls of distilleries

We now 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, but company-specific payroll data is not publicly available.

Kentucky income and sales tax receipts related to distillery payrolls can be estimated using effective tax rates. Effective tax rates are calculated by dividing historical tax revenues by payrolls. We use wage and salary data from the U.S. Bureau of Economic Analysis and tax collection data from the Kentucky Department of Revenue to calculate the average effective tax rates over the 2018-2022 period. The effective income tax rate on wages and salaries is 4.94 percent and the effective sales tax rate is 4.32 percent. The table also shows a similar calculation based on total employee compensation, which includes wages and salaries and also employer-provided fringe benefits.

Calculation of Effective Tax Rates, Kentucky Individual Income and Kentucky Sales Taxes						
	2018	2019	2020	2021	2022	5-year average
Fiscal Year (millions)						
Individual Income Tax	\$4,603.6	\$4,544.7	\$4,765.2	\$5,143.8	\$6,047.5	
Sales and Use Tax	\$3,605.7	\$3,937.6	\$4,070.9	\$4,561.0	\$5,909.1	
Calendar Year (millions)						
Wages and Salaries	\$93,349.2	\$96,703.7	\$97,203.4	\$104,637.1	\$115,229.9	
Employee Compensation	\$116,654.7	\$121,152.5	\$122,261.2	\$131,546.1	\$144,058.6	
Effective Rates on Wages and Salaries						
Individual Income Tax	4.93%	4.70%	4.90%	4.92%	5.25%	4.94%
Sales and Use Tax	3.86%	4.07%	4.19%	4.36%	5.13%	4.32%
Effective Rates on Employee Compensation						
Individual Income Tax	3.95%	3.75%	3.90%	3.91%	4.20%	3.94%
Sales and Use Tax	3.09%	3.25%	3.33%	3.47%	4.10%	3.45%

Source: state government revenues from Office of State Budget Director; wages and salaries, compensation from US Bureau of Economic Analysis.

Here we take the payroll base to be the QCEW amount for 2022, \$635 million, and apply the IMPLAN labor income multiplier to predict total wages and salaries related to distilling. Multiplying by the \$1.63 billion in total distillery-related payroll yields \$80.6 million in Kentucky individual income tax receipts and \$70.5 million in Kentucky sales tax receipts, for a total of \$151.1 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. For our 2023 survey of KDA members, we asked each distiller to provide their total payroll and also their estimated occupational tax payments. The results were not comprehensive, but do provide another indication of the total occupational taxes paid in Kentucky. The responding KDA members had operations in 52 Kentucky cities, most of which levy an occupational tax. Dividing taxes paid by wages and salaries yields an effective occupational tax rate of 1.60 percent. However, a more detailed geographic examination suggests the average rate, covering cities, counties and school districts, was a bit higher, at 1.81 percent. Most of these jurisdictions also levy a ‘net profits tax’ on companies, typically at the same rate as the tax on payrolls; however, Kentucky law exempts alcohol-related businesses from the net profits tax. Alcoholic beverage producers and sellers must pay an annual license fee to their respective jurisdictions, and the law says that no other business fees can be levied on them. The net profits tax is technically a fee.¹²

¹² Thanks to Tim Eifler, of Stoll Keenon Ogden law firm, for explaining this. See KRS 243.060 and 243.070. Retailers are not totally exempt. They still are liable for the net profits tax on the non-alcoholic beverage portion of their sales.

Applying the total distillery-related payroll impact to the weighted local tax rates, we estimate local school districts received about \$2.5 million in occupational taxes in 2022 and local city or county governments received \$27 million.

State licenses and fees

The Kentucky Department of Alcoholic Beverage Control administers a number of license fees applicable to any business producing, storing, transporting, distributing, selling or serving alcoholic beverages within the state¹³. In FY 2022, the state collected \$7.4 million in fees for these license applications and renewals. Of course, this includes fees paid by producers and sellers of all alcohol categories, including beer, wine and spirits. In our 2018 study, we used a detailed examination of licenses by type to parse out the license and fee revenue to the spirits category. Here we extrapolate the FY 2018 results using the growth in total ABC regulatory revenues. This results in an estimate for FY 2022 of \$2.3 million in consumption-related license fees related to spirits. On the production side, there are distillers' and rectifiers' Class A and B licenses and a storage license, which we estimate brought in \$304,000 from the state's distilling industry.

Local licenses and fees

On the production side, distillers pay for local licenses as well as their state license. We estimate that city and county governments collected \$73,000 distillers' and bottlers' fees in FY22. On the consumption side, 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 spirits must pay the City-County government \$1,600 each year, compared to \$500 in Morehead. Moreover, jurisdictions typically assess different fee amounts for different types of establishments (e.g., airport, racetrack, restaurant, package store), and even by time of day (higher fees if establishment is open after midnight). We do not know the total amount of fees paid annually to all the jurisdictions. Some alcohol sales are allowed in 66 counties, many with multiple cities of different sizes and alcohol laws. In our 2018-2019 report, we estimated that local governments received \$3.3 million in consumption-related license fees related to spirits sales for FY 2017. In Jefferson County, the Metro government handles all licensing throughout the county and collects about \$2.5 million annually in license fees, which is essentially the same as that collected in FY 2017¹⁴. Using Louisville as

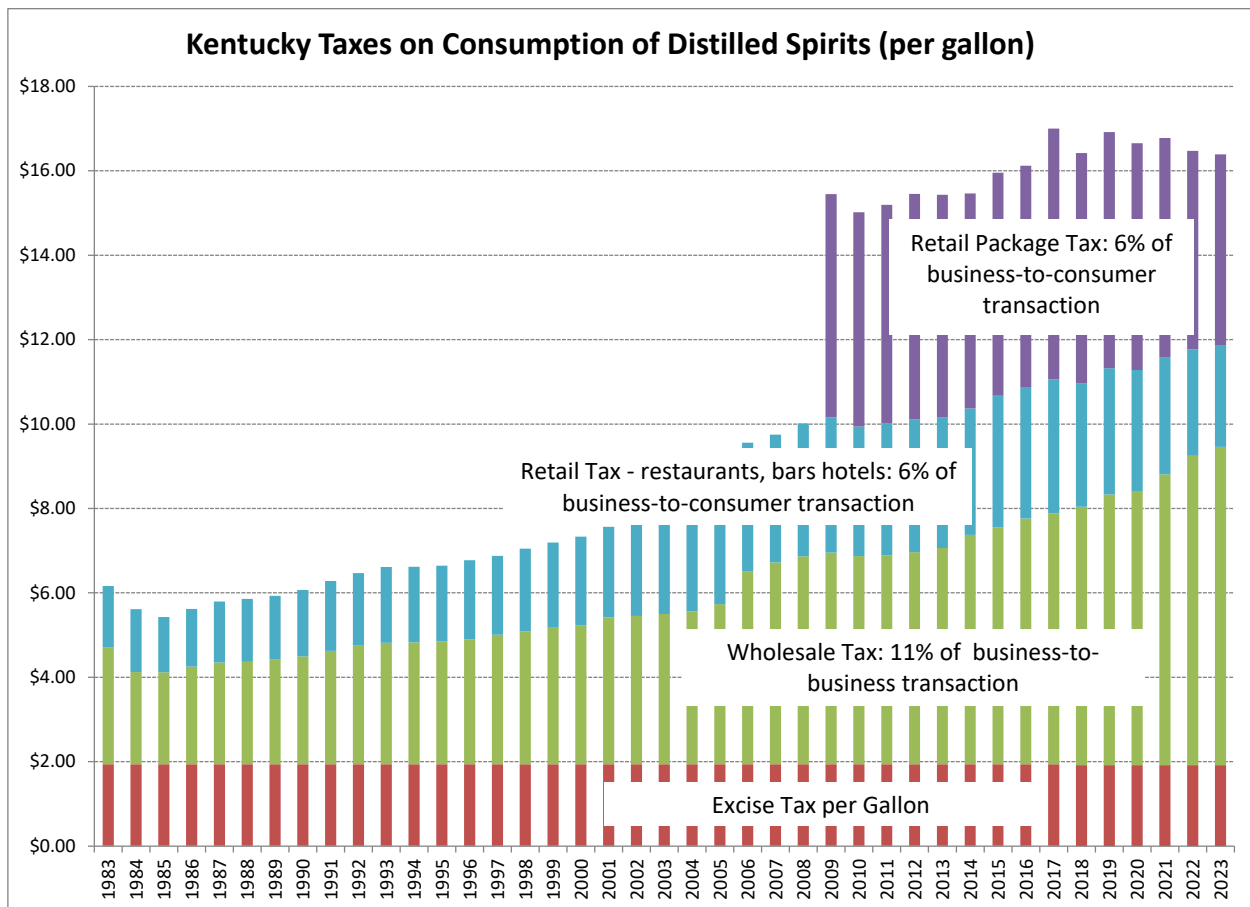
¹³ For state ABC fee detail, see page 122 of Supplementary Information to the Kentucky Annual Comprehensive Financial Report for the Fiscal Year Ended June 30, 2022 <https://finance.ky.gov/office-of-the-controller/office-of-statewide-accounting-services/financial-reporting-branch/ACFR/2022%20Commonwealth%20of%20Kentucky%20Supplemental%20Report.pdf>

¹⁴ Similar to the state, Louisville waived fees for establishments serving alcohol for the calendar year 2021. Here we use the growth from FY 2017 to FY 2020 as representative of fee revenue in a normal year.

representative of all the local jurisdictions, we estimate distilled spirits accounts for \$3.3 million in license fees for local governments annually in Kentucky.

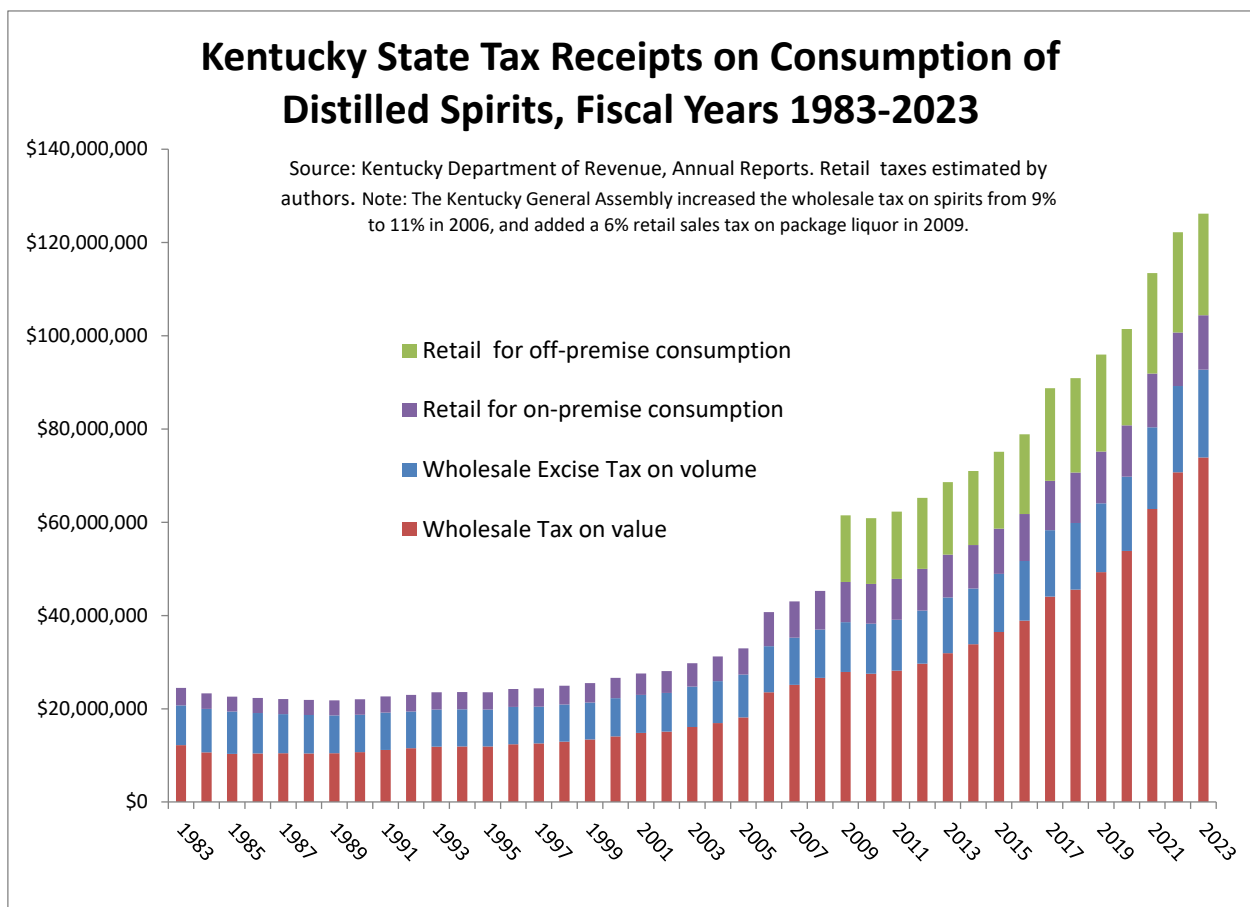
Alcohol consumption taxes

Kentucky state government levies a number of taxes on alcohol sales generally, and distilled spirits in particular. Here we consider taxation at the wholesale and retail levels, i.e., consumption-based taxes. Kentucky taxes alcohol consumption away from home (restaurants, bars, hotels) at a six percent rate, and levies the same rate on package sales at liquor stores and other outlets. Kentucky also taxes spirits 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. The history of the tax rates is shown in the accompanying chart. There have been two major changes over the past four decades. The wholesale tax rate on spirits was raised from nine to 11 percent in 2006. And in 2009, the Kentucky General Assembly added the six percent retail tax to package sales of all alcoholic beverages, even though it was already being collected as part of the wholesale tax.



The results in terms of state tax revenues are shown in the next chart, which includes the impact of increased consumption, increasing prices and increased tax rates. State government revenues related to consumption-based spirits taxes amounted to about \$122 million in FY 2023, up from only \$10 million in FY 1983. Looking only at Kentucky state wholesale taxes on alcoholic beverages over the past two decades, we find that the compound annual growth rate for spirits revenue is seven percent, compared to five percent for wine and three percent for beer. State wholesale taxes on spirits consumption rose from \$44 million to \$93 million between the 2013 and 2023 fiscal years. The \$93 million in spirits wholesale tax revenues for FY2023 surpassed that for beer (\$76 million) and wine (\$24 million).

There is no official data available on the amount of Kentucky retail sales tax revenues from alcohol consumption. We have constructed estimates using detailed product sales data from the 2007, 2012 and 2017 Economic Census¹⁵. The census provides estimates by industry of both retail sales of alcoholic beverages for off-premise consumption and sales of alcoholic beverages served for immediate consumption, or on-premise. We further broke out spirits from total alcohol sales using national data that are even more detailed than those available at the state level.



¹⁵ The 2022 Economic Census results will not be available until 2024.

The Census Bureau estimated that ‘Alcoholic beverages served for immediate consumption’ at restaurants, bars, hotels and other venues in Kentucky totaled \$490 million in 2017. Of that, distilled spirits accounted for just over 36 percent. Thus, sales of distilled spirits for immediate consumption at Kentucky restaurants, bars, and hotels were about \$177 million in 2017. We use historical growth in the average wholesale price per gallon to estimate these retail sales away from home for other years, and multiply by six percent to estimate state tax revenues. In FY 2023, we estimate this brought in \$11.6 million to the state.

We similarly estimate carryout retail sales tax receipts using the 2017 Economic Census. “Retail sales of alcoholic beverages” in Kentucky totaled \$1.173 billion in 2017. Details at the federal level show distilled spirits made up 28.2 percent of those sales. This implies carryout spirits sales were \$331 million that year. Thus, assuming carryout retail sales grew by the same rate as the average wholesale price per gallon, the 6 percent retail tax brought in \$21.8 million in 2023. The four consumption-based tax streams are shown in the chart below, with Kentucky state tax revenues hitting \$129.5 million in 2023.

Kentucky is one of only two states with an ad valorem tax at the wholesale level in addition to the common excise tax on volume; South Dakota’s rate is two percent, while Kentucky’s is 11 percent. This means that, unlike other states, Kentucky taxes alcohol both by the volume (excise) and value (wholesale sales tax). There is also a ‘case tax’ of \$0.05 per case levied on wholesalers, though this brought in only around \$234,000 to the state government in FY 2023. The wholesale tax on wine and beer is only 10 percent in Kentucky. The table calculates an implied tax rate that considers excise and wholesales combined due to Kentucky’s unique tax structure on alcohol.

The combined wholesale taxes – \$1.92 per gallon plus 11 percent ad valorem tax – on spirits is among the highest of U.S. states. Nearly all the states with higher wholesale taxes are ‘control states’, meaning the distribution and pricing is controlled by state government. Only two ‘market states’ levy higher total wholesale taxes on spirits than Kentucky – Alaska and Washington. Kentucky’s wholesale tax is almost twice that of Tennessee, the second biggest producer of whiskey. Given Kentucky’s prominence in Bourbon production, there is a stark contrast with the tax treatment in states that are prominent in wine and beer production. For example, California and New York are the largest wine producing states, and their wholesale taxes are among the four lowest states. Similarly, Missouri, Wisconsin and Colorado have among the five lowest wholesale taxes on beer, and these states are the largest beer producers.

Wholesale Tax Rates per gallon on Alcohol, Kentucky and Twelve Nearby States, January 2023

	Beer	Wine	Spirits
Alabama**	\$0.26	\$1.70	\$21.69
Arkansas	\$0.35	\$1.41	\$8.01
Georgia	\$0.48	\$1.51	\$3.79
Illinois	\$0.23	\$1.39	\$8.55
Indiana	\$0.12	\$0.47	\$2.68
Kentucky*	\$0.93	\$3.58	\$9.25
Missouri	\$0.06	\$0.42	\$2.00
North Carolina**	\$0.62	\$1.00	\$16.40
Ohio**	\$0.18	\$0.32	\$11.38
South Carolina	\$0.77	\$1.08	\$5.42
Tennessee***	\$1.29	\$1.27	\$4.46
Virginia**	\$0.26	\$1.51	\$22.06
West Virginia**	\$0.18	\$1.00	\$8.32
Kentucky's ranking	2	1	5

Source: Tax Foundation, Facts and Figures 2023: How does your state compare, Tables 27, 28, 29: <https://taxfoundation.org/data/all/state/2023-state-tax-data/>

* Kentucky's rate includes both the excise tax per gallon plus the wholesale ad valorem taxes, converted to a gallonage basis. The Kentucky ad valorem wholesale tax rates are 10.% on beer and wine, and 11 percent on spirits.

** These are 'control states' for spirits, meaning the state government manages the purchasing and retail pricing.

*** Tennessee rates incorporate the \$0.15 tax per case, www.tn.gov/revenue/taxes/alcoholic-beverages-taxes/due-dates-and-tax-rates.html

See Appendix I for a more complete comparison of Kentucky’s alcohol excise tax rates compared to those in all other states. The Appendix also includes a chart showing the wholesale taxes per gallon of alcohol, as opposed to per gallon of product. These calculations were made under the assumption spirits contain on average 40 percent alcohol, wine 12 percent, and beer five percent. If alcohol content were taxed consistently across the three categories, all the dots on the graph would line up for a particular state. One can see that alcohol is taxed consistently in only a few jurisdictions, namely Louisiana, Maryland and Washington D.C. There is a lot of variation among states. Washington State is a clear outlier, with very high taxation of alcohol in spirits. Kentucky puts a high tax burden on alcohol in wine, and beer has the lowest tax burden. By contrast, note Tennessee, the second largest whiskey producing state, taxes alcohol in spirits at half the rate it

taxes alcohol in beer. Moreover, Tennessee's wholesale tax on spirits is only \$4.46 per gallon, compared to Kentucky's combined tax of \$9.25 per gallon.

