

The Political History of Sugarcane-based Ethanol in Brazil

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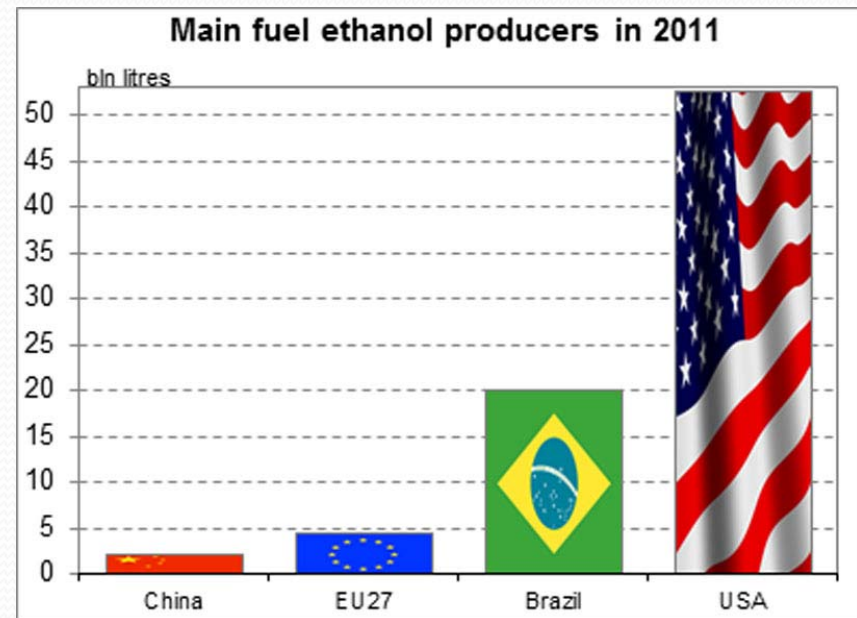


What to Expect

- What is sugar-based ethanol
- Environmental Factors
- What is Pro-Alcool, and what organizations made it possible
- The Evolution of the Ethanol Market
- Conclusion

Efficiency in Sugar-Based Ethanol

- Brazil produces the 2nd most amount of ethanol-based biofuels in the world.
- One Acre of sugar-based ethanol is about equal to two acres of corn-based ethanol.
- Compared to gasoline, ethanol runs at a rate of about 34% less efficiency than pure gasoline.



Source: www.sucden.com/



The Big Picture

- Brazil uses both E25 and E100 (or E95) fuel when filling up at the gas station today.
- E100 is hydrous ethanol, which has about 4-8% of water within. E25 has anhydrous ethanol, which has been dried, has less than 1% of water within.
- From the creation of The Institute of Sugar and Alcohol in 1931 until the early 1970's E5 was about the mix of ethanol in biofuels with little fluctuation in that time frame.
- Goal is to explain how Brazil rose as one of the top ethanol based nations in the world. In terms of ethanol, Brazilian politics will influence ethanol more than the common market would regularly dictate ethanol production.



Environmental Factors

- Ethanol Produces about 34% less carbon dioxide, as well as half the greenhouse gases from converting oil relative to sugar.
- Sugar releases vinasse when being converted.
- Issues with burning fields.
- Landless Peasants Movement.



Origins of Pro-Alcool

- Beginning in 1975, Pro-Alcool was a program designed to fund the conversion of sugar to ethanol for fuel purposes.
- Sugar prices have dropped in the early 1970's that exporting sugar was not worth the price.
- The spike in oil importation prices due to the oil strikes.
- Within adoption period, Brazil was a military government
- Plan was impermanent



Tables Sources

- Barzelay, Michael, The Politicized Market Economy: Alcohol in Brazil's Energy Strategy
- Goldemberg, Jose, 2013, Sugarcane Ethanol: Strategies to a Successful Program in Brazil
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- Santos, Maria Helena de Castro, Alcohol as fuel in Brazil: an alternative energy policy and politics

Opponents to adoption of Pro-Alcool

Organization	Purpose of Organization	Relation to Pro-Alcool
Minister of Mines and Energy	Cabinet member responsible for industry for allocating energy throughout Brazil with the means within the country and importing what was necessary.	Shigeaki Ueki obviously did not want to take money to invest in a rival industry to oil supplies, and industry would find more oil sources in 1975.
The Bank of Brazil	National Bank of Brazil, dealing with international affairs and giving subsidies to organizations within Brazil.	Did not want to provide low interest loans for ethanol distilleries, and used their power to deter subsidies granted by the government.
Minister of Finance	The ministry is responsible for formulating and implementing the country's economic policy.	Felt that program would become inflationary and reduce capital for needed expansion.
Petrobras	An industry in Brazil that deals with energy co-operation among many nations.	Many attempts were made to derail Pro-Alcool, but ended up having to buy a set amount of ethanol each year, forcing their hand on a new industry and taking focus from their monopolized oil industry.

