

Is Chinese Baijiu the World's Biggest Distilled Spirit? An Overview of the Size and Structure of China's Sprawling Baijiu Industry

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Abstract

Baijiu, the distilled spirit produced and almost entirely consumed in China, is a major component of world distilled spirit production, but little is known about fundamental economic considerations such as production, consumption, and market structure. This paper brings together widely used production and consumption data, with the limited number of field surveys examining consumption, all of which were conducted to address public health questions rather than economic analysis. The paper provides a brief description of *baijiu*'s unique production process, and also of the different categories of *baijiu* by price point. The paper finds that the time series often used to describe China's *baijiu* production and consumption has clear inconsistencies when compared to independent survey findings, and that a major portion of *baijiu* in China is consumed regularly with meals and in rural areas, much of which is unrecorded. This is counter to the popular belief that *baijiu* is predominantly consumed at banquets. We assess the claim that *baijiu* is the world's largest distilled spirit by volume, and conclude this is likely true, but inconsistencies in the data make it impossible to say for certain.

Keywords: China, Baijiu, Distilled spirits

Baijiu, by far the dominant distilled spirit consumed in China, may well be the largest distilled spirit produced today, yet very little is known about it. Most people outside of China have never tried it, and those who have typically consumed it at a banquet in China in consecutive toasts with very small shot glasses and recall its strong and distinct flavor that differs significantly from other distilled spirits. In recent years, a few super-premium *baijiu* companies in China have generated extremely high stock valuations, with China's two leading brands, Kweichow Moutai and Wuliangye, becoming the two highest valued alcohol companies in the world [1]. But other than these general impressions, very little is known about *baijiu* outside China, particularly its supply, demand, and market structure. And in fact, the majority of China's *baijiu* consumption is not consumed in toasts at banquets and is very low-valued.

This paper provides a detailed introduction to this complicated and misunderstood component of the world's tapestry of local spirits. The paper describes the unique production process for *baijiu* that results in its distinct flavoring, as well as the overall market for *baijiu* in China. The paper also reviews and draws from the limited literature on *baijiu* consumption, most of which focuses on the public health implications of *baijiu* consumption rather than on the economics and market for *baijiu* products. Breaking down China's *baijiu* production into premium, mid-range, economy, and unrecorded *baijiu*, the paper discusses the differences in consumption volume and value, and examines the large swings that occur in commonly used *baijiu* production and consumption estimates over the last 30 years, comparing them to estimates derived from field surveys. The paper concludes with a discussion of potential market opportunities and areas for future research.

Baijiu, China, and The World

Baijiu literally translates as “clear/white alcoholic beverage,” with “*bai*” meaning “white” or “clear” and “*jiu*” referring to any alcoholic beverage, and therefore is often translated as “wine,” making *baijiu* commonly get (mis)translated as “white wine.”¹ While *baijiu* is often deemed the largest distilled spirit in the world by volume of production and is ubiquitous in China, it is rarely consumed outside of China, despite China's dramatic emergence to the outside world in the last

¹ *Bai* is pronounced like the word “bye” in English, while *jiu* is pronounced like the combination “gee-o.” Chinese is a tonal language, so if you want to get it really right, the “gee” has a high tone that then falls as it transitions into the “o” part, then rises at the end, kind of like how someone might draw out the word “slow” when suggesting someone slow down.

76 four decades.² When it is consumed outside of China, it is almost always by one of China's
77 millions of expats. This is at odds with so many other components of China's culture, food in
78 particular. Chinese restaurants are found all over the world, but *baijiu* remains a sort of national
79 secret.

80 There are likely reasons why *baijiu* has not caught on outside China. *Baijiu* is an acquired taste,
81 with most Westerners (and perhaps Chinese too) distinctly recalling their first taste of *baijiu*. This
82 experience is often recounted with a description of the powerful aroma that hits you before the
83 glass touches your lips and, for many, that is enough and the glass goes no further. For those who
84 proceed to imbibe, there is a wide variety of descriptions for the intense sensations and flavorings
85 that come with it, many unfavorable the first time. But for foreigners who spend some time in
86 China, are willing to try it again, and brace themselves for what they know is coming, they can
87 begin to acquire a taste for it. For many, a Chinese dinner banquet is not complete without a good
88 bottle of *baijiu* to accompany the meal.

89 In China and among Chinese, *baijiu* is a national drink. Not only does drinking fermented
90 beverages have a long history in China, but *baijiu* in particular is closely associated with the
91 Chinese revolution in the 1930s and '40s and has been a favored source of intoxication ever since.
92 It is no coincidence that Kweichow Moutai, currently China's most celebrated *baijiu* brand, comes
93 from a village near Zunyi in Guizhou province, a town famous for its revolutionary history.³
94 Today, Moutai is the official *baijiu* of high-level banquets and a portion of production is reserved
95 for government officials and China's Foreign Ministry for entertaining foreign officials both in
96 China and abroad. In 1974, at a state dinner in New York, U.S. Secretary of State Henry Kissinger
97 reportedly told China's future leader Deng Xiaoping, "I think if we drink enough Moutai, we can
98 solve anything." To which Deng Xiaoping reportedly replied, "Then, when I go back to China,
99 we must take steps to increase our production of it."⁴

² For example, both Wine Enthusiast <https://www.wineenthusiast.com/culture/chinese-baijiu/>, and Wikipedia <https://en.wikipedia.org/wiki/Baijiu> make the claim that baijiu is the world's largest selling distilled spirit by volume, as do others.

