Venezuela: A sector driven by conflicts

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Abstract
The history of oil in Venezuela is of long data. Hydrocarbons have been produced in Venezuela since the late nineteenth century. Nevertheless, commercial exploitation began in the early twentieth century. As seen in Figure 1, the history is not one of a country in continuing expansion or continuing production, nor it is a history of discovery, production and declination. Rather is a history of cycles.

**Figure 1. Oil Production**

In this paper I will argue that behind those swings there is an ongoing conflict between the State and the oil producers. This conflict is basically, a distributive conflict for the rents generated by the sector. When the government increased its take, oil firms stopped investing and production collapsed. On the other hand, when the government offered better terms, production expanded.

The reason behind this conflict is not discussed in this paper. Manzano and Monaldi (2008) argues that part of the problem where the tax instrument used. This tax instruments were inadequate to capture the rents coming form the sector and that prompted the government to unilaterally change the tax rules. Nevertheless, in some occasion, it could not be ruled out that some opportunistic expropriation took place. On the other hand, there is the rationality behind these actions. Manzano (2008) argues that in some episodes, the government behavior seemed in line with market fundamentals, while in others not, particularly in recent years.

The paper is organized as follows, the first section presents the context of the Venezuelan economy, where the oil sector operates. In the second section I study in detail the different episodes of the history of oil in Venezuela. In order to do that, I used a
methodology used by Manzano and Winkelried (2008) to identify booms and collapses. The final section present concluding remarks.

1. The context of the Venezuelan oil sector

When analyzing Venezuela’s economic performance it is impossible to not take a look at the oil sector. As shown in Figure 4, even now, the sector represents 80% of exports, thus making it the largest source of foreign currency. It signifies more than 40% of government revenue, and in the past this figure was as high as 70% of those revenues, making it also the biggest contributor to the fiscal sector. Finally, it comprises more than 25% of all economic activity.

Figure 4. Importance of Oil in Venezuela

Source: Author’s calculations based on MEM (various years) and IMF (2004)

Therefore, it is important to understand the performance of the oil sector as related to the performance of the rest of the economy. When commercial exploitation of oil started in the beginning of the twentieth century, Venezuela was one of the poorest countries in the region. As seen in Figure 5, oil seemed to play an important role in making it one of the richest countries in the region during the seventies. Conversely, it seems that oil also played a role in the collapse of the Venezuelan economy, given that oil fiscal revenue started to fall around the same time than the GDP stalled and the GDP per capita fell.

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1. See Rodriguez and Sachs (1999) for a formal modeling of this relationship.
There have been extensive debates about the role natural resources have played in development with different views supporting different policy recommendations. In Manzano (2008) there is a summary of this debate Also, there is a discussion of the vision about the oil sector and its role in the development of Venezuela through the different political periods. It is not the objective of this chapter to test these views to conclude which one is valid. Nevertheless, these facts—the reliance of the Venezuelan economy and government on oil—are presented, because they clearly affect the policy actions regarding the oil sector.

2. The different episodes of the Venezuelan oil history

In order to divide this long chronicle into periods, and also understand these cycles, I apply the methodology developed by Manzano and Winkleried (2008) to identify booms and collapses of natural resource exports in Peru. Manzano and Winkleried did not only identify booms and collapses, they also identify whether each episode was caused by market/external factors or domestic ones. Finally, they also determine when those booms and collapses were mostly driven by price or quantities. Applying that methodology to Venezuela, we find the results presented in Table 1.

From the table we see that until 1965 are 3 booms, 2 of them driven by production increases and the other one not only driven by production but also by prices. We also see

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2 See the appendix for a description of the methodology.
that two of them are mostly due to comparative advantages, while the other one by a favorable market. After that we see a succession of booms and collapses, where booms are mostly price driven while in both collapses quantities play a role.

