

Cato Institute Policy Analysis No. 157: Alcohol Prohibition Was a Failure

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Executive Summary

National prohibition of alcohol (1920-33)--the "noble experiment"--was undertaken to reduce crime and corruption, solve social problems, reduce the tax burden created by prisons and poorhouses, and improve health and hygiene in America. The results of that experiment clearly indicate that it was a miserable failure on all counts. The evidence affirms sound economic theory, which predicts that prohibition of mutually beneficial exchanges is doomed to failure.

The lessons of Prohibition remain important today. They apply not only to the debate over the war on drugs but also to the mounting efforts to drastically reduce access to alcohol and tobacco and to such issues as censorship and bans on insider trading, abortion, and gambling.^[1]

Although consumption of alcohol fell at the beginning of Prohibition, it subsequently increased. Alcohol became more dangerous to consume; crime increased and became "organized"; the court and prison systems were stretched to the breaking point; and corruption of public officials was rampant. No measurable gains were made in productivity or reduced absenteeism. Prohibition removed a significant source of tax revenue and greatly increased government spending. It led many drinkers to switch to opium, marijuana, patent medicines, cocaine, and other dangerous substances that they would have been unlikely to encounter in the absence of Prohibition.

Those results are documented from a variety of sources, most of which, ironically, are the work of supporters of Prohibition--most economists and social scientists supported it. Their findings make the case against Prohibition that much stronger.^[2]

The Iron Law of Prohibition

According to its proponents, all the proposed benefits of Prohibition depended on, or were a function of, reducing the quantity of alcohol consumed. At first glance, the evidence seems to suggest that the quantity consumed did indeed decrease. That would be no surprise to an economist: making a product more difficult to supply will increase its price, and the quantity consumed will be less than it would have been otherwise.

Evidence of decreased consumption is provided by two important American economists, Irving Fisher and Clark Warburton.^[3] It should be noted that annual per capita consumption and the percentage of annual per capita income spent on alcohol had been steadily falling before Prohibition and that annual spending on alcohol during Prohibition was greater than it had been before Prohibition.^[4]

The decrease in quantity consumed needs at least four qualifications--qualifications that undermine any value that a prohibitionist might claim for reduced consumption. First, the decrease was not very significant. Warburton found that

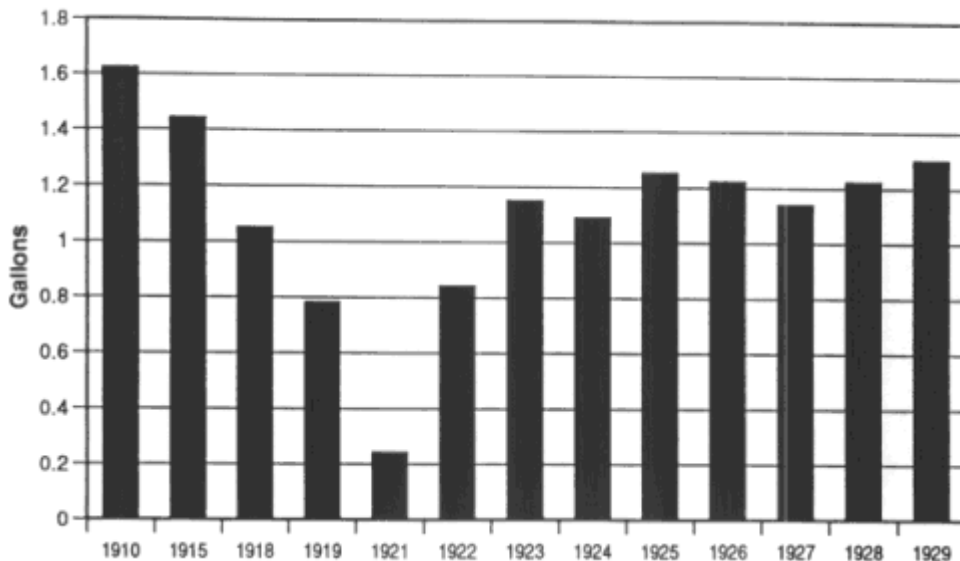
the quantity of alcohol purchased may have fallen 20 percent between the prewar years 1911-14 and 1927-30. Prohibition fell far short of eliminating the consumption of alcohol.^[5]

Second, consumption of alcohol actually rose steadily after an initial drop. Annual per capita consumption had been declining since 1910, reached an all-time low during the depression of 1921, and then began to increase in 1922. Consumption would probably have surpassed pre-Prohibition levels even if Prohibition had not been repealed in 1933.^[6] Illicit production and distribution continued to expand throughout Prohibition despite ever-increasing resources devoted to enforcement.^[7] That pattern of consumption, shown in Figure 1, is to be expected after an entire industry is banned: new entrepreneurs in the underground economy improve techniques and expand output, while consumers begin to realize the folly of the ban.

Third, the resources devoted to enforcement of Prohibition increased along with consumption. Heightened enforcement did not curtail consumption. The annual budget of the Bureau of Prohibition went from \$4.4 million to \$13.4 million during the 1920s, while Coast Guard spending on Prohibition averaged over \$13 million per year.^[8] To those amounts should be added the expenditures of state and local governments.