³ In 1935, a conference of Chinese communists took place in Zunyi that resulted in Mao Zedong taking over leadership of the party and military. Kweichow Moutai is an early romanization of the province name, *Guizhou*, and the village name, *Maotai*, with the modern names using *pinyin*, the romanization system developed by China in the 1950s.

⁴ <https://edition.cnn.com/2021/01/15/business/kweichow-moutai-chinese-liquor-intl-hnk/index.html>

Baijiu Production: Everything, Everywhere, All at Once

Baijiu's powerful aromas and flavors are generated from a production process that is distinctly different from common western spirits. The fermentation process for *baijiu* does not rely solely on yeast but rather a complex combination of yeasts, fibrous fungi, bacteria and other microbes [2]. In addition, the fermentation usually takes place in solid state rather than liquid fermentation, and saccharification typically occurs simultaneously with fermentation.⁵

The core metabolic agents in *baijiu* fermentation (and the fermentation of other non-distilled alcoholic beverages in China) are brought together in a compound called a *qu* in Chinese (sometimes *jiuqu*, meaning a *qu* for making alcohol - *jiu*).⁶ The *qu* not only includes a complex mix of various microbes, but also starter starches and sugars from mixing those microbes with mashed wheat, barley, peas, or other starchy products, into a solid form that is made into bricks that can then be then crushed and blended with the primary grains for fermentation [3]. The primary grain for *baijiu* fermentation is sorghum, but can also include rice, corn, barley, and wheat. The grain is typically ground and mixed with hot water, then cooled before mixing it with the ground up *qu*. The mixing is done in the open, then the grains are transferred to a pit or vessel for fermentation, which are traditionally lined with mud (more recently they can be cement). The open air and in ground exposure to non-disinfected areas exposes the fermentation process to additional microbial agents.

Distillation is also in a solid state. The mass of grain, *qu*, and fermented liquids is loaded together into a permeable distillation vessel that hovers over water, which is then boiled to force steam through the mass, thus evaporating the alcohol (along with some water) which is then cooled to produce *baijiu*. In larger production facilities, the *baijiu* batches are often blended to refine the flavor. In smaller operations that exist throughout much of rural China, blending is less common. Alcohol content in *baijiu* varies, even within brands, with higher alcohol varieties being more expensive. In general, *baijiu* has higher alcohol content than other distilled spirits, mostly ranging 38-54 percent, but can be as high as 67-72 percent.

⁵ Western spirits typically malt the grains to convert starches into sugar then ferment the malted grains.

⁶ *Qu* is pronounced roughly like the word "chew" in English, except pronounced abruptly and not drawn out like the word "chew," more like the second part of the onomatopoeia of a sneeze, "ah-choo."

Baijiu's powerful flavorings are a product of the complex fermentation process. The wide variety of microbes produce an equally wide variety of flavor compounds. While very strong and aromatic, these flavors are also subtle and complicated to the sophisticated *baijiu* drinker. The development of local *qus*, as well as the exposure to airborne and soil-borne microbes, also gives every region where *baijiu* is produced a distinct flavor to the *baijiu* from that region, giving *baijiu* a feature similar to *terroir* in wine. While there is a wide variety of *baijiu* styles and flavors, many break down three distinct categories – strong-flavored, light-flavored, and sauce-flavored – with multiple sub categories beneath those basic three [4].

Because of its complex production process, the literature on *baijiu* is predominantly on the biochemistry of this process [2, 5, 3, 6, 4]. Literally hundreds of microbes have been identified in the production of different types of *baijiu* in China. While there is significant literature on how specific microbial populations and starch compounds in the *qu* and fermented grains can result in both favorable and unfavorable flavor compounds, the role of many of these microbial agents is still not understood [5].

China's Multi-tiered Baijiu Market

While China's premium *baijiu* brands have been the focus of much international attention in recent years, the bulk of China's *baijiu* production and consumption takes place in rural areas where brands are less prevalent and a large portion of production is unrecorded and produced by and for village households. Traditionally, *baijiu* production in China took place in small, often backyard, distilleries clustered around regions that had developed specific *baijiu* styles popular with locals. Upon the success of the revolution in 1949, many of these regional distillery groups were nationalized and aggregated into larger industrial *baijiu* production facilities under state ownership [7]. This not only increased their scale and standardized their production practices, but also generated income for China's fledgling government and helped regulate alcohol production and consumption. When China's economy opened up and began its remarkable growth in the late 1970s and early 1980s, these facilities were ultimately privatized into publicly traded companies on China's fledgling stock markets, where some became among the most valuable brands of distilled spirits in the world.

But the fate of the very small producers in rural China is less well-known. During most of the first 30 years of the People's Republic of China, agricultural production and rural life in general was organized around roughly 24,000 People's Communes, intended to be fully self-sufficient communities and economies. As such, the communes likely had their own distillation facilities, at least to make alcohol for medical reasons. Moreover, many smaller villages and households may have maintained some *baijiu* production capacity. Whether and how these facilities were maintained, or their production accurately recorded, during the period of collective agricultural production and marketing is unclear, but given the acute scarcity of grain and the low caloric intake of the population during this period, local production was likely very limited.