Table 1. Booms and collapses of oil exports in Venezuela

<table>
<thead>
<tr>
<th></th>
<th>Drivers (1)</th>
<th>Origin (2)</th>
</tr>
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<tbody>
<tr>
<td><strong>BOOMS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1923 - 1931</td>
<td>Q</td>
<td>CA</td>
</tr>
<tr>
<td>1934 - 1936</td>
<td>Q</td>
<td>FM</td>
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<tr>
<td>1945 - 1950</td>
<td>X</td>
<td>CA</td>
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<tr>
<td>1973 - 1976</td>
<td>P</td>
<td>FM</td>
</tr>
<tr>
<td>2005 - 2007</td>
<td>P</td>
<td>FM</td>
</tr>
<tr>
<td><strong>COLLAPSES</strong></td>
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<tr>
<td>1965 - 1971</td>
<td>Q</td>
<td>OC</td>
</tr>
<tr>
<td>1982 - 1988</td>
<td>X</td>
<td>OC</td>
</tr>
</tbody>
</table>

(1) P= Price, Q= Quantity, X= Both
(2) For Booms: CA = Comparative Advantage, FM = Favorable Market.

For Collapses: OC = Own Collapse, MC = Market collapse

Therefore, a first conclusion is that oil production is an important variable since it completely explains 3 out of the 7 episodes described here, and also partially explain other 2. If we look from the production function side and given the nature of oil production, a capital-intensive sector, a first approach is to look at investment in the sector. As shown in Figure 2, production increases are linked to important increases in investment in the oil sector in the immediately preceding years. The only investment spike that was not associated with production increases took place in the early eighties. This is the result of two factors, the first part of the investment spike was to stop the fall in production,3 and later OPEC imposed quotas on member countries. If we look at production capacity, it actually started to increase in 1980, together with investment, as shown by the dashed line in the graph.4

3 In 1975 oil production fell 23%, as later will be documented in detail.
4 This figure is not available at MEM (various years). This information was available at an annual report produced at PDVSA, which no longer is produced. The author thanks former members of the Office of the Chief Economist of PDVSA for make that information available.
As a result, to explain the performance of oil production, investment must be studied. The oil sector has some particular characteristics. As we mentioned, it is extremely capital intensive. Moreover, most of the investment has to be made at the beginning of the project, it is “specific”, and requires a relatively long time to be recovered.\(^5\) Therefore, in addition to the usual determinants of investment (cost of capital, profitability, etc) the sector is sensitive to the institutional rules around it, and in particular to the stability of those institutions. Commonly, the institutional rule that has been used to explain the evolution of the Venezuelan oil sector is the fiscal treatment of the sector. In particular, because of the important “rents” associated with the sector\(^6\), and because, in countries like Venezuela, the government is the owner of the resource and the fiscal system is used to fulfill two tasks: the regular function of collecting fiscal revenues and collection of the rents from the resource.

As shown in Figure 3, this distribution of rents between the government and the producers seems to have played an important role in shaping investment. The Figure shows

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\(^5\) Investment specificity refers to possible alternate use of investments made. For highly specific investments such an alternate use is hardly possible.

\(^6\) The definition of “rents” might be a subject of debate in the literature on oil taxation. In this paper it is seen as the remuneration of the natural resource in a production function where capital, labor and natural resources are the production factors. Alternatively, it could be seen as the producer surplus, given that in Venezuela most of its production is “infra-marginal”, meaning that production costs are below the marginal producer.
that investment spikes are associated with reductions in the government claim on profits. As it will be explained later, the conditions created by the laws passed on 1944, appeared to clear the way for a significant increase in investment in the sector. However, after a democratic government was established in 1958, the government began increasing its claim on profits until the industry was nationalized in 1975. The first impression from the previous graph is that such policy produced a collapse in investment. After the nationalization, the government reduced the fiscal pressure on the sector which allowed the new state enterprise (Petroleos de Venezuela, hereafter referred to as PDVSA) to invest. However when prices collapsed in the eighties it started again to increase its claim on profits and investment fell. Finally, in the nineties, the graph shows an increase in investment with a new reduction in the government claim on profits in the sector. In the next subsections the detail of each episode is described.