Figure 1

Per Capita Consumption of Alcoholic Beverages (Gallons of Pure Alcohol) 1910-1929.



Source: Clark Warburton, *The Economic Results of Prohibition* (New York: Columbia University Press, 1932), pp. 23-26, 72.

The fourth qualification may actually be the most important: a decrease in the quantity of alcohol consumed did not make Prohibition a success. Even if we agree that society would be better off if less alcohol were consumed, it does not follow that lessening consumption through Prohibition made society better off. We must consider the overall social consequences of Prohibition, not just reduced alcohol consumption. Prohibition had pervasive (and perverse) effects on every aspect of alcohol production, distribution, and consumption. Changing the rules from those of the free market to those of Prohibition broke the link that prohibitionists had assumed between consumption and social evil. The rule changes also caused unintended consequences to enter the equation.

The most notable of those consequences has been labeled the "Iron Law of Prohibition" by Richard Cowan.^[9] That law states that the more intense the law enforcement, the more potent the prohibited substance becomes. When drugs or alcoholic beverages are prohibited, they will become more potent, will have greater variability in potency, will be adulterated with unknown or dangerous substances, and will not be produced and consumed under normal market constraints.^[10] The Iron Law undermines the prohibitionist case and reduces or outweighs the benefits ascribed to a

decrease in consumption.

Statistics indicate that for a long time Americans spent a falling share of income on alcoholic beverages. They also purchased higher quality brands and weaker types of alcoholic beverages. Before Prohibition, Americans spent roughly equal amounts on beer and spirits.^[11] However, during Prohibition virtually all production, and therefore consumption, was of distilled spirits and fortified wines. Beer became relatively more expensive because of its bulk, and it might have disappeared altogether except for homemade beer and near beer, which could be converted into real beer.^[12]

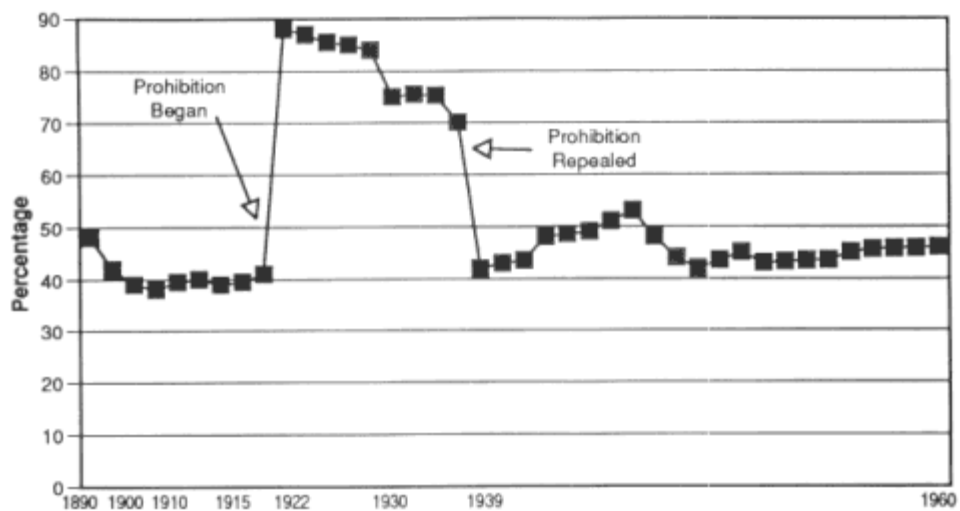
Figure 2 shows that the underground economy swiftly moved from the production of beer to the production of the more potent form of alcohol, spirits.^[13] Prohibition made it more difficult to supply weaker, bulkier products, such as beer, than stronger, compact products, such as whiskey, because the largest cost of selling an illegal product is avoiding detection.^[14] Therefore, while all alcohol prices rose, the price of whiskey rose more slowly than that of beer.

Fisher used retail alcohol prices to demonstrate that Prohibition was working by raising the price and decreasing the quantity produced. However, his price quotations also revealed that the Iron Law of Prohibition was at work. The price of beer increased by more than 700 percent, and that of brandies increased by 433 percent, but spirit prices increased by only 270 percent, which led to an absolute increase in the consumption of spirits over pre-Prohibition levels.^[15]

A number of observers of Prohibition noted that the potency of alcoholic products rose. Not only did producers and consumers switch to stronger alcoholic beverages (from beer to whiskey), but producers supplied stronger forms of particular beverages, such as fortified wine. The typical beer, wine, or whiskey contained a higher percentage of alcohol by volume during Prohibition than it did before or after. Fisher, for example, referred to "White Mule Whiskey," a name that clearly indicates that the product had quite a kick. Most estimates place the potency of prohibition-era products at 150+ percent of the potency of products produced either before or after Prohibition.^[16]

Figure 2

Total Expenditure on Distilled Spirits as a Percentage of Total Alcohol Sales (1890-1960)



Source: Clark Warburton, *The Economic Result of Prohibition* (New York: Columbia University Press, 1932), pp. 114-15; and Licensed Beverage Industry, *Facts about the Licensed Beverage Industry* (New York: LBI, 1961), pp. 54-55.

Even Fisher, the preeminent academic supporter of Prohibition, recognized the danger of such products.