What is clear, however, is that with the decollectivization and liberalization of agricultural production and the rural economy in general starting in the late 1970s and early 1980s, small-scale rural *baijiu* production facilities came back. Indeed, rural *baijiu* production was likely, in aggregate, by far the largest component over most of the period since decollectivization and may still be today. This despite the more urban, branded *baijiu* production expanding rapidly as growth in China's urban and industrial economy took off. This resulted in segmentation of the *baijiu* market into premium, mid-range, and economy *baijiu*, along with a significant component of unrecorded *baijiu* production in rural areas.

Premium *baijiu*. To those who are familiar, a Chinese banquet that includes a bottle of premium *baijiu* is a uniquely Chinese experience. They are dinner parties with several different dishes on the table to choose from, and the multiple rounds of premium *baijiu* shots can show you are a generous host while also helping to assess the authenticity and pliability of your interlocutor (hence Kissinger's quote above). It is this part of the market that flourished in the last two decades as China's economic growth and investment surged. Prices for bottles of high-end *baijiu* reached extraordinary levels in the early-mid 2010s. This caused, among other things, the valuation of Kweichow Moutai, the company that makes China's flagship *baijiu* brand, exceed that of any other alcohol company in the world [8], with Wuliangye, China's number 2 premium *baijiu* brand, joining it as the second most valuable alcohol company worldwide by 2023 [1]. Other super premium brands include Luzhou Laojiao – China's oldest semi-industrial *baijiu* producer, and Fenjiu, the most prominent light-flavored *baijiu* in China.⁷ The high prices during this period are even more remarkable when considering that Kweichow Moutai was only 8 RMB/bottle (less than

⁷ There are several other super premium and many other premium *baijiu* brands in China.

\$2.50 at the time) when price controls were lifted in 1986. At its peak in 2017-18, that same bottle fetched upwards of \$3,000.⁸

While premium *baijiu* in China is expensive and has caught the attention of global liquor companies, the volume produced is a small percent of total *baijiu* production. According to a recent Euromonitor report, premium Chinese spirits comprise only 8.4 percent total *baijiu* production in China in 2018, raising to over 16 percent in 2024 (Table 1).⁹ The corresponding estimates of the value of the premium segment of the *baijiu* market are 56.7 percent in 2018, rising to over 66 percent in 2024 (Table 2). Premium *baijiu* represents only a small share of *baijiu* production, but the bulk of the value in China's *baijiu* market is in premium brands, according to the Euromonitor estimates. Moreover, this segment appears to be rapidly growing, with volume growing 25.7 percent (from 374 to 470 million liters – Table 1) and value growing 37.8 percent (from 562 to 776 billion RMB – Table 2) over the 2018-2024 period, according to Euromonitor.

Table 1. Production and Segmentation in China's Baijiu Industry (million liters)

(million liters)	2018	2019	2020	2021	2022	2023
Premium	374	408	385	438	455	470
(percent)	8.4%	9.8%	11.0%	12.8%	15.5%	16.4%
Mid-range	958	978	864	933	931	914
(percent)	21.5%	23.6%	24.5%	27.2%	31.8%	31.8%
Economy	3,118	2,763	2,269	2,056	1,540	1,489
(percent)	70.1%	66.6%	64.5%	60.0%	52.6%	51.8%
Total Baijiu	4,449	4,149	3,518	3,426	2,926	2,873
Consumption in China for Comparison (million liters)						
Brandy and Cognac	70	72	65	78	74	79
Whiskies	13	14	14	16	16	17
Vodka and Gin	4	4	4	4	4	4
Rum	2	2	1	2	2	2
Sochu/Soju	7	9	13	19	23	31
Total Other	96	101	97	119	119	133

Source: Euromonitor, 2024. Euromonitor data also includes "Chinese Herbal Spirits" as a category which are typically *baijiu* with heavy herbal components for medicinal reasons but not included in this table

⁸ In February 2026, Wine-Searcher.com has 500 ml bottles of Kweichow Moutai at \$588, and Wuliangye at \$303.

⁹ The Euromonitor report includes both super premium and premium categories, but those are combined into just premium in Table 1 and Table 2. The same with mid-range – the Euromonitor report has upper and lower mid-range, but Tables 1 and 2 combine these into one mid-range category.

Table 2. Value and Segmentation in China's Baijiu Industry (billion RMB)

(billion RMB)	2018	2019	2020	2021	2022	2023
Premium	563	624	604	690	733	776
(percent)	56.7%	59.1%	61.1%	63.4%	65.1%	66.3%
Mid-range	343	348	311	329	341	343
(percent)	34.6%	32.9%	31.5%	30.2%	30.2%	29.3%
Economy	86	84	73	70	53	51
(percent)	8.7%	8.0%	7.4%	6.4%	4.7%	4.3%
Total Baijiu	992	1,055	989	1,089	1,126	1,170

Source: Euromonitor, 2024.