Figure 3. Investment and Government Claim on Profits

Source: Author’s calculations based on MEM (various years)

**Discovery and boom (1923-1931 and 1933-1936)**

References about the presence of oil in Venezuela go back all the way to colonial times. In 1539 a barrel of oil is sent to Spain as a request of the king Carlos V, being documented
as the first shipping of oil for export.\footnote{For a detailed description of all the events surrounding oil in Venezuela see Martinez (\cite{Martinez})} However is in the late nineteenth century and early twentieth century, when oil began to being more widely used as a source of energy, that commercial activity around the sector began to pick-up. The first “oil concession” was given in 1865 and first oil company –Petrolia del Tachira- was founded in 1878. Innumerous concessions and licenses were given after that. However it was until 1914 with the discovery of Mene Grande oil field, the first giant field, that Venezuela clearly enters into the commercial era of oil exploitation.

This period was characterized by biggest expansion in oil production in Venezuela, as seen in Figure 6, where it is expressed in logarithms to highlight the proportional increases in oil production. The main reason behind this expansion was, obviously, the presence of important resources and the closeness to the main market for oil, the Unites States. However, it was also important, that between 1908 and 1935 Venezuela was ruled by Juan Vicente Gomez. The Venezuelan nineteenth century was characterized by a long civil war, a sequence of governments that often were not able to finish their periods, because of rebellions and in general of political unrest. Gomez, though a fierce dictator, managed to pacify and stabilize the country. That gave foreign investors relatively stable rules of the game.\footnote{Moreover, Gomez quickly realized the importance of oil fiscal revenue to consolidate power.}

\begin{figure}
\begin{center}
\includegraphics[width=\textwidth]{figure6}
\end{center}
\caption{Oil Production}
\end{figure}

\begin{flushright}
Source: MEM (various years)
\end{flushright}
In the figure, it is shown that between 1929 and 1943, oil production seems to have stalled. Two factors were behind this, the most important was the Great Depression that clearly affected negatively the demand. The other was the already increasing pressure from the government to have higher fiscal shares. As see in Table 1, there is a small boom between 1934 and 1936, but mostly driven by external factors, since Venezuela actually lost market share.

In Manzano and Monaldi (2008) there is a discussion of this period. Concessions were given in favorable terms for operators -especially at the beginning. All concessions were characterized by: long contract periods; the impossibility of changing, adding or renegotiating taxes; and a fiscal structure that was highly regressive to profits. Moreover, the concessions approved before 1915 had to pay royalties of just 1% to 3%. Nevertheless, after 1914-1917, when some big oil discoveries in the Lake of Maracaibo were made, fiscal conditions were significantly tightened. As the government became aware of the potential profits to be made in oil extraction, it offered concessions with higher taxes, as can be seen in Figure 7.

**Figure 7. Marginal Tax Rate**

![Marginal Tax Rate on New Concessions](image_url)

Source: Manzano and Monaldi (2008)
The Marginal tax rate (to an additional dollar in the price of oil) for concessions approved in 1909-1936 was quite low, especially for the initial years. If an operator was lucky enough to have concessions that were approved in 1909, he had to pay only 1% of the revenues arising from an increase in the price of oil. Of course he also typically made a riskier investment with less geological information. In contrast, the operator of a concession approved in the 1930s had to pay 15% on a dollar, when the oil price increased.

In this context new producers began to appear. Clearly, Venezuela was still the principal destination of oil investment outside the United States. Nevertheless, it was apparent that the tension between producers and the State was beginning to build.

**The second expansion: The law of 1943 (1945-1950)**

Before analyzing this period, it is important to understand the context. After Gomez died in 1935, the pressure for change to a democratic regime gained strength, and with that, the demands for a “better deal for the country in oil exploitation”. This implied increasing unrest in the population, including a strike of oil workers in 1936. Even though, in theory, there was an hydrocarbon legislation prior to 1943, as we saw, it was constantly changed and basically the fiscal rules for oil exploitation were set on a contract-by-contract basis. Therefore, there was a perception of an uncertain political landscape with not clear rules for the oil sector.

As argued before, this changed with the passing of the Hydrocarbons Law and the Income Tax Code in 1943 and 1942, respectively. The 1943 Law unified under a common legal framework all the particular contractual concession-deals that had been made in the past. It established -for the first time- the requirement that oil companies would be subject to the Corporate Income Tax on top of any oil-specific taxes. The law creating the Income set the rate at 12%. In addition, the Hydrocarbons Law established a 16.66% royalty tax over gross revenue (similar to the highest landlord royalty in Texas). The total government-take on profits was in line to the one paid by companies in the U.S. (Manzano and Monaldi, 2008).