Tax impacts over time

There has been a marked increase in the tax impact of the distilling industry over time. The value of real and tangible property owned by Kentucky distillers has risen five-fold over the last 12 years. And the value of the distilled spirits inventory aging in barrels has tripled in that time. The next table compares our current estimates of the taxes generated at all levels of government that can be attributed to the impact of the distilling industry with the estimates from previous studies.

Looking only at the production-related taxes, we estimate that the industry is generating around \$159 million, or 232 percent, more tax revenue throughout the state than it did in 2010. The increases in property taxes and license fees reflect the recent wave of investment made by distillers and growth in the number of distilleries. The increases of the income, sales, and occupational taxes are related to the total payroll effect from our input-output model, predicting \$1.63 billion in total wages and salaries at Kentucky businesses was directly or indirectly supported by the distilling industry.

The growth in the consumption-related taxes are fairly straightforward. Simply put, Kentucky consumers have been just as much a part of the worldwide Bourbon boom as anybody else. Since the tax rates have all remained the same, it is simply a matter of the number of cases and gallons sold in the state and the value of sales increasing. That the excise tax per gallon has the lowest percentage increase tells us the average price of spirits Kentuckians have been drinking is going up, which is consistent with premium brand growth.

Comparison of Estimated Annual Kentucky Taxes on the Production and Consumption of Distilled Spirits, 2010-2022

Revenues Generated at All Levels of Government	2010	2013	2015	2017	2020	2022	Change	Percent
Production-related								
Property taxes - real estate and tangible property	\$2,705,829	\$3,600,882	\$5,455,338	\$6,878,763	\$10,409,439	\$13,396,256	\$10,690,427	395.1%
Property taxes - spirits aging in barrels	\$11,697,908	\$11,940,044	\$13,412,692	\$19,024,834	\$27,807,402	\$32,417,634	\$20,719,726	177.1%
Individual income taxes from distillery-related payrolls	\$25,248,351	\$32,792,590	\$37,001,568	\$47,164,694	\$59,440,739	\$80,585,017	\$55,336,666	219.2%
General sales taxes from distillery-related payrolls	\$21,938,745	\$28,494,070	\$31,798,948	\$39,912,341	\$49,137,208	\$70,508,690	\$48,569,945	221.4%
Occupational taxes from distillery-related payrolls	\$6,497,408	\$8,424,378	\$12,073,846	\$15,714,466	\$19,482,174	\$29,516,543	\$23,019,135	354.3%
Distilled spirits license fees**	\$186,790	\$237,190	\$188,590	\$314,235	\$346,562	\$380,821	\$194,031	103.9%
Subtotal	\$68,275,032	\$91,539,153	\$105,980,981	\$135,059,333	\$166,623,524	\$226,804,960	\$158,529,928	232.2%
Consumption-related								
Case sales tax	\$110,086	\$122,873	\$132,802	\$153,781	\$202,034	\$234,898	\$124,812	113.4%
Excise tax per gallon	\$10,942,531	\$11,962,448	\$12,468,749	\$14,237,920	\$17,520,621	\$18,828,726	\$7,886,195	72.1%
Wholesale tax	\$28,175,617	\$31,911,903	\$36,471,357	\$44,064,952	\$62,862,108	\$73,923,974	\$45,748,357	162.4%
General retail sales tax, restaurants and bars	\$8,748,501	\$9,908,614	\$11,324,320	\$13,314,640	\$11,516,459	\$11,648,244	\$2,899,743	33.1%
Package retail sales tax	\$14,443,509	\$16,358,821	\$18,696,108	\$22,593,905	\$21,542,989	\$21,789,510	\$7,346,001	50.9%
Distilled spirits license fees**	\$4,301,591	\$4,697,707	\$4,869,387	\$5,497,641	\$5,613,838	\$4,224,781	-\$76,811	-1.8%
Subtotal	\$66,721,835	\$74,962,366	\$83,962,723	\$99,862,840	\$119,258,049	\$130,650,133	\$63,928,297	95.8%
Grand Total	\$134,996,867	\$166,501,519	\$189,943,705	\$234,922,172	\$285,881,573	\$357,455,093	\$222,458,226	164.8%

** Production-related license fees are mostly for distillers and rectifiers licenses; consumption-related license fees are largely for retail and package drink licenses.

Conclusion

The distilling industry in Kentucky continues to expand in response to growing domestic and international demand for its signature Bourbon products. We have studied the industry seven times since 2009 and have been able to document steady growth in facilities, jobs, payroll, exports and tax payments. In our first study, we reported 19 distilling establishments owned by 10 companies, located in eight counties. There are now distilleries in 100 distinct locations, owned by 84 companies, across 42 counties. This reflects the expansions by large legacy distillers, but also the recent explosion in Craft distillers. The boom in Craft distillers is nationwide, but Kentucky remains the central state in terms of production, accounting for 27 percent of U.S. employment in the distilling industry.

The industry now directly employs around 7,000 people in Kentucky, with labor income of \$847 million annually. But the full economic impact is much larger, due to the many businesses in Kentucky supplying materials and services to distillers, as well as increased household spending related to distillery payrolls. Examples include farmers who provide grain, companies that provide oak barrels and packaging materials, truckers, bankers, insurers and marketing firms. We estimate that the total statewide economic impact of the distilling industry in 2022 was 23,100 jobs with annual wages and salaries of \$1.63 billion.

The production and consumption of distilled spirits provides an increasing flow of tax payments to state and local governments. On the production side, we estimate the distilling industry is directly or indirectly responsible for about \$217 million in state and local tax payments in Kentucky annually. This is more than triple the amount we documented in our 2009 study. Consumption of spirits in Kentucky generate another \$131 million annually. State government accounts for 82 percent of the total tax revenues, with 18 percent going to local government entities. School districts and local governments are the biggest recipients of property taxes paid by the industry. For 2023, the Kentucky Department of Revenue estimates state and local governments will collect a record \$50.2 million in taxes on barrels aging in inventory, and that inventory is assessed at an all-time high of \$6.7 billion.

The industry continues its strong pace in investments for new plants and equipment. KDA members reported capital spending of \$1.9 billion over the last five years, almost equally split between construction and other items, such as machinery, equipment, and furnishings. Moreover, they plan to spend \$3.5 billion over the next five years. Every responding KDA member, whether a large Heritage producer or a small Craft producer, reported significant investments. (It should be noted the KDA reached out to non-member distilleries in Kentucky to provide data for this study; several participated, especially those applying to become members.)

These large investments suggest we will see even more growth in traditional measures of economic activity, such as jobs, payroll and tax payments. Growing at the rate we have observed over the last 14 years, Kentucky’s distilling industry could generate \$10 billion in output by 2025, support almost 28,000 jobs, with wages and salaries of \$2.16 billion (and projected total labor income of \$3.1 billion), and total direct and indirect tax payments to state and local governments of \$300 million from production and \$152 million from consumption of spirits for a total of \$452 million.

Summary of Estimated Growth in Distilling Industry Since 2008							
Reference Year of Studies	Direct Employment by Distilling Industry	Total Estimated Economic and Fiscal Impact in Kentucky					
		Employment	Wages and Salaries	Output	Production-related Taxes Paid to State and Local Governments	Consumption-related taxes	Combined Taxes
2008	3,168	9,848	\$441,850,386	\$5,400,000,000	\$61,359,552	\$63,754,213	\$125,113,765
2010	3,102	12,566	\$544,527,179	\$5,600,000,000	\$60,639,778	\$65,258,845	\$125,898,623
2013	3,594	15,416	\$707,232,584	\$7,586,622,907	\$91,539,153	\$74,632,366	\$166,171,519
2015	4,284	15,229	\$796,562,933	\$8,547,398,340	\$105,986,671	\$83,962,723	\$189,949,394
2017	4,953	20,124	\$1,003,819,284	\$8,585,971,924	\$135,059,333	\$99,862,840	\$234,922,173
2020	6,000	22,538	\$1,232,105,626	\$8,935,256,608	\$166,623,524	\$119,258,049	\$285,881,573
2022 potential	6,987	23,133	\$1,631,438,312	\$8,997,494,178	\$226,804,960	\$130,650,133	\$357,455,093
2025	8,277	27,778	\$2,158,410,081	\$10,037,710,765	\$300,135,680	\$152,363,693	\$452,499,373

Source: prior studies, using successive versions of IMPLAN regional input-output models of Kentucky. The potential for 2025 is based on a projection using the compound average growth rate from 2008 to 2022 in each category.

APPENDIX A

Federal Industrial Classification Codes Relevant to the Distilling Industry

We treat the industry here as the collection of firms that earn revenues primarily from distilling and selling spirits. These firms may engage in other revenue-generating activities, such as making Brandy, beer, wooden barrels, 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.

According to the *Kentucky Directory of Manufacturers*, the distilling companies in Kentucky have activities that span eight industrial classifications. These industries are shown in the table with their official descriptions.

Various Industry Classifications for Activity by Kentucky Distillers		
North American Industrial Classification System (NAICS)		
Code	Title	Description: This industry comprises establishments primarily engaged in...
312120	Breweries	brewing beer, ale, lager, malt liquors, and nonalcoholic beer.
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).
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 decision-making role of the company or enterprise. Establishments in this industry may hold the securities of the company or enterprise.
561591	Convention and Visitors Bureaus	administering, overseeing, and managing other establishments of the company or enterprise. These establishments normally undertake the strategic or organizational planning and decision-making 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, 2022, www.census.gov/eos/www/naics/

APPENDIX B
Licensed Distillers in Kentucky

Large Volume Distiller Licenses, June 2023			
Distiller Name	Class	City	County
Alltech's Lexington Brewing and Distilling Co.	A	Lexington	Fayette
Barton 1792 Distillery (Sazerac Distillers LLC)	A	Bardstown	Nelson
Brown-Forman Beverages	A	Louisville	Jefferson
Brown-Forman Distillery, Inc.	A	Louisville	Jefferson
Buffalo Trace Distillery	A	Frankfort	Franklin
Castle & Key (Peristyle LLC)	A	Frankfort	Woodford
Commonwealth Agri-Energy LLC	A	Hopkinsville	Christian
Copper & Kings American Brandy Company	A	Louisville	Jefferson
Diageo Americas Supply Inc	A	Shively	Jefferson
Diageo Americas Supply Inc	A	Shelbyville	Shelby
Diageo Lebanon Distillery	A	Lebanon	Marion
Four Roses Distillery	A	Lawrenceburg	Anderson
Green River Distilling Company, LLC	A	Owensboro	Daviess
Heaven Hill Distilleries Inc	A	Louisville	Jefferson
Heaven Hill Inc	A	Bardstown	Nelson
Jackson Purchase Distillery	A	Hickman	Fulton
Jeptha Creed Distillery	A	Shelbyville	Shelby
Jim Beam American Outpost	A	Clermont	Bullitt
Jim Beam Brands Co	A	Frankfort	Franklin
Jim Beam Brands Co	A	Boston	Nelson
Kentucky Artisan Distillery (Copperhead Distillery Company)	A	Crestwood	Oldham
Kentucky Bourbon Distillers, Ltd.(Willett Distillery)	A	Bardstown	Nelson
Kentucky Peerless Distilling Company LLC	A	Louisville	Jefferson
Louisville Spirits Group (Louisville Distilling Company)	A	Louisville	Jefferson
Lux Row Distillers	A	Bardstown	Nelson
Maker's Mark Distillery Inc	A	Loretto	Marion
Michters Distillery	A	Shively	Jefferson
New Riff Distilling	A	Newport	Campbell
New Riff Distilling	A	Newport	Campbell
Old Forester Distilling Co (Brown-Forman)	A	Louisville	Jefferson
Rabbit Hole Distilling	A	Louisville	Jefferson
Six Mile Creek Distillery	A	Pleasureville	Henry
Southern Kentucky Distillery, LLC	A	Burkesville	Cumberland
The Bardstown Bourbon Company, LLC	A	Bardstown	Nelson
The Evan Williams Bourbon Experience	A	Louisville	Jefferson
The Glenmore Distillery	A	Owensboro	Daviess
Western Kentucky Distilling Co	A	Beaver Dam	Ohio
Wild Turkey Distillery (Campari America LLC)	A	Lawrenceburg	Anderson
Wilderness Trail Distillery	A	Danville	Boyle
Woodford Reserve Distillers (Brown-Forman)	A	Versailles	Woodford

Source: Kentucky Department of Alcoholic Beverages. Class A distillers are licensed to produce more than 50,000 gallons per year; Class B less than 50,000 gallons. Company names in parentheses when they differ substantially from the distillery name.

Small Volume Distiller Licenses, June 2023

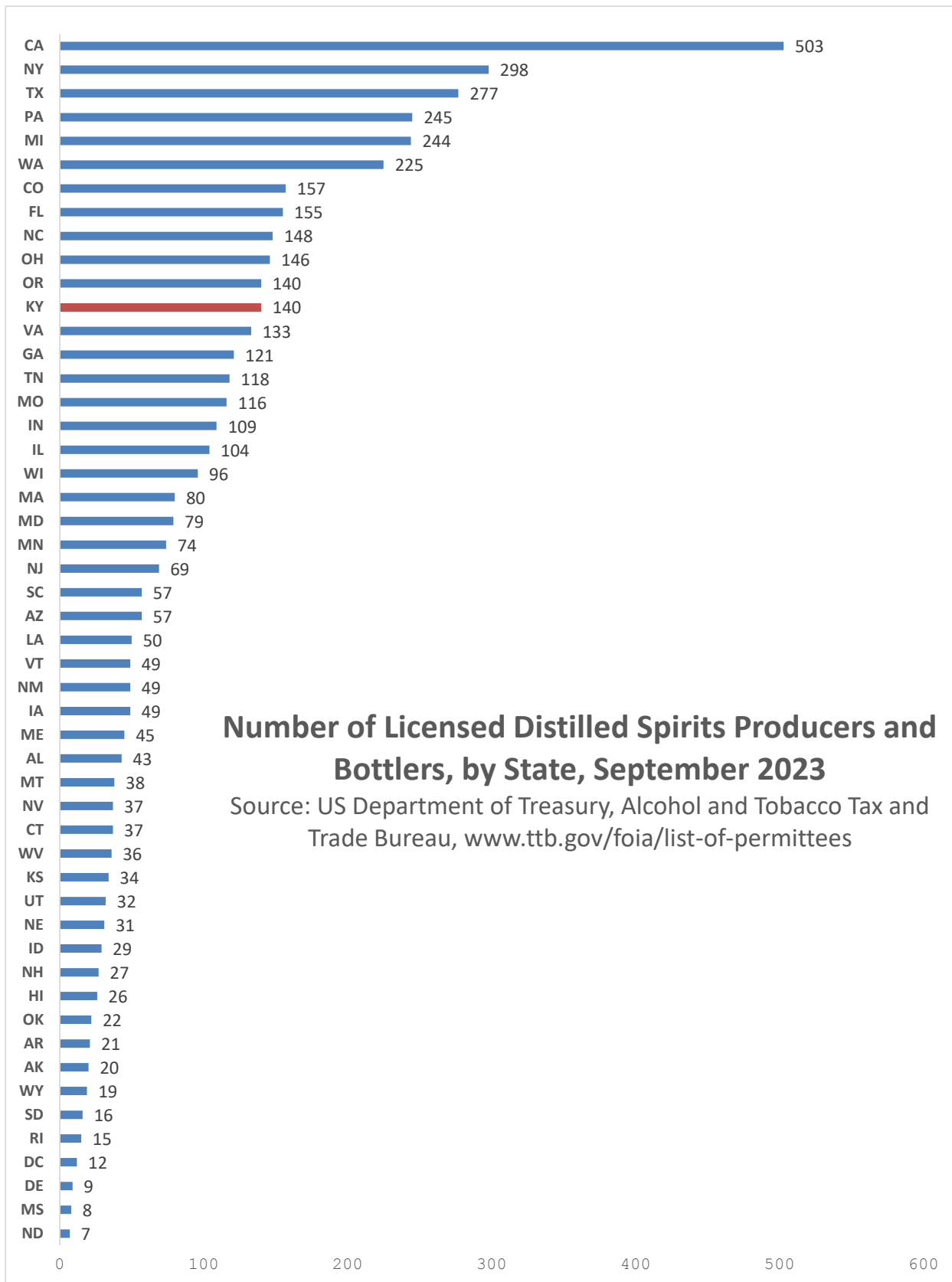
Distiller Name	Class	City	County
1620 Distilling Company	B	Prestonsburg	Floyd
27 Bar + Kitchen and Pensive Distilling Company	B	Newport	Campbell
Alltech's Lexington Brewing & Distilling Company	B	Lexington	Fayette
Augusta Sweet Water Holdings LLC Augusta Distillery	B	Augusta	Bracken
B. H. James Distillers	B	Adairville	Logan
Baker-Bird Winery	B	Augusta	Bracken
Balance Distilling Company	B	Smiths Grove	Warren
Barrel House Distilling Company	B	Lexington	Fayette
Barrell Craft Spirits Distillery	B	Louisville	Jefferson
Bluegrass Distillers	B	Lexington	Fayette
Boone County Distilling Company	B	Independence	Boone
Boundary Oak Distillery	B	Radcliff	Hardin
Bourbon 30 Spirits LLC	B	Georgetown	Scott
Brough Brothers Distillery	B	Louisville	Jefferson
Buzzard's Roost Spirits, LLC	B	Louisville	Jefferson
Casey Jones Distillery	B	Hopkinsville	Christian
Coal Pick Distillery	B	Drakesboro	Muhlenberg
Distillery America	B	Louisville	Jefferson
Dueling Barrels Brewing Company (Alltech)	B	Pikeville	Pike
Dueling Grounds Distillery LLC	B	Franklin	Simpson
Falls City Brewing Co	B	Louisville	Jefferson
Flat Run Distillery, LLC	B	Paris	Bourbon
Four Roses Distillery Llc	B	Coxs Creek	Nelson
Fresh Bourbon	B	Lexington	Fayette
GBRE	B	Lancaster	Garrard
General George Stillhouse	B	Falls Of Rough	Grayson
Glenns Creek Distilling LLC	B	Frankfort	Franklin
Golden Pond Distilleries, Inc.	B	Cadiz	Trigg
Grease Monkey Distillery (Distilled Spirits Epicenter)	B	Louisville	Jefferson
Hartfield & Co Distillery	B	Paris	Bourbon
James Pepper Distilling Co	B	Lexington	Fayette
Kentucky Mist Moonshine	B	Whitesburg	Letcher
Kentucky Spirit Bottling Co LLC	B	Louisville	Jefferson
Limestone Branch Distillery (Luxco)	B	Lebanon	Marion
Log Still Distilling	B	New Haven	Nelson
Main St. Bourbon	B	Louisville	Jefferson
MB Roland Distillery	B	Pembroke	Christian
Metcalfe Landscaping & Garden Center	B	Madisonville	Hopkins
Michters Distillery LLC	B	Louisville	Jefferson
Neeley Family Distillery	B	Sparta	Gallatin
Old Blue Ribbon Farm	B	Eminence	Henry
Old Louisville Whiskey Co. LLC	B	Louisville	Jefferson
Old Pogue	B	Maysville	Mason
Pauley Hollow Distillery LLC	B	Forest Hills	Pike
PCS Distilling Company	B	Louisville	Jefferson

