How Big Is The Marijuana Market?

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Put arguments for and against legalization aside for a moment. If people could use marijuana—without fear of legal consequence—just how much would get used? More to the point, how much money is at stake?

A variety of businesses and tax-deprived governments would love to know the answer. Unfortunately, there isn't a simple one. By its taboo nature, marijuana consumption and demand is not well-measured.

Economists, reformists, law enforcement authorities and the pro-marijuana lobby, however, have come up with a variety of estimates. Put them all together and you get a range of $10 billion to over $120 billion a year. Such a wide spread is hardly a solid answer.

But some calculations may be better than others. All estimates begin with some key assumptions on the basic economic theory of supply and demand, thus laying the foundation for the size of the pot market.

**Demand-Based Models: How Much Do People Consume?**

Demand-based models use consumption volumes and price to estimate the size of a total market. Here, the tricky part is coming up with exact figures on how much pot is consumed and how much it costs. Opinions differ.

The US Department of Health & Human Services' Substance Abuse & Mental Health Administration conducts a National Survey on Drug Use and Health. This survey, among others like it, states that roughly 10 percent of the population above the age of 12 has used marijuana in the past year, while 6 percent has used it in any given month. Of all monthly users, 15 percent use marijuana on a daily basis. By comparison, 52 percent of Americans above the age of 12 have had an alcoholic beverage and 28 percent have used tobacco in any given month.

While tobacco use has drifted downward from over 30 percent of the population per month, the marijuana percentages have been roughly consistent for at least the past ten years, according to H&HS data, and have
varied by less than 1 percent over a two-decade period. Alcohol consumption has also been relatively constant, hovering around 51 percent.

On price and volume, various reports and studies conclude a typical marijuana cigarette, or joint, contains between 0.5 - 1.0 grams of the drug. The price of a gram can vary from $5-$20, or even more depending on potency and origin. Among others, “High Times” magazine conducts a monthly survey of its readers to aggregate prices from around the country. See its current survey results here.

Based on this data, most demand-based studies put the market at $10-$40 billion. If a sensitivity analysis is applied to consumption and price variables (that is, testing different combinations of price and use), the market can reach as high as $100 billion (see chart). It all depends on what you believe, given the number of variables involved. Are more consumers smoking more frequently and at higher prices or less frequently at lower prices? The answer is probably somewhere in the middle.

<table>
<thead>
<tr>
<th>Annual U.S. Marijuana Market Size</th>
<th>Sensitivity Analysis: Price and Consumption</th>
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<tbody>
<tr>
<td>8 Billions</td>
<td></td>
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<tr>
<td></td>
<td><strong>Average Price per Joint</strong></td>
</tr>
<tr>
<td>$5</td>
<td>$10</td>
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<tr>
<td>Per Day</td>
<td>$27</td>
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<tr>
<td>Every Other Day</td>
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<td>Every 5 Days</td>
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<td>Every 10 Days</td>
<td>$3</td>
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<td>Per Month</td>
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Assumes 5% of population above age 12 partakes in any given month, and 1 joint contains ~7 grams of marijuana

SOURCE: US DEPT OF HHS, CNBC ANALYSIS APRIL 2010

Proponents of this approach include Harvard economist Jeffrey Miron, perhaps the foremost independent authority on the economics of drug use, and the lobby group National Organization for the Reform of Marijuana Laws, NORML. (See the analysis of NORML’s California branch.) Miron conservatively sizes the market at about $14 billion and in his February 2010 paper on "The Budgetary Implications of Drug Prohibition" states that legalization of marijuana could yield over $20 billion in tax revenues and enforcement cost savings.

Critics of these estimates argue that these surveys, because they are administered by the government, underreport the number of users. The frequency of usage and price estimates vary as well.

**Supply-Side Models: How Much Pot is Farmed?**

The alternative approach is to look at the supply side of the equation. Proponents of this methodology look at seizures by the US Drug Enforcement Administration and US Customs and Border Protection as a measure of how much cannabis is in the system and then extrapolate out based on assumptions for what percent of the market the captured material represents.

Unlike the steady levels of consumption, the levels of supply, seizures and eradications keep growing. According to the DEA’s National Drug Intelligence Center, over 7 million plants were eradicated in 2007, up 120 percent from 2004. The DEA seized 660,969 kg (1.5 million pounds) of marijuana in 2008, up 149 percent from 2005.
In his 2006 study, "Marijuana Production in the United States", Dr. John Gettman, a marijuana reform activist and professor at George Mason University, used data from the DEA and other sources in estimating that the average, annual domestic marijuana crop totaled some 65 million plants at a weight of 22 million pounds (10,000 metric tons). In addition, he calculated that another 50 percent was harvested in neighboring Mexico and Canada.

Based on average yields for these plants of ~7 oz per outdoor plant and ~3.5 oz per indoor plant, assumptions on the total crop size, and using the aforementioned price ranges per ounce or per joint as well as consumption rates, the market value swells to up to $120 billion.

Critics of this approach argue that the DEA numbers are inflated because the federal government has an incentive to demonstrate it is winning the war on drugs. Further, they say, the actual measure of weight is inflated because some of the confiscated material is finished product while a large amount consists of entire plants (not the flowers and leaves typically used) along with the root structure that is weighed down by soil.

Harvard's Miron tells CNBC, "some people have produced estimates of the size of the marijuana market that are literally 20 times my estimates... there are aspects of the methodology that have been used to produce these numbers that are substantially higher than mine that I find problematic. So, I think that the smaller number is much more likely, it could well be that I’m wrong, and that it’s $15-17 billion, but the $200 billion is hard to believe."

Comparisons: Alcohol or Tobacco?

A third way to look at the market is by comparing it to other vices that are already legal.

According to a November 2009 Standard & Poor's industry report, the tobacco and alcohol industries generated $263 billion combined in 2008. Alcohol represented $188 billion of the total, with $99 billion in beer, $61 billion in spirits and $27 billion in wine. Tobacco generated $75 billion, including $71 billion in cigarette sales.

This gut-check approach asks, can marijuana be bigger than cigarettes or beer (if it were legal)?
Another way to think about this is to ask yourself, if a typical smoker consumes 1 pack of cigarettes per day and spends $7-8 per pack, what would a marijuana user need to smoke for the market to be as big? (Not to suggest that drinkers or smokers would necessarily become marijuana users).

According to the HHS data, there are nearly 5 to 1 as many smokers as there are pot users. For the pot market to be as big as tobacco, the average user would need to spend $35-40 per day, or smoke 2-4 joints per day. That number implies that perhaps the marijuana market would need to be smaller.

**Reasonable Range? $35–45 Billion**

If you believe prices are higher and/or users will partake more then assumed in the data then you will likely fall on the right side of the scale. If, however, you believe consumption will remain low and legalization will actually bring prices down, then the marijuana market will be smaller. After looking at all three approaches above, the answer likely falls somewhere in the middle, between $35 and $45 billion.

Tobacco and alcohol sales generate over $17 billion in federal tax revenue. States tax tobacco and alcohol and benefit as well. Given the current economic environment and the deficits states are facing, it is understandable why legalization is a topic of discussion. Assuming comparable taxes to tobacco of 40–50% (excise and sales tax), a $40 billion marijuana market would yield $16–20 billion in taxes.

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