I am credibly informed that a very conservative reckoning would set the poisonous effects of bootleg beverages as compared with medicinal liquors at ten to one; that is, it requires only a tenth as much bootleg liquor as of pre-prohibition liquor to produce a given degree of drunkenness. The reason, of course, is that bootleg liquor is so concentrated and almost invariably contains other and more deadly

poisons than mere ethyl alcohol.^[17]

There were few if any production standards during Prohibition, and the potency and quality of products varied greatly, making it difficult to predict their effect. The production of moonshine during Prohibition was undertaken by an army of amateurs and often resulted in products that could harm or kill the consumer. Those products were also likely to contain dangerous adulterants, a government requirement for industrial alcohol.

According to Thomas Coffey, "the death rate from poisoned liquor was appallingly high throughout the country. In 1925 the national toll was 4,154 as compared to 1,064 in 1920. And the increasing number of deaths created a public relations problem for . . . the dries because they weren't exactly accidental."^[18] Will Rogers remarked that "governments used to murder by the bullet only. Now it's by the quart."

Patterns of consumption changed during Prohibition. It could be argued that Prohibition increased the demand for alcohol among three groups. It heightened the attractiveness of alcohol to the young by making it a glamour product associated with excitement and intrigue. The high prices and profits during Prohibition enticed sellers to try to market their products to nondrinkers--undoubtedly, with some success. Finally, many old-stock Americans and recent immigrants were unwilling to be told that they could not drink. According to Lee, "Men were drinking defiantly, with a sense of high purpose, a kind of dedicated drinking that you don't see much of today."^[19]

Prohibition may actually have increased drinking and intemperance by increasing the availability of alcohol. One New Jersey businessman claimed that there were 10 times more places one could get a drink during Prohibition than there had been before.^[20] It is not surprising that, given their hidden locations and small size, speakeasies outnumbered saloons. Lee found that there were twice as many speak easies in Rochester, New York, as saloons closed by Prohibition. That was more or less true throughout the country.

Another setback for prohibitionists was their loss of control over the location of drinking establishments. Until Prohibition, prohibitionists had used local ordinances, taxes, licensing laws and regulations, and local-option laws to prevent or discourage the sale of alcohol in the center city, near churches and schools, on Sundays and election days, and in their neighborhoods. Prohibition eliminated those political tools and led to the establishment of speak easies in business districts, middle-class neighborhoods, and other locations that were formerly dry, or gave the appearance of being dry.

Prohibition also led many people to drink more "legitimate" alcohol, such as patent medicines (which contained high concentrations of alcohol), medicinal alcohol, and sacramental alcohol.^[21] The amount of alcoholic liquors sold by physicians and hospitals doubled between 1923 and 1931. The amount of medicinal alcohol (95 percent pure alcohol) sold increased by 400 percent during the same time.^[22] Those increases occurred despite rigorous new regulations.

Prohibitionists wanted and expected people to switch their spending from alcohol to dairy products, modern appliances, life insurance, savings, and education. That simply did not happen. Not only did spending on alcohol increase, so did spending on substitutes for alcohol. In addition to patent medicines, consumers switched to narcotics, hashish, tobacco, and marijuana. Those products were potentially more dangerous and addictive than alcohol, and procuring them often brought users into contact with a more dangerous, criminal element.^[23]

The harmful results of the Iron Law of Prohibition more than offset any benefits of decreasing consumption, which had been anticipated but did not occur.

Prohibition Was Not a Healthy Move

One of the few bright spots for which the prohibitionists can present some supporting evidence is the decline in "alcohol-related deaths" during Prohibition. On closer examination, however, that success is an illusion. Prohibition did not improve health and hygiene in America as anticipated.

Cirrhosis of the liver has been found to pose a significant health risk, particularly in women who consume more than

four drinks per day.^[24] However, deaths due to cirrhosis and alcoholism are a small portion of the total number of deaths each year, and alcohol can be considered only a contributing cause of most of those deaths.^[25] Many people who do not drink develop cirrhosis, and the vast majority of heavy drinkers never develop it.^[26] Dr. Snell of the Mayo Clinic in Rochester, Minnesota, reported in 1931 that "we know now that cirrhosis occurs in only 4 per cent of alcoholic individuals."^[27] Even in the worst pre-Prohibition year, recorded deaths due to alcoholism and cirrhosis of the liver amounted to less than 1.5 percent of total deaths.

An examination of death rates does reveal a dramatic drop in deaths due to alcoholism and cirrhosis, but the drop occurred during World War I, before enforcement of Prohibition.^[28] The death rate from alcoholism bottomed out just before the enforcement of Prohibition and then returned to pre-World War I levels.^[29] That was probably the result of increased consumption during Prohibition and the consumption of more potent and poisonous alcoholic beverages. The death rate from alcoholism and cirrhosis also declined rather dramatically in Denmark, Ireland, and Great Britain during World War I, but rates in those countries continued to fall during the 1920s (in the absence of prohibition) when rates in the United States were either rising or stable.^[30]

Prohibitionists such as Irving Fisher lamented that the drunkards must be forgotten in order to concentrate the benefits of Prohibition on the young. Prevent the young from drinking and let the older alcoholic generations die out. However, if that had happened, we could expect the average age of people dying from alcoholism and cirrhosis to have increased. But the average age of people dying from alcoholism fell by six months between 1916 and 1923, a period of otherwise general improvement in the health of young people.^[31]