Pro-Alcool Original Supporters and Advocates

Organization	Purpose of Organization	Relation to Pro-Alcool
Ernesto Geisel	President of Brazil from 1974-1979.	With Oil Shock of 1973, wanted to push for alternative option in case oil prices stay at a high level. Also saw that sugar was in high demand and was a primary crop in Brazil.
The Ministry of Industry and Trade (MIC)	Cabinet of Military Government that provided options for Brazil's Industry and Trade with other nations.	Pratini de Moraes proposed incentives for production of alcohol to be consumed as a fuel, taking pressure away from oil and creating new opportunities for the sugar industry.
The Ministry of Planning (SEPLAN)	Goal of SEPLAN was to make four year goals on Brazil's future on Government actions.	Planned that a temporary shift in sugar being used for ethanol would outweigh oil issues at the time, and planned for an impermanent use of ethanol.
The Ministry of Agriculture	The Ministry of Agriculture is responsible for the management of public policies to stimulate agriculture, the promotion of agribusiness and the regulation and standardization of services related to the industry	With the large amounts of sugar at hand, allowed for a new market for agriculture to expand and develop. Allowed for expansion of ethanol industry.
The Institute of Sugar and Alcohol (IAA)	Set prices, regulate, and import/export sugar and alcohol.	With the price drop in sugar in the early 1970's, Pro-Alcool was used as a tool to bail out the sugar industry for the time being, as Brazil had a major sugar amount at the time.
The Aerospace Technical Center (CTA)	Brazil's main producer of vehicular technology and production.	Given funds to make technology for ethanol-based vehicles, leading to production of otto-cycle internally combusted engines, which led to a push for a comprehensive national alcohol policy.
The Central Cooperative of Sugar and Alcohol of the State of Sao Paulo (COPERSUCAR)	The largest sugar and ethanol organization in Brazil, despite only being in Sao Paulo	Highly lobbied for Pro-Alcool, promised to adapt distilleries to produce ethanol. Were grateful for new market within their organization.
The Syndicate of the Alcohol Production Industry of the State of Sao Paulo, Rio de Janeiro and Espirito Santo	Organization that came about to put input on Pro-Alcool.	Pushed for adoption of Pro-Alcool, were excited for new opportunity and did their part to help raise support.
The Cooperative of Sugar and Alcohol Producers of the State of Rio de Janeiro (COPERFLU)	Goal was to better sugar and alcohol situation in the State of Rio de Janeiro	Aligned themselves with the IAA, favoring the installation of distilleries to solely produce alcohol.
Associations representing producers of other regions and the cane suppliers	Random organizations that supported Pro-Alcool.	Pushed for adoption of Pro-Alcool, were excited for new opportunity and did their part to help raise support.