Mid-range baijiu. While premium *baijiu* is served at high-end banquets, mid-range products dominate more casual banquets and meals across China. Mid-range *baijiu* is consumed by millions of local officials and white-collar workers who live in cities and towns and can afford a bottle of branded *baijiu* at meals with friends and colleagues. There are hundreds of mid-range *baijiu* brands in China produced by a variety of companies. Ownership structure of these companies varies widely as well, they can be owned by local governments, investors, or large national *baijiu* companies that produce several local brands specific to different regions. Many of the most famous premium *baijiu* companies also produce brands that cater to the mid-range market, and there are large national brands that specialize in this market as well.¹⁰ Mid-range *baijiu* is sometimes served at banquets and consumed in small toasts, as premium *baijiu* is, but is also widely consumed in small glasses at meals with small groups of family, friends, or colleagues. Mid-range *baijiu* comprises a larger portion of China's *baijiu* production and consumption than premium, but is a smaller component by value. According to the recent Euromonitor report, mid-range *baijiu* accounts for roughly 20-30 percent of production in recent years (Table 1). The share of total value of *baijiu* production comprised of mid-ranged brands is a little above their share of production, ranging 30-35 percent over the period covered by the Euromonitor report (Table 2).

Economy baijiu. By far the largest segment of China's *baijiu* industry is comprised of low-priced, economy products. The townships and villages spread across rural China are home to tens of

¹⁰ For example, Kweichow Moutai is partly owned by the province of Guizhou, as well as a publicly traded portion and other investors, and produces some mid-range brands along with its famous premium brand.

thousands of small *baijiu* fermentation and distillation operations of every size and scale imaginable. The large contingent of workers migrating from rural areas to work in China's cities also consume various economy *baijiu* brands.¹¹ Many of the more sizeable rural operations are owned, in full or in part, by local governments. There are also large, national companies that produce economy *baijiu* throughout China. Smaller rural operations might sell *baijiu* to locals directly in bulk or in rudimentary packaging, but not branded. There are even travelling *baijiu* producers who come to the village, make a batch of *baijiu*, then move on (or more accurately, set a batch to fermentation, then move on but come back several weeks later to distill it into *baijiu*) [10]. The cost to the consumer of this *baijiu* is a small fraction of the more well-known branded varieties.

While the figures in the Euromonitor report show economy *baijiu* to be by far the largest component of the industry by volume, the actual volume may be greatly underestimated. According to Euromonitor data, economy *baijiu* represented over 70 percent of *baijiu* consumption in 2018, but this falls to just over 50 percent in 2024 (Table 1). Rural surveys indicate as much as half of the *baijiu* consumed at the local level is bulk and unrecorded *baijiu* rather than bottled [10, 11]. These rural *baijiu* consumers differ from their urban counterparts in that they tend to be older, more regular consumers of *baijiu* with meals, prefer higher proof *baijiu*, and more likely involved in agricultural production directly, particularly consumers of bulk *baijiu* [10]. This segment of the *baijiu* industry is very low-valued, comprising less than 5 percent of the value in the industry in the last few years, despite its large volume (Table 2).

Unrecorded *baijiu*. Farm households in rural China, commonly display a large glass bottle containing bulk *baijiu* sitting on a counter where it is easy to pour a small glass at mealtime. This is most likely unrecorded *baijiu*, and while it is unclear how large this part of the industry is, and to what extent the estimates above include unrecorded *baijiu*, it is pretty clear that it is a significant part of overall production and consumption in China.¹² Many rural residents in China consume a glass of *baijiu* with dinner and/or lunch, and sometimes even breakfast, sipping from a small glass rather than the multiple, thimble-sized shots that dominate banquets [9, 10]. Such moderate but consistent consumption is considered healthy by many people in rural China as the various ester

¹¹ The rural-urban worker population in China is estimated at nearly 300 million. China Labor Bulletin, Sept, 2023, [https://clb.org.hk/en/content/migrant-workers-and-their-children#:~:text=Rural%20migrant%20workers%20have%20been,percent\)%20over%20the%20previous%20year.](https://clb.org.hk/en/content/migrant-workers-and-their-children#:~:text=Rural%20migrant%20workers%20have%20been,percent)%20over%20the%20previous%20year.)

¹² Sometimes this rural bulk *baijiu* is produced by a township- or county-owned distillery that is maybe recorded.

and other compounds are believed to have positive health benefits. Urban consumers, however, are far less likely to consume *baijiu* on a regular basis. The traveling *baijiu* producers referenced above are almost certainly in this category, as are household producers in the village, of which there are many. According to Ding, et al. [10], “Practically all villages (in China) have at least one family whose main source of income is distilling *baijiu*.”

The size of the unrecorded *baijiu* industry in China is not well-known. Nor is the extent to which unrecorded *baijiu* is included in the economy *baijiu* production estimates in the Euromonitor report cited in Table 1. However, unrecorded *baijiu* makes up a significant portion of China’s total *baijiu* production and consumption. In a 2018 report, the World Health Organization estimated “unrecorded” alcohol consumption in China at 1.7 liters/capita in 2010, and 1.5 liters/capita in 2016, comprising 23.9 and 20.8 percent of total alcohol consumption for those two years [12].¹³ By its very nature unrecorded alcohol production and consumption is difficult to measure. In a survey of 3,298 rural residents drawn from 21 villages in 10 counties in 3 provinces – Hubei Province, Anhui Province, and Hebei Province – Wei, et al. [11] found most preferred unrecorded *baijiu* over recorded *baijiu*, due to both taste and price, and unrecorded *baijiu* drinkers drank more frequently. Unrecorded *baijiu* drinkers were more likely to consume at home and with family members, while recorded alcohol drinkers were more likely to consume in the home of, or in the company of, friends and relatives.