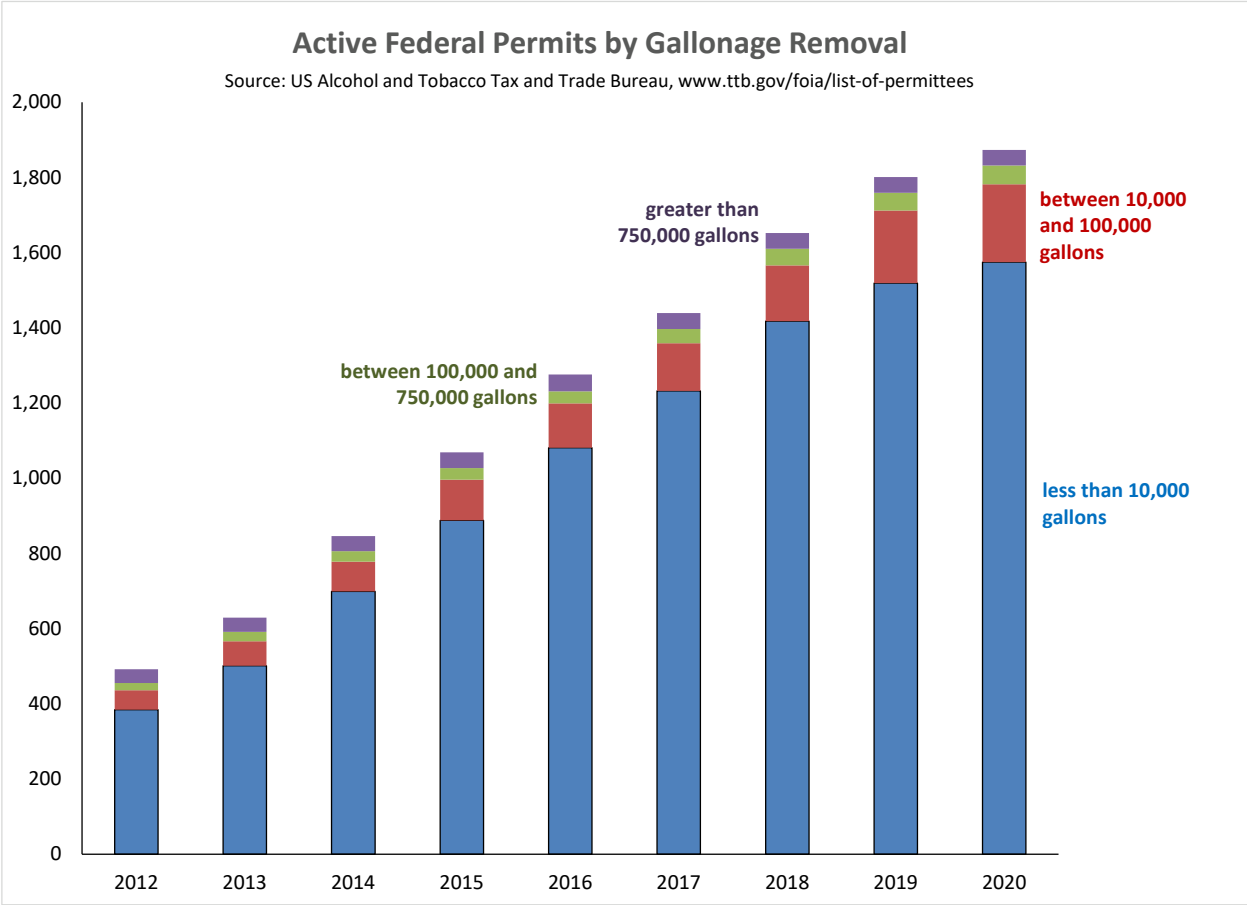
Small Volume Distiller Licenses, June 2023 (cont)			
Distiller Name	Class	City	County
Route 52 Moonshine, LLC	B	Ravenna	Estill
Saddlestone Distillery	B	Midway	Woodford
Second Sight Spirits	B	Ludlow	Kenton
Silent Brigade Distillery	B	Paducah	McCracken
Smith Holler Distillery	B	Cloverport	Breckinridge
The Bard Distillery	B	Graham	Muhlenberg
The Still (AMBRABEV)	B	Danville	Boyle
Tyler Wood White Whiskey	B	Lewisburg	Logan
Washtucky Holdings LLC	B	Frankfort	Franklin
Wenzel	B	Covington	Kenton
Whiskey Thief Distilling Company	B	Frankfort	Franklin
Whiskeycraft (Preservation Distillery)	B	Bardstown	Nelson
White Dog Trading and Storage, LLC	B	Midway	Woodford
Wildcat Willy's Distillery	B	Winchester	Clark
William Tarr Distillery (RD#1 Bourbon)	B	Lexington	Fayette

Source: Kentucky Department of Alcoholic Beverages. Class A distillers are licensed to produce more than 50,000 gallons per year; Class B less than 50,000 gallons. Company names in parentheses when they differ substantially from the distillery name.

Distillers are also licensed by the federal government, and thus we know how many are operating in each state. This snapshot from September 2023 shows 140 licensed distilling locations in Kentucky out of a total of 4,652 nationally. Kentucky is tied with Oregon for 11th highest among states, compared to Kentucky’s population ranking of 26th. See chart for the numbers by state. The top states – California, New York and Texas – have large population bases and relatively low wholesale taxes on spirits consumption. Kentucky has added 30 licensees since 2021 and now accounts for three percent of national licensees, up slightly from two years ago.

A related federal database on permits reveals the strong recent growth in small distilleries nationally. Between 2012 and 2020, there was a net growth in active distillery permits of 1,381, with 86 percent of these distilleries producing less than 10,000 gallons annually. There has been essentially no change in the number of distilleries producing more than 750,000 gallons, which remains stable over the decade at around 40 to 45 distilleries. (The database has not been updated since 2021).





The federal database also provides another measure of the distribution of distilling locations around Kentucky. One can see the 140 facilities are located in 49 counties, up from 44 counties two years ago. Note that over half of the distillers are located in seven of Kentucky’s 120 counties – Jefferson, Nelson, Fayette, Woodford, Franklin, Anderson and Bullitt.

**Number of Federally Licensed Distilled
Spirits Producers, by Kentucky County,
September 2023**

Jefferson	31	Bourbon	1
Nelson	12	Breckinridge	1
Fayette	11	Caldwell	1
Woodford	7	Cumberland	1
Franklin	5	Estill	1
Anderson	4	Floyd	1
Bullitt	4	Fulton	1
Boyle	3	Gallatin	1
Christian	3	Garrard	1
Kenton	3	Grant	1
Marion	3	Grayson	1
Pike	3	Hickman	1
Shelby	3	Hopkins	1
Boone	2	Jessamine	1
Bracken	2	Knox	1
Campbell	2	Letcher	1
Clark	2	Lincoln	1
Daviess	2	Mason	1
Hardin	2	Ohio	1
Henry	2	Oldham	1
Logan	2	Pulaski	1
McCracken	2	Scott	1
Mercer	2	Simpson	1
Muhlenberg	2	Trigg	1
Warren	2		

Source: US Department of Treasury, Alcohol and Tobacco Tax and Trade Bureau, www.ttb.gov/foia/list-of-permittees

APPENDIX C

Measures of Employment and Payroll for Kentucky's Distilling Industry

There are several government sources of data on employment and/or payroll for Kentucky's distilling industry, and the estimates differ by statistical program due to different definitions, timeframes, geographic detail and disclosure rules. In this section, we display the various estimates and discuss their differences. First, we mention some general measurement issues to keep in mind when dealing with official economic data.

All federal statistical programs use an industrial classification scheme based on the primary source of revenues to the business establishment. Thus, if distilling accounts for the largest source of revenue for a company that also sells food, merchandise in gift shops, etc., all the business's economic activity is counted under the distilling industry, NAICS 31214.

Moreover, most employment and payroll measures for the industry simply lump production and management personnel under one industry estimate. So, a Kentucky distiller with a large international headquarters operation is counted the same as a distilling operation that only produces Bourbon. There are obviously large differences in occupations and average pay between a headquarters and an actual distillery. We delve into this subject below in our discussion of the Economic Census, the one federal program that distinguishes production from supervisory personnel.

Finally, the payroll data from federal-state statistical agencies does not include any fringe benefits. Employee benefits take the form of Social Security and Medicare taxes paid by the employer, contributions to private pensions plans, subsidies of health and life insurance plans, payments into the unemployment insurance systems and the value of clothing and meals. Employer-provided benefits to employees can range from 20 to 50 percent of actual wages and salaries paid.

IMPLAN Estimates

A comprehensive set of employment and income estimates is available from our IMPLAN model. The wage and salary estimates are very similar to those from those from BLS's Quarterly Census of Employment and Wages discussed in the next section. Of course, IMPLAN derives its estimates from federal statistical programs and relies heavily on QCEW data. But IMPLAN adds interesting details to the picture. It reveals fringe benefits (supplements to wages and salaries) with a rate of 23 percent to generate an estimate of total employee compensation. And, unlike the other programs discussed below, IMPLAN accounts for proprietors in the industry.

The IMPLAN modeling system attempts to account for all economic activity in a region, not just jobs and payroll. One can see in the accompanying table that total employment, including proprietors, is 7,066, with total labor income of \$846.6 million.

IMPLAN Estimates of Employment and Labor Income, Kentucky Distilling Industry, 2022	
Wage and salary employment	6,863.5
Proprietors	202.8
Total employment	7,066.3
Wages and salaries	\$677,241,692
Supplements to wages and salaries	\$152,667,625
Employee compensation	\$829,909,318
Proprietors' income	\$16,700,981
Labor income	\$846,610,298
<i>Average annual compensation</i>	
Wage and salary workers	\$120,917
Proprietors	\$82,348
Total: wage and salary, plus proprietors	\$119,810

Source: IMPLAN model of Kentucky, using 2022 economic data, Sector 108.

Quarterly Census of Employment and Wages (QCEW)

The QCEW is produced by the U.S. Bureau of Labor Statistics and covers nearly all nonagricultural wage and salary employment. The government receives the raw data from employer reports as part of each state's mandatory unemployment insurance program; and thus, the estimates are based on a census, not a survey. Data are published on a monthly basis for employment and a quarterly basis for wages. Data are released with about a six-month lag. Thus, full 2022 data was available in June 2023. Note that QCEW data does not cover business proprietors or otherwise self-employed persons, and hence will not capture some of the business owners involved in Craft distilling. BLS publishes QCEW data at the county level, though federal confidentiality laws limit the amount of industry detail that can be released, particularly for counties with a small population or counties containing one or two very large employers.

In the table below, QCEW data on Kentucky’s distilling industry the last two decades shows by 2022 the industry supported 6,767 jobs, with a \$635 million annual payroll. Average annual wages and salaries are nearly \$94,000. The recent decline in average pay per job probably reflects the fact that some of the larger companies expanded production and tourism activities relative to the size of their headquarters operations. It is interesting to see that the industry grew even in 2020, the year of Covid-19 pullbacks in most sectors. Also, the strong recent growth in Craft

Distillery Employment and Wages in Kentucky, 2001 to 2022					
	Number of Business Establishments	Employment	Wages and Salaries	Average Annual Wages and Salaries per Job	Employees per Establishment
2001	16	2,945	\$156,644,000	\$53,190	184
2002	16	2,896	\$156,832,000	\$54,155	181
2003	14	2,907	\$168,222,000	\$57,868	208
2004	15	2,949	\$179,753,000	\$60,954	197
2005	15	3,005	\$203,317,000	\$67,660	200
2006	15	3,062	\$225,437,000	\$73,624	204
2007	16	3,167	\$236,527,000	\$74,685	198
2008	17	3,168	\$243,959,000	\$77,007	186
2009	17	3,100	\$225,594,000	\$72,772	182
2010	17	3,103	\$245,667,000	\$79,171	183
2011	19	3,208	\$256,056,000	\$79,818	169
2012	20	3,260	\$311,709,000	\$95,616	163
2013	23	3,594	\$327,728,000	\$91,188	156
2014	30	4,003	\$392,859,000	\$98,141	133
2015	36	4,144	\$394,493,000	\$95,196	115
2016	43	4,297	\$405,040,000	\$94,261	100
2017	48	4,563	\$432,002,000	\$94,675	95
2018	54	4,968	\$482,691,000	\$97,160	92
2019	59	5,253	\$521,426,000	\$99,263	89
2020	69	5,381	\$546,544,000	\$101,569	78
2021	82	6,065	\$563,748,000	\$92,951	74
2022	92	6,767	\$635,048,000	\$93,845	74
<i>Growth</i>	76	3,822	\$478,404,000	\$40,655	-111
<i>Rate</i>	475.0%	129.8%	305.4%	76.4%	-60.0%

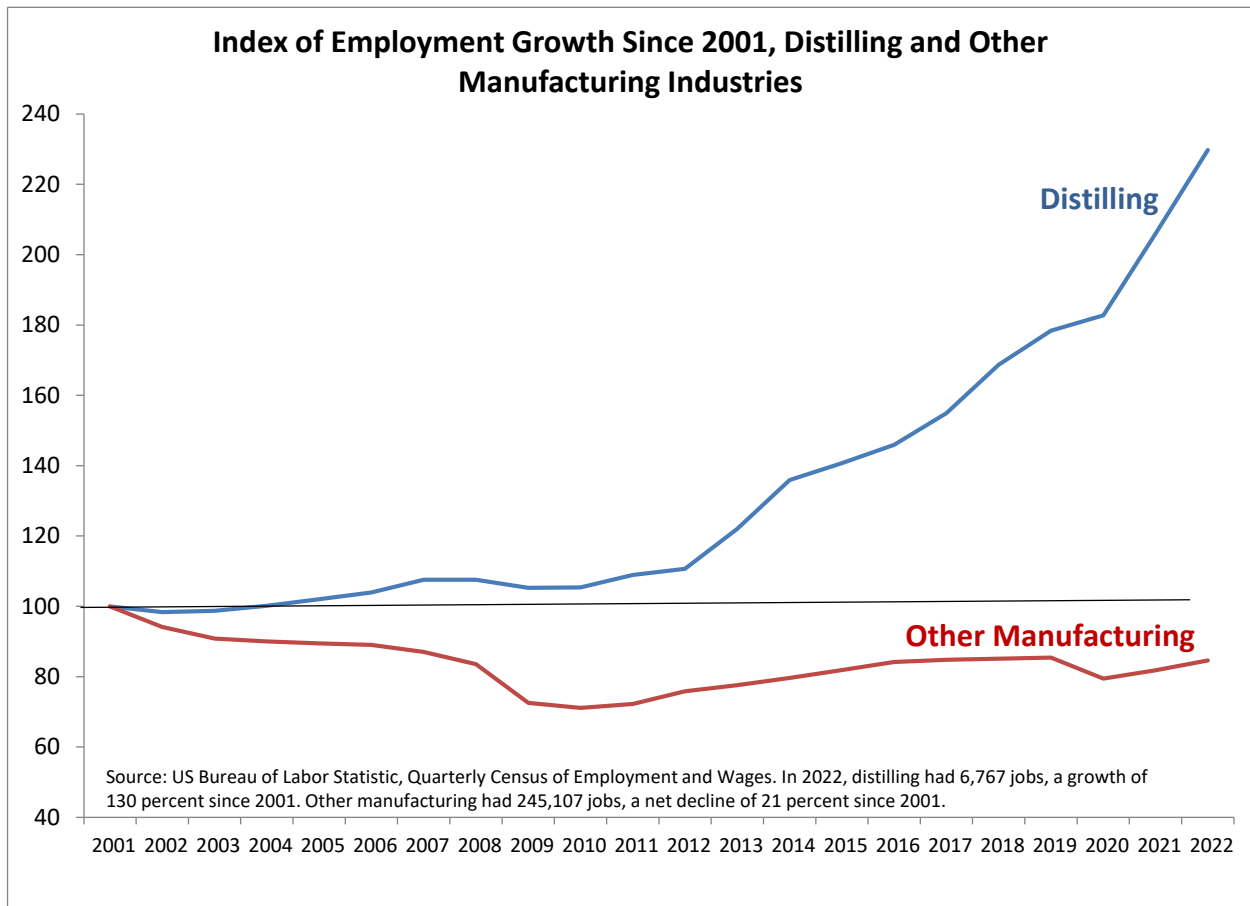
Source: US Bureau of Labor Statistics, *Quarterly Census of Employment and Wages*, for Distilling industry, NAICS 31214.

distilleries in apparent in the historical record. Note that the number of employees per establishment has been falling since 2006, and now only one-third of its peak.

While we view the QCEW to be a comprehensive accounting of the distilling industry wage and salary employment, these estimates actually understate the size of the industry in Kentucky a bit because the distilled spirits industry here is represented by larger and more vertically integrated companies than elsewhere.

Because most economic data are collected on an establishment basis, it is possible for two facilities of the same company involved in different aspects of the production process to be classified into different industries, even if they are on adjacent parcels of land. This is the case for a few bottling and shipping facilities in Kentucky. Because this is an integral part of the business, we fold these facilities into the industry for our economic analysis.¹⁶ Over the last several years, the IMPLAN estimates for wage and salary employment have been slightly higher than the QCEW figures (between 5 and 96 jobs), with average annual salaries a few thousand dollars higher, but track the year-to-year changes in the QCEW data very well. Our economic impact analysis, therefore, assumes that the IMPLAN estimates are a good snapshot of the distilling industry at the state level.

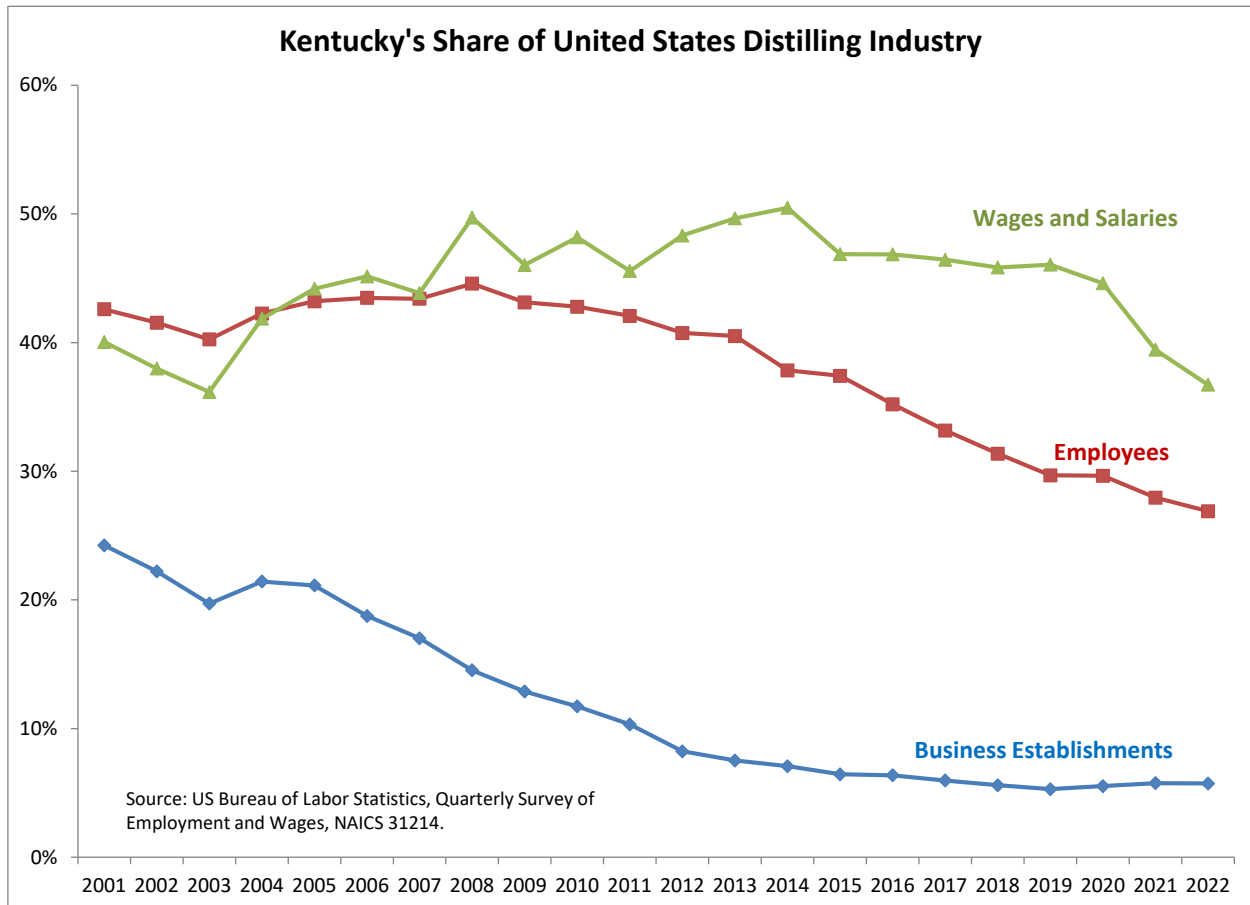
¹⁶ Additionally, the U.S. Census Bureau dataset, *County Business Patterns*, which tends to be stricter in terms of only counting direct production facilities as part of a manufacturing industry, shows a much higher increase in distilling industry employment from 2018 to 2019 for both Kentucky and the US, than does the QCEW. Historically normal ratios between the CBP and QCEW data indicate that the latest QCEW data may be underestimating the size of the industry in Kentucky.