By recognizing the validity of this law, the oil companies were accepting the sovereign right of the Venezuelan state to charge taxes over the companies’ profits and to change the income tax rate in the future. The oil companies realized that this would be a powerful instrument for future expropriation, so they opposed it fiercely. They insisted that their fiscal obligations should be contractually fixed.
In exchange for the full application of this tax increase, the 1943 Law gave the companies a long-term planning horizon and a transparent tax regime. It renovated all concessions for forty years, increasing the life of many concessions that were going to lapse soon, and provided for the renovation of concessions after twenty years (in 1963). It also gave the companies sounder legal rights over their concessions. This was an important compromise in favor of the companies since one of the objectives of politicians, in the government and the opposition, had been to act retroactively against the companies whose concessions were claimed to be legally tainted. The state also agreed to forgo indemnification from previous tax evasion. Moreover, in 1944 and 1945 the government of Medina approved substantial additional forty-year concessions (that covered more land than all the concessions given before). The fact that new concessions, under these new terms, were signed in the forties and fifties with significant success, including important signing bonuses, seems to show that the 1943 law provided enough incentives for new investments.

This helped to increase production further in this period, as shown in Figure 6. As seen in Table 1, this boom implied that Venezuela gained market share. However, this boom was fueled by both, prices and quantities and ended in 1951, when a decline in prices that started in 1948, could not be compensated with higher production. Production continued increasing. Nevertheless, as it will be discussed later, this increase was at a lower rate.

**The first collapse (1965-1971)**

As in the previous periods, I start describing the context. The previous boom ended in 1951 with the decline in prices that started in 1948. After that, exports resume growing. Nevertheless it was at a much lower rate. Furthermore, after 1950, Venezuela started loosing market share. In 1944, the Venezuelan market share of world oil production was 9.91%. After the last boom ended in 1951, it was 14.52%. In 1965, when the first collapse happened the share fell to 11.51%.

With the beginning of the democratic era, important changes were happening in the oil markets. As shown in next table, other future producers of what would become the

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9 After Gómez death the government initiated some legal actions against some companies asking for damage compensation for the illegal advantages they had obtained in their concession contracts. Some were settled out of court, but sometimes the Supreme Court of Venezuela ordered the companies to pay. For example in 1938 Mene Grande (Gulf) paid $10 million (Tugwell, 1975).

10 Between 1945 and 1950 exports grew at more than 20% annually. Between 1952 and 1958 the grew less that 5% annually.
Organization of Petroleum Exporter Countries (OPEC) were asserting themselves as big players in the market.\textsuperscript{11} Moreover, as seen from the table, Venezuela was in relatively disadvantage to those countries. First, costs were higher.\textsuperscript{12} Secondly, reserves were lower (given the high extraction rate). On this context, the new democratic regime pushed for an important principle that guided oil policy: “preservation”.

\begin{table}[h]
\centering
\caption{State of the oil market in 1961}
\begin{tabu}{lcc}
\hline
& 1961 & \\
& Extraction Rate & Development +Extraction Costs & \\
Algeria & 2.6\% & 0.695 & \\
Indonesia & 1.9\% & 1.002 & \\
Iran & 1.7\% & 0.279 & \\
Iraq & 1.5\% & 0.194 & \\
Kuwait & 1.0\% & 0.201 & \\
Libya & 0.2\% & 1.339 & \\
Nigeria & 3.0\% & 2.685 & \\
Qatar & 2.8\% & 0.195 & \\
Saudi Arabia & 1.0\% & 0.191 & \\
United Arab Emirates & 0.0\% & 0.561 & \\
\textbf{Venezuela} & \textbf{6.3\%} & \textbf{2.272} & \\
Total OPEC & 1.7\% & & \\
Non OPEC & 5.6\% & & \\
Mexico & 4.3\% & 6.984 & \\
US & 8.3\% & 2.163 & \\
\hline
\end{tabu}
\begin{flushright}
Source: Author’s calculations based on EIA (2004) and Adelman (1993)
\end{flushright}
\end{table}

The preservation principle was based on the notion that oil is a scarce resource of great value and therefore Venezuela has to minimize its extraction in order to save it for the future.\textsuperscript{13} Even before they assumed government, pro-democratic forces accused authoritarian governments, from the first half of the twentieth century, of “giving away” Venezuelan oil, and it became a relatively successful political platform. Once democracy

\textsuperscript{11} In this paper, we define as OPEC producers, those who are actually OPEC members. Ecuador and Gabon who joined the organization for a period of time, are not considered OPEC members.