Many countries in addition to China have significant production and consumption of unrecorded alcohol, and often as distilled spirits. The World Health Organization estimates 25 percent of alcohol consumption worldwide is unrecorded: not taxed and outside the usual system of government control [13]. WHO also estimates that the share of unrecorded alcohol consumption is significantly higher in low-income countries (42-44 percent) than in high-income countries (9-24 percent). This proportion and trend are corroborated in both Probst et al. [14], and Rehm, et al. [15], with the latter also pointing out that most of the unrecorded alcohol consumption is home-produced distilled spirits. The estimates of unrecorded alcohol consumption in other countries correspond roughly to the WHO estimate of 20-23 percent for China, although given China’s overall level of development and history of local *baijiu* production in rural areas, the WHO more

¹³ The “recorded” *baijiu* used in these WHO estimates – 5.4 in 2010 and 5.7 in 2016 – are both above the estimates in the WHO data reported in Figure 1 and discussed at length below, suggesting that the WHO data used in Figure 1 was not only at some point revised down, but that it also does not include unrecorded *baijiu*.

likely underestimates the share in China than overestimates it. As rural areas in China develop further, the experience in other countries is that the share is expected to decrease as consumers move into more branded products. Both recorded and unrecorded *baijiu* is also predominantly consumed by older drinkers in rural China [10, 11] which suggest that consumption may decline as the current cohort of older drinker shrinks.

Discussion: How Much Baijiu Does China Produce and Consume?

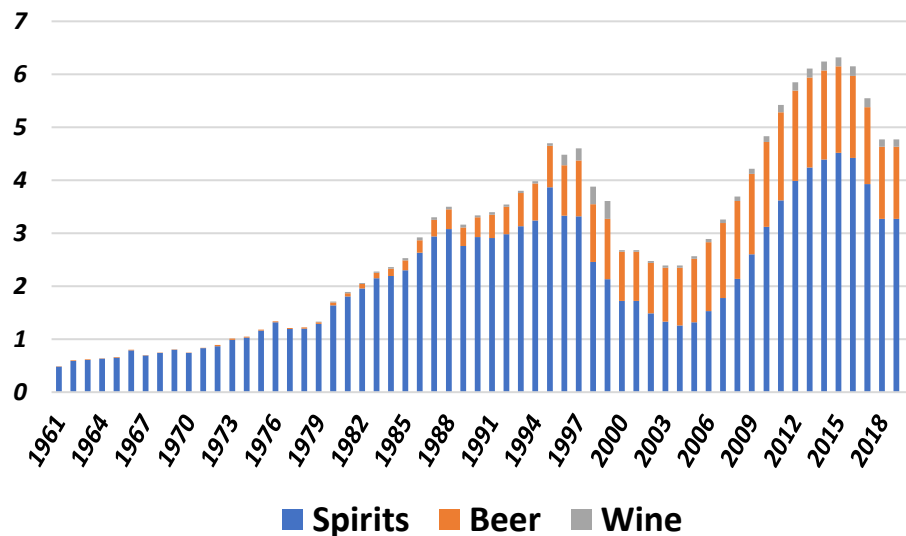
The rising consumption of alcohol in China, much of which is through *baijiu*, is generating concern over its effect on public health. Because of this problem globally, the World Health Organization (WHO) has long kept a database of alcohol consumption for individual countries and the data for China is widely cited and roughly tracks trends in China's own official distilled spirit production estimates published by China's National Bureau of Statistics (NBS).¹⁴ WHO data on alcohol consumption in China has undergone wide swings over the last 3 decades, driven primarily by *baijiu* consumption, as has the NBS production data [16].

According to the WHO data, *baijiu* consumption in China was modest through the collective period (1949-1979) and hovered just above 1 liter of pure alcohol per person 15 years or older (heretofore, liters/capita) in the late 1970s (Figure 1). Consumption began to rise significantly after economic reforms in 1979 ushered in a period of rapid economic growth, along with growing household wealth, industrialization, and urbanization. *Baijiu* consumption in WHO data peaked in 1995 at 3.87 liters/capita and decreased significantly through 2004, when it bottomed out at 1.26 liters/capita, a 67 percent decrease over the period.

Figure 1. Alcohol Consumption Estimates for China by Alcohol Type

¹⁴ The WHO data is convenient because it standardizes the consumption of different types of alcohol – beer, wine and distilled spirits – by converting them all to pure alcohol per capita of population 15 years and older, and this is also done in many of the health studies referenced in this paper. The trends in WHO data discussed in this paper follow trends in China's NBS data for distilled spirit production but do not match precisely. For example, The NBS production data peaks in 1997, then again in 2016, whereas the WHO consumption data peaks in 1995, then again in 2015. As per the Euromonitor data reported in Table 1, the "distilled spirits" category in China is almost entirely *baijiu*, very little of the western style spirits are produced in China so would not be recorded in NBS production data. Moreover, since China's *baijiu* imports and exports are negligible, domestic consumption aligns closely with production.