How has distilling performed employment-wise relative to other manufacturing industries in Kentucky? One can see in the above chart that distilling employment has risen rapidly while, on net, the other manufacturing industries have shed jobs over the last two decades. Since 2001, distillery employment rose 130 percent, while the rest of employment by Kentucky manufacturers fell by 20.5 percent.

We can use the QCEW data to get insight into Kentucky’s share of the national distilling industry. The next chart shows Kentucky’s share of business establishments, jobs, and payroll. These reveal that, while Kentucky remains the dominant state for distilling employment due to its large legacy producers, there has been a national boom in small distilling (‘Craft’, ‘micro’) establishments. Nationally, the number of distillers went up 24-fold over the 2001 to 2022 period, from 66 to 1,604. Kentucky’s share of distilling establishments fell from 24 to six percent over the period, while its share of employment fell only from 43 to 27 percent. Annual pay per job remains high in Kentucky, due to the location of several major headquarters operations in the state. Indeed,

over the period shown, average annual pay per job in Kentucky went from six percent below the national average to 37 percent above the national average.



Economic Census, and the Annual Survey of Manufacturers

The U.S. Census Bureau publishes detailed economic data by industry for years ending in '2' and '7'. There is a several-year reporting and estimation lag, so that the latest publication is for the year 2017. The Census Bureau also publishes less detailed industry statistics on manufacturing every year between the census years. Titled the *Annual Survey of Manufacturers*, the latest edition covers 2019, which was published in February 2021. However, state-level economic estimates are provided only at the four-digit NAICS level, so that estimates are available for the Beverages industry, but no breakout for alcoholic beverages, like spirits, wine, or beer. Only the economic census provides good industry detail at the state level. We summarize the last five sets of estimates for the distilling industry here.

Kentucky's Distillery Industry, Selected Economic Characteristics					
	1997	2002	2007	2012	2017
Number of establishments	16	16	15	19	49
Number of employees	2,124	2,061	2,391	2,283	3,239
Annual payroll (000)	\$75,727	\$88,915	\$111,351	\$146,936	\$231,960
Production workers avg per year	1,496	1,416	1,503	1,499	2,391
Production workers hours (000)	3,016	2,885	3,064	D	5,031
Production workers wages (000)	\$45,918	\$51,595	\$60,114	\$75,222	\$137,108
Value added (000)	\$613,814	\$579,681	\$2,003,008	D	\$2,883,306
Total cost of materials (000)	\$432,090	\$479,871	\$629,667	D	\$908,784
Total value of shipments (000)	\$1,034,299	\$1,070,722	\$2,459,131	D	\$3,902,731
Total capital expenditures (000)	\$28,331	\$30,864	\$50,176	\$66,647	\$218,285
Number of non-production workers	628	645	888	784	848
Payroll of non-production workers (000)	\$29,809	\$37,320	\$51,237	\$71,714	\$94,852

Source: US Census Bureau, Economic Census 1997, 2002, 2007, 2012, 2017. Distilling industry is NAICS 312140. 'D' means not disclosed, so as to maintain confidentiality on activity by one or two large establishments.

These data document the industry's strong economic growth in Kentucky over those 20 years, and especially 2012-2017. Every important category posted growth – establishments, employment, payroll, shipments and capital expenditures. One can see payroll doubled the last decade, primarily due to production-worker wages.

There are other details not shown in the table above. Hourly wages of production workers in Kentucky were \$27.25, compared to \$26.38 nationally. Across all workers, Kentucky distillers paid \$73.9 million in fringe benefits on top of the \$232 million in wages and salaries, a fringe rate of 32 percent. Also, the Census reports Kentucky distillers held \$1.43 billion in inventories at the end of 2017, primarily in finished goods and work-in-process.

Note that the economic census statistics are lower than those published under the QCEW program for the same years. For example, the 2017 census shows only 3,239 jobs in distilling for Kentucky, while QCEW reports 4,563. Similarly, the payroll estimate is much higher in the QCEW data series than in the economic census or CBP program. We believe this is due to an inconsistency in how the data programs classify corporate headquarters operations. Presumably, the QCEW counts distillery headquarters jobs and payroll as part of the distilling (manufacturing) industry, while the economic census counts headquarters activity under a management industry category. In our modeling work we will use the larger QCEW figures as a base, since the headquarters are certainly considered part of the distilling industry in Kentucky.

In the next table, we summarize Kentucky's share of the national industry for the same economic variables. One can see Kentucky maintained a lead position in the industry, with most economic measures holding steady at around one-third of the national totals. The huge share of U.S. capital expenditures (54 percent) in 2017 bodes well for the future of the industry in Kentucky. The declining share of establishments is due to the surge of small Craft distilleries around the country. We examine the growth in Craft distilleries in detail in Appendix D.

Kentucky's Share of US Distillery Industry, Selected Economic Characteristics					
	1997	2002	2007	2012	2017
Number of establishments	26.7%	23.9%	15.6%	7.6%	6.3%
Number of employees	32.5%	36.8%	27.0%	32.7%	29.1%
Annual payroll (\$1,000)	30.0%	35.1%	26.9%	34.4%	33.4%
Production workers avg per year	32.0%	38.3%	30.0%	33.2%	32.1%
Production workers hours (1,000)	31.0%	38.1%	30.2%	D	34.0%
Production workers wages (\$1,000)	29.0%	37.9%	30.1%	32.8%	35.2%
Value added (\$1,000)	27.8%	22.9%	42.9%	D	33.6%
Total cost of materials (\$1,000)	25.2%	30.5%	24.3%	D	28.2%
Total value of shipments (\$1,000)	26.5%	26.4%	34.7%	D	31.7%
Total capital expenditures (\$1,000)	37.3%	28.9%	32.2%	37.0%	53.6%
Number of non-production workers	33.6%	33.9%	23.1%	31.7%	23.0%
Payroll of non-production workers	31.7%	31.9%	24.0%	36.3%	31.2%

Source: US Census Bureau, Economic Census 1997, 2002, 2007, 2012, 2017. Distilling industry is NAICS 312140. 'D' means not disclosed, so as to maintain confidentiality on activity by one or two large establishments.

The 2017 Census also provides a breakout of capital expenditures, as shown below. Of the \$218 million invested in 2017 by Kentucky distillers, 46 percent went to buildings and 54 percent to machinery and equipment. This is almost identical to the national distribution of capital expenditures by distillers that year, reflecting the nature of production facilities: buildings, fermenting equipment, warehouses, bottling lines, packaging and shipping.

Capital Expenditures by Distilling Industry in Kentucky, 2017	
Buildings and other structures	\$101,325,000
Automobiles, trucks, etc. for highway use	\$1,144,000
Computers and peripheral data processing equipment	\$3,784,000
All other machinery and equipment	\$112,032,000
Total capital expenditures for buildings, structures, machinery, and equipment	\$218,285,000

Source: US Census Bureau, 2017 Census of Manufacturing, November 2020.

County Business Patterns

Yet another federal source of data on employment and payroll is the Census Bureau's County Business Patterns (CBP) program. Like the QCEW program discussed above, CBP covers only wage and salary workers in nonagricultural industries, and thus misses self-employed persons. CBP publishes county-level (as well as state, MSA and zip code-level) data on an annual basis. The estimates for 2021 were released in April 2023. We examine the national pattern of distilling establishments in Appendix D. Here we show the historical summary data for Kentucky only. The CBP data also reveals the strong growth in distilling establishments and pay. Employment rose 155 percent over the 2005 to 2021 period, while average pay rose 61 percent. One can see the boom in small Craft distilleries in Kentucky beginning in 2011: the number of establishments has more than tripled over the past decade.

How does the CBP data align with the QCEW data discussed above? Note that the number of distilling establishments differs for the last year that common data are available (2021), with QCEW showing 82 establishments and CBP showing 63. And the employment counts and payroll estimates are quite different. Recall that for 2021, the QCEW program estimated Kentucky had 6,767 distilling employees (1,500 more than CBP) and an annual payroll of \$635 million (fifty percent above that from CBP). We believe the difference is due to the treatment of some corporate headquarters activity, with the QCEW program including them and CBP excluding them. 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 salaries than production workers. In 2021, workers covered by the QCEW program averaged \$93,800, while those covered by the CBP program averaged \$78,100.

Distilling Establishments, Jobs, and Payroll in Kentucky				
	Establishments	Paid Employees	Annual Payroll	Average Annual Pay per Job
2005	15	2,047	\$99,498,000	\$48,607
2006	16	2,207	\$103,967,000	\$47,108
2007	14	1,681	\$81,081,000	\$48,234
2008	17	2,209	\$117,439,000	\$53,164
2009	16	1,903	\$104,575,000	\$54,953
2010	16	1,945	\$98,230,000	\$50,504
2011	18	1,897	\$107,441,000	\$56,637
2012	20	2,340	\$131,328,000	\$56,123
2013	23	2,272	\$150,002,000	\$66,022
2014	27	2,456	\$158,480,000	\$64,528
2015	37	3,020	\$205,248,000	\$67,963
2016	40	3,057	\$210,148,000	\$68,743
2017	47	3,306	\$228,086,000	\$68,992
2018	50	3,646	\$277,742,000	\$76,177
2019	55	4,505	\$331,577,000	\$73,602
2020	56	4,918	\$378,757,000	\$77,014
2021	63	5,225	\$408,192,000	\$78,123
<i>growth</i>	<i>48</i>	<i>3178</i>	<i>\$308,694,000</i>	<i>\$29,516</i>
<i>2005-21</i>	<i>320.0%</i>	<i>155.3%</i>	<i>310.3%</i>	<i>60.7%</i>

Source: US Census Bureau, County Business Patterns, for Distilling industry, NAICS 312140.

Kentucky Directory of Business and Industry

The Kentucky Cabinet for Economic Development maintains a database of business and industry containing information by industrial classification. For each business establishment, the database provides an address, officers, contact information, major products and full-time employment (self-reported by the companies). We asked the Cabinet to query the database in August 2023 to discern information for ‘Distilleries’, NAICS 312140, and related sectors. There were entries for 56 distilling establishments. An employment count was provided, and the sum of employment

reported for distilling was 6,184¹⁷. This can be compared to 41 distilleries, with employment of 5,578 from the 2021 directory, and 39 distilleries with employment of 4,908 in the 2018 directory. Many of the Craft distillers listed in Appendix A are not included in the directory.

Occupations in the Distilling Industry

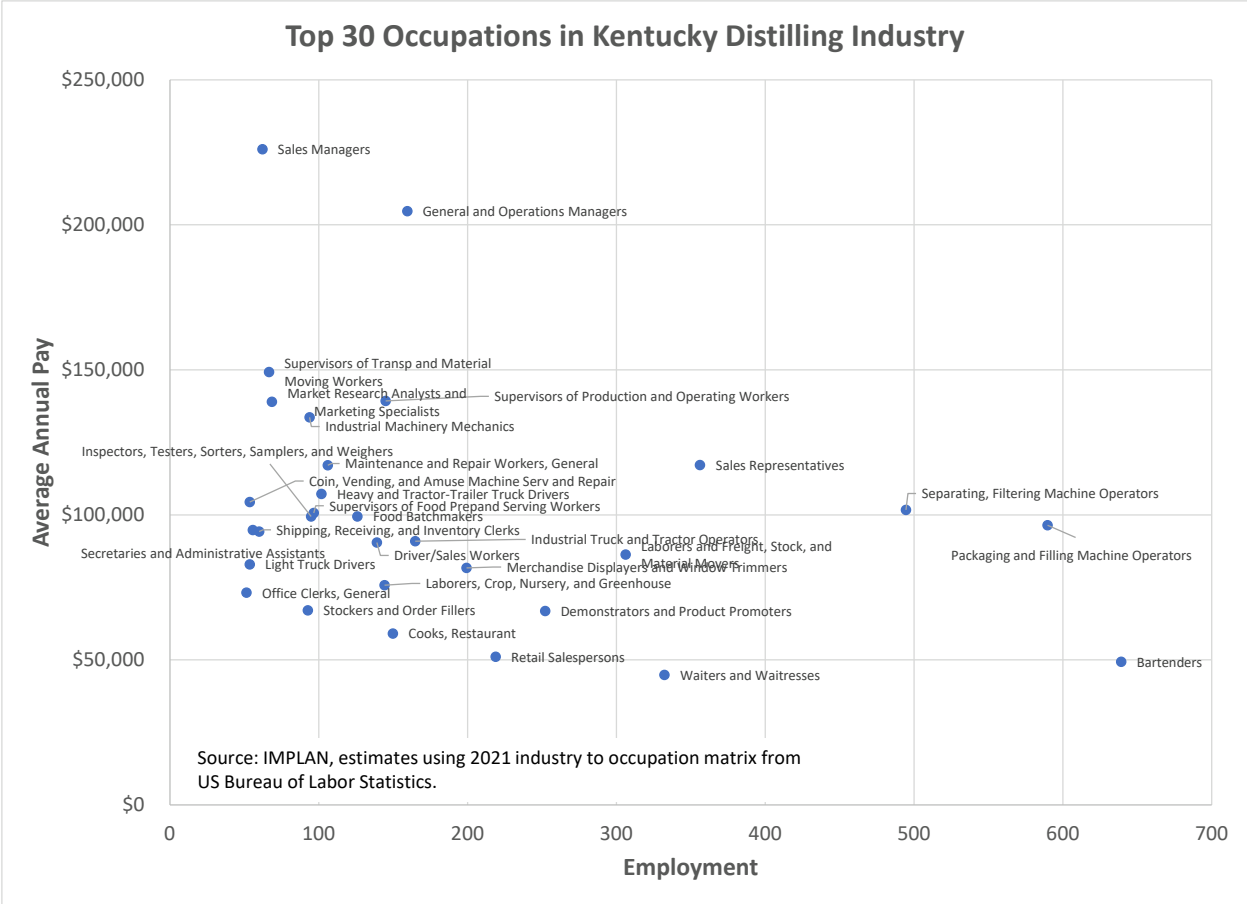
The U.S. Bureau of Labor Statistics produces estimates of occupations by industry and our IMPLAN model provides these in a very accessible way. For distilling, there are 153 occupations listed, though about one-half have 10 or fewer employees represented. In the next chart, we provide the employment and pay estimates for the top 30 occupations, together accounting for 83 percent of the total analyzed (6,863 jobs).

The highest paid occupations are in management and supervisory positions, as would be expected. The largest occupation is bartenders, which might be surprising, but makes sense when one considers the staffing needs of all the tasting rooms and on-site restaurants and bars across the industry. The next largest occupations are production-related, the people operating the machines that make and package the distilled spirits.

Total wages and salaries were \$677 million. Supplements (payroll taxes and fringe benefits) were \$152 million, so total employee compensation was \$830 million. The average annual wage and salary across all occupations was \$98,700. With the 23 percent pay supplements, the average labor compensation amounted to \$121,000.

The average hours worked per year was 1,800, with many occupations logging more than 2,000 hours, particularly the managers and supervisors. The average hours worked was pulled down by the part-time nature of bartending, which has the most employment among the occupations, but average only 1,400 hours per year.

¹⁷ The only Class A large Kentucky distiller that is not a KDA member is Sazerac, which has major operations in Bardstown (Barton 1792), Frankfort (Buffalo Trace) and Owensboro (Glenmore). Their combined total employment was 1,276. This largely accounts for the difference between the KDA employment count and that reported by the U.S. Bureau of Labor Statistics.



Summary

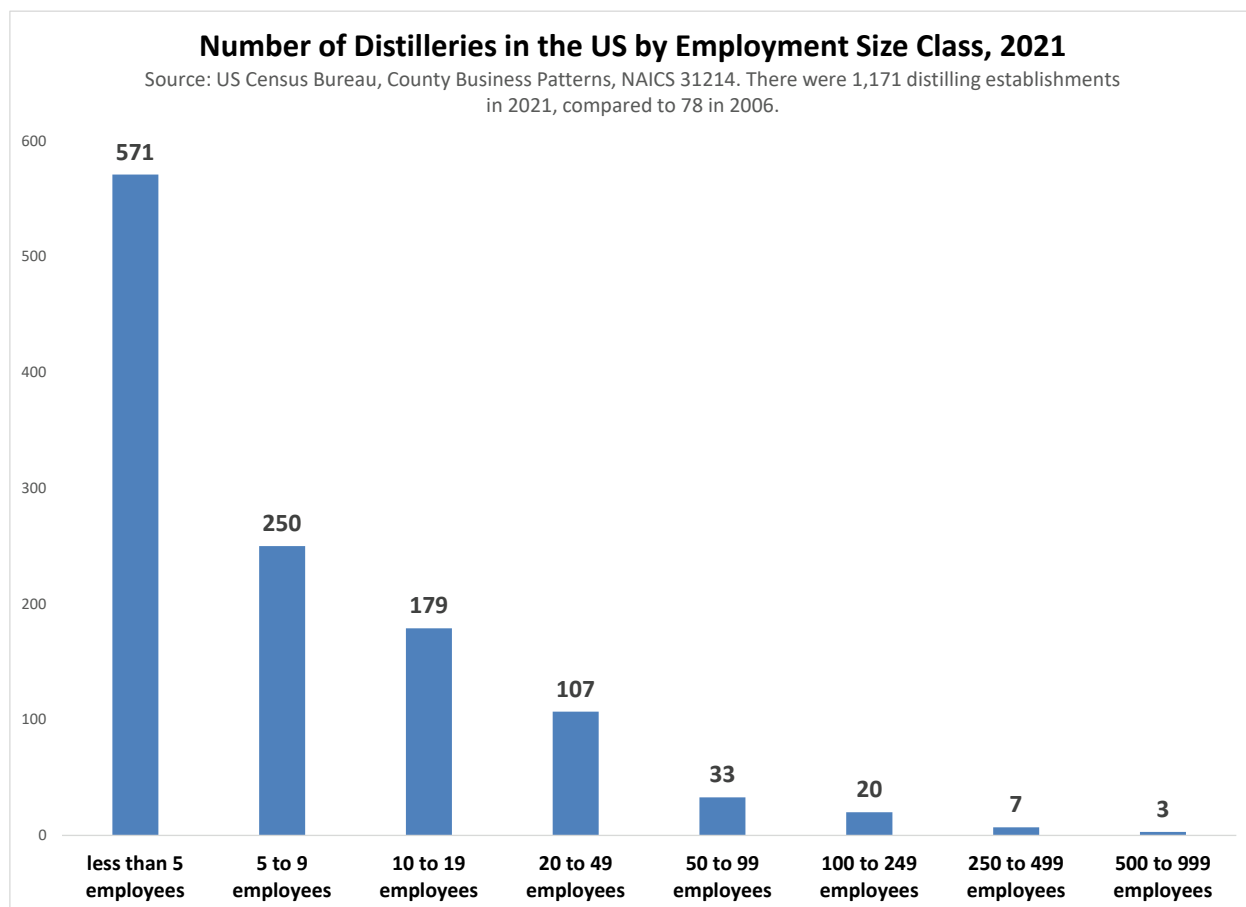
As noted above, our economic impact analysis assumes the IMPLAN-derived employment of 7,066 people with annual labor income of \$847 million. The QCEW data are the most comprehensive of the various government sources. Most of the difference between the QCEW and IMPLAN is due to the former excluding proprietors while the latter estimates this segment of the industry. The differences between these employment estimates and employment reported by Economic Census, County Business Patterns and business and industry directory are due to our consideration of the entire process of production from distilling to barreling to bottling, shipping, marketing and management. In practice, this mean that the Economic Census and CBP assign an establishment (and its employees) to the industry that the majority of the products and/or services produced at the particular site are most directly related to. Sometimes, even if they are in close physical proximity, two facilities under the same corporate structure and part of the same overall production process can be classified under different industries if their functions are different enough. In the case of the distilling industry in Kentucky, this occurs when facilities are primarily engaged in bottling and shipping spirits that are distilled and aged elsewhere and when headquarters-type functions are the primary work at a particular location.