\textsuperscript{12} Costs in Nigeria seemed larger than in Venezuela. For the period, they more or less were around the same value than the Venezuelan costs. Nevertheless, the Nigerian Ebony Light reference crude was of higher quality than the Venezuelan Tia Juana Light reference. Therefore, its price was around 50 cents higher.

\textsuperscript{13} Juan Pablo Perez Alfonzo is recognized as the main ideologist behind it. See for example Perez Alfonzo (1962). Perez Alfonzo was one of the founders of OPEC and energy minister of the first administration of the democratic era.
was instituted, it became a main guideline for the different administrations, and gave way to the “no-more-concessions” policy.

This principle of preservation resulted two type of policies. First there was an increase in the government claim on profits from the sector. As seen in Figure 3, once the democratic era started, the government’s claim in oil profits increased substantially. The argument was that since oil is such a valuable commodity of limited availability, the government, as the owner of the resource should maximize its share of the rents generated by the sector. The instrument used to achieve this goal was the tax system through two different options: the income tax and the royalties.

The second policy was the “no more concessions” policy. The concessions given after the law of 1944 were set to expire in 1983. The government announced that there were not going to be more concessions and those set to expire in 1983 were not going to be renewed.

Traditionally, these policies are credited for displacement investment and the culprit for the collapse in production after 1970. However, in Manzano (2008), two important points are made. First, investment was taking place between 1958 and 1970, and as shown in Figure 6, production continued to increase.

![Figure 6](image)

**Figure 6**

**Oil Production**

Source: MEM (various years)

Secondly, it has been already mentioned that Venezuela had higher costs - which suggest the lost of the competitive edge of the Venezuelan oil sector and as shown in the appendix, there were other measures that also suggest this. Therefore, the counterfactual argument, on what would have happen if that fiscal pressure on the sector were kept constant on
increased moderately, it is not clear cut. The fact that the change in net asset of oil firms in Venezuela was negative might suggest that even though oil firms were investing in the country, they were also undergoing a process of assets relocation in their world portfolio. The market share lost by Venezuela was mostly due to the increase of other OPEC members’ share. Consequently, it is relatively hard to argue that Venezuela could have kept the market share it had in 1960.

In this context, Venezuela established, with its main competitors, OPEC and to coordinate with them their tax policy. Manzano (2008) argues, that it is difficult to appraise this policy, including the information available for the policy makers at the time as an element for the analysis. On one hand, it seemed that the increase in the government take by itself, and even maybe the policy of “no more concessions” were not necessarily the trigger that deterred investment. On the other, judging by its intended result, it was successful. Even though oil exports per capita were falling, oil fiscal revenue per capita kept constant.

The author does not deny the role played by the progressive squeeze of profits from the oil firms and the collapse in oil production that later took place. However, most probably Venezuela would have lost market share anyway and the pieces of information available for policy makers by the time were not the same as today. Nevertheless, it is clear that the policy followed did not contribute to place the country in the position to take advantage for the possible period of higher prices.

In any case, exports collapsed between 1965 and 1971. Oil production actually peaked in 1970. However, since 1965 growth rates were around 1%, prices were stable. As a consequence, exports per-capita fell. This is corroborated in table 1, the collapsed was due to internal factors and driven by quantities. However, the facts that are described in the next section allowed policy makers to ignore these consequences.