There appear to have been no health benefits from Prohibition.^[32] On the contrary, the harmlessness and even health benefits of consumption of a moderate amount of alcohol have been long established. As early as 1927 Clarence Darrow and Victor Yarros could cite several studies showing that moderate drinking does not shorten life or seriously affect health and that in general it may be beneficial.^[33] According to the eminent Harvard psychologist Hugo Münsterberg, "there exists no scientifically sound fact which demonstrates evil effects from a temperate use of alcohol by normal adult men."^[34]

Studies continue to find the same results and that problems with alcohol are associated with excess--a problem with most goods.^[35] Gene Ford cites 17 recent studies that provide evidence of the benefits to the heart and cardiovascular system of moderate drinking.^[36] The evidence appears so strong that the American Heart Association has conceded that "modest alcohol consumption has been associated with beneficial effects," and that "an increased HDL-cholesterol [the good kind] level appears to be a dividend of moderate consumption of alcohol."^[37]

Not all prohibitionists were blind to the potential benefits of alcohol. However, many were technocrats or Progressives, and if some benefit of alcohol were admitted they would have been forced to conclude that the government should act to encourage moderate consumption of alcohol. One technocrat-economist, Thomas Carver, was familiar with the "possibility" that moderate drinking could be beneficial,^[38] but according to Fisher, he was "a courageous scholar" and discarded that possibility to pursue the undeniable benefits of Prohibition.

Prohibition Was Criminal

At the beginning of Prohibition, the Reverend Billy Sunday stirred audiences with this optimistic prediction:

The reign of tears is over. The slums will soon be a memory. We will turn our prisons into factories and our jails into storehouses and corncribs. Men will walk upright now, women will smile and children will laugh. Hell will be forever for rent.^[39]

Sunday's expectations of Prohibition were never realized. He and other champions of Prohibition expected it to reduce crime and solve a host of social problems by eliminating the Demon Rum. Early temperance reformers claimed that alcohol was responsible for everything from disease to broken homes. High on their list of evils were the crime and

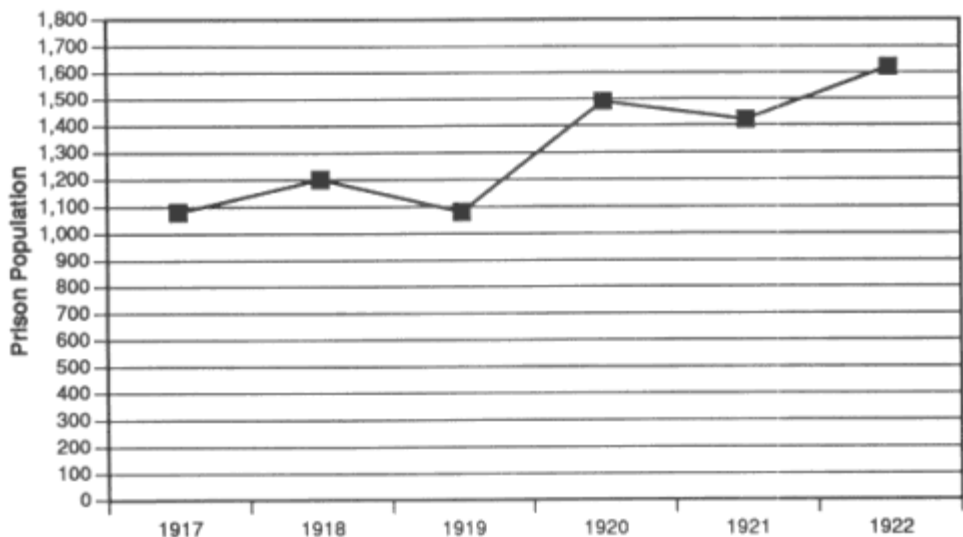
poverty associated with intemperance. They felt that the burden of taxes could be reduced if prisons and poorhouses could be emptied by abstinence. That perspective was largely based on interviews of inmates of prisons and poorhouses who claimed that their crimes and poverty were the result of alcohol.^[40] Social "scientists" later used those correlations as propaganda "to persuade many people to turn to saloon suppression and prohibition."^[41]

America had experienced a gradual decline in the rate of serious crimes over much of the 19th and early 20th centuries. That trend was unintentionally reversed by the efforts of the Prohibition movement. The homicide rate in large cities increased from 5.6 per 100,000 population during the first decade of the century to 8.4 during the second decade when the Harrison Narcotics Act, a wave of state alcohol prohibitions, and World War I alcohol restrictions were enacted. The homicide rate increased to 10 per 100,000 population during the 1920s, a 78 percent increase over the pre-Prohibition period.