Organizations Associated with Pro-Alcool Production Until Disbandment in 1991

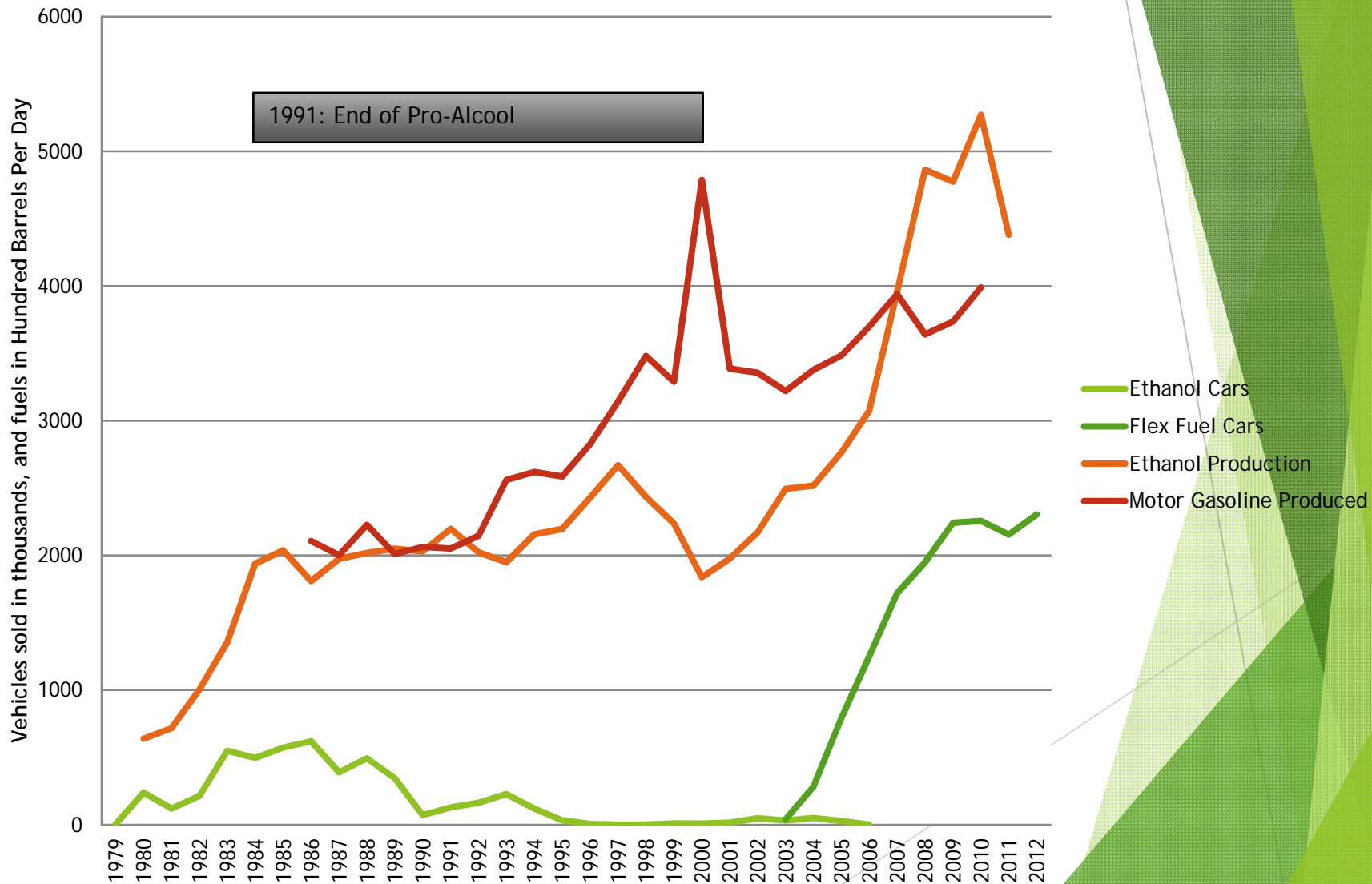
Organization	Purpose of Organization	What they did
National Alcohol Commission (CNAL)	Created Solely to develop and coordinate Pro-Alcool	Helped get Pro-Alcool running with better credit programs and producing a national market, had trouble improving rural income levels. Would be disbanded on February 15 th , 1991.
The National Association of Automobile Manufacturers (ANFAVEA)	An entity that brings together the manufacturers of vehicles and agricultural machinery with industrial and production facilities in Brazil.	Helped push for more ethanol production when program was considered temporary in 1977, since they had the technology for ethanol-fueled vehicles. Would also produce flex-fuel vehicles that would expand ethanol usage.
National Executive Commission (CENAL)	Goal was to oversee ethanol production targets.	Helped pushed for subsidies and encouraged the auto industry to begin manufacturing alcohol vehicles. Would be disbanded on February 15 th , 1991.
CINAL	Inter-ministerial commission that would deal with more in depth issues within Pro-Alcool.	Guaranteed the purchase of ethanol against a certain price and set slightly higher than production cost for prices of ethanol. Continues today to deal with ethanol industry as a whole.
Copersucar Center of Technology (CTC)	Sugarcane Technology Center in Sao Paulo that's goal is to enhance technology of the sugarcane industry	Helped with the production of Ethanol vehicles, also has offered innovation and technology to sugarcane producers and processors in Brazil, helping with overall production of ethanol.
National Petroleum Council (CNP)	Council that handles what documents get implemented throughout Brazil, passes them, and gives own input on fuels within Brazil.	Approved of document sent their way and helped with ideas of implement process. Also responsible for overseeing alcohol prices. Was disbanded on February 15 th , 1991
Investialcool	An "agency for development" of the alcohol sector, used to lobby for alcohol legislation and provide capital for unfunded distilleries.	While accomplishing their purpose, also had a case where president Figueiredo declared that Investialcool could support a new alcohol sector, but not produce themselves, allowing the private sector to control alcohol, much to Petrobras dismay.
National Energy Commission	Goal was to create and develop an integrated energy strategy.	In July 1979, came up with three plans, one for oil importation, one to expand alcohol production, and an emergency plan. Went with alcohol production, pushed for ethanol cars, and teamed up with ANFAVEA to accomplish their goal.
Antonio Delfim Netto	Was head of National Monetary Council, Minister of SEPLAN, had a powerful influence on Government decisions.	Dealt with much of financing Pro-Alcool from 1979-1985 and inflation rates during that time.
Foreign Investors	Countries in Europe and the US who saw hope in Pro-Alcool	Gave one billion dollars to help fund Pro-Alcool, giving a big push for Brazil's economy and helped show they can be trusted as an investment
Interministerial Price Council	Deals with the cost and prices of Government-regulated goods within Brazil.	Helped regulate the price of alcohol to be competitive with the price of gasoline.



Analysis

- Evolution of Ethanol since 1979
 - Key on factors that affect market within this era.
 - Tell whether government affected fluctuation of ethanol or outside forces.
- Figure 1 Sources
 - National Association of Automobile Manufactures (ANFAVEA)
 - U.S. Energy Information Administration

Figure 1: Ethanol and Flex-Fuel Car Sales Relative to Oil and Ethanol Produced in Brazil





Conclusion

- With Pro-Alcool, ethanol sector controlled by Government with influence within outside forces.
- After passing of a mandatory blend of 22% in 1993, with fluctuation of 20-25%, government has not had hand in ethanol market as much as before.
- Revitalization of ethanol can more be credited to flex-fuel car more so than Government, to a degree.

Thank You!

Questions?