The first price boom (1973-1976) and the second collapse (1983-2986)

The previous section already described the conflict, between oil firms and oil abundant countries, which was taking place in the sixties. As argued in Manzano (2008), in this

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14 Previous to the OPEC foundation, in 1959 in the first Arab Petroleum Congress, oil producers – including Venezuela- reach an informal agreement that eventually lead to the creation of OPEC. This was known as the Cario Agreement. Among different issues, countries agreed that the share of revenue form the oil sector to the governments should improve to around 60% of the income.
situation, investment was driven away from the oil sector, and therefore little effort was made in exploring additional oil reserves and the market tightened. Additionally, it was not only that oil seemed to become more scarce, but also that the world was relaying more on it to produce goods, since energy use per unit of GDP kept growing.

In this context, two successive crisis in the Middle East (the Yom Kippur war and the Iran-Iraq war) created disruptions in oil supply and prices reached a historical high. This led to the first price boom in Venezuela. This actually happened in a context of falling production. Nevertheless, the increase in price more than compensated that fall in production.

Given these circumstances, oil-importing countries took important measures to increase energy efficiency in order to reduce their dependence on oil. The barrels needed to produce a 1000 US$ of GDP have fallen 30% from that year up to today. Most remarkably, half of that decline happened between 1980 and 1986 (Manzano, 2008). Additionally, oil companies started to increase their search for oil outside of OPEC., Drilling activity reached the highest levels of the last 30 years. As a result, by 1986 reserves were 27% higher than in 1980. Of those new additions, 55% were outside OPEC, mostly in the North Sea. According to Cuddington and Moss (2001) during the seventies and eighties, important advance of technology aimed at off-shore exploration, drilling and production took place. This made possible the development of the North Sea. Therefore, this period showed that given the right prices, technology will make previously unreachable or previously non-economic viable reserves, available. A similar case could be done for the demand. High prices will encourage a more efficient use of energy as input and find alternatives to oil.

As a consequence, the increase in oil efficiency helped curb oil demand, while the increased effort in exploration led to increase in oil supply. These two facts were the main causes of that pushed prices down. By 1985, the price of oil was 20% lower that in 1981. In this context, what was the policy followed?

This is actually the period that saw the fall in production. This fall was due to two factors. First, the policy of the previous period, in particular the actions taken at the end of that period –nationalization of the gas industry, a law preventing oil companies to take their assets out of the country- clearly induced a collapse of investment. These actions were carried further up to the point of the full nationalization of the industry in 1975. As argued in Manzano (2008), the transition towards a NOC had an impact on the productive capacity of the sector.
However, there were also policy decisions taken at the OPEC level to cut production. As a consequence, production also fell because of that. Behind these decisions was the perception of the nature of the phenomena taking place in the oil market. It was evident after 1981 that the prices were declining. In 1982, oil fiscal revenue per capita fell un 25% due the similar decline in prices. The response from OPEC was to assume that these circumstances were temporary and it decided to established quotas and reduce production in order to keep prices higher.

Therefore, this second collapse differs from the collapse of 1965-1971 in two ways. One is that prices contributed to this collapse. Secondly, this was no longer primarily due to the conflict between the producer and the State.

**After 1986, only the current price boom?**

Looking at Table 1, the only other episode seems to be a price boom that is currently taking place. Looking at the methodology of Manzano and Winkelried (2008), one of the conditions to identify a boom is that the share of oil exports increase in total exports during the boom increase at least in 2%. This condition might not need to apply to this paper. Manzano and Winkelried (2008) were studying different commodities in Peru that had overlapping booms and collapses. The condition of at least 2% increase in the share was to consider only products that become important in the Peru export basket. Oil is already the major export in Venezuela.

If that condition is relaxed, two new booms appear. One between 1995 and 1997 and other between 2000 and 2002. The first one is driven by comparative advantages and is due to quantities. The second one is market drive and s a mix of price and quantities. What can explain these “soft booms”?

In 1986, Venezuela was facing falling oil revenues and, as explained before, it was that it was due to the fall in oil production. As seen in Figure 12, oil production started increasing since then. Nevertheless, as seen in Figure 7 the first increase was partly thanks to the effort made earlier that halted the decline in production capacity in 1980. The administration in place between 1984 and 1988, took advantage of it, but not much investment was made, most of the investment was done in the nineties.