The Economic Census and CBP classify the former establishments into the wholesale distribution and services industry. There are several such facilities in Kentucky, some located quite close to distilling facilities, each bottling the Kentucky-produced spirits of its corporate sibling. The latter establishments get classified into the 'management of companies' industry. The Directory of Business and Industry does tend to include both types of those other facilities under the distilling category. Excluding an establishment that is a part of the production process (by classifying it elsewhere) is much less likely with the QCEW. Since the IMPLAN estimates track the QCEW well, and include proprietors, we think it is a good statewide representation of the industry.

APPENDIX D

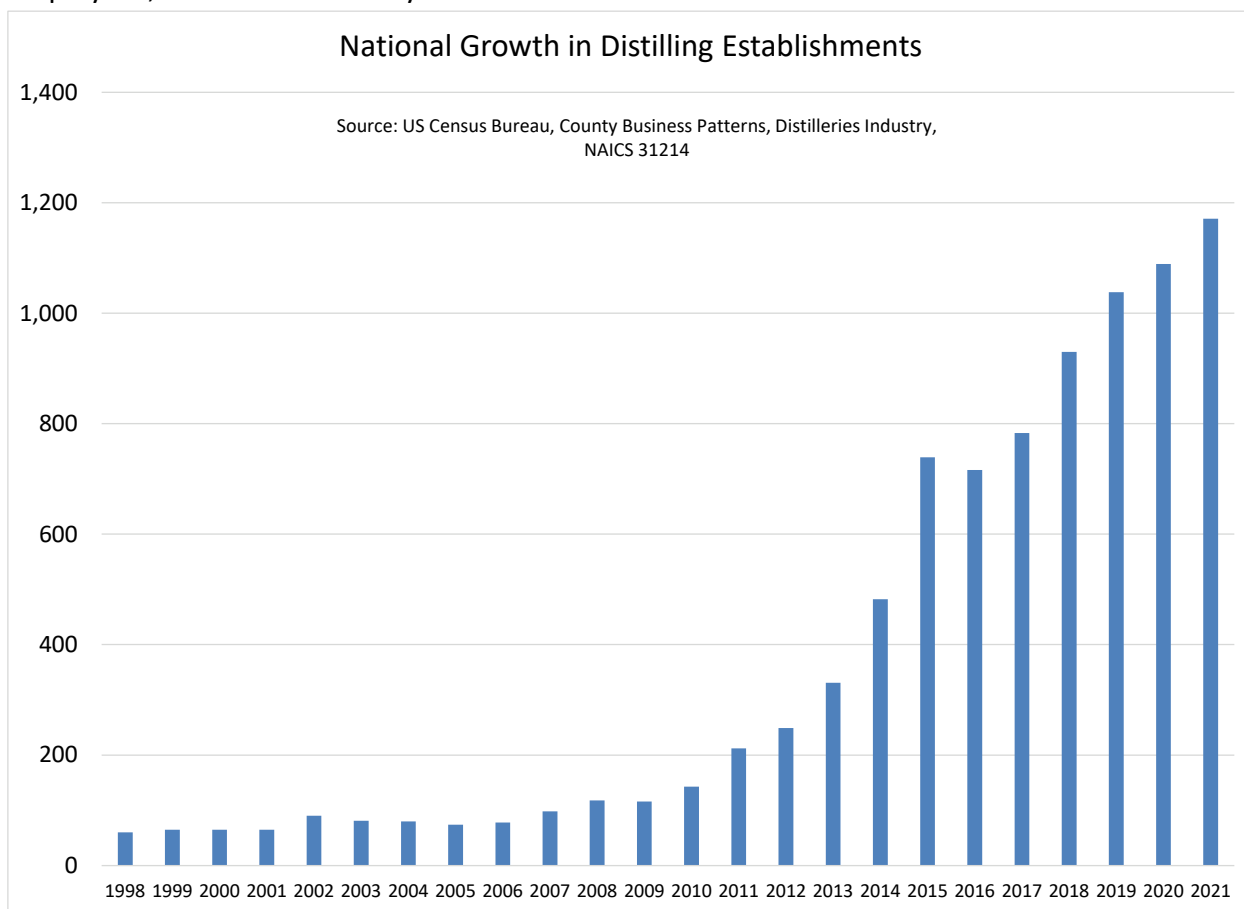
National Growth in Distilling Establishments Over the Last Decade

It is well known that we are amid a national boom in small local distilling operations. These are sometimes called Craft distillers or micro-distillers. There is no standard definition of a Craft distiller, though in Kentucky they are defined for regulatory purposes as producing less than 50,000 wine gallons of spirits per year. That sounds like a lot, but amounts to less than 1,000 barrels per year, or about three per day. In this section, we examine *County Business Patterns* data on to measure the growth in ‘small’ distillers.



For purposes of this discussion, we will distinguish between distillers with fewer than 10 employees to those with 10 or more employees. We use data from *County Business Patterns*, a statistical program of the U.S. Census Bureau, which recently published data through 2021. The chart above shows the distribution of establishments by employment size class. Note that about one-half of all distillers in the U.S. had fewer than five employees and about 70 percent of all distillers had nine or fewer employees in 2021. Among the very large employers, most are in

Kentucky or adjacent states. In fact, of the 10 national distilling establishments with 250 or more employees, five are in Kentucky.¹⁸



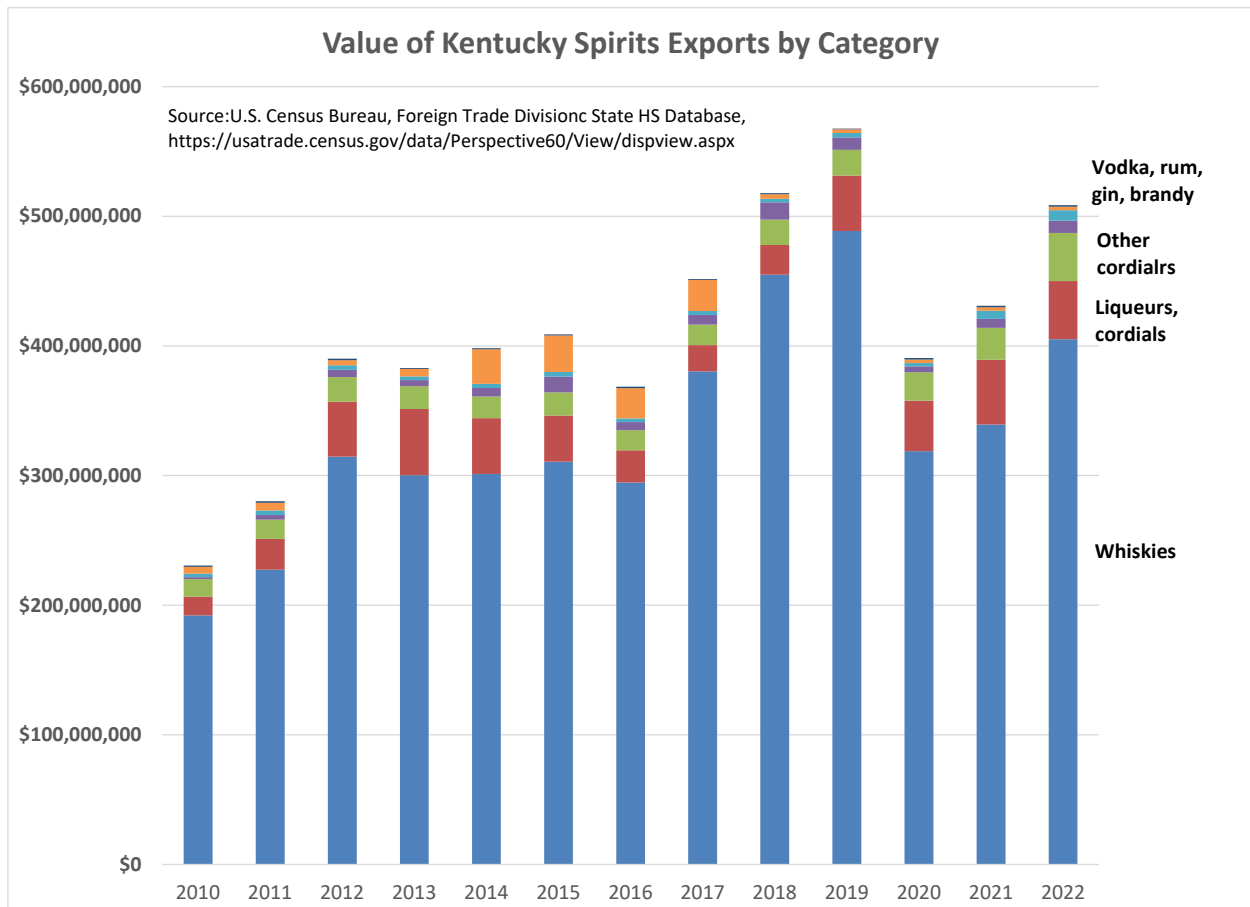
As is evident in the chart above, the year 2006 marked the beginning of exponential growth in distilling establishments nationally – with some subsequent years posting over 40 percent growth. One can see that the number of distilleries has grown 15-fold over the 2006-21 period, from 78 establishments to 1,171. For the period, national distilling employment *only* rose by a factor of 2.8, from around 6,700 to 19,100, a further indication of the small size of the new distilleries. Distillers employing fewer than 10 people across the country grew dramatically, from 34 to 821 establishments.

¹⁸ Unfortunately, the Census Bureau recently changed its disclosure policy for estimates involving just a few establishments, which prevents us from observing activity in many small Kentucky counties, as well as from producing a national county-level maps included in our 2018 report. “Beginning with reference year 2017, a cell is only published if it contains three or more establishments. In all other cases, the cell is not included in the release (i.e., it is dropped from publication). In prior years, payroll values for cells with fewer than three establishments would have been suppressed and an employment size range (EMPFLAG) would have been provided; however, the number of establishments would have been published.” See www.census.gov/programs-surveys/cbp/technical-documentation/methodology.html#par_textimage_245304869

APPENDIX E

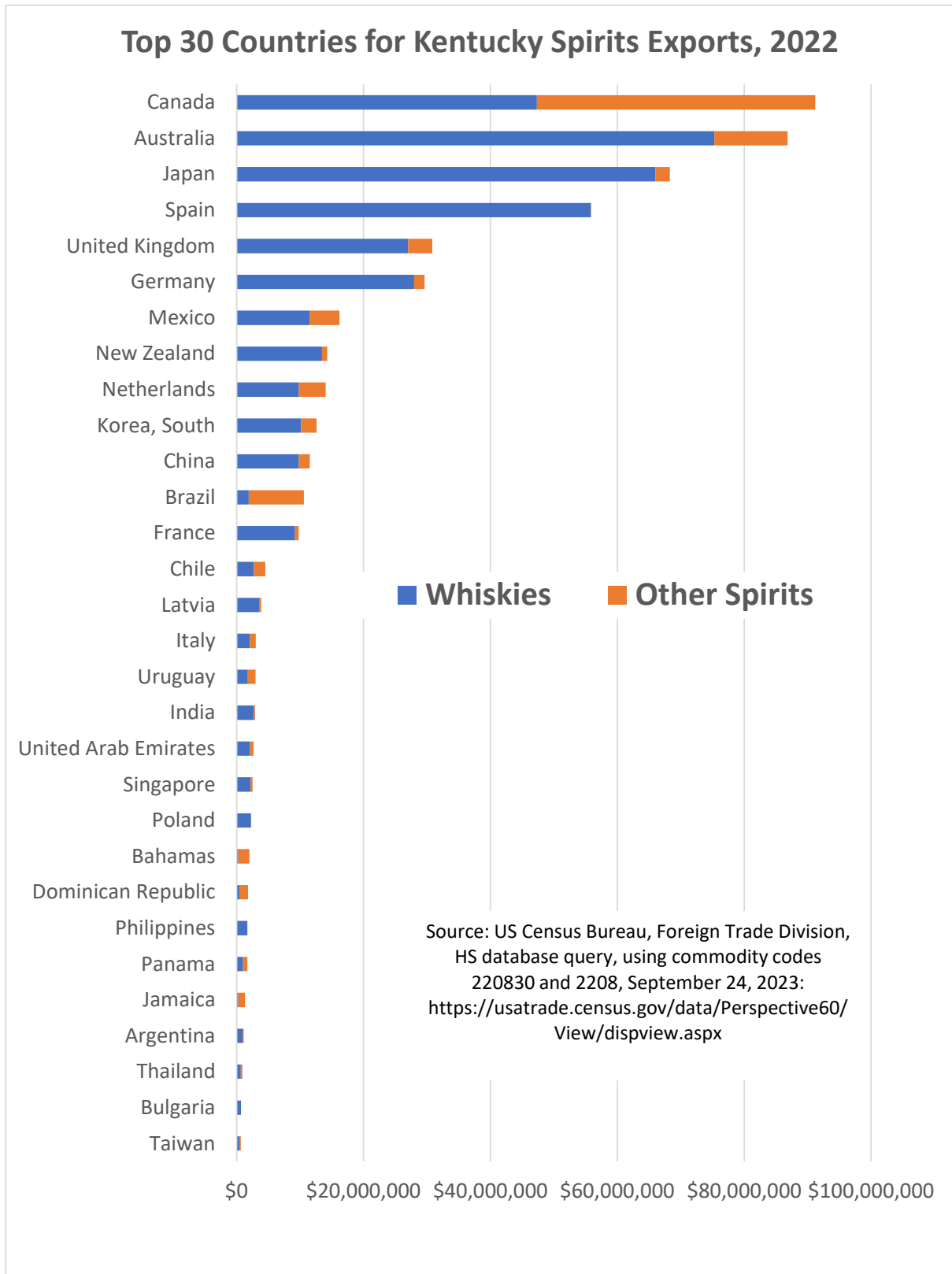
Exports of Kentucky Distilled Spirits

Kentucky distillers shipped \$508.5 million of product abroad in 2022, according to the Census Bureau’s Foreign Trade Division. One can see the industry’s exports are dominated by whiskies, of which Bourbon is the main component. The noticeable decline in 2020 was due to the 25 percent retaliatory tariffs imposed on whiskey by the E.U. and China, reducing Kentucky whiskey exports by \$170 million. The E.U. tariffs were temporarily suspended for two years beginning in January 2022, with the expected subsequent boost in exports. The E.U. tariff was set to resume in January 2024 at double the rate but was just suspended again through March 2025.

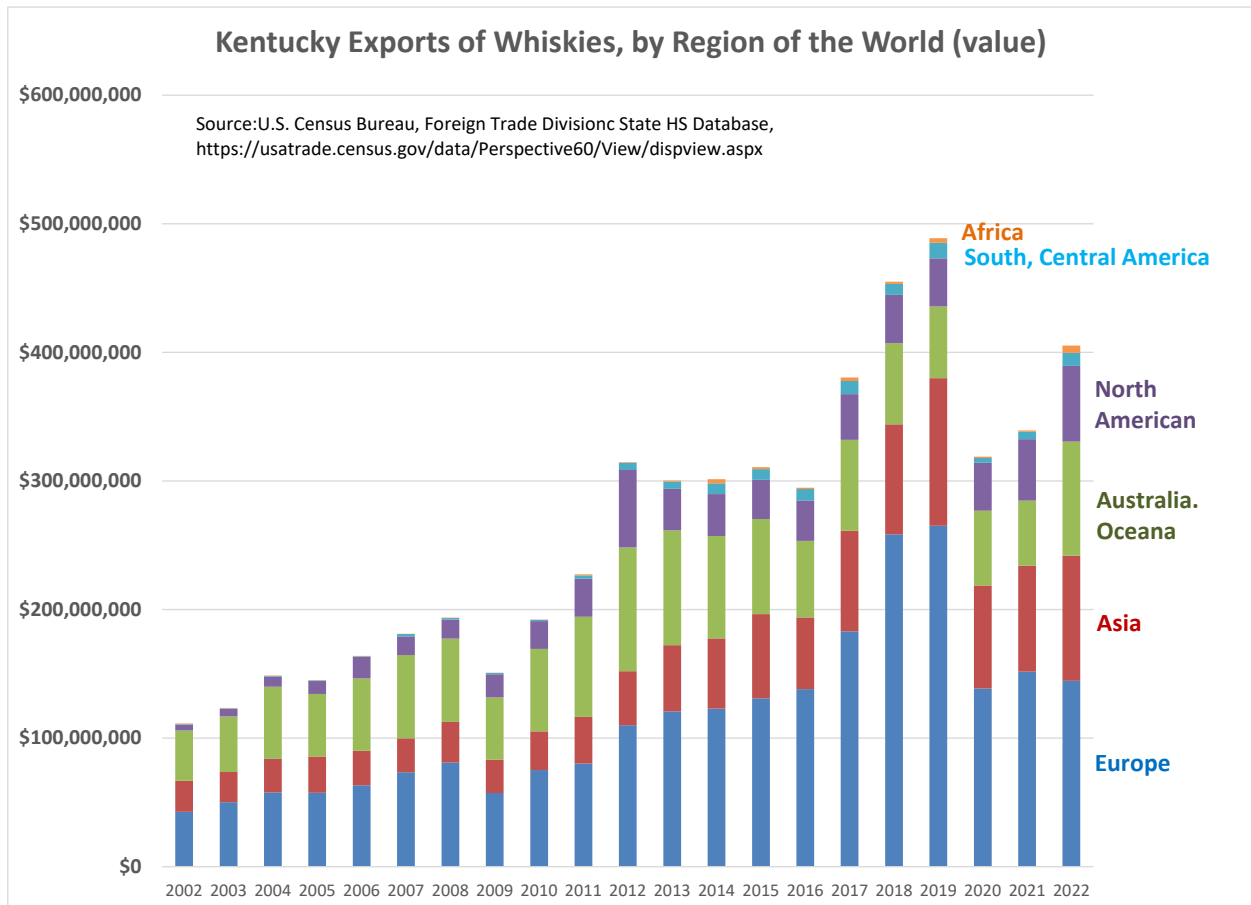


The chart on the next page provides a summary of the value of Kentucky spirits exports by country in 2022, showing the top 30 destination countries, with a breakout for whiskies. Canada, Australia, Japan, Spain, United Kingdom and Germany lead the way, together accounting for 71 percent of the value of all Kentucky spirits exports. Clearly, whiskey is the dominant Kentucky export for almost all countries. There are exceptions, however. Canada, for example, imports

significant amounts of Kentucky-made liqueurs and cordials, as does Australia, Mexico, Netherlands, Brazil and Chile.



The strong growth in international demand before the tariffs is evident in the subsequent chart, showing Kentucky whiskey exports over the last two decades. Between 2002 and 2019, the value of exports more than tripled, reflecting growth in both volume and price. Export sales by Kentucky whiskey distillers peaked in 2019 at \$489 million. One can also see the negative impact of tariffs on 2020 and 2021 sales. The E.U. and China imposed 25 percent retaliatory tariffs on U.S. whiskey, beginning in the summer of 2018. One can see the slowing of growth in 2019 export sales to the E.U. and Asia, the absolute declines in 2020, and the rebound after E.U. tariffs were temporarily suspended for two years in 2022 (and just suspended again through March 2025).