(liters/capita of pure alcohol for people 15 year or older)



Source: World Health Organization, *Global Health Observatory*

The decrease in *baijiu* consumption from 1995-2004 might have been due to changes in *baijiu* tax policy. Hu et al. [16] and Guo and Huang [17] argue that tax policy changes over this period – including a 1994 tax policy switch from a production tax to a consumption tax, a 1998 change eliminating the tax deduction for alcohol advertising, and a 2001 change to volume-based tax rather than value-based tax – induced the consumption decrease. These changes, however, do not seem significant enough to bring about such a dramatic decrease in *baijiu* consumption. Taxing consumption rather than production would still result in the tax increasing *baijiu* prices and therefore would still, in general, have the same effect on consumption.¹⁵ The volumetric tax imposed in 2001 is also small – 0.5 RMB/500 ml bottle (less than \$0.10 at the time) – and seems insufficient to cause a 67 percent decrease in consumption, particularly when *baijiu* prices soared to hundreds of RMB/bottle for many brands in the 2010s.

Not only does it seem economically implausible that the tax policy changes would generate such a dramatic decrease in consumption, but the consumption decrease in the WHO data is not borne

¹⁵ The authors of Hu et al (2022) are mental health specialists and Guo and Huang (2015) are food scientists. None of the authors are economists who might be more sensitive to this point.

out by independent surveys during that time. For example, Hao et al. [18] use a sample of 23,513 individuals from rural and urban areas from 6 sites in 5 provinces (Hunan, Anhui, Jilin, Sichuan (two sites), and Shandong) surveyed in 1994 to examine the link between alcohol consumption and health outcomes. The authors converted detailed drinking behavior (frequency and amount by type of alcoholic beverage) to total annual alcohol consumption, which they estimated at 3.6 liters pure alcohol per person (15 year or older).¹⁶ This estimate is close to, but a little below the WHO estimate of 3.98 liters/capita alcohol consumption in China in 1994. Following up on this survey in September and October, 2001, Hao et al. [19] found that alcohol consumption increased significantly over the 7 year period (1994-2001). The authors estimated the average annual consumption of pure alcohol to be 10.1 liters for men, 1.5 liters for women, for an average of 7.6 liters/capita combined by 2001 [19], well above the 3.6 found in 1994 and also far above 2.68 liters reported by WHO in 2001 [13]. It is interesting that the WHO estimate decreased significantly over the period while the independent survey estimate increased significantly over the same period. In a study to assess the relationship between heavy drinking and types of alcohol consumed among rural men in China, Zhou et al. [20] surveyed 9,866 males from two rural regions in China (in Hunan and Henan provinces) in June-September 2007 using survey instruments modified from the instruments used by Hao et al. [18, 19]. They estimated the mean monthly pure alcohol consumption per capita of those surveyed was 0.67 in Hunan and 0.8 in Henan, which translates to annual consumption of 8 and 9.6 liters in the two regions respectively if monthly consumption is constant throughout the year.¹⁷ These estimates are close to the estimates for men reported in Hao et al. [19], and also well above those in the WHO data. It is hard to reconcile a 67 percent decrease in *baijiu* consumption in China without seeing a significant decrease in rural areas where a large proportion of China's *baijiu* is produced and consumed. A decrease in rural consumption, however, does not seem to have occurred.

¹⁶ The authors use the same approach to convert beverage consumption to pure alcohol consumption as the WHO uses.

¹⁷ The assumption that monthly alcohol consumption is constant throughout the year is likely not valid as alcohol consumption spikes in January and February, around Chinese New Year, which is a lunar holiday that falls in late January or early February on the solar calendar. Significant banqueting with work colleagues and friends in the weeks before the holiday, then with family and hometown friends after the holiday, results in a spike in consumption during this period, which means the annual consumption estimates based on June-September consumption probably underestimate actual annual consumption. Monthly production estimates published by Statista confirm this, with Jan-Feb roughly twice the monthly average, and June-July the lowest months for *baijiu* production.

351 Whatever explains the decrease in consumption from 1995-2004 in the WHO data clearly was no
352 longer inhibiting consumption from 2005-2015. *Baijiu* consumption quickly increased in the WHO
353 data to exceed 1995 levels by 2012, and peaked at 4.52 liters/capita in 2015, a 259 percent increase
354 over the 2004 consumption estimates of 1.26 liters/capita. The period after China joined the World
355 Trade Organization in 2001 was the heyday of China's economic growth, with significant
356 investments for both economic growth and military expansion, especially after the global financial
357 crisis in 2008-9.¹⁸ It is not a stretch to assume that the demand for *baijiu* grew significantly over
358 this period to supply the multiple banquets and dealmaking that accompanied these investments
359 and economic expansion, with higher end *baijiu* brands in particular being in strong demand.
360 Strong income growth over that period also likely boosted demand in all segments of China's
361 economy. Despite that, a 259 percent increase over a 10-year period stretches plausibility and it is
362 more likely that the base in 2004 was not nearly as low as indicated in the WHO data. Moreover,
363 if the increase is driven by demand for higher end *baijiu* brands for banquets, which comprise a
364 small share of China's overall *baijiu* production, it is even more difficult to see how this surge in
365 demand could generate such a large increase in total *baijiu* consumption.