**Figure 12: Oil Production**
Given the short span and the nature of the second boom, it seems that the expansion in production was not necessarily bigger compared to the expansion done in other oil producing countries and that this is due to the institutional setting. In the Manzano (2007) there is an statistical analysis of the elements that will be discussed here.

After 1986 an effort was made to increase oil production. However, fiscal income was declining and the oil industry was state-owned. This led to an on-going conflict between the goal of increased production and fiscal needs. A first approach was to let PDVSA issue debt to finance its production plans. However, this debt was considered public debt, generating some competition between the government and PDVSA in the financial markets. Moreover, interest payments and amortizations started reducing PDVSA funds available for the government and the tensions returned.\textsuperscript{15} Therefore, there were limited debt issues by PDVSA.

A clear second option would have been to let private companies back in the country to develop the sector. In 1991, Operating Service Agreements (OSA) –“convenios operativos”- were introduced, and marginal fields that, under normal circumstances, were not going to be exploited by PDVSA, were instead given to private companies - companies that in theory would produce the oil for a certain fee per barrel. There were three rounds of actions for this type of operations. Nevertheless, the III round auction was clearly different from the first two, and the contracts resembled more a risk service contract. The original

\textsuperscript{15} The government even has to eliminate the “fiscal value of exports”. As explained before, this was an instrument introduced in the sixties, where the value of oil exports were increased by a 20% for income tax purposes.
expectation was that oil fields that were producing a mere 70 thousand BD in 1991 wound up producing more than 500 thousand BD by 2004. These expectations were more than fulfilled; in fact at its peak in 2005 the total production in OSA fields’ reached 600 thousand BD. Sine in theory these firms were not selling oil, they qualified for the regular corporate tax rate and PDVSA would pay the full tax rate.

Next, in 1993, associations for heavy and extra-heavy oil production in the Orinoco Belt were introduced –“asociaciones estratégicas” (Orinoco AA). One could describe these crudes in two ways: either as low-commercial-value crudes; or as those requiring a special "pre-refining" that would make them suitable for any refinery and, consequently, characterize them as high-production-cost crudes. The mechanism used was the creation of joint-ventures between PDVSA and IOCs. Four Association Agreements were approved in extra-heavy oil upgrading. The projects added up to a total investment of some US$15 billion in ten years, with a production of 650 thousand BD by the year 2006. Given the lower profitability of extra-heavy crude oil extraction and upgrading (relative to rest of the oil sector), Congress approved an exception to the Income Tax Law to make these projects lucrative.

Finally, in 1996, new areas were given over to private investors for exploration and exploitation (RE contracts). This was termed the “opening-up” –“apertura”. The fiscal structure was based on a royalty of 1% to 16.67% depending on the IRR of the project, a bidding contractual government-share of up to 50% of profits (PEG), and an income tax of 67% (the royalty and the PEG are subtracted from the profit). The marginal government take was set at 67% initially and increased to 86% after the IRR threshold. Of these contracts, only three resulted in a commercial discovery of hydrocarbons. The government did not create the joint-ventures prescribed in the

Nevertheless, these fiscal agreements were not necessarily the most competitive. Manzano (2007) construct an index of fiscal regimes in the oil sector for a sample of 38 countries based on Van Meurs (2004). In this index Venezuela ranks 32 and is 1.08 standard deviations below the mean. To compare again with Argentina, this country ranks 18th. Consequently, the state-owned oil firm was conducting modest effort to increase production and, though the private sector was asked to invest in the country, the conditions given where not necessarily competitive, given the productivity of the oil sector.

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16 This index is based on Van Meurs (1997) and it reflects the attractiveness of fiscal institutions for investors in the oil sector. See the appendix for the details.
Furthermore, the description above seems to suggest that the areas given to the private sector were not the most productive ones. Manzano (2000) evaluated these reforms from the efficiency point of view. The work concludes that although efficiency gains were obtained from the reform, the areas selected for the reform were not the most negatively affected by the tax code. The areas where the most gains could be obtained were those that remained under PDVSA control. Moreover in these areas a reduction in tax rates would have increased tax collection, implying that they were overtaxed.