The Distilled Spirits Council of the United States (DISCUS) digs deeper into federal export data and breaks out Bourbon from the whiskey category¹⁹. For the U.S. as a whole, DISCUS shows \$375 million in Bourbon exports in 2022, on 21.2 million proof gallons of volume. Note, 73 percent of Bourbon by volume is exported in bulk form rather than bottled (though bulk only only accounts for 40 percent of exports by value). This varies widely by country. For example, 95 percent of

¹⁹ See www.distilledspirits.org/wp-content/uploads/2023/02/Distilled-Spirits-Exports-Volume-December-2022.pdf and www.distilledspirits.org/wp-content/uploads/2023/02/Distilled-Spirits-Exports-Value-December-2022.pdf.

exports to Spain are in bulk form; Germany receives 90 percent, Japan 83 percent, New Zealand 83 percent, and Australia 56 percent in bulk form. Canada, on the other hand, receives all its Bourbon in bottled form, and the United Kingdom receives about 53 percent in bottles.

APPENDIX F

The IMPLAN Model: Industrial Linkages, Economic Multipliers

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 in a given economy. Our IMPLAN model of Kentucky has details on 534 industrial sectors 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 production²⁰. Beyond the supply chain linkages, IMPLAN also models how household spending ripples through industrial sectors, accounting for what retail goods and services can be supplied by the region versus what must be imported to the region.

While IMPLAN is an excellent tool for modeling regional economies, at best it provides only an approximation of actual activity. Due to the lack of detailed and consistent measures available across regions of the U.S. it must rely in many cases on national averages to predict inter-industry linkages and other key variables. For example, we found that IMPLAN underestimates the degree to which Kentucky distillers purchase barrels from Kentucky cooperages.

Production Function of Kentucky Distilling Industry

A production function is basically a recipe, showing on average how much must be purchased from every other industry to produce a unit of output in each industry. Production functions are the heart of input-output models. IMPLAN begins with the national inter-industry relationships and ‘regionalizes’ the national system by taking account of the amount of economic activity in each industry in the region. But this method implicitly assumes that the recipe used in a region is the same as the national recipe, which may or not be accurate. Thankfully, IMPLAN includes tools to modify the recipe if better information is available locally.

For the 2018 study we were able to significantly enhance the customization of the IMPLAN production function for the distilling industry compared to previous reports in this series. We received calendar year 2017 accounting data from one of the state’s major distillers from which we were able to construct a table describing most of the inputs by industry and their geographic sources. In many ways this table corresponded fairly closely with IMPLAN’s distilling industry production function, but there were some significant differences. These included the value of grains purchased (more), the amount of spirits purchased from other suppliers (less), plastic

²⁰ See implan.com for documentation. A recent article explains the theory and practice of regional impact analyses using regional input-output models: “Methodological Standards for Applied Input-Output Analysis”, by Candi Clouse, Jenny Thorvaldson and G. Jason Jolley, 2023, *Journal of Regional Analysis & Policy* 53(2): 1–14.

bottles (much less), and the inclusion of additional industries, most often associated with food and beverage manufacturing and packaging mechanical equipment.

Two of the larger differences involved aspects of production at opposite ends of the process – barreling and bottling. The accounting data from the local distillers made it clear that IMPLAN did not adequately address the peculiarity of the Bourbon industry with respect to its close relationship with cooperages. IMPLAN had misclassified these inputs into the miscellaneous wood products industry when they belong in the wood containers and pallets industry, and also greatly underestimated the value of the distilling industry’s purchases from the wood container industry. Without the detailed accounting data, we had not been able to adequately address the issue in reports prior to 2018.

With respect to bottling, IMPLAN’s default recipe expects more of this function to be outsourced than is the case in Kentucky where most of the major distillers have their own bottling facilities. This is reflected in the production function value for the “Wholesale Services - Other nondurable goods merchant wholesalers” industry (where bottling of purchased alcohol is placed in the NAICS classification system). Since our impact model folds the large bottling facility plants located in Bullitt, Daviess and Franklin counties (and smaller ones elsewhere) into the distilling industry (while they are separate establishments, they are parts of vertically integrated corporate structures), we adjust that part of the production function downward.

The following table summarizes the predicted makeup of purchases to support distilling in Kentucky and how much of that will be bought from other Kentucky businesses. For clarity, the production function here is stated in terms of *commodities* purchased by the distilling *industry*. Keep in mind that an industry may produce several commodities, and a particular commodity may be produced by multiple industries. Purchases shown are stated in terms of what it takes to produce \$1 million in distillery industry output.

The largest predicted purchase is for barrels (wood containers, pallets, miscellaneous wood products, which includes cooperages), and one can see that we estimate that 65 percent of barrels are produced in Kentucky.

The second largest input expense is the purchase of distilled spirits among distillers themselves. There is a significant amount of mixing and bottling of product that is produced offsite, which includes non-Bourbon products as well as Bourbon taken from barrels in a warehouse. Much of these purchases are from out-of-state distillers. There has been a significant expansion of bottling facilities in the state that process product made elsewhere. The boom in the Craft part of the industry is also a likely factor. Newer Craft distillers either buy distilled spirits, lease capacity, and/or purchase aged barrels from the larger companies in order to build their brands.

Production Function for the Kentucky Distilling Industry

Commodities Purchased by the KY Distilling Industry	Purchases per \$1 Million of Distillery Output		Percent from KY Vendors
	Total Purchases	From Kentucky Vendors	
Wood containers, pallets, misc. wood products	\$82,453	\$53,493	64.9%
Distilled liquors & wines	\$80,585	\$14,925	18.5%
Wholesale trade distribution services	\$78,534	\$60,254	76.7%
Glass containers, misc. glass & stone	\$52,006	\$1,862	3.6%
Transportation services	\$32,386	\$27,504	84.9%
Plastic bottles & other plastics	\$23,843	\$3,028	12.7%
Fruit, flour, rice, & malt	\$21,863	\$157	0.7%
Grains	\$19,168	\$10,361	54.1%
Fabricated metal products	\$17,977	\$2,401	13.4%
Legal, accounting, & advertising services	\$15,912	\$8,066	50.7%
Banking & insurance services	\$14,652	\$11,040	75.3%
Machinery, material handling & electronic components	\$10,961	\$3,636	33.2%
Utilities	\$10,300	\$8,223	79.8%
Management of companies and enterprises	\$9,478	\$5,740	60.6%
Paper & packaging products, printing	\$9,219	\$2,786	30.2%
Motor vehicles, including maintenance	\$8,464	\$1,402	16.6%
Petroleum & other chemical products	\$8,454	\$1,667	19.7%
Business services & hospitality	\$8,139	\$5,505	67.6%
Buildings	\$7,566	\$6,427	84.9%
Noncomparable foreign imports	\$5,361	\$0	0.0%
Rental & leasing services	\$5,313	\$4,373	82.3%
Management, scientific, and technical consulting services	\$3,053	\$1,545	50.6%
Retail services	\$1,633	\$1,466	89.7%
Warehousing and storage services	\$843	\$792	94.0%
Telecommunications & digital services	\$842	\$684	81.2%
Repair and maintenance services	\$642	\$568	88.5%
Products & services of State & Local Govt enterprises (except electric utilities)	\$532	\$514	96.6%
Total intermediate purchases	\$530,180	\$238,418	45.0%
Employee compensation	\$136,683		
Proprietors' income	\$2,751		
Other property-type income (dividends, interest, rent)	\$156,155		
Indirect business taxes	\$174,232		
Total value of output	\$1,000,000		

Source: IMPLAN input-output model of Kentucky, using 2022 economic data, December 2023.

For distilling, IMPLAN predicts that almost none of the glass bottles can be supplied in-state²¹. The glass bottles must be imported, with the result that those purchasing dollars leak out to other states (or countries). One of the major inputs to distilling is grain, in particular corn, wheat and rye. We predict that distillers purchase \$19,000 of grain per \$1 million of distilling output, of

²¹ An excellent recent book on the Bourbon industry provide a history of supplying industries. Glass bottle manufacturing has concentrated in Ohio, Indiana, and Illinois due to access to sand, fuel supplies (coal, natural gas), proximity to major markets, and the mechanization revolution of the Owens process in Ohio. A few Kentucky plants opened, but did not sustain. See pages 150-156 of Karl Raitz, *Making Bourbon: A Geographical History of Distilling in Nineteenth Century Kentucky*, 2020, University Press of Kentucky.

which 70 percent of corn and 19 percent of other grains are obtained from Kentucky farmers. We examine grain purchases in more detail in the next appendix.

The table also shows that for every dollar of distilling output, distillers purchase 53 cents of goods and services, of which 23.8 cents are from other Kentucky suppliers. They pay 13.7 cents to employees, 17.4 cents in tax payments and 15.6 cents in other property income (dividend, interest and rent payments). These categories, displayed at the bottom, make up what economists call “value added,” that is, the amount of value that is added to commodities purchased as part of the production process.

IMPLAN estimates that Kentucky direct distilling output was valued at \$6.1 billion in 2022. Thus, using the rates in the table, we can see that distilleries purchase \$3.4 billion in materials from other industry and use labor and capital to add value of \$2.7 billion. Of that value added, employee compensation in the Kentucky distilling was \$829.9 million, made up of wages and salaries (\$672.6 million) and supplements (\$157.3 million). Supplements are the value of fringe benefits: employee provided social security and Medicare taxes, unemployment insurance and workers’ compensation premiums, health insurance, pension contributions, etc. IMPLAN estimates that the supplements add about 23 percent to direct wages and salaries in this industry.

Our IMPLAN model shows that the distilling industry stands out from others in terms of the tax portion of output, with taxes accounting for 17.4 per dollar of output. Only three other industries generate a higher a tax share – wholesale petroleum, amusement parks and arcades and tobacco manufacturing – and all are much smaller than distilling in terms of Kentucky employment and payroll. Thus, distilling is taxed more than all other large industries in Kentucky. The wine industry is taxed at 2.2 cents per dollar of output; breweries are taxed at 6 cents per dollar output. For most manufacturing sectors, the portion of each dollar of output that goes to taxes is less than a penny.

These commodities purchased by the distilling industry, as well as the household income created, are the basis for regional economic multipliers. 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.

Spinoff Impacts, Economic Multipliers

The distilling industry’s purchases of intermediate goods and services in Kentucky, as well as its payments to workers and business owners in the state, cause rounds of re-spending across other industries. The inter-industry impacts are often referred to as ‘indirect’ effects, since changes in activity at distilleries 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 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 the re-spending ultimately goes to zero. The cumulative impact of the re-spending is summarized in economic multipliers, which are the ratio of change in total economic activity to changes in activity by the distilling industry.

The table below summarizes some important economic multipliers for the distilling industry in Kentucky. We use IMPLAN’s employment estimate for distilling in 2022, including both wage and salary jobs plus proprietors as the Direct Effect, and simulate that in our modified IMPLAN input-output model of Kentucky²². The multiplier is simply the Total Effect divided by the Direct Effect. For example, the employment multiplier is 3.311 (23,133/6,987). So, for example, if the distilling industry adds an employee, there will be another 2.311 jobs supported elsewhere in Kentucky.

Annual Economic Impact of the Distilling Industry in Kentucky				
Impact Type	Employment	Output	Value Added	Labor Income
Direct Effect	6,987	\$5,990,238,602	\$2,816,400,231	\$839,680,477
Indirect Effect	10,408	2,173,835,352	1,022,099,444	911,242,263
Induced Effect	5,738	833,420,224	493,260,511	406,397,062
Total Effect	23,133	\$8,997,494,178	\$4,331,760,185	\$2,157,319,802

Source: Modified IMPLAN model of Kentucky, using 2022 economic data.

The IMPLAN job multiplier for Kentucky’s distilling industry is lower than that used in our last study, but in line with other previous reports. This is largely due to the dollar value of output per employee for the industry being 23 percent lower in IMPLAN’s 2022 data compared to the 2019 data the previous report was based on. This might be the result of much of the industry’s recent expansion occurring in the middle- and smaller-sized distilling companies. They must hire new employees in order to ramp up production, sell more product and staff new visitor centers, while the larger distillers can take advantage of economies of scale. The newer distillers are also building up their inventories of aging barrels, so they have comparatively less to sell immediately

²² The reason that we simulate 6,987 distilling jobs rather than the full 7,066 is because the spending of any industry will have a small positive impact on itself, adding more jobs to the industry. IMPLAN recommends taking this into account when analyzing the impact of an entire industry. The remaining 79 jobs (and their associated output and incomes) are among the indirect and induced effects.

compared to their current production. About two-thirds of the spinoff impact is due to additional employees among industries that supply distillers (Indirect Effect), and the rest is due to new employees in retail and other industries that sell to households (Induced Effect). This is a very large multiplier compared to most other Kentucky industries.

The other columns of the table refer to alternative measures of economic activity. Output is basically the value of sales. Labor income includes wages, salaries, payroll supplements and proprietors' income. Value added measures the amount of output²³ that is generated in the regional.

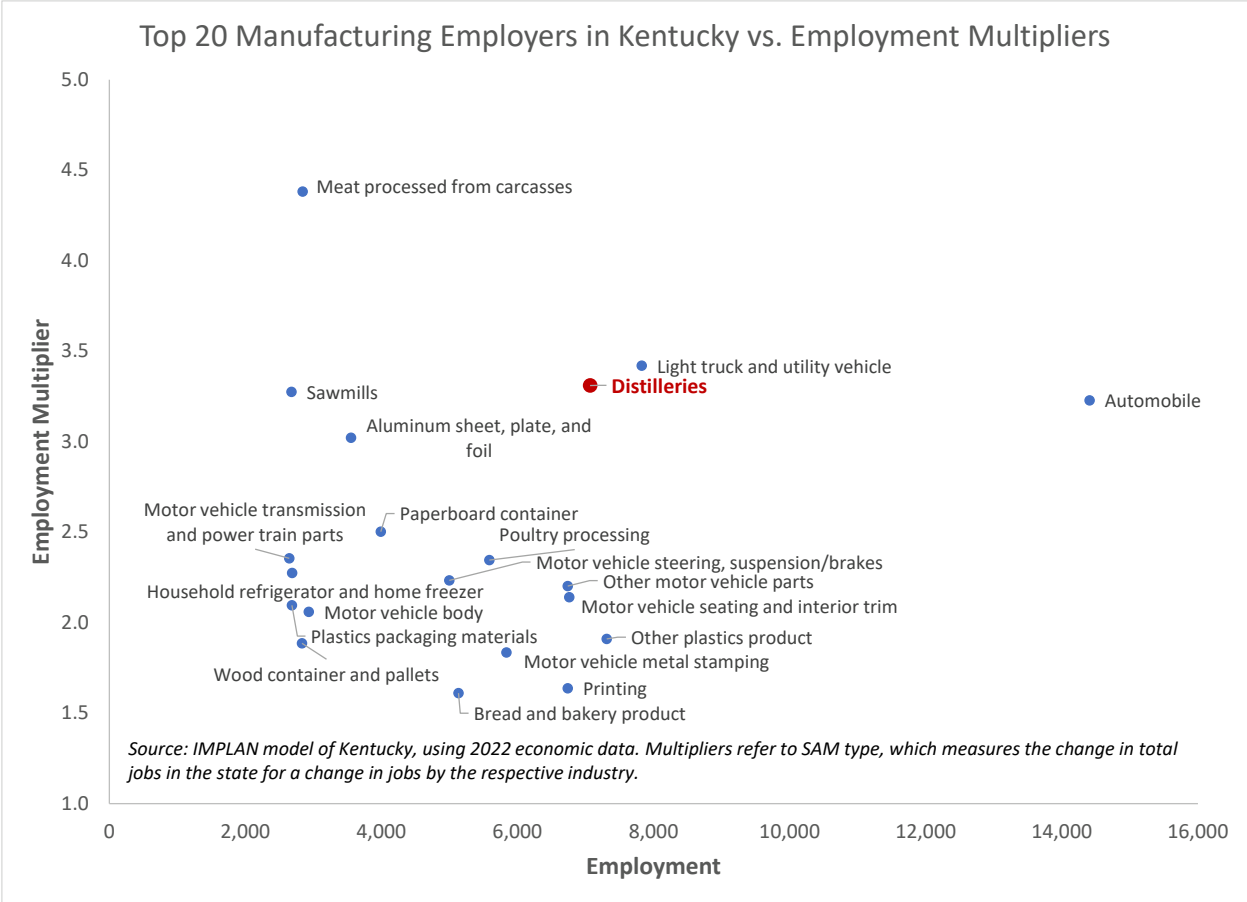
Dividing the total by the direct for the other measures yields an Output multiplier of 1.502, a Value Added multiplier of 1.538, and a Labor Income multiplier of 2.569. The employment multiplier is greater than the other multipliers because output per worker and average wages in the distilling industry are fairly high. Workers in spinoff industries are not producing as much output per worker, nor earning as much in wages.

Comparison of distilling industry impacts with other industries

Our IMPLAN model of Kentucky contains detailed estimates of output, employment, payroll and value added for 534 detailed industrial sectors in the state. We can use those estimates to make some observations about the relative importance of the distilling industry. Consider manufacturing. IMPLAN provides details for 322 detailed manufacturing industries in Kentucky. Among those 322 industries, the distilling industry ranks fourth highest in terms of jobs and 74th highest in terms of employment multipliers. However, many of the manufacturing industries with very high multipliers have relatively few employees and hence are not as economically significant.

The figure below shows the employment multipliers for major manufacturing industries in the state, those that employ at least 2,600 people. Distilling continues to have a very high job multiplier (3.311) across the manufacturing industries with activity in Kentucky²⁴. Only one industry has both more jobs and a higher employment multiplier than distilling: light truck and utility vehicle manufacturing.

²³ To illustrate the difference between output and value added, consider a car dealership. They may sell a new vehicle for \$30,000 (Kentucky output), but most of those dollars go to an out-of-state manufacturer. Value added in that case measures the several thousand dollars that the dealership adds in vehicle prep, display, financing, and sales support, as well as local taxes. The value added concept is intended to measure the amount of dollars that 'stick' to the regional economy.