366 After 2015, WHO data indicates *baijiu* consumption decreased again, falling to 2.49 liters/capita
367 by 2020, a 45 percent decrease over the 5-year period 2015-2020. This decrease in *baijiu*
368 consumption is attributed to various factors, including more awareness of the health consequences,
369 new laws with harsh penalties for driving after drinking, and the well-known anticorruption efforts
370 of President Xi Jinping after 2012 [21, 22]. As with the significant decrease in *baijiu* consumption
371 from 1995-2004, it would be difficult to reconcile the large decrease in consumption reported in
372 WHO data from 2015-2020 without a large decrease in economy *baijiu* and rural consumption,
373 but those consumers are far less affected by anticorruption policies and, unlike the urban middle
374 class, are much less likely to drive cars, so not as affected by drunk driving laws as well.

375
376 Consumption of *baijiu* may have been even higher than the WHO data indicate during the period
377 when *baijiu* consumption peaked in 2015. To assess the effect of China's recent anticorruption
378 efforts on alcohol (and cigarette) consumption, Wang et al. [22] use data from the detailed China
379 Health and Retirement Longitudinal Survey (CHARLS), which was conducted in years 2011-2018

¹⁸ China embarked on a 4 trillion RMB stimulus in 2009 and 2010 to counter the effects of the financial crises (Bai, Hsieh, and Song, 2016).

to assess factors influencing rural longevity in China. They report average consumption was 1.5 liters per month of distilled spirits (liquor) for the 45-year or older participants in the survey, including drinkers and non-drinkers. Assuming the spirits were 45 percent ABV and the monthly average is consistent over the year, then this results in 8.1 liters pure alcohol per person, well above the 3.62 (in 2011) to 4.52 (in 2015) and back to 3.27 (in 2018) liters/capita in the WHO data for those years. Interestingly, Wang et al [22] found the anticorruption campaign had a significant negative impact on the number of times officials drank alcohol, but not on the overall quantity consumed by officials, and speculate that officials drank fewer times but drank more each time, calling into question whether anticorruption policies had a major impact on overall *baijiu* consumption.¹⁹

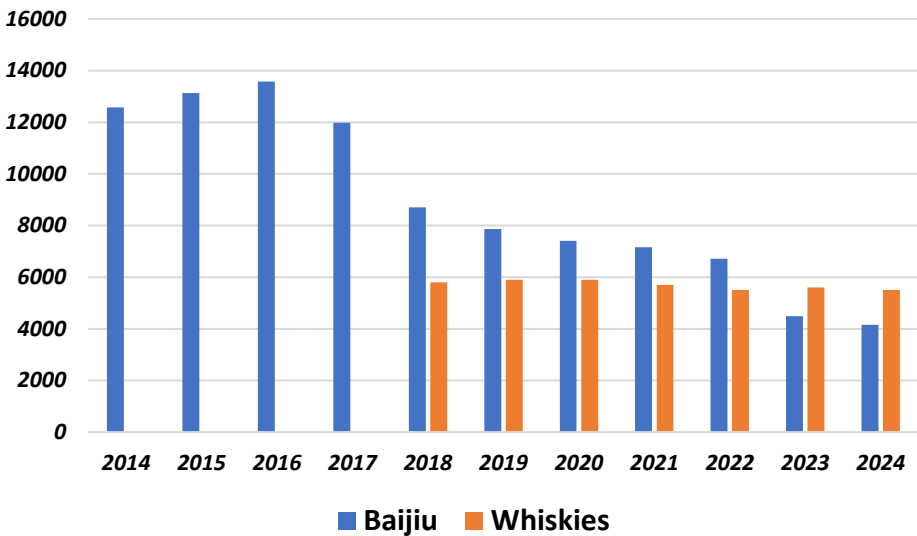
Is Baijiu the Biggest?

Official distilled spirit production estimates by China's National Bureau of Statistics (NBS) in recent years indicate that *baijiu* production was the largest distilled spirit in the world by volume, but official estimates show production declining significantly since 2016 and by 2023, *baijiu* no longer held that spot.²⁰ China's official distilled spirit production estimates peaked in 2016 at 13.58 billion liters (Figure 2). That is well above whiskies – including Indian, Irish, Scottish, Canadian, American, Japanese and others – in 2016 which totaled just above 6 billion liters, making *baijiu* by far the biggest distilled spirit in the world by volume at that time. The NBS data, however, show a rapid decline to only 4.15 billion liters in 2024. This is below worldwide whisky production on in 2024 (5.5 billion liters), suggesting *baijiu* no longer holds the number 1 position if these estimates are accurate.

¹⁹ Officials are defined as individuals who are cadres in a state-owned company or institute, or are members of the Communist Party of China.

²⁰ China's National Bureau of Statistics was previously called the State Statistical Bureau, or SSB.

Figure 2. Official Baijiu Production estimates, along with Global Whiskey Estimates (million liters).



Source: Statista, 2025

The NBS production and correlated WHO data, however, appears to have significant shortcomings. The low estimates in the converted WHO consumption data in the 2000s are not corroborated by findings from field surveys at that time, and the limited surveys that do exist indicate much higher consumption levels. Even when the WHO consumption estimates began rising again and peaked in the mid-2010s, field surveys indicate that consumption was higher still. It is unclear how both the NBS production estimates, and the WHO alcohol consumption estimates, are generated. According to the WHO's Global Status Report on Alcohol and Health and Treatment of Substance Use Disorders [23], WHO's data on alcohol consumption per capita in China comes from three different sources over time: The Food and Agricultural Organization under the United Nations (FAO) from 1961-1984, World Drink Trends published by the International Association of Vine and Wine (OIV) from 1985-1999, and China's National Bureau of Statistics (NBS) from 2000-2020. While we cannot find documentation, the authors suspect that, given the difficulty generating independent estimates of alcohol production and consumption in a large country like China, the data from FAO and OIV also came from official sources in China such as the NBS.