In summary, after 1996 there is a return to the expansion in oil production that generate two “minor booms”. Nevertheless, it seems that the increase in oil production was small in terms of other oil producing countries it, given that the.in the second boom Venezuela did nto get market share.

After that episode, there is the price boom that we are currently experiencing. Nevertheless, behind that price boom, seems to be happening a situation similar to the price boom of the seventies. Even by official figures, production has been declining. Consequently, a possible collapse could be brewing.

Behind of the collapse is a new conflict between the government and the oil firms. In 2001, the president used his special legislative authority to sign a new Hydrocarbons Law, changing the fiscal conditions by increasing the royalty to 30% (from 16.67%), setting the oil income tax rate at 50%, and establishing that the only form of private participation in oil production was as minority shareholders in joint-ventures controlled by PDVSA; the government announced that these changes did not apply to the existing contracts of the oil reopening.

However, late in 2004 the first forced renegotiation decision was made. The Orinoco Belt Extra-Heavy Oil projects (AA) royalty was increased from 1% to 16.67%. This was still not a major contractual change in three of the four projects, in the sense that the contracts anticipated the royalty increase to happen either after ten years had elapsed or an IRR threshold had been reached, and the threshold was close to being reached in the three projects that had started earlier.

In 2005 tax authority SENIAT imposed the OSA companies with tax reparations for the previous three years totaling $400 million. Then, the government announced that the OSA projects should have paid the income tax rate of 50%, set in 2001 (instead of 34%), and that starting in 2005 they would have to pay this higher rate. The Ministry of Petroleum announced that the Orinoco AA had been producing oil above the levels authorized by Congress when the contracts were approved, and that as a result the companies would have
to pay the 30% royalty (instead of 16.67%) on the excess production. The Ministry also announced that the fees paid by PDVSA to OSAs would be paid in bolivars, instead of dollars as established in the contracts.

Later in 2006, the Ministry of Petroleum announced that the OSA contracts were illegal under the legal framework that prevailed when they were approved and that they had not been approved by Congress as they should have been. The Ministry also argued that under the contracts the oil was too costly for PDVSA and that they were paying lower taxes than they should, using a variety of accounting tricks. As a result the government announced that by 2006 the OSA contracts had to “migrate” into new contracts as joint ventures with a 60% majority for PDVSA, as prescribed by the 2001 Hydrocarbons Law.

The forced renegotiation of the OSA contracts was implemented during 2006. Most companies, stayed as minority shareholders of the new “mixed-enterprises.” However, some decided to go to international arbitration with different results. The fiscal rules for these new mixed enterprises were set as, a 33.33% royalty (contractually established) and a 50% income tax rate. PDVSA has between 60% and 80% of the shares in these new companies. Also in 2006 the government approved (Decree 1510) an exploitation tax (a royalty) of 33.33% applicable to all oil projects. This tax applies subtracting any other royalty paid by the project, so in practice all oil projects pay now a 33.33% royalty.

Finally, in late 2006 the government announced the forced migration of the Orinoco AA projects and the Revenue-Sharing Exploration projects (RE) to the mixed enterprise format. In 2007 the government took control over all these projects (“nationalization” was the term used). Again, some of the firms decided to stay and others decided to leave and request international arbitration to set the compensation PDVSA, which previously owned and average of 40% of the capital and did not operate the projects, now has an average participation of 78.3% and operates all the projects. The former AA projects, now mixed enterprises, also pay a royalty of 33.3% and an income tax of 50%, for a marginal take of 67%.

In addition to these developments, in December 2002, Venezuelan oil workers when on a two moths long strike. The government reacted firing around 18,000 workers. There is an ongoing debate whether PDVSA regained its full operational capacity after these events. In any case, even by official figures the production of PDVSA has been declining. Because of that, the new production that came from all the different projects with private participation did not translate directly into total production increases.
Summarizing, a period that originally seemed to contain only a price boom, witnessed another round of conflict between the state and the producers. There were to “minor” production booms driven by a new opening up of the sector to bring investment. Nevertheless, the government changed again the taxation and property rules and the current price boom could well be followed by a collapse driven by quantities.

3. Concluding remarks

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Appendix I: Oil related statistics 1960-1973