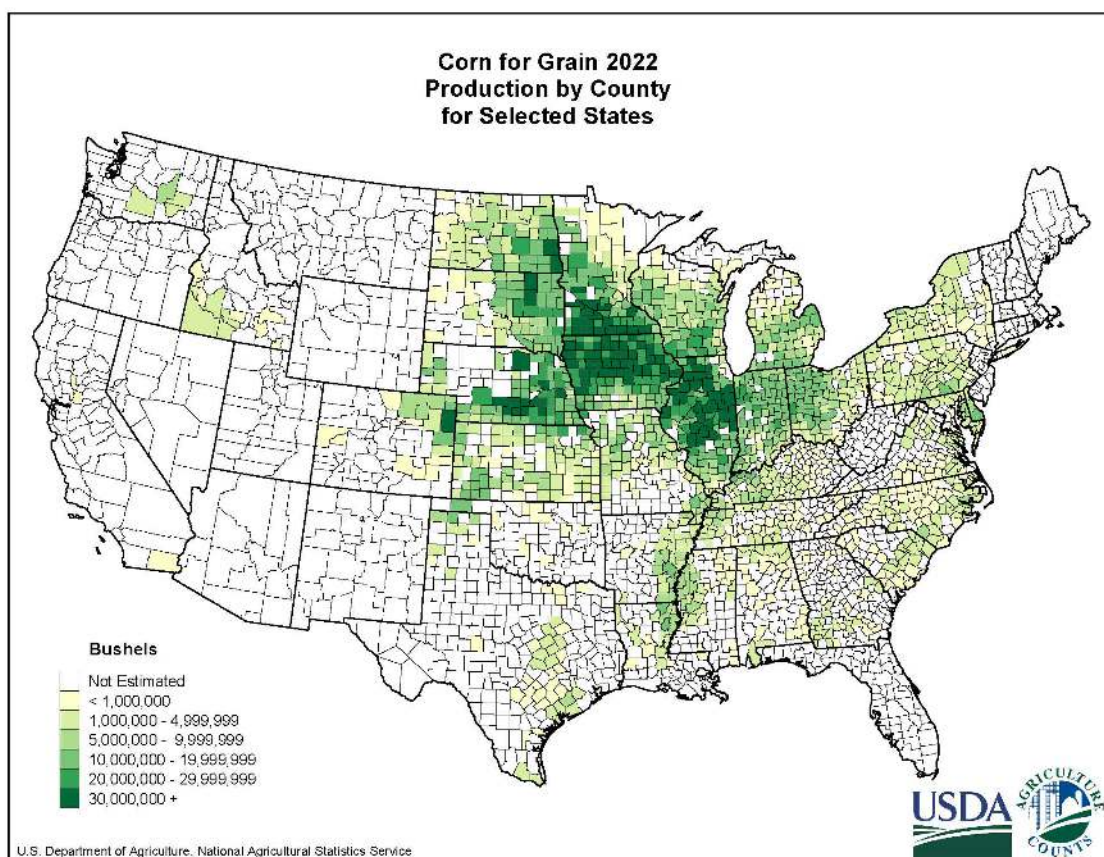


Most of the other detailed industries outside of manufacturing are in retail trade, personal services, health care, education and other enterprises that primarily serve the local market – and hence are not typically considered as economic development targets. However, there are a few non-manufacturing industries that receive considerable public attention and it is interesting to compare their impacts to that of distilling. Our IMPLAN model estimates that the courier and messenger industry, which includes UPS, Kentucky’s largest private employer, has direct employment of more than 39,600, but its employment multiplier is only 1.59. Racing and track operations have 7,000 employees, with an employment multiplier of 1.69. Hotels and motels employ 14,600, with an employment multiplier of 1.42. Kentucky breweries and wineries, which employ far fewer people than these other industries, have industry employment multipliers of 1.823 (beer) and 1.890 (wine).

APPENDIX G

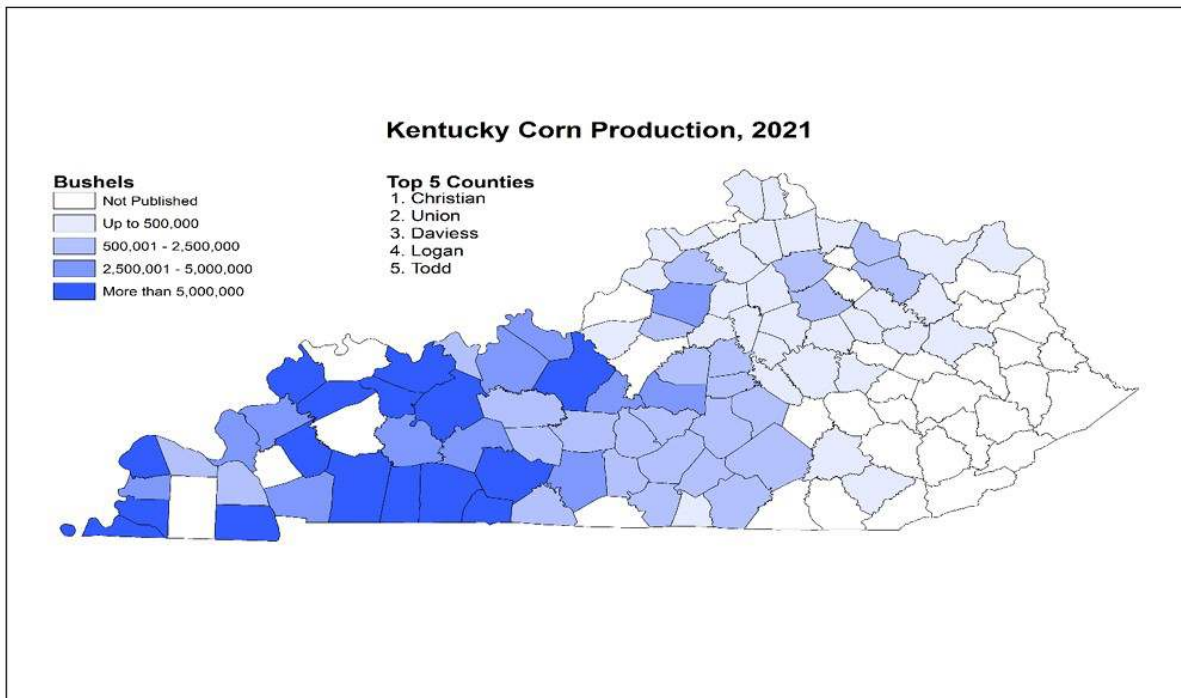
Grain Usage by Distillers

There is a relatively fixed ratio of grain required to produce, say, a barrel of Bourbon. Hence, we know from production records and our 2023 survey of KDA members that Kentucky distillers purchased about 28.3 million bushels of corn and around 13.2 million bushels of other grains such as wheat and rye. Survey respondents reported that 70 percent of corn used was purchased from Kentucky farms, up from 40 percent in our first grain survey in 2014. Only 19 percent of other grains used came from Kentucky. Applying these survey results to total industry production, we estimate that Kentucky distillers purchased 19 million bushels of corn, and 2.6 million bushels of other grains, from Kentucky farmers²⁵. Thus, Kentucky distillers purchased about nine percent



²⁵ Our 2022 IMPLAN model of Kentucky has a ‘regional purchase coefficient’ for grains of 53.93%. This means that on average Kentucky farmers provide over one-half of grains required by industry and consumers in the state. There is no breakout for corn, soybeans or other grains. According to the model, Kentucky actually produces more total grain than is demanded in the state. The “Local Use of Local Supply” is \$941.6 million, while “Total Commodity Supply” is \$1,777.1 million. However, the mix of grain production is such that much of the grain is exported out of state for use in industries not prevalent in Kentucky. For a technical explanation, see <https://implanhelp.zendesk.com/hc/en-us/articles/115009674728-Understanding-the-Social-Accounts-Tables>

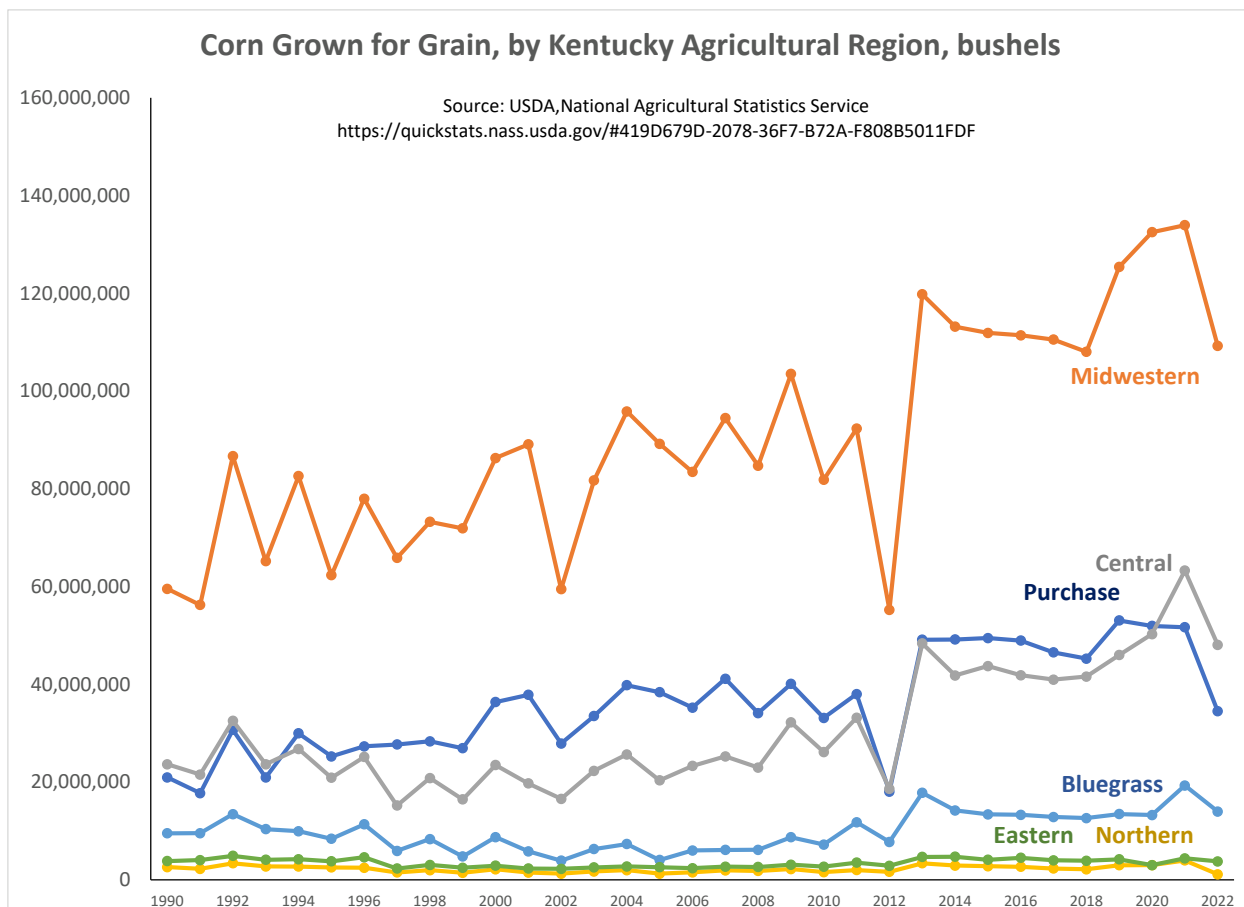
of the total of 210.6 million bushels of corn produced in Kentucky in 2022. Additionally, some Kentucky distillery companies purchased significant amounts of Kentucky corn for operations in other states.



The maps above, from the USDA website, show corn production by county nationally in 2022, and in Kentucky for 2021, based on surveys (reliable estimates are not available for all counties). Clearly, Kentucky is at the southeastern edge of the U.S. corn belt, with production concentrated in Illinois, Iowa, Minnesota and Nebraska. Kentucky as a whole produced 210.6 million bushels of corn in 2022²⁶. This implies that Kentucky distillers purchased about nine percent of the state's output. One can see the concentrations in Western and Central Kentucky near major distilleries.

We can also see over the last three decades corn production in Kentucky is dominated by three regions – Midwestern, Purchase and Central. The Midwestern region contains Owensboro and surrounding counties, thus providing plenty of grain for any distilleries there. The Central region contains the major distilling counties of Bullitt, Marion and Nelson. All three of these major regions have posted strong growth in corn production since 1990, increasing output by between 50 and 100 percent. Anderson, Franklin and Woodford counties – major distilling sites – are in the Bluegrass region; they are adjacent to the much larger cornfields of the Central region.

²⁶www.nass.usda.gov/Statistics_by_State/Kentucky/Publications/Annual_Statistical_Bulletin/2022/2022%20KY%20Annual%20Bulletin.pdf USDA estimates that Kentucky corn production fell 24 percent in 2022 compared to 2021.



The most accurate measures of corn production at the county level are provided in the Census of Agriculture conducted every five years – years ending in ‘2’ and ‘7’. The 2017 Census data was released in 2019. Below we summarize corn production in the region of Heritage distilling operations for the last five censuses. One can see very strong growth in corn production over the last two decades in several of the core counties, especially Nelson, Shelby, Washington, Mercer and Marion. Nelson County is, of course, home to many Heritage distilleries. Marion County is home to Maker’s Mark Distillery, and has seen a tripling of corn production over the past 20 years. It is not valid to use these basic data to draw strong conclusions about the linkage between distillery production and corn production, given the many other local factors involved. There are competing uses for land, particularly in an urban area like Jefferson County. Moreover, the land/topography in some counties is not suitable for large scale grain production. Nevertheless, it is apparent that corn production grew faster in these core distilling counties than it did statewide.

Corn Production (bushels) in Census Years, Counties in Heritage Distillery Region						
	1997	2002	2007	2012	2017	Growth 1997 to 2017
Anderson	36,940	24,750	8,640	109,516	38,960	5.5%
Bullitt	152,012	140,368	200,939	193,252	330,688	117.5%
Daviess	7,693,883	7,034,003	13,875,026	7,887,559	13,234,890	72.0%
Franklin	62,021	17,982	71,260	188,204	121,060	95.2%
Jefferson	132,331	80,811	152,912	126,848	59,508	-55.0%
Henry	290,158	149,812	259,374	434,737	749,749	158.4%
Marion	534,461	589,312	613,573	809,143	1,725,737	222.9%
Mercer	188,881	112,866	53,883	174,997	765,064	305.1%
Nelson	622,109	1,217,504	1,800,868	1,533,586	3,905,961	527.9%
Shelby	685,817	708,028	1,821,125	2,376,594	3,290,423	379.8%
Spencer	307,822	197,177	194,361	338,881	672,772	118.6%
Washington	143,933	204,258	381,902	345,515	595,484	313.7%
Woodford	177,356	55,551	151,713	218,194	375,487	111.7%
subtotal	11,027,724	10,532,422	19,585,576	14,737,026	25,865,783	134.6%
Kentucky Total	115,775,864	108,721,040	166,687,678	104,894,595	220,077,862	90.1%
Region share of state	9.5%	9.7%	11.7%	14.0%	11.8%	

Source: US Department of Agriculture, National Agricultural Statistics Service

APPENDIX H
Tourism Impacts

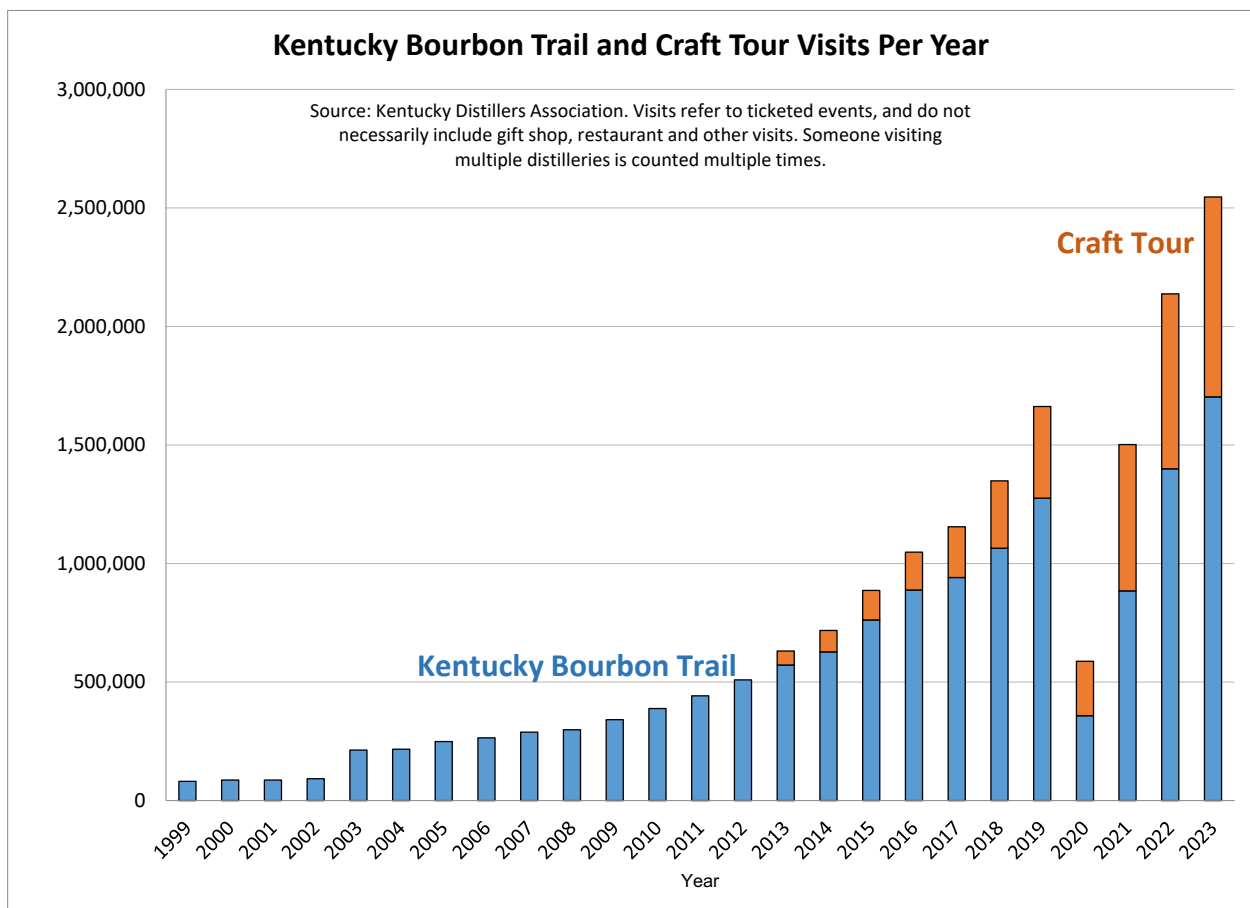
The renaissance of Bourbon over the past two decades has certainly led to strong growth in visits from out of state residents, increased tourism spending and new tax revenues for Kentucky state and local governments. The anecdotal evidence is everywhere, from the hundreds of millions of dollars invested in new hospitality spaces at distilleries to the ubiquitous Bourbon-themed tour buses, to the content of web pages for local tourism bureaus to the growth of Bourbon-tourism at hotels and short-term housing rentals. Yet, as far as we know, the actual economic and fiscal impacts have yet to be quantified with any precision. This note provides some reasonable estimates, based on newly available survey results, publicly available data and our IMPLAN models.

Our best estimate is that Bourbon tourism is annually responsible for at least 4,570 jobs outside the distilling industry with labor income of \$184 million. Total sales by businesses in Kentucky amounted to \$580 million. State and local governments receive at least \$53 million in tax revenues from lodging taxes, retail taxes and income-based taxes.



Background and Approach

We are most interested in the new dollars that annually flow into Kentucky due to Bourbon tourism, dollars that would not likely be captured in the state if not for the attraction of Bourbon tours, tastings and related experiences. This can take many forms. It may be tours offered at national conventions and trade shows held in Kentucky. It may be friends visiting and staying with local residents so they can jointly explore some of the distilleries. It may be groups of six or 10 on a bachelor, bachelorette or birthday trip – Kentucky chosen over Las Vegas, Nashville or New Orleans because of the KDA’s Kentucky Bourbon Trail® program. It can be a day trip from Cincinnati or Indianapolis, dropping money at distilleries, restaurants and gas stations. Or it could be an international devotee of a brand that makes the visit the basis of a multi-night stay in a high-end hotel or house rental.



KDA developed and manages the Kentucky Bourbon Trail® and the Kentucky Bourbon Craft Tour® programs. The Bourbon Trail™ was launched in 1999 with seven distilleries and now features 18 distilleries. The Craft Tour was launched in 2012 and is organized into four regions: Northern, Central, Western and Bluegrass. It features 28 distilleries²⁷, as shown on the map above.

²⁷ For a list of the distilleries, see: <https://kybourbontrail.com/>

The KDA tracks the number of people on the tours and reported a total of 2.55 million total visits in 2023. This number includes only people who actually attended a ticketed event at a distillery, not simply those who might stop in a distillery gift shop or restaurant. This measure counts visits, not unique visitors. So, someone visiting two or three distilleries is counted multiple times. Of course, it does not include visitors to non-member distilleries, such as Buffalo Trace in Frankfort, or visitors to KDA member distilleries that do not participate in the two programs. Nevertheless, the history of those visitor counts, shown in the accompanying chart, yields a compelling picture of the growth in Bourbon tourism. One can clearly see the accelerating growth through 2020, the impact of Covid in 2020 (decline of 65 percent), and the strong bounce back the past three years. Indeed, the annual percentage growth rate was double-digit in sixteen of the past twenty years.