When China's economy was almost entirely government-owned (prior to de-collectivization), China's official production estimates were generated by a reporting system from local to higher levels of government, a system rife with opportunities to misrepresent the actual numbers [24]. In the reform era, production statistics are often submitted to the NBS by the official industry association representing the industry, in this case that would be the China Alcoholic Drinks Association. Data generated by the industry associations can also be misleading for several reasons, including that these estimates typically only include "large-scale" enterprises, and also the industry may face incentives to under- or over- report. For example, China's official animal feed production estimates, generated by the China Feed Industry Association, do not match China's livestock production estimates which are generated with the assistance of the China Animal Agriculture Industry Association, which themselves do not match the meat consumption estimates from NBS household consumption surveys [25]. Multiple reforms and initiatives have been implemented over the decades, but issues continue to persist.²¹ In addition, the significant amounts of unrecorded *baijiu* being produced and consumed also makes the case for *baijiu* production and consumption being significantly higher than recorded in the widely used NBS and WHO data. The WHO data appears to not include unrecorded *baijiu*, and this may in part explain the wide fluctuations in the NBS and WHO data: if unrecorded *baijiu* is not included in the data then the fluctuations only apply to branded and other "recorded" (i.e. taxed) *baijiu*, and this category was likely disproportionately affected by tax and other policies intended to discourage production or consumption. Many of the field surveys cited above concentrated on rural areas, areas where unrecorded *baijiu* is most common, therefore unrecorded *baijiu* consumption could explain part of the discrepancy between the widely used WHO and NBS estimates and the findings of field surveys.

Conclusion: Implications, Limits, and Future Research

Together, there is strong evidence that China's *baijiu* production (and consumption) is the biggest distilled spirit in the world, and may well be much larger than the second largest, whiskies, which are produced in countries throughout the world. But without further clarification, this finding is

²¹ The Euromonitor data reported in Tables 1 and 2 come from "official statistics, trade associations, trade press, company research, store checks, trade interviews, and trade sources". While the aggregates are likely revised to match official production estimates, the other efforts are useful to understand market segmentation and trends.

not entirely conclusive. Because of this, an important area for future research is to improve the estimation of the size of China's *baijiu* industry overall. There are many potential reasons why estimates of production may be flawed, including the cost of enumerating tens of thousands of small producers and the poor incentives faced by both the industry reporting production and the officials tasked with reporting accurate estimates. In the case of China's estimate, the large swings in these estimates over the last 3 decades suggests that the inaccuracies are more than just flawed data reporting and collection. Understanding what is causing these swings would be useful to understanding how the data may be under or over reporting production at any given time.

To interpret findings that China's *baijiu* industry is larger than any other distilled spirit worldwide as an enormous potential market for branded products that are consumed in toasts at formal banquets and dinners with business partners, relatives, work colleagues, and friends, is a misinterpretation. The high-end and mid-range part of China's *baijiu* market is very large, but less so in volume. The bulk of China's *baijiu* market is comprised of low-end products consumed by more regular drinkers, especially in rural areas where *baijiu* is commonly served with meals. The size of this part of the market is the biggest unknown in China's overall *baijiu* supply and demand and could represent market potential for products more suitable for these consumers than high-end western spirits.

The percent of *baijiu* in branded categories may be rising, and this appears to be at the expense of economy-level *baijiu*, but not necessarily at the expense of homemade, unrecorded *baijiu*. According to the Euromonitor data, the percent of *baijiu* in the Premium and Mid-range categories rose from 8.4 to 16.4, and 21.5 to 31.8 respectively from 2018 through 2024 (Table 1). The percent in the economy category declined from 79.1 to 51.8 during that period. This all the while reported *baijiu* production decreased by more than 35 percent over the period. The decline was driven by economy *baijiu*, which decreased by more than 50 percent over the period in the Euromonitor data. If this trend is accurate (and more research is needed to verify this trend), then there are two important implications. One is that the branded part of China's *baijiu* industry is already highly competitive and opportunities to enter the market will be fiercely contested by the hundreds, maybe thousands, of existing brands. But the other is that there are clear growth opportunities in higher-end *baijiu* brands. These consumers are more urban, higher income, and therefore have a higher demand for variety than economy *baijiu* consumers, so the trend also bodes well for exporters of

western spirits hoping to tap into China's vast market and appeal to consumers with rising incomes seeking more variety.

Little is known about the role of unrecorded *baijiu* in China. This is an area that stands out for further research beyond the public health implications of rural *baijiu* consumption. The extent to which consumers of unrecorded, unbranded *baijiu* will move into branded *baijiu*, and the factors that might facilitate this transition, is an area for research that can help *baijiu*, and other distilled spirit companies, tap into what may be the largest single component of China's *baijiu* market. As artisanal spirits become more popular worldwide, some unrecorded producers might become the next popular brand. Less than 100 years ago, Kweichow Moutai was produced by a cluster of small, local distilleries much like unrecorded *baijiu* is produced in China today. As such, some unrecorded producers today may become the super-premium brands of tomorrow.

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