The Volstead Act, passed to enforce the Eighteenth Amendment, had an immediate impact on crime. According to a study of 30 major U.S. cities, the number of crimes increased 24 percent between 1920 and 1921. The study revealed that during that period more money was spent on police (11.4+ percent) and more people were arrested for violating Prohibition laws (102+ percent). But increased law enforcement efforts did not appear to reduce drinking: arrests for drunkenness and disorderly conduct increased 41 percent, and arrests of drunken drivers increased 81 percent. Among crimes with victims, thefts and burglaries increased 9 percent, while homicides and incidents of assault and battery increased 13 percent.^[42] More crimes were committed because prohibition destroys legal jobs, creates black-market violence, diverts resources from enforcement of other laws, and greatly increases the prices people have to pay for the prohibited goods.

Instead of emptying the prisons as its supporters had hoped it would, Prohibition quickly filled the prisons to capacity. Those convicted of additional crimes with victims (burglaries, robberies, and murders), which were due to Prohibition and the black market, were incarcerated largely in city and county jails and state prisons. According to Towne, "The Sing Sing prison deported no less than sixty prisoners to Auburn in May 1922 because of overcrowding." Figure 3 shows the tremendous increase in the prison population at Sing Sing in the early years of Prohibition.^[43]

Figure 3 Inmates at Sing Sing Prison: 1917-22



Source: Charles Hanson Towne, *The Rise and Fall of Prohibition* (New York: Macmillan, 1923) p. 162.

Before Prohibition and the Harrison Narcotics Act (1914), there had been 4,000 federal convicts, fewer than 3,000 of whom were housed in federal prisons. By 1932 the number of federal convicts had increased 561 percent, to 26,589, and the federal prison population had increased 366 percent.^[44] Much of the increase was due to violations of the Volstead Act and other Prohibition laws. The number of people convicted of Prohibition violations increased 1,000 percent between 1925 and 1930, and fully half of all prisoners received in 1930 had been convicted of such violations.

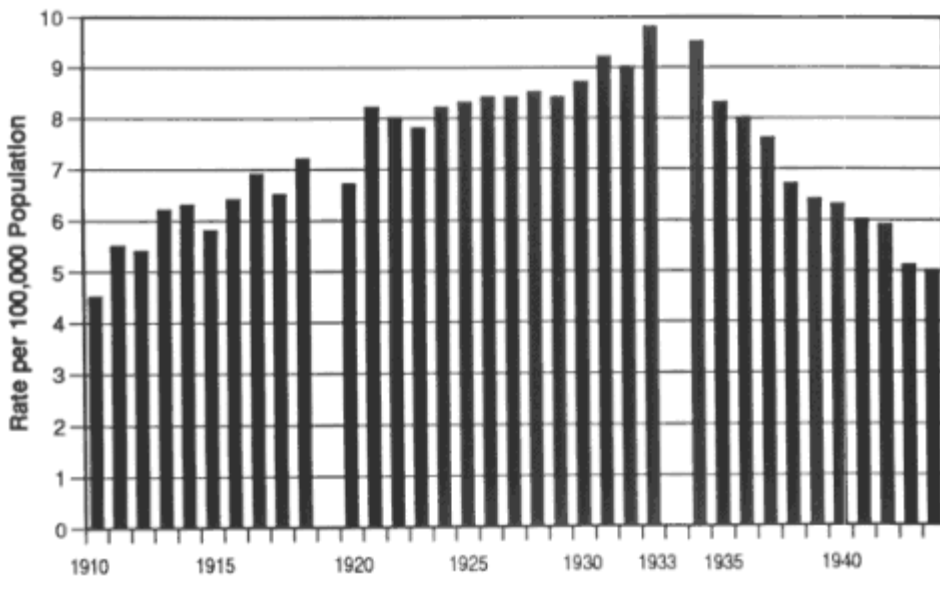
Two-thirds of all prisoners received in 1930 had been convicted of alcohol and drug offenses, and that figure rises to 75 percent of violators if other commercial prohibitions are included. [\[45\]](#)

The explosion in the prison population greatly increased spending on prisons and led to severe overcrowding. Total federal expenditures on penal institutions increased more than 1,000 percent between 1915 and 1932. Despite those expenditures and new prison space, prisons were severely overcrowded. In 1929 the normal capacity of Atlanta Penitentiary and Leavenworth Prison was approximately 1,500 each, but their actual population exceeded 3,700 each. [\[46\]](#)

To some the crime wave of the 1920s remained a mere "state of mind" due mostly to media hype. For example, Dr. Fabian Franklin noted that according to one measure, crime had decreased 37.7 percent between 1910 and 1923. However, the apparent contradiction between the media hype and Franklin's declining crime statistic is resolved by the realization that violent and serious crime had increased (hence the media hype), while less serious crime had decreased. For example, theft of property increased 13.2 percent, homicide increased 16.1 percent, and robbery rose 83.3 percent between 1910 and 1923, while minor crimes (which were large in number) such as vagrancy, malicious mischief, and public swearing decreased over 50 percent. [\[47\]](#) Even Franklin had to admit that the increased homicides may have been related to the "illegal traffic."

The number of violations of Prohibition laws and violent crimes against persons and property continued to increase throughout Prohibition. Figure 4 shows an undeniable relationship between Prohibition and an increase in the homicide rate. The homicide rate increased from 6 per 100,000 population in the pre-Prohibition period to nearly 10 per 100,000 in 1933. That rising trend was reversed by the repeal of Prohibition in 1933, and the rate continued to decline throughout the 1930s and early 1940s. [\[48\]](#)

Figure 4 Homicide Rate: 1910-44



Source: U.S. Bureau of the Census, Historical Statistics of the United States, Colonial Times to 1970 (Washington: Government Printing Office, 1975), part 1, p. 414.

(Graph Omitted)

Not only did the number of serious crimes increase, but crime became organized. Criminal groups organize around the steady source of income provided by laws against victimless crimes such as consuming alcohol or drugs, gambling, and prostitution. In the process of providing goods and services, those criminal organizations resort to real crimes in defense of sales territories, brand names, and labor contracts. That is true of extensive crime syndicates (the Mafia) as well as street gangs, a criminal element that first surfaced during Prohibition. [\[49\]](#)

The most telling sign of the relationship between serious crime and Prohibition was the dramatic reversal in the rates for robbery, burglary, murder, and assault when Prohibition was repealed in 1933. That dramatic reversal has Marxist and business-cycle crime theorists puzzled to this day. For example, sociologist John Pandiani noted that "a major wave of crime appears to have begun as early as the mid 1920s [and] increased continually until 1933 . . . when it mysteriously reversed itself."^[50] Theodore Ferdinand also found a "mysterious" decline that began in 1933 and lasted throughout the 1930s.^[51] How could they miss the significance of the fact that the crime rate dropped in 1933?

Prohibition Caused Corruption

It was hoped that Prohibition would eliminate corrupting influences in society; instead, Prohibition itself became a major source of corruption. Everyone from major politicians to the cop on the beat took bribes from bootleggers, moonshiners, crime bosses, and owners of speakeasies. The Bureau of Prohibition was particularly susceptible and had to be reorganized to reduce corruption. According to Assistant Secretary of the Treasury Lincoln C. Andrews, "conspiracies are nation wide in extent, in great numbers, organized, well-financed, and cleverly conducted."^[52] Despite additional resources and reorganization, corruption continued within the bureau. Commissioner of Prohibition Henry Anderson concluded that "the fruitless efforts at enforcement are creating public disregard not only for this law but for all laws. Public corruption through the purchase of official protection for this illegal traffic is widespread and notorious. The courts are cluttered with prohibition cases to an extent which seriously affects the entire administration of justice."^[53]

Prohibition not only created the Bureau of Prohibition, it gave rise to a dramatic increase in the size and power of other government agencies as well. Between 1920 and 1930 employment at the Customs Service increased 45 percent, and the service's annual budget increased 123 percent. Personnel of the Coast Guard increased 188 percent during the 1920s, and its budget increased more than 500 percent between 1915 and 1932. Those increases were primarily due to the Coast Guard's and the Customs Service's role in enforcing Prohibition.^[54]

Conclusion: Lessons for Today

Prohibition, which failed to improve health and virtue in America, can afford some invaluable lessons. First, it can provide some perspective on the current crisis in drug prohibition--a 75-year effort that is increasingly viewed as a failure.

Repeal of Prohibition dramatically reduced crime, including organized crime, and corruption. Jobs were created, and new voluntary efforts, such as Alcoholics Anonymous, which was begun in 1934, succeeded in helping alcoholics. Those lessons can be applied to the current crisis in drug prohibition and the problems of drug abuse. Second, the lessons of Prohibition should be used to curb the urge to prohibit. Neoprohibition of alcohol and prohibition of tobacco would result in more crime, corruption, and dangerous products and increased government control over the average citizen's life. Finally, Prohibition provides a general lesson that society can no more be successfully engineered in the United States than in the Soviet Union.

Prohibition was supposed to be an economic and moral bonanza. Prisons and poorhouses were to be emptied, taxes cut, and social problems eliminated. Productivity was to skyrocket and absenteeism disappear. The economy was to enter a never-ending boom. That utopian outlook was shattered by the stock market crash of 1929. Prohibition did not improve productivity or reduce absenteeism.^[55] In contrast, private regulation of employees' drinking improved productivity, reduced absenteeism, and reduced industrial accidents wherever it was tried before, during, and after Prohibition.^[56]

In summary, Prohibition did not achieve its goals. Instead, it added to the problems it was intended to solve and supplanted other ways of addressing problems. The only beneficiaries of Prohibition were bootleggers, crime bosses, and the forces of big government. Carroll Woody concluded that the "Eighteenth Amendment . . . contributed substantially to the growth of government and of government costs in this period [1915-32]."^[57]

In the aftermath of Prohibition, economist Ludwig von Mises wrote, "Once the principle is admitted that it is the duty of government to protect the individual against his own foolishness, no serious objections can be advanced against further encroachments."^[58] The repeal of all prohibition of voluntary exchange is as important to the restoration of liberty now as its enactment was to the cause of big government in the Progressive Era.

Notes

[1] The "Koop doctrine," for example, calls for a smoke-free America by the year 2000. For a description of the anti-alcohol movement, see Jacob Sullum, "Invasion of the Bottle Snatchers," Reason 21, no. 9 (February 1990): 26-32. For a description of that movement's subversive measures against alcohol, see recent issues of Moderation Reader, which is published by Citizens for Moderation, Seattle, Washington.