We have some useful results from a recent survey by [IQS Research](#) for KDA. IQS conducted detailed intercept surveys at participating distilleries around the state in 2022-2023, recording the place of residence of visitors, demographics, their reasons for visiting and their expenditures by type. They conducted about 3,000 intercept surveys at participating KDA distilleries for 12 months. All visitors surveyed were asked a series of 45 questions, including place of residence, age, household income, the main reason for the trip, length of stay and number in party. Other questions solicited information on such things as gender, race, drinking habits and familiarity with the Kentucky Bourbon Trail® and Kentucky Bourbon Trail Craft Tour® programs. An intercept survey involves a randomized method of approaching someone at a location to elicit information. The intercepts were generally conducted between noon and 4 p.m. across 17 Heritage and 16 Craft members of the KDA.

IQS Research found that respondents came from 48 states, 20 countries and six continents, with 76 percent from outside Kentucky. On average, respondents had visited almost six distilleries in Kentucky in their lifetime. A smaller follow-up e-mail survey indicated that 84 percent stayed in hotels or other rental facilities. IQS found visitors stayed an average of 3.2 days. Visitors had an average annual household income of \$130,000. By converting the group spending reported by respondents to individual spending, we found that the average visitor spent \$68 per day on lodging (or \$137 for two in a room), \$46 per day on restaurants and \$22 per day on other goods and services. We do not have sufficient information to estimate the in-state transportation expenditures for the nonresident visitors.

IMPLAN model. Our IMPLAN model, calibrated to 2022 economic data, has detailed estimates of economic activity for 534 industries at both the state and county level. It also reveals the interactions among those industries. For example, an expenditure of \$140 on a hotel room in Bardstown has predictable ripple effects on supplying businesses in Nelson County and around the state.

Economic impacts

We have already provided estimates of the impact of the distilling industry, which includes the on-site hospitality functions, such as tours, tastings and gift shop sales. But those estimates do not take account of off-site activity related to Bourbon tourism, such as hotel, restaurant and retail spending by out-of-state visitors.

Given the lack of comprehensive visitation data, we need to make some reasonable assumptions in order to construct an economic impact estimate:

- a. The Kentucky Bourbon Trail® and Kentucky Bourbon Craft Tour®, which only includes KDA members and generates accurate counts, announced they had 2.14 million in total attendance in 2022 and 2.55 million in 2023.
- b. Many visitors visited more than one distillery, and thus are counted multiple times in the data. To convert visits into unique visitors, we assume two visits per person. IQS reported that 47 percent of visitors visited more than one distillery, but did not probe to see how many visits each respondent had in the last year. The true unknown average number of visits per person per year will reflect a mixture of people taking tour buses to three distilleries and other people traveling on their own to visit only one distillery.
- c. Of the total visitors, 76 percent reside in other states or countries. So, we assume 967,000 nonresident visitors and 305,000 resident visitors for a total of about 1.3 million total unique visitors.
- d. 84 percent of nonresident visitors stayed in a hotel or other rental housing. They stayed an average of 3.2 nights.
- e. The average room rate, before taxes and cleaning fees, was \$137. We assume two persons per room.
- f. Other non-distillery expenditures are estimated based on a per diem, including restaurant expenditure of \$46, and retail spending of \$22.

Multiplying the nonresident visitors times the expenditure per category yields an annual direct boost to the Kentucky hospitality industry of \$180 million in room sales, \$144 million in restaurant sales and \$69 million in other retail sales. This we take to be the direct economic impact outside the distilleries themselves.

We used our IMPLAN model to predict the spinoff impacts of this new spending, as shown in the summary table below. The direct new spending of \$392 million across the three categories results in total sales (Output) in Kentucky of \$580 million, Value Added of \$325 million, total Employment of 4,570 jobs and Labor Income of \$184 million. Value Added is a measure of how much of Output 'sticks' to the regional economy. Output is a measure of total sales. We take these as our best

current estimates of the annual economic impact of Bourbon tourism. The actual impacts are likely larger, as we only have visitor tour counts for KDA members, and we do not have good

Total Estimated Economic Impact of Bourbon Tourism, Given Assumptions				
	Employment	Labor Income	Value Added	Output
Direct	3,281.2	\$111,517,605	\$201,706,920	\$344,946,189
Indirect	646.5	\$37,971,762	\$60,141,497	\$123,368,023
Induced	641.0	\$34,765,816	\$62,976,373	\$112,159,874
Total	4,568.7	\$184,255,184	\$324,824,790	\$580,474,086

Source: IMPLAN model of Kentucky, using 2022 economic data.

information on expenditures for gasoline and other transportation-related activities.

The full pro forma, with all the assumptions and calculations, is shown in the next table. Obviously, the impact estimates can be easily revised as more precise assumptions become available about visitor spending patterns.

There is a wide variety of taxes and fees associated with tourism in Kentucky. State and local room taxes are the most recognizable, though there are many other revenue sources. Kentucky state government levies a six percent sales tax on rooms, restaurant meals and most retail spending. Many cities and counties levy a restaurant tax of three percent. State income and local occupational and net profits taxes apply, as do property taxes. We do not have sufficient information to measure all the tax flows related to Bourbon tourism with precision. But some ballpark estimates can be made using average or typical tax rates around the state, as shown in the table. For the categories that we have reasonable measures available, we estimate that total state and local tax revenues amount to \$53 million per year.

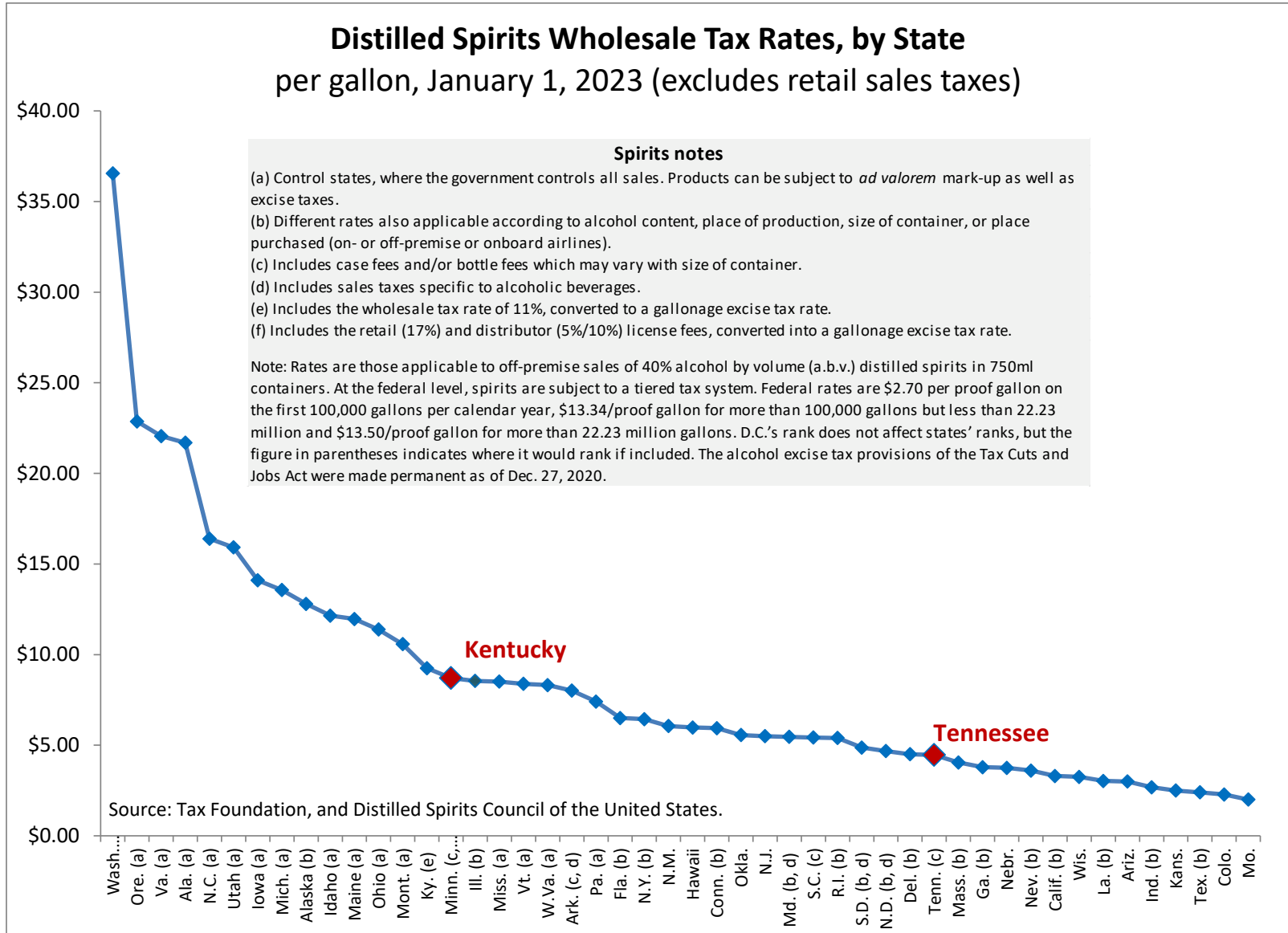
Import substitution. Bringing tourism dollars in from out of state visitors is a classic case of economic growth through exports. However, there is also potentially a subtler source of growth when local residents decide to spend money in the state that they would have spent outside the state. For example, if one typically visits friends for a weekend in Nashville (music) or Asheville (mountains), but your friends decide they would rather visit you and hit the Bourbon Trail™, then your own spending here is a source of *net new* dollars to the state. All those groceries you bought to host your friends at your home would have been offset by your travel-related expenditures in Tennessee or North Carolina. And your friends would bring their dollars to spend in Kentucky instead of you spending money in their states. Economists call this import substitution. This is likely occurring now in Kentucky due to Bourbon’s popularity, but is difficult to measure since it

involves a hypothetical choice. It would take some deep research to tease out the magnitude of this effect.

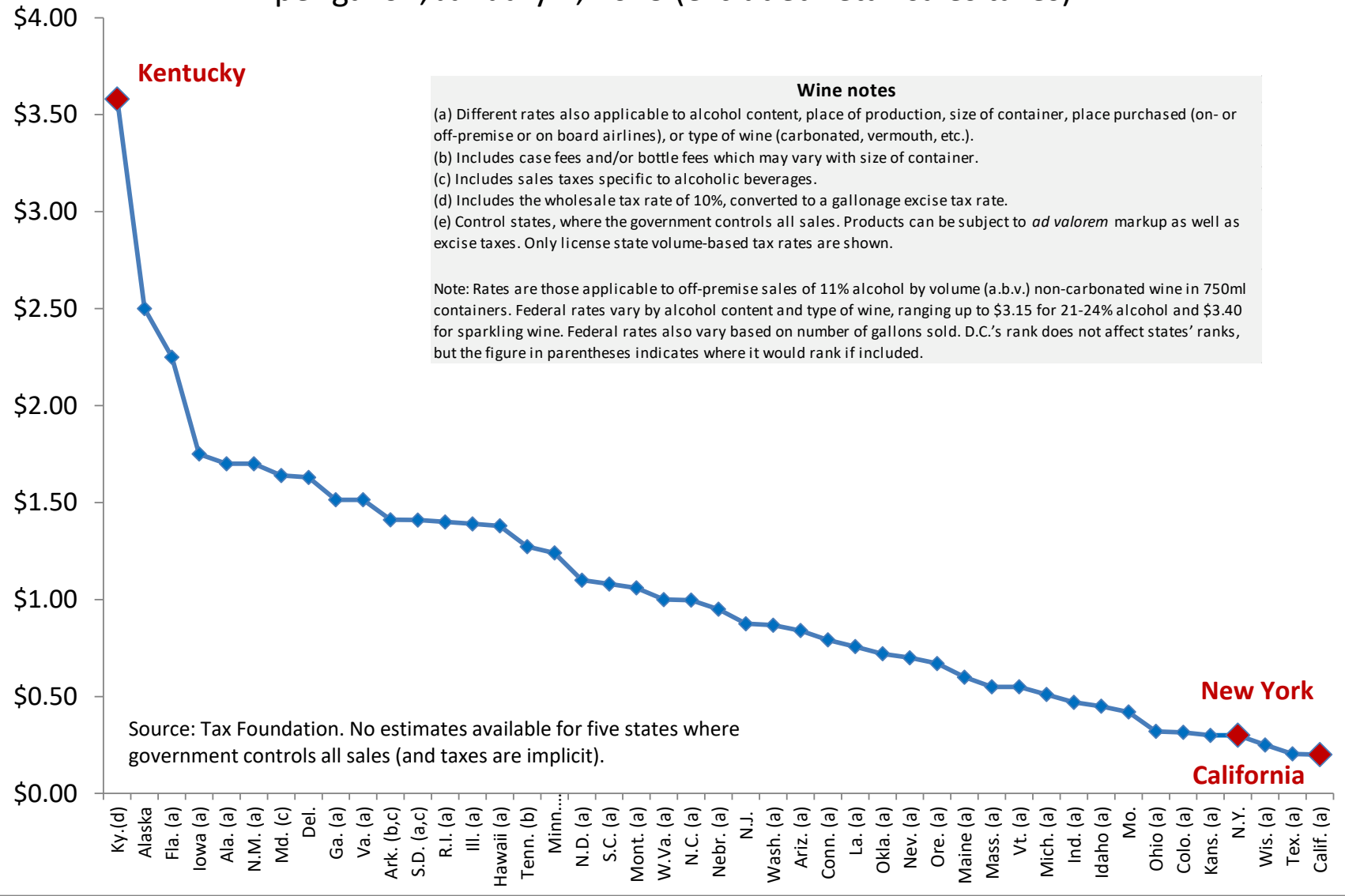
Potential Economic Impact of Bourbon Trail® Visitors	
Total number of visits (ticketed events)	2,545,560
Key Assumptions	
Average number of distilleries visited	2.0
implied number of unique visitors	1,272,780
percent from outside Kentucky	76.0%
unique nonresident visitors	967,313
unique Kentucky resident visitors	305,467
percent that are day-trippers	12.1%
percent of nonresidents that stayed in a hotel or other rental unit	84.0%
average length of stay (days)	3.24
percent of nonresidents that drove to Kentucky	89.0%
percent of nonresidents that flew to Kentucky	10.7%
lodging cost per night, assume one room per two visitors	\$137
restaurant spending per day per visitor	\$46
retail spending per day per visitor, excluding at distillery	\$22
state tax rate on lodging	6.1%
state tax rate on restaurant and retail spending	6.0%
effective state income and sales tax rate on labor income	7.4%
average local lodging tax rate	8.0%
average local restaurant tax rate	0.5%
average local occupational tax rate	1.0%
Total 'new' dollars spent off-site in Kentucky (Direct Effect)	
Lodging	\$179,702,425
Food and beverage	\$143,509,796
General merchandise	\$69,195,250
Total economic impact on regional economy*	
Output, or sales, by businesses	\$580,474,086
Value added	\$324,824,790
Employment	4,569
Labor income	\$184,255,184
Fiscal impacts	
Local government lodging taxes	\$14,376,194
Local government occupational taxes	\$1,842,552
Kentucky state individual income taxes	\$13,613,910
Kentucky state sales taxes, including state lodging tax	\$23,652,270
Total state and local tax revenues	\$53,484,926
* Total impacts derived from custom IMPLAN model of Kentucky, using 2022 economic data.	

APPENDIX I

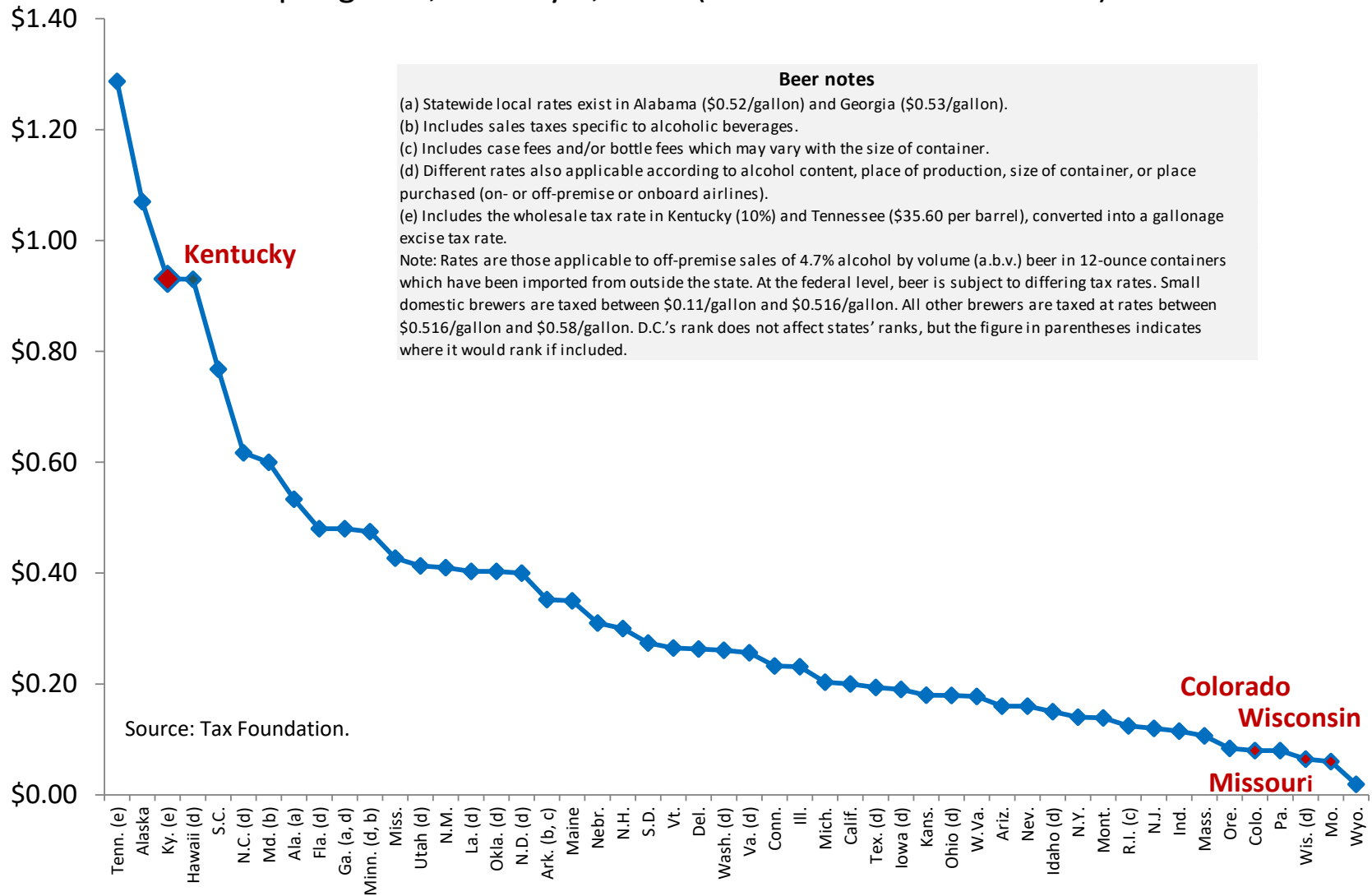
Wholesale Tax Rates on Alcohol, by State



Wine Wholesale Tax Rates by State per gallon, January 1, 2023 (excluded retail sales taxes)



Beer Wholesale Tax Rates by State per gallon, January 1, 2023 (excluded retail sales taxes)



State Wholesale Excise Tax Rates per Gallon of Alcohol

Source: Excise tax rates from Tax Foundation, 2023. Excludes control states for spirits. Calculation assumes 40% alcohol content for spirits, 12% for wine, and 5% for beer.