The federal bureaucracies charged with reducing access to purportedly harmful substances will resort to almost any means to achieve their goal. One example of their propa-ganda campaign is the recent report on smoking in America, dubbed the "Sullivan Report," that claims that 390,000 deaths per year are caused by smoking. That figure is very misleading. The estimate is based on a faulty sample and methodology; the deaths do not represent "named, individual persons"; and most of those "deaths" are of people over 65 years of age. For a critique of Sullivan's estimate of the number of deaths and the "cost" of smoking, see Richard Ault, "The Economic Costs of Smoking: A Critique of Conventional Wisdom" (Paper presented to the Southern Economic Association, November 1990). It should also be noted that prohibition of tobacco products was attempted at the state level during the 1920s and was a miserable failure. See Mark Thornton, "The War on Tobacco," Free Market, November 1990, pp. 7-8. For further insight into the character of bureaucrats, see the sympathetic interview with Secretary of Health and Human Services Louis Sullivan in the Saturday Evening Post, September 1990.

[2] See Mark Thornton, *The Economics of Prohibition* (Salt Lake City: University of Utah Press, 1991, forthcoming).

[3] Clark Warburton, *The Economic Results of Prohibition* (New York: Columbia University Press, 1932); Irving Fisher, *Prohibition at Its Worst* (New York: Alcohol Information Committee, 1927). For a recent estimate of consumption of alcohol during Prohibition that concurs with earlier estimates, see Jeffrey A. Miron and Jeffrey Zwiebel, "Alcohol Consumption during Prohibition," *American Economic Review: Papers and Proceedings* 81, no. 2 (May 1991): 242-47.

[4] See Mark Thornton, "The Economics of Prohibition" (Ph.D. diss., Auburn University, 1989), pp. 174-80.

[5] Warburton's estimates are the most reliable, although he felt that he might have underestimated the sales of the most potent products--spirits. Warburton, pp. 104-8.

[6] According to Warburton, from 1921 to 1929 the apparent per capita consumption of beer increased 463 percent, that of wine increased 100 percent, and that of spirits increased 520 percent. While per capita beer consumption in 1929 was only one-third the 1909 level, per capita consumption of wine and spirits was above 1909 levels. If that trend had continued, total per capita consumption of alcohol would have surpassed pre-Prohibition levels during the mid-1930s. Warburton, p. 174.

[7] As noted above, Warburton found that production of beer, wine, and spirits rapidly expanded during the 1920s. It should be remembered that illegal sources of alcohol were just organizing in 1920-21 and that large inventories could still be relied on during those early years.

[8] Bureau of Prohibition, *Statistics Concerning Intoxicating Liquors* (Washington: Government Printing Office, December 1930), p. 2.

[9] Richard Cowan, "How the Narcs Created Crack," *National Review*, December 5, 1986, pp. 30-31.

[10] See Mark Thornton, "The Potency of Illegal Drugs," Auburn University working paper, 1986; and Thornton, *The Economics of Prohibition*.

[11] See Thornton, "The Economics of Prohibition," pp. 176-79.

[12] Alcohol produced for industrial, medical, and ceremonial purposes, although illegally consumed, could not be eliminated.

[13] Data from Warburton, pp. 114-15; and Licensed Beverage Industry, Facts about the Licensed Beverage Industry (New York: LBI, 1961), pp. 54-55.

[14] The same effect can be seen at most college football games where alcoholic beverages are prohibited. Football fans are normally beer drinkers. However, they typically become brandy, bourbon, and rum smugglers at football games. It is easier to smuggle any given quantity of alcohol in the form of more potent beverages.

[15] Fisher, p. 91. His support for Prohibition may have blinded him to the importance of the change in relative prices. Certainly others have made a similar mistake, such as Tun Yuan Hu, *The Liquor Tax in the United States: 1791-1947* (New York: Columbia University Graduate School of Business, 1947), p. 54, who found it "difficult to agree with him [Warburton] that prohibition had not curtailed but, on the contrary, increased the consumption of spirits."

[16] Henry Lee, *How Dry We Were* (Englewood Cliffs, N.J.: Prentice-Hall, 1963). Lee refers to 38-proof (100 proof equals 50 percent ethyl alcohol by volume) beer (p. 76), which would have been five times the strength of legal beer, and to 170-proof spirits (p. 202) that were produced on a large scale and had roughly twice the potency of legal spirits.

[17] Fisher, pp. 28-29. Fisher was not describing an unfortunate consequence of Prohibition; he was trying to explain "distortions" in the statistics on arrests for drunkenness. According to Fisher, people were drinking less but getting drunker.

[18] Thomas M. Coffey, *The Long Thirst: Prohibition in America, 1920-1933* (New York: W.W. Norton & Co., 1975), pp. 196- 98.

[19] Quoted in Lawrence W. Reed, "Would Legalization Increase Drug Use?" *Free Market*, February 1990.

[20] Warburton, p. 206.

[21] Clarence Darrow and Victor S. Yarros, *The Prohibition Mania: A Reply to Professor Irving Fisher and Others* (New York: Boni and Liveright, 1927).

[22] Warburton, p. 222.

[23] Physician F. E. Oliver reported in 1872 on several studies that showed that consumption of opiates and other narcotics increased dramatically when the price of alcohol rose or when prohibitions were enforced. The use of narcotics was also common among the membership of total abstinence societies. Wayne H. Morgan, *Yesterday's Addicts: American Society and Drug Abuse, 1865-1920* (Norman: University of Oklahoma Press, 1974), pp. 49-50.

[25] R. Norton, R. Bartz, T. Dwyer, and S. MacMahoney, "Alcohol Consumption and the Risk of Alcohol-Related Cirrhosis in Women," *British Medical Journal* 295 (1987): 80-82.

[25] See, for example, Warburton, p. 73, and Gene Ford, *Drinking and Health* (San Francisco: Wine Appreciation Guild, 1990), p. 79.

[26] Wine Institute, *Wine and Medical Practice*, 10th ed. (San Francisco: Wine Institute, 1979); cited in Ford, p. 79.

[27] *New York Times*, March 26, 1931, p. 1.

[28] The death rate due to alcoholism and cirrhosis began to decrease after 1916, before the wartime restrictions began. The tax rate on a gallon of distilled spirits increased from \$1.10 to \$3.20 in October 1917 and to \$6.40 in February 1919. The War Prohibition Act did not become effective until July 1, 1919. Taking into account massive immigration and the impact of World War I, the alcohol-related death rate may have begun to decline much earlier. It

should also be noted that death due to alcoholism and cirrhosis is thought to be the result of a long, cumulative process; therefore, the decrease in death rates must, in part, be attributed to factors at work before the wartime restrictions on alcohol and Prohibition.

[29] Warburton, p. 90.

[30] *Ibid.*, pp. 78-90.

[31] Darrow and Yarros, p. 40.

[32] Warburton concludes that "there is thus no statistical evidence, at least so far as these death rates are concerned, that prohibition has had a measurable influence upon the general public health, either directly or indirectly through the living standard" (p. 221).

[33] Darrow and Yarros, pp. 139-46.

[34] Hugo Münsterberg, *American Problems from the Point of View of a Psychologist* (1910; Freeport, N.Y.: Books for Libraries Press, 1969); quoted in Darrow and Yarros, pp. 135-36.

[35] Gene Ford, *The Benefits of Moderate Drinking: Alcohol, Health and Society* (San Francisco: Wine Appreciation Guild, 1988), pp. 18-26. It may be more appropriate in some cases to say that the problems are with the consumers rather than with the goods themselves.

[36] *Ibid.*, pp. 27-30.

[37] American Heart Association, "Report of Inter-Society Commission for Heart Disease Resources," 1984; quoted in Ford, pp. 30-31.

[38] Thomas Nixon Carver, *Government Control of the Liquor Business in Great Britain and the United States* (New York: Oxford University Press, 1919), chap. 6.

[39] Quoted in Michael Woodiwiss, *Crimes, Crusades and Corruption: Prohibitions in the United States, 1900-1987* (London: Pinter Publishers, 1988), p. 6.

[40] John A. Krout, *The Origins of Prohibition* (New York: Alfred A. Knopf, 1925), pp. 234-35.

[41] James H. Timberlake, *Prohibition and the Progressive Movement: 1900-1920* (Cambridge, Mass.: Harvard University Press, 1963), p. 60. Timberlake notes that such correlations were a key element in turning social science away from the concept of free will and toward acceptance of environmental determinism.

[42] Charles Hanson Towne, *The Rise and Fall of Prohibition: The Human Side of What the Eighteenth Amendment Has Done to the United States* (New York: Macmillan, 1923), pp. 156-61. The 30 cities examined had a total population of more than 10 million. A closer examination of the cities studied indicates that the greatest increases in crime occurred in those that were previously wet; the only cities to experience a decline in arrests were already dry when Prohibition was enacted.

[43] *Ibid.*, p. 162.

[44] Carroll H. Woody, *The Growth of the Federal Government, 1915-1932* (New York: McGraw-Hill, 1934), p. 95.

[45] *Ibid.*, p. 94.

[46] *Ibid.*, p. 75.

[47] Fisher, pp. 75-80.

[48] Figure 4 is a revised table first suggested by James Ostrowski, "Thinking about Drug Legalization," Cato Institute Policy Analysis no. 121, May 28, 1989.

[49] Thornton, "The Economics of Prohibition," chap. 5.

[50] John A. Pandiani, "The Crime Control Corps: An Invisible New Deal Program," *British Journal of Sociology* 33 (September 1982): 348-58.

[51] Theodore N. Ferdinand, "The Criminal Patterns of Boston since 1849," *American Journal of Sociology* 73 (1967): 84-99.

[52] U.S. Department of the Treasury, *Prohibition Enforcement* (Washington: Government Printing Office, 1927), p. 2.

[53] National Commission on Law Observance and Enforcement, *Enforcement of the Prohibition Laws of the United States* (Washington: Government Printing Office, 1931), p. 90.

[54] *Ibid.*, p. 215. The additional resources greatly expanded the enforcement of Prohibition. The annual number of liquor seizures by Customs doubled between 1927 and 1931.

[55] *Ibid.*; Warburton, pp. 203-06.

[56] Thornton, "The Economics of Prohibition," chap. 1.

[57] *Ibid.*; Woody, p. 104.

[58] Ludwig von Mises, *Human Action*, 3d revised ed. (Chicago: Henry Regnery, 1966), p